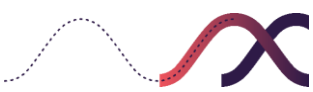
Sanderson Group Limited and Kotare Properties Limited

Growth Cell T2 Rezoning

Request for Plan Change 12

October 2020

BLOXAM BURNETT & OLLIVER



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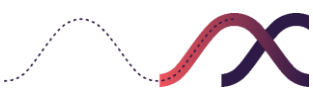


Table of contents

1. Introduction 1
1.1 Background 1
1.2 Description of the Proposal and Purpose of Plan Change 12 4
1.2.1 Te Awamutu Country Club Retirement Village 5
1.2.2 Residential Subdivision 6
1.3 Description of the Site and Locality 6
1.3.1 Site 6
1.3.2 Locality 10
2. Section 32 Evaluation 11
2.1 Issues with current situation 11
2.2 Alternatives Considered 12
2.3 Evaluation of Benefits and Costs 12
2.4 Reasons for Option Chosen 18
3. Proposed Amendments to the Operative Waipa District Plan 19
3.1 Proposed Amendments 19
3.2 Planning maps 19
3.3 Structure Plan 19
3.4 Additional Rules 19
3.5 Other Consents and Authorisations Required 20
4. Statutory Framework 21
4.1 Legal Framework for Plan Change Request 21
4.1.1 Part 2 21
4.1.2 Section 31 23
4.1.3 Section 32 23
4.1.4 Sections 74 and 75 24
5. Assessment of Environmental Effects 25
5.1 Existing Environment and Permitted Baseline 25
5.2 Landscape and Visual Effects 25
5.3 Infrastructure Effects 27
5.3.1 Wastewater 27
5.3.2 Water Supply 28
5.3.3 Stormwater 28
5.3.4 Roading 28
5.3.5 Utilities 29
5.3.6 Conclusion on Infrastructure Effects 29
5.4 Transportation Effects 30
5.5 Ecological Effects 31
5.6 Archaeological Effects 32
5.7 Geotechnical Effects 34
5.8 Contamination Effects 34

5.9 Positive Effects 35
5.10 Cultural Effects 35
5.11 Historic Heritage Effects 36
5.12 Conclusion on Environmental Effects 38
6. Consultation 39
6.1 Waipa District Council 39
6.2 Waikato Regional Council 39
6.3 Tangata Whenua 39
6.4 Nearby Landowners and Residents 39
7. Planning Assessment 41
7.1 Vision and Strategy for the Waikato River 41
7.2 District Plan and Waipa 2050 42
7.3 National Policy Statements 46
7.4 Regional Policy Statement 48
7.5 Waikato Tainui Environmental Management Plan – Tai Tumu Tai Pari Tai Ao 49
8. Notification 51
9. Conclusion 52
Appendix A – Proposed District Plan Amendments
Appendix B – Record of Titles
Appendix C – Landscape and Visual Assessment prepared by Boffa Miskell
Appendix D – Infrastructure Report prepared by Nicklin CE
Appendix E – Stormwater Management Plan prepared by Wainui Environmental
Appendix F – Integrated Transportation Assessment prepared by Stantec
Appendix G – Ecological Impact Assessment prepared by Ecology New Zealand
Appendix H – Archaeological Assessment prepared by Warren Gumbley Archaeologists
Appendix I – Geotechnical Desktop Report prepared by CMW Geosciences
Appendix J – Preliminary Site Investigation and Detailed Site Investigation prepared by HAIL Environmental
Appendix K – Written Approvals
Appendix L – Cultural Impact Statement
Appendix M – Copy of Regional Council Resource Consent

1. Introduction

This report supports an application to the Waipa District Council (WDC) for a Plan Change to the Operative Waipa District Plan (WDP) pursuant to Schedule 1 of the Resource Management Act 1991 (RMA).

The application is being made on behalf of Sanderson Group Limited (Sanderson Group) and Kotare Properties Limited (Kotare). This plan change will be Plan Change 12 (PC12) to the WDP, and is a private plan change to request the rezoning of an area of land located at the western extent of Te Awamutu. The area of land is identified as Growth Cell T2 in the WDP.

Growth Cell T2 contains approximately 38ha of land, all of which is currently zoned Deferred Residential in the District Plan, meaning residential development is appropriate in this location, however not in the immediate future. Specifically, this growth cell has been identified in the WDP for future residential development after 2035.

Sanderson Group has identified a portion of land within Growth Cell T2 as being a prime location to establish a retirement village and wish to commence construction as soon as possible. In coordination with the retirement village, Sanderson Group have also entered into an agreement to sell part of the land to local developers, Kotare Properties, to undertake an approximately 105 lot residential subdivision. The WDP provides an opportunity to open up identified growth cells for development earlier than originally anticipated, and this is required to be undertaken via a plan change to the WDP. As such, Sanderson Group, in conjunction with Kotare, are seeking to rezone the growth cell to allow for residential development of approximately half of the Growth Cell to occur now.

This report sets out the proposal in detail and undertakes the relevant assessment for the proposed rezoning. The remaining parts of Section 1 below set out the background, a description of the proposal, the purpose of the plan change and a description of the site and locality, to provide context to the assessment contained in the remaining sections of this report.

1.1 Background

Sanderson Group are a family orientated, leading provider of high quality retirement villages in New Zealand. Established in 1987, Sanderson have been involved in a number of retirement village developments in Tauranga, Queenstown, Hamilton and Tamahere.

They currently operate the Omokoroa Country Estate in Tauranga, and the Tamahere Country Club is currently under construction with retirees moving into the homes progressively, as buildings are completed. The Tamahere Country Club is on a site adjoining Tamahere Drive in the Waikato District and is very similar in size and style to the proposed Te Awamutu Country Club. Sanderson Group also led the construction and early operation phases of the Queenstown Country Club located in Queenstown, Cascades Retirement Village located in Hamilton, and Bayswater, The Avenues, Bethlehem Country Club, Bethlehem Shores and Bethlehem Views in Tauranga.

As would be expected with New Zealand's aging population the concept of retirement villages is evolving rapidly alongside changing concepts of retirement. Key changes are;

- The increasingly active lifestyles of older people meaning they value proximity to recreational and cultural activities;
- The role of older people as part of supporting the extended family means proximity to schools and preschools is valued;
- Their propensity to travel widely, meaning that a 'lock it and leave it' facility is required;

- Strong demand to stay in the locality where they have lived and where they have social connections, thereby meaning demand is spread across cities, townships and rural areas, rather than just assuming that rural people will have to move into the city;
- A desire for continuum of care from independent units through to full hospital care on a single site so residents do not have to move as their independence and self-sufficiency reduces;
- A desire for sufficient space for the extended family or friends to come and stay;
- A desire to maintain a high level of amenity and quality in their living environment, similar to the family homes they have left.

Sanderson Group is at the forefront of these changes and is adapting and innovating to meet them. Te Awamutu Country Club will be a village that offers a continuum of care ranging from independent living through to aged care services.

They have identified a demand for the type and quality of age care facilities offered by them in the Waikato. Following commencement of the Tamahere Country Club, the Waikato population has shown a strong interest for a Sanderson Group retirement village to be established in Te Awamutu, with inquiries seeking a Te Awamutu location.

This is not surprising given the aging population of the Waipa District. In 2006 14% (5950 people) of Waipa's population was over 65. By 2031 27% (16,582 people) will be over 65, leading to increasing demand for a range of retirement living options.

Therefore, Sanderson Group have been searching for an appropriate site for approximately 3 years. They have been unable to find a suitable site in the already-zoned area of Te Awamutu or in any of the open growth cells as they require a large area of land and a suitable shape for an efficient development. The site located at 10 Frontier Road and 52 Frontier Road, at the western extent of Te Awamutu (within Growth Cell T2) has been identified as an ideal location for the village. When Sanderson Group acquired the site in early 2020 their plans were for a larger Country Club of some 200 villas on about 20ha. However, the onset of the Covid-19 pandemic in March led to Sanderson Group reassessing the risk of a development of that scale in an uncertain economic environment. As a result, reluctant to put the whole development on hold, they decided to scale back the retirement village and bring on Kotare as a residential developer. This allowed for Sanderson and Kotare to share the cost of land, planning and infrastructure. The northern half of these properties will be allocated to the proposed retirement village and the southern half for a residential subdivision led by Kotare Properties.

Kotare Properties are a Waikato-based residential subdivision land developer. They have a well-established track record of producing high quality residential living environments. Their most recent development is in Cambridge, namely the Kotare Downs development located on Swayne Road. Kotare was selected by Sanderson group due to the quality of their developments and Sanderson had a strong preference to ensure they retained a high quality of the development leading into the retirement village. Sanderson Group and Kotare are working together to design and develop their respective land areas in an integrated way so that high quality outcomes are achieved in terms of servicing, open space, access and connectivity. Together they will be responsible for development of approximately half of Growth Cell T2.

Growth Cell T2 is one of several identified growth cells in the Waipa District. Appendix S1 of the Waipa District Plan contains information about all growth cells in the District. These are split between two groups; growth cells which are intended to be opened and developed from now to 2035 and growth cells which are intended to be opened and developed after 2035.

The growth cells identified in Appendix S1 derive primarily from the Waipa 2050 District Growth Strategy, a long term, integrated approach to managing growth in the District, based on the population projection that Waipa will have an additional 25,000 people in the District by 2050. Most of the Growth Cells have been

included within a Deferred Zone in the District Plan to indicate the intended future land use (i.e. Deferred Residential/Deferred Industrial). The Te Awamutu Growth Map is displayed in **Figure 1** below.

Te Awamutu

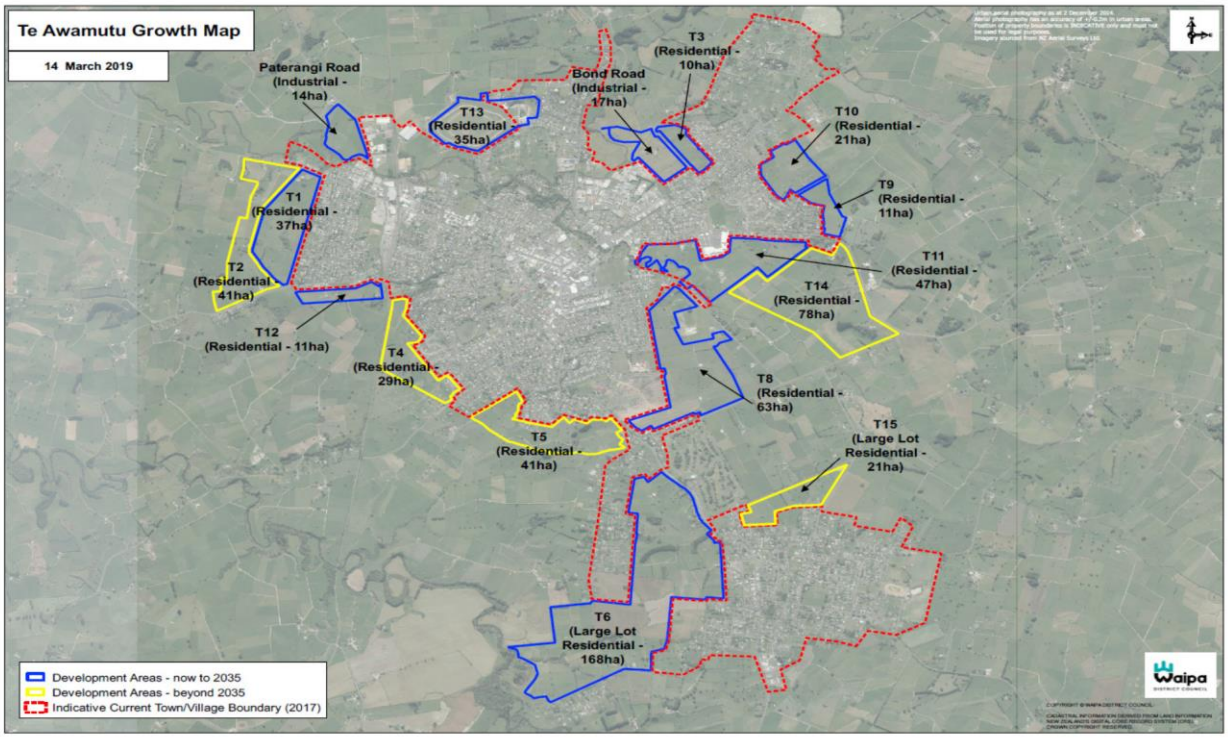


Figure 1: Te Awamutu Growth Map (extracted from Appendix S1 of the Waipa District Plan)

As displayed above, there are a total of 16 growth cells in Te Awamutu, two of which are Industrial and 14 are Residential. Of the 14 residential growth cells, there are two which are anticipated for large lot residential development and 12 anticipated for standard residential development. The growth cells are further split into areas that can be developed from now to 2035 (areas outlined in blue in **Figure 1** above) and 2035 onwards (areas outlined in yellow in **Figure 1** above).

As aforementioned, Growth Cell T2 is the subject of this plan change request, located at the western edge of Te Awamutu. This growth cell has been identified for future residential development after 2035. The entirety of Growth Cell T2 is zoned Deferred Residential, meaning that residential development is appropriate in this location, however not in the immediate future. Growth Cell T2 has a total size of 41ha as shown in Appendix S1, made up of ten properties, and has a dwelling capacity of approximately 492 dwellings in total.

Growth Cell T2 adjoins Growth Cell T1 which is currently under development with subdivision approved and earthworks under way at the northern extent of the site adjoining Pirongia Road.

While Growth Cell T2 has been identified for development after 2035, the WDP provides an opportunity to open up a growth cell for development earlier than originally anticipated. This is required to be undertaken via a plan change to the Waipa District Plan, and is subject to assessment against several rules and criteria, including:

- Proving to the satisfaction of Council that within the relevant town or village there are less than three Open Growth Cells or there is less than three years supply of land that is 'Development Ready' for Te Awamutu;
- The Deferred Zone will be required to be rezoned for its intended future use, i.e. Residential in this instance (via a plan change);

- A structure plan for the entire growth cell, is to be approved by way of a change to the Waipa District Plan;
- The Development Infrastructure required to service the Deferred Zone area is either in place, or Council is satisfied that there is a solution to deliver the necessary infrastructure (this can be outlined at a high level in the structure plan);
- No amendments are required to the District Plan objectives, policies or rule framework.

Sanderson Group and Kotare Properties propose to make use of the opportunity to rezone the site, opening it up for residential development to occur now. The relevant District Plan requirements are addressed in the following reporting.

1.2 Description of the Proposal and Purpose of Plan Change 12

The overriding purpose of PC12 is to allow for residential development within Growth Cell T2 to occur now, and to outline the high-level infrastructure and servicing requirements of the growth cell to guide future development.

As such, PC12 proposes to rezone the site to Residential Zone, effectively uplifting the deferred status of the current zoning. It is also proposed to insert a structure plan into the District Plan for the entire Growth Cell T2 area, which will outline a high level overview of the infrastructure requirements of the growth cell and potential development pattern.

The underlying proposal and driver of PC12 is the construction of the proposed retirement village development and residential subdivision at 10 and 52 Frontier Road. The subject titles have a joint land area of approximately 18.2ha and make up the southern half of Growth Cell T2. The proposed combined development will take up half of the growth cell and both the retirement village and the subdivision have already been the subject of detailed investigations and concept design. This means that the layout of the T2 development has a higher degree of certainty than many other growth cells that have multiple owners and a less coordinated approach. Both Sanderson Group and Kotare also intend to develop in the short term (i.e.. the next two years) so the land will not lie fallow once rezoned.

The northern half of T2 is not controlled by the applicants but they have discussed the overall development and rezoning with those landowners. The northern half of the land is similar in topography and aspect so is also suitable for residential development. The applicants have initiated the necessary investigations and design to support a Structure Plan for the whole of T2, but there is less certainty over the nature and timing of development of the northern half.

As a result the plan change proposes to split the land into two stages. Stage 1, the southern 18.2ha would be available for development immediately following the plan change. Stage 2, the northern balance of the cell, would remain with a 2035 development timeframe.

Refer to **Figure 2** below which displays a concept design for the two developments. The following describes the two development proposals.

Figure 2: Proposed Retirement Village and Residential Subdivision

1.2.1 Te Awamutu Country Club Retirement Village

It is proposed to construct a retirement village, namely the Te Awamutu Country Club (Country Club), on the northern part of the 18.2ha block of land at 10 and 52 Frontier Road. The retirement village will comprise approximately 9.56ha of land and includes the following development/amenities:

- Approximately 98 standalone retirement villas;
- A care facility including a dementia unit;
- A club house including a café that will be open to the public;
- A health spa; and
- Recreational amenities including a croquet lawn and bowls green, walkways and cycleways.

The main access to the Country Club will be from the T1 Growth Cell development to the east. The road connection is integrated with a main road through T1 that forms part of the T1 Structure Plan and has been the subject of a development plan approved by WDC. However, the timing of the construction of the road access through T1 is uncertain as it is in a later stage of T1 development, so initial road access to the Country Club will be provided from Frontier Road through the Kotare residential subdivision.

Construction of a retirement village within the residential zone of the WDP requires a resource consent application, which is likely to be a restricted discretionary activity. The proposed retirement village will therefore be designed and assessed in more detail in the subsequent resource consent application.

1.2.2 Residential Subdivision

The balance of the subject titles (approximately 8.95ha) will be developed as a residential subdivision. The subdivision includes the following:

- Approximately 105 residential lots;
- A stormwater reserve, including a stormwater treatment wetland, to vest in Council;
- A recreation reserve to vest in Council;
- Various pedestrian and cycle paths to vest in Council;
- Roading infrastructure;
- Three waters infrastructure; and
- Telecommunications, electricity and natural gas supply connections.

Once zoned Residential the subdivision will require resource consent under the WDP. The proposed subdivision will therefore be set out in more detail in the subsequent resource consent application.

The information on the retirement village and the residential subdivision contained in this application is indicative only, and its purpose is to provide an indication of the likely development form for the southern half of the site.

1.3 Description of the Site and Locality

1.3.1 Site

Growth Cell T2 has an area of 41ha as notated in Appendix S1 of the WDP, but our more detailed investigations indicate it is approximately 38ha in area. It is located at the western fringe of Te Awamutu, bounded by Pirongia Road to the north and Frontier Road to the south. The cell is made up of ten separate Records of Title. The legal descriptions and details of each of the properties are set out in **Table 1** below.

Table No. 1

Properties within Growth Cell T2					
Physical Address	**Legal Description**	**Title Ref**	**Area**	**Area of site within Growth Cell T2**	**Owners**
52 Frontier Road	Lot 1 DP 487281	696840	15.6786ha	15.6786ha	Aubrey Mark Irwin, Raewyn Dale Spiers, Rodney James Spiers
10 Frontier Road	Lot 2 DP 487281	696841	2.5307ha	2.5307ha	Raewyn Dale Spiers, Rodney James Spiers
N/A	Lot 7 DP 461400	607016	9.3ha	2.8334ha	Peter Hugh Thompson, Steven Bruce Thompson, Tracy Lee Thompson, Yvonne Margaret Thompson
1/51 Pirongia Road & 65 Pirongia Road	Lot 2 DP 534367	880623	11.7887ha	5.9648ha	Aubrey Mark Irwin, Raewyn Dale Spiers, Rodney James Spiers
N/A	Lot 3 DP 478844	880623	0.788ha	0.788ha	Aubrey Mark Irwin, Raewyn Dale Spiers, Rodney James Spiers
2/51 Pirongia Road	Lot 1 DP 534367	880622	0.7288ha	0.1617ha	Aubrey Mark Irwin, Raewyn Dale Spiers, Rodney James Spiers
67 Pirongia Road	Lot 1 DP 514120	796970	1.6389ha	1.6389ha	Graeme James Blackstock, Kevin Ross Blackstock
39 Pirongia Road	Lot 1 DP 327266	110811	0.9743ha	0.9743ha	Blenddyn Thomas Sterling, Elizabeth Ann Sterling
N/A	Lot 2 DP 457600	880623	4.0637ha	4.0637ha	Aubrey Mark Irwin, Raewyn Dale Spiers, Rodney James Spiers
28 Frontier Road	Sec 1 SO466626	630859	0.9046ha	0.9046ha	Waipa District Council

Recent search copies of the Records of Title are contained in **Appendix B.**

The location of Growth Cell T2 and surroundings is displayed on the following aerial.

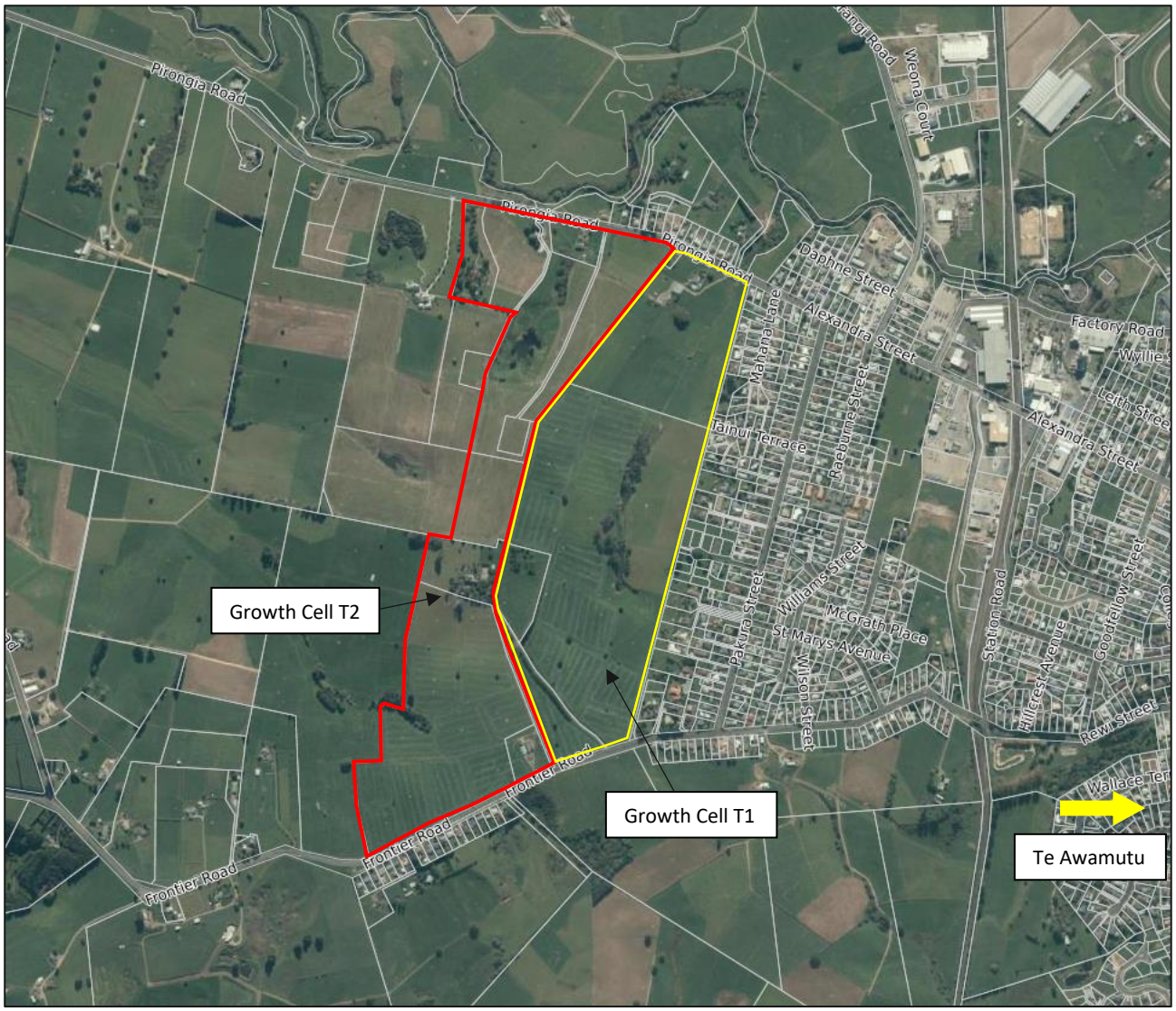


Figure 3: Locality of Growth Cell T2

Figure 4: Drone photo taken from the centre of Growth Cell T2 looking north towards Pirongia Road

Figure 5: Drone photo taken from the centre of Growth Cell T2 looking south towards Frontier Road

As displayed in the above photographs, the properties within Growth Cell T2 are currently mainly used as pastureland for dairy farming, with a scattering of single residential dwellings and garages or sheds.

A WDC water reservoir is located on the southwestern corner of the site. It is designated as D157 in the WDP and will not be affected by the plan change.

The site topography consists of rolling hills with moderate to steep slope angles, and incised gullies. There are two gully areas present within the site boundaries, one in the north and one in the south-west. The northern gully drains to the northeast and is steeply incised at its southern end, with moderate to gentle gully sides towards the north and draining out to a relatively flat plain. The south-western gully is moderately incised and drains to the north west. Only the head of the gully system lies within the site.

Previous land uses on the site are similar to the existing use of the site, being pasture. The only significant physical change has been to the northern gully, including farm dams/access tracks being constructed across the gully and the removal of a number of trees within and surrounding the gully.

The growth cell contains no recorded archaeology sites. There is one recorded heritage item on the site, as shown on the District Plan maps. This heritage item is located at 67 Pirongia Road and is named “Isla Bank”, described as a Twin bay villa from 1907-1909. This heritage item has a Heritage New Zealand Class of 2 and a District Plan Heritage Category of B. No changes are proposed to this heritage item, or its listing in the District Plan.

The north-western corner of the growth cell is subject to the Cultural Landscape Area Alert which is located around the Mangapiko Stream. Only a very small section of the site is subject to this overlay. No changes to the overlay will be made and no development within that area is currently proposed. Additional consultation with iwi will be required in the future at the time of development of that northern part of the Cell.

1.3.2 Locality

The growth cell sits on the western edge of Te Awamutu. The Growth Cell T1 development area which is currently under construction is located directly east of the site. This growth cell is 37ha in area and has a dwelling capacity of approximately 444 residential units. Further east of the site is a well-established residential area and the rest of the Te Awamutu settlement.

To the north on the opposite side of Pirongia Road is a stretch of residential properties containing dwellings, located in a ribbon pattern adjacent to the road. Further north of these properties is the Specialised Dairy Industrial Area, the Mangapiko Stream, the Te Awamutu Landfill and effluent disposal area (designated ‘D80 Processing and disposal of waste materials’ in the WDP) and large rural land holdings.

To the west of the site there are a number of large rural land holdings accommodating farming activities such as cropping and grazing. To the south on the opposite site of Frontier Road is another stretch of residential properties containing dwellings, located in a ribbon pattern adjacent to the road. Further south are large rural land holdings used for farming activities.

The locality is therefore largely rural with the exception of the urban development to the east within the Te Awamutu urban limits, and a mix of land uses north of the growth cell and the strip of residential development on Frontier Road.

There are good connections to the site from Te Awamutu town centre as both Pirongia and Frontier Roads connect to it. To the west both Pirongia and Frontier Roads also lead to the Pirongia township.

2. Section 32 Evaluation

Section 32 of the RMA is a key component of the policy development process for all District Plan matters, including private plan changes. It requires an analysis of policy options, including an options assessment and consideration of costs and benefits, before settling on the preferred option. This report records the section 32 evaluation that has been carried out to date, but it recognizes that it is an iterative process that will continue through the plan change lodgement, submission and hearing process.

2.1 Issues with current situation

The first step of the evaluation is to identify the issues that the plan change is intending to address. That is, the reason why the existing zoning of the site is not appropriate. Section 1.2 above has outlined the purpose of the plan change, which is to enable residential development within Growth Cell T2 to occur now, and to outline, via insertion of a structure plan into the WDP, the high-level requirements of the growth cell to guide future development. In order to allow for the residential development, the site needs to be rezoned. The reasons why the existing zoning and policy direction for the site is not appropriate include the following:

- Growth Cell T2 is not scheduled for development until at least 2035. Until the site is rezoned, any development on the site is subject to the Rural Zone rules. The Rural Zone generally only allows for rural development and subdivision. Minimum lot area in the Rural Zone is 40ha, and permitted residential development includes one principal dwelling, one secondary dwelling per title and one farm workers dwelling that is relocatable on titles of at least 40ha in area. Subdivision that does not comply with the minimum lot size rules and residential development which is not in accordance with the permitted activities for the Rural Zone, including retirement villages and rest homes are non-complying activities. Residential development would also be a non-complying activity;

- The retirement village requires a large, regular-shaped site of about 10ha, with an attractive aspect and preferably a rural outlook in order to establish a Country Club of quality and desirability that Sanderson Group requires to achieve its objectives. Sites of that size and configuration were not able to be identified elsewhere in Te Awamutu. Based on experience in Tamahere where the demand for villas exceeded expectations, and unsolicited enquiries about a Te Awamutu location, there is unsatisfied demand for quality retirement living in Te Awamutu. Experience in Tamahere and elsewhere is that Waikato retirees have family connections with the townships and the rural areas around them and therefore wish to live in the locality. There are often family members nearby and they do not wish to move away from their local area into a large urban area where most retirement villages are located. There are very limited options for retirement living in Te Awamutu.

- When Sanderson Group acquired the site in early 2020 their plans were for a larger Country Club of some 200 villas on about 20ha. However, the onset of the Covid-19 pandemic in March led to Sanderson Group reassessing the risk of a development of that scale in an uncertain economic environment. As a result they decided to scale back the retirement village and bring on Kotare as a residential developer for the balance of the land. Based on their recent experience in Cambridge, Kotare were confident that there was a market for quality residential development on medium sized lots in Te Awamutu. Both parties also identified synergies between the two developments, such as opportunities for family members to live close by and efficiencies of a combined approach to infrastructure such as walking and cycling paths and stormwater ponds. Therefore, the overall land needs for the combined development remained at about 20ha, which could not be readily accommodated elsewhere in Te Awamutu.

- Council staff have indicated, during pre-lodgement consultation, that non-complying resource consents are not the preferred process; rather a plan change to rezone the site to make it appropriate for residential development is preferred.

- The growth cell is not yet serviced with urban infrastructure, and urban infrastructure in rural environments is not WDC's desired outcome. However, there is urban infrastructure nearby with development under way in the adjacent T1 Growth Cell. An urban zoning would provide a basis for extension of urban services to connect to it.

- Ample capacity and choice of residential zoned land, leading to a competitive market in section supply, is preferred to support improved affordability of housing, as opposed to restricting supply.

The following sections set out the options considered to achieve the purpose of the plan change in this location and summarises the reasons for the option chosen.

2.2 Alternatives Considered

Having come to the conclusion that the existing Deferred Residential/Rural zoning is no longer appropriate, several options were considered to address the issue, as follows. For completeness, the do-nothing option was also considered.

a) Do nothing;
b) Lodge non-complying activity resource consents;
c) Wait until 2035, when land within Growth Cell T2 was scheduled to be developed;
d) Wait for the next Waipa District Plan review and make submissions to seek the rezoning; and
e) Rezone the land by private plan change.

In accordance with s32(1)(c), this evaluation is to a level of detail that corresponds to the scale and significance of effects anticipated by the proposed plan. The level of detail is therefore informed by the assessment of effects contained in section 5 of this report. Those effects are in turn informed by the existing environment. They establish a baseline against which to assess effects. As set out in section 5 of this report the baseline is set by the non-fanciful activities that could be established on the site under the existing zoning, including ancillary residential activities. This means that the effects are moderate or minor.

Similarly, the significance of the effects refers to the importance of those effects in the context of the planning framework. In this case, the land is already earmarked for residential use as a result of its Deferred Residential zone. There is no strategic need for the land to be maintained with its current deferral. On the contrary there are strategic benefits in providing additional land, particularly to meet an evident need for additional retirement living. In this regard, the proposed rezoning presents no conflict with the WDP or the Waikato Regional Policy Statement (RPS).

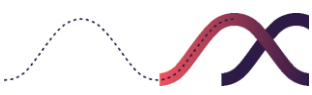
2.3 Evaluation of Benefits and Costs

The following table evaluates the five principal alternatives under s32, identified in Section 2.2 above.

Table No. 2

Costs and Benefits Evaluation for proposed Plan Change 12		
Alternative	**Costs**	**Benefits**
1. Do nothing, i.e. do not rezone site or undertake residential development in this location.	Environmental • There are no identifiable environmental costs. Economic • Loss of potential future job opportunities for operation of	Environmental • No change to the current landscape character. Economic • No costs associated with the plan change process, resource

	the retirement village and construction of both the retirement village and the residential subdivision. • Loss of needed capacity to accommodate retirement living. • Lack of competition in the housing market due to a few landowners holding large areas of land. <u>Social</u> • A lack of retirement village accommodation would remain in Te Awamutu, with large waitlists and limited options meaning retirees need to move away from their local community to find accommodation. • Sanderson or Kotare will not be able to undertake development or achieve desired outcome and would likely look elsewhere. <u>Cultural</u> • There are no identifiable cultural costs.	consent process or development. <u>Social</u> • Rural outlook of surrounding land is retained so surrounding land owners and occupiers will not experience an increase of density and establishment of urban environment earlier than originally anticipated. <u>Cultural</u> • There are no identifiable cultural benefits.
2. Lodge non-complying activity resource consents to establish a retirement village and undertake a residential subdivision	<u>Environmental</u> • Residential development would not be in keeping with the rural zoning and use of the balance of the site. • Approval of non-complying resource consents may result in the establishment of a precedent, in that the balance of Growth Cell T2 land may be developed via non-complying resource consents and not rezoned. • A consistent approach to development across the entire growth cell would not be achieved and development would likely be disconnected and inefficient. • Piecemeal development within the Rural zone may lead to reverse sensitivity	<u>Environmental</u> • There may be some beneficial improvements to infrastructure, such as roading. <u>Economic</u> • If approved, resource consents would allow for residential development to occur and sale of lots in the area. <u>Social</u> • The delivery of developable sections and development of housing would provide additional housing supply for Te Awamutu providing a social benefit. • The residential subdivision and retirement village will provide a wider mix of housing options in Te Awamutu. • Retirement village will offer more options to retirement living in the surrounding



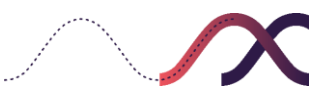
	effects on farming operations. • With individual resource consents for development, there is risk of 'piecemeal' development layouts that can detract from the overall intention and comprehensive approach sought via a Structure Plan. • There is the potential for the provision of key transport infrastructure to be delayed if there are piecemeal transport assessments undertaken for individual development projects. Piecemeal transport infrastructure may not consider bigger picture and not be able to accommodate total development capacity of the growth cell. <u>Economic</u> • The risk of a Non-Complying Activity resource consent application being declined are high. Therefore, the cost of the application process may not be recoverable. • As resource consents need to be based on specific development proposals, a Non-Complying Activity consent application requires a higher level of design than a plan change and there are additional upfront design and consenting costs. • As a Non-Complying Activity consent is restricted by a specific design and a consent lapse period it is highly likely that design rework and subsequent consent	locality, including a continuum of care. • Creation of job opportunities. <u>Cultural</u> • There are no identifiable cultural benefits.

	changes will be needed, adding compliance costs. <u>Social</u> • Council's preliminary feedback and direction have indicated that resource consents are not the preferred route to take to achieve the proposed development. • The social benefits of a coordinated approach to provision of community infrastructure such as open space and transport networks, would be reduced. <u>Cultural</u> • No identifiable cultural effects.	
3. Wait until 2035, when development of the land is scheduled.	<u>Environmental</u> • There are no identifiable environmental costs. <u>Economic</u> • This alternative carries additional holding costs and lost opportunity costs of being unable to develop the land for another 15 years. • Job opportunities in the short to medium term, particularly in a post Covid-19 economic downturn, would be lost. <u>Social</u> • Existing limited choice of housing, and particularly retirement village housing, will remain in Te Awamutu. • Potential loss of the proposed high quality retirement living option in Te Awamutu, as a result of deciding to establish elsewhere. <u>Cultural</u> • No identifiable cultural costs.	<u>Environmental</u> • There is an assumption that urban infrastructure will be extended to the site by then. <u>Economic</u> • Rezoning could occur through Council lead plan change and minimise the total costs of development on the applicants. <u>Social</u> • Development would be in keeping with the existing anticipated timing of development in this location. Resulting in the potential for neighbouring landowners and occupiers being more comfortable with residential/urban development occurring on the site. <u>Cultural</u> • No identifiable cultural benefits.
4. Pursue rezoning through District Plan Review	<u>Environmental</u> • There are no identifiable environmental costs. <u>Economic</u> • The next District Plan review is likely to be approximately 7	<u>Environmental</u> • Including the proposal in the next District Plan review would provide the opportunity to holistically consider the site and set objectives, policies, rules

	years away. Therefore, this alternative carries additional holding costs and lost opportunity costs of being unable to develop the land for at least 7 years (most likely more than 7 years until District Plan is made fully operative). <u>Social</u> • The development would still occur sooner than the anticipated date for development in this location (i.e. approximately 2027 rather than 2035). <u>Cultural</u> • There are no identifiable cultural costs.	and design guidelines that guide future development alongside the other considerations of the review. This would ensure any effects on the environment can be appropriately assessed and managed. <u>Economic</u> • If undertaken as a collaborative process, including the proposal in the next District Plan Review would likely share a large proportion of the costs with WDC providing an economic benefit to the applicant. • If included in the District Plan Review, it would allow the area to be eventually developed in accordance with the proposed provisions. • Creation of job opportunities <u>Social</u> • The development would provide additional housing supply for Te Awamutu, closer to when development was originally anticipated to occur in this location. <u>Cultural</u> • There are no identifiable cultural benefits.
5. Rezone through private plan change	<u>Environmental</u> • There are no identifiable environmental costs. <u>Economic</u> • There are significant application and compliance costs associated with a private plan change that do not arise with the do nothing option, but they are likely to be less than the non-complying activity option as the District Plan includes a clear framework for the plan change. <u>Social</u> • There are no identifiable social costs. <u>Cultural</u> • There are no identifiable cultural costs.	<u>Environmental</u> • The private plan change provides the opportunity to holistically consider the site and set objectives and policies that will guide future development. This will ensure any effects on the environment can be appropriately managed. • The private plan change is consistent with Waipa 2050 and WDP policy which is to allocate growth to defined growth cells, and therefore environmental effects are as anticipated; it is only the timing of those effects that is different. <u>Economic</u>

		• A private plan change is likely to be the most expedient option in terms of obtaining an outcome for Sanderson and Kotare, and enabling development to meet short and medium term needs. It is consistent with WDP policy, so is less likely to incur significant transaction costs than other options. • The timeframes of development will enable greater competition and choice in the housing market of Te Awamutu, potentially supporting affordability. • The plan change can be based on concept design rather than the more detailed design and attendant costs required for resource consents. • Job opportunities for the operation of the retirement village and the construction of both the village and the subdivision will be realised in the short-medium term. <u>Social</u> • Development of housing will provide additional housing supply for Te Awamutu, including additional options for retirement living. • Retirees will avoid the social cost of having to move elsewhere to find suitable accommodation. <u>Cultural</u> • The plan change creates an opportunity to incorporate wetlands in the designs of the village and the residential subdivision, and to use appropriate road names as recommended in the CIA.

The above table covers land use alternatives and process options. On the basis of above, <u>Option 5</u> was chosen, being to rezone the site through a private plan change.



2.4 Reasons for Option Chosen

Rezoning of the land (Option 5 in **Table 2** above) is considered the most appropriate planning method to address the issues associated with the limitations associated with the existing zoning. Rezoning of the land properly enables and supports residential land use to occur in the immediate future, that is not currently catered for adequately within the existing deferred zoning of the properties. Insertion of a structure plan into the District Plan allows for infrastructure requirements to be considered in light of the larger development area to ensure that the land can be appropriately serviced, and the rezoning for residential purposes will assist in the provision of additional dwellings and a range of housing options, particularly for retirement living. Rezoning of the land also allows appropriate provisions to be developed and implemented to ensure that development is of a high quality and provides a high level of liveability.

Other options of Non-Complying Activity consents or waiting for the next District Plan review potentially could deliver the same outcome as Option 5, but they are inferior in terms of efficiency of process and do not provide the same long-term certainty to the landowners and other stakeholders. With a plan change, the intended land use outcomes can be properly and spatially defined and tested for acceptance by the community in a comprehensive manner.

Quite apart from the high risk of an unsuccessful Non-Complying Activity application, that also requires a substantial amount of costly upfront design to achieve the certainty required for a resource consent. The district plan review alternative represents a potential 10+ year delay. Only the private plan change alternative involves an efficient and effective process that also has the ability to address the elements of uncertainty associated with the early stage of design of the project. A plan change allows for District Plan rules to be designed to capture and address the detailed environmental effects, at the appropriate stage when sufficient design has been undertaken.

As part of the plan change, rules are proposed to create two stages of development. Stage 1 is the southern half that includes the retirement village and the Kotare residential subdivision, while Stage 2 is the balance of the cell to the north. This reflects landowner intentions as the landowners in Stage 1 are ready to develop the retirement village and residential subdivision as described. It will result in the delivery of some 203 residential units, 41% of the approximately 492 units identified in the Growth Cell, including the establishment of the retirement village to meet that identified need.

In the northern Stage 2 area of the growth cell, comprising some 20ha, the landowners are not ready to develop and the existing farming operations are expected to continue for some time.

The retirement village boundary creates a logical boundary between Stages 1 and 2.

Delaying development of the Stage 2 area until 2035 increases consistency with the Waipa 2050 Growth Strategy which envisaged that all of T2 would be developed post-2035. As set out in this report there are methods to advance development of growth cells ahead of the dates in the WDP. This flexibility is important to ensure ample development capacity given that the growth cells develop at different rates over time, based on market factors and landowner intentions. In this case it also recognises the immediate need to provide a large site for the Sanderson Group retirement village.

This report includes enough investigation and assessment work to confirm that the whole of the growth cell is suitable for development, infrastructure can be made available, and that the two stages will be integrated. Therefore, there is justification to remove the Deferred zoning, but to introduce a staging rule that effectively delays development of that area until 2035. That is effective and efficient as it reduces any risk of oversupply of residential land in the short-medium term and avoids the costs and time associated with initiating another plan change to release Stage 2 for development in the future.

3. Proposed Amendments to the Operative Waipa District Plan

3.1 Proposed Amendments

There are limited changes proposed to the District Plan as a result of PC12. Changes are limited to:

- A change to the zoning on planning maps 7 and 38 within the WDP;
- The addition of a structure plan, including purpose, design objectives and design measures, and a description of the structure plan into Volume 2 of the WDP as Appendix S23;
- Additional rules directly relating to Growth Cell T2 area in Section 2 – Residential Zone and Section 15 – District-wide provisions of the District Plan to address specific landscape and visual impacts and provide for the staging.

These amendments are included as **Appendix A** to this report.

No changes are proposed to the existing District Plan objectives and policies. Because of this approach it is possible to implement the rezoning without any need to address or amend any wider Plan provisions, such as in the Strategic Framework. The plan change does not affect the internal consistency of the District Plan.

3.2 Planning maps

The planning maps required to be changed include the Zoning Maps 7 and 38, to remove the deferred overlay off the Residential Zone, and extend the Urban Limits to include Growth Cell T2's future residential area.

3.3 Structure Plan

A preliminary structure plan has been prepared, along with a description of the structure plan to be inserted into the District plan appendices as Appendix S23. These documents are attached to this report in **Appendix A**. The description of the structure plan includes objectives and sets out the purpose of the structure plan, the key elements and the design measures to ensure good environmental and development outcomes.

3.4 Additional Rules

The following additional rules applying only to growth cell T2 are proposed;

- A buffer planting area zone along the western boundary, where residential development adjoins the rural area. This is not required for the retirement village site where an open space area / swale will adjoin the boundary and is shown on the structure plan.
- A generous building offset along the rural (western) boundary.
- A limit on fencing height of 1.2m along the Frontier Rd and Pirongia Road boundaries.
- A limit on building height of 5m along the Frontier Road and Pirongia Road boundaries.
- A specimen tree planting requirement along the Frontier Road and Pirongia Road frontages.
- A staging provision allowing for immediate development of Stage 1 and retaining a 2035 timeframe for Stage 2.

These rules result largely from visual and landscape issues at the site interfaces as identified in the Landscape and Visual Assessment by Boffa Miskell in **Appendix C** and the resulting recommendations. The specific rules are included in **Appendix A.**

3.5 Other Consents and Authorisations Required

All forms of subdivision within the District Plan require a resource consent. Further to this, retirement villages and rest homes require a land use consent to be able to establish within the Residential Zone. Therefore, the proposed retirement village and residential subdivision and any other future subdivision of the growth cell will require further land use consents and subdivision consents to be granted by WDC before development can proceed.

Further to this, regional consents will be required, at least for earthworks and stormwater disposal.

A resource consent application has been lodged with Waikato Regional Council for earthworks and stormwater disposal associated with development of the retirement village and residential subdivision on the southern half of the growth cell.

4. Statutory Framework

4.1 Legal Framework for Plan Change Request

The Plan Change process is subject to the provisions in the RMA, including Part 2 (the Purpose and Principles) Section 31 (Functions of Territorial Authorities), Section 32 (requirements for preparing and publishing evaluation reports), Section 73 (Preparation and change of District Plans), Section 74 (Matters to be considered by Territorial Authority) and Part 2 of Schedule One (Requests for changes to plans). Part 2 of Schedule One links the private plan change process back to the provisions of Part 1 of Schedule 1 (Council initiated plan changes) via clause 29, meaning there is a degree of commonality between both.

However, the framework needs to be applied correctly so that the assessments and information contained in this report are used to draw the right conclusions. In particular, the Supreme Court 2014 decision *Environmental Defence Society Inc. vs the New Zealand King Salmon Co Ltd*[1] provides guidance as to how Part 2 of the RMA applies to plan changes. Prior to the *King Salmon* decision an 'overall judgement' approach was taken, whereby it was considered whether a plan change gave effect to Part 2 including assessing it individually against the various matters is sections 6, 7 and 8 of the RMA. *King Salmon* changed the decision-making process for plan changes. It found that there was no need to refer back up the hierarchy of plan provisions to Part 2, because other high-level planning instruments (in that case the New Zealand Coastal Policy Statement) are deemed to have given effect to Part 2 at the national, regional or local level.

However, the Court also noted that there are three exceptions to this general rule:

a) Invalidity, i.e. the higher order document may be illegal.
b) Incomplete coverage, i.e. the higher-level document may not fully cover the issue being considered.
c) Uncertainty of meaning, i.e. the higher-level document is not clear in its application to the issue.

In this case, the relevant higher level planning instruments that are being applied are the National Policy Statement – Urban Development (NPSUD), Regional Policy Statement (RPS) and the WDP.

4.1.1 Part 2

All plan changes are subject to the Purpose and Principles of the RMA (sections 5-8) with the overriding purpose being '*to promote the sustainable management of natural and physical resources*'. This is of course also subject to the *King Salmon* caveats discussed in section 4.1 above. Sustainable management is defined as:

> *'managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while-*
>
> *a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
> *b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
> *c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.'*

The plan change is considered to achieve the overall purpose of the RMA. This location is already considered appropriate for residential development, as outlined in the District Plan through the deferred residential zoning and identification in the District Growth Strategy. The plan change allows for the entire growth cell to be considered in one stage, therefore maximises opportunities to appropriately manage the use, development and protection of the natural land resource. The evaluation of costs and benefits in section 2.3

[1] NZSC 38, (2014) NZLR 593

of this report outlines how the social, economic and cultural wellbeing of people and communities are provided for.

- The plan change will allow for early development of the retirement village and residential subdivision, providing for the short and medium term demand for housing and for a range of housing choices, both in type and location. In particular the retirement village provides additional choice in that segment of the market.
- The growth cell has a dwelling yield of 492 dwellings. The proposed immediate development will provide for approximately 203 dwellings.
- Adverse effects of the rezoning can be avoided, remedied or mitigated and are considered to be no more than minor. Refer section 5 of this report for the assessment of effects.
- Integrated development is achieved as the structure plan identifies the infrastructure requirements along with ensuring an attractive and efficient layout of future development and maintaining amenity and the rural interface. This approach provides an opportunity for the development to be staged, with the southern Stage 1 being released immediately, and the northern Stage 2 not being released until 2035.

Section 6 includes Matters of National Importance that are required to be recognised and provided for. Only the following are considered to be relevant to this plan change:

- (e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga
- (f) the protection of historic heritage from inappropriate subdivision, use, and development.

Consultation with tangata whenua is under way and a Cultural Impact Assessment (CIA) has been prepared to demonstrate consistency with item (e). A copy is included as Appendix L. Cultural issues are discussed in more detail in section 5, assessment of environmental effects.

In terms of (f) the recorded heritage item on the northern half of the site will not be removed or altered as a result of this plan change. The houses' listing in the District Plan and with Heritage New Zealand will remain, therefore further consideration will be required when further development of the growth cell occurs. This issue is also discussed in more detail in section 5.

There are matters in Section 7, Other Matters, and Section 8, Treaty of Waitangi, that are relevant to this plan change. The relevant parts are set out below.

Section 7 lists Other Matters to which particular regard must be had to. The relevant matters are:

'(a) kaitiakitanga:
(aa) the ethic of stewardship:
(b) the efficient use and development of natural and physical resources:
(c) the maintenance and enhancement of amenity values:
(d) intrinsic values of ecosystems:
(f) maintenance and enhancement of the quality of the environment:
(g) any finite characteristics of natural and physical resources:'

The proposal is considered to be an efficient use of land, allowing for residential development to occur in a location earmarked for future residential development. Appropriate infrastructure will be provided to maximise the development potential of the land and to ensure that environmental effects are avoided in the first instance and thereafter mitigated on the surrounding environment. Further to allowing for development of the growth cell, the plan change provides for the restoration and enhancement of the existing gully areas and creation of multipurpose wetlands allowing for stormwater management, recreation opportunities and creating a high level of amenity in what will otherwise be a largely built environment.

Section 8 requires that;

> *'all persons exercising functions and powers under it, in relation to managing the use, development and management of natural resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi)'.*

This section places an obligation on decision makers to act in accordance with it. The principles have been taken into account in preparation of the CIA as discussed more fully in section 5 of this report.

4.1.2 Section 31

Section 31 sets out the functions of territorial authorities under the RMA. In particular, it identifies the functions of a Council at Section 31(1)(a) as including:

> *'The establishment, implementation and review of objectives, policies, and methods to achieve integrated management of the effects of the use, development, or protection of land and associated natural and physical resources of the district.'*

The Council is therefore required to consider the plan change application in accordance with its function of achieving integrated management of land use. The use and development of the land for the purposes outlined in this application is clearly within the scope of the Council's functions under s31 and integration of effects of the activities with infrastructure and other nearby activities is a key issue addressed by the plan change.

4.1.3 Section 32

Section 32 of the RMA imposes on Council a duty before making a decision on a plan change application to carry out an evaluation. An evaluation under Section 32 is provided in Section 2 of this report. The relevant parts of Section 32 are:

> *(1) An evaluation report required under this Act must –*
> *(a) Examine the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of this Act; and*
> *(b) Examine whether the provisions in the proposal are the most appropriate way to achieve the objectives by*
> *i. Identifying other reasonably practicable options for achieving the objectives; and*
> *ii. Assessing the efficiency and effectiveness of the provisions in achieving the objectives; and*
> *iii. Summarizing the reasons for deciding on the provisions; and*
> *(c) Contain a level of detail that corresponds to the scale and significance of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the proposal.*
>
> *(2) An assessment under subsection (1)(b)(ii) must –*
> *(a) Identify and assess the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions, including the opportunities for –*
> *i. Economic growth that are anticipated to be provided or reduced; and*
> *ii. Employment that are anticipated to be provided or reduced; and*
> *(b) If practicable, quantify the benefits and costs referred to in paragraph (a); and*
> *(c) Assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions.*

*(3) If the proposal (an **amending proposal**) will amend a standard, statement, regulation, plan or change that is already proposed or that already exists (an **existing proposal**), the examination under subsection (1)(b) must relate to –*

(a) The provisions and objectives of the amending proposal; and

(b) The objectives of the existing proposal to the extent that those objectives –

i. Are relevant to the objectives of the amending proposal; and

ii. Would remain if the amending proposal were to take effect ……

(6) In this section, -

***objectives** means, -*

(a) For a proposal that contains or states objectives, those objectives:

(b) For all other proposals, the purpose of the proposal

***Proposal** means a proposed standard, statement, regulation, plan or change for which an evaluation report must be prepared under this Act*

***Provisions** means, -*

(a) For a proposed plan or change, the policies, rules or other methods that implement, or give effect to, the objectives of the proposed plan or change:

(b) For all other proposals, the policies, or provisions of the proposal that implement, or give effect to, the objectives of the proposal.

As set out in Section 2 of this report this plan change is an 'amending proposal' in accordance with s32(3). The evaluation contained in section 2 does not stand alone. In terms of assessing the appropriateness of the objectives in achieving the purpose of the RMA, considering reasonably practicable options for achieving the objectives and assessing the efficiency and effectiveness of the chosen option, the evaluation relies on the various assessments in this report, particularly:

- The assessment of environmental effects in section 5.
- The statutory assessment against the NPS-UD contained in section 7.5.
- The assessment against Part 2 contained in section 7.3.

4.1.4 Sections 74 and 75

Sections 74 and 75 set out matters to be considered by Council when changing its district plan and set out the prescribed contents and purposes of district plans. As this is a site-specific plan change anticipated by the WDP it has minimal impact on the WDP as a whole and does not affect its contents.

Section 75 requires that the plan change must 'give effect to' any national policy statement, a national planning standard and any regional policy statement. The National Policy Statement-Urban Development (NPS-UD) is the only relevant NPS.

The first set of National Planning Standards were introduced in April 2019 and specify the structure and form of subsequent district plans and policy statements. However, the WDP was prepared before the Standards had effect, so they are not able to be implemented through this plan change. If approved this plan change will become part of the WDP which will need to be comprehensively updated in the future as required by the Planning Standards.

Under Section 74 a plan change must have regard to any management plans and strategies prepared under other Acts. In this case the relevant plans and strategies include Future Proof, the Waikato-Tainui Environmental Plan- Tai Tumu, Te Pari, Tai Ao and Waipa 2050. These documents are assessed in section 7 below.

5. Assessment of Environmental Effects

5.1 Existing Environment and Permitted Baseline

Under clause 22 of Schedule 1 to the RMA a request for a plan change must include a description of environmental effects that are anticipated. These effects are to be described in such detail as corresponds with the scale and significance of the effects and taking into account clauses 6 and 7 of Schedule 4. These sections specify the information required in an Assessment of Environmental Effects (AEE).

These effects are to be described in such detail as corresponds with the scale and significance of the effects and taking into account clauses 6 and 7 of Schedule 4.

Assessments of environmental effects in the context of resource consents have established the principles of an assessment being undertaken taking into account certain specified 'baseline' development. Essentially, an assessment can disregard effects associated with activities that are permitted by the District Plan (the 'permitted baseline') and only deal with effects over and above those permitted effects. A permitted baseline is not directly relevant to plan changes and in this case the provisions of the Rural Zone would provide the basis of any assessment.

However, while there is no permitted baseline of any significance, it is relevant that residential development in this location is anticipated through the existing deferred residential zoning and inclusion in the Waipa Growth Strategy. Residential development is anticipated in this location and only the timing of development is different. As such, while the following effects assessment considers the effects of residential development in this location, they are the same effects on neighbours and other interested parties as have been anticipated by the planning documents. The only difference is that they are occurring earlier than planned.

When assessing effects on the environment, the 'environment' also includes the state of the future environment as it might be modified by the implementation of resource consents that have been granted, assuming that those consents are actually likely to be implemented. Therefore, the adjoining development within Growth Cell T1 needs to be considered as part of the baseline in the following assessments of effects. That growth cell has an overall comprehensive development consent and subdivision consent for 41 lots. The assessment of effects is on the basis of full urban development of T1.

The key environmental effects that need to be considered as part of the Plan Change relate to:

- Landscape and visual amenity effects;
- Infrastructure effects;
- Transportation effects;
- Ecological effects;
- Archaeological effects;
- Geotechnical effects;
- Contamination effects;
- Cultural effects;
- Effects on Historic Heritage; and
- Positive effects.

5.2 Landscape and Visual Effects

The plan change will undoubtedly lead to significant changes to the outlook of the surrounding locality and changes will occur sooner than anticipated, with the original timing being post 2035. While it has been long signalled that the growth cell will experience a change in land use from rural to urban in the future, landscape

and visual effects associated with this plan change (and the subsequent residential development) are an important factor to consider. As such, an assessment of the landscape and visual effects of residential development have been undertaken by Boffa Miskell. The Landscape and Visual Assessment Report (LVA) is included in **Appendix C** of this report. Boffa Miskell have also prepared the Structure Plan for the growth cell and is included in the report in **Appendix C**, as well as in **Appendix A**. The LVA largely recognises that residential development in this location is anticipated.

Future subdivision of the site will require resource consent and any future development will be subject to the rules of the Residential Zone, therefore WDC will be provided with an opportunity to review future development in the event of it not complying with the rules or lining up with the policy direction of the residential zone. Generally, the visual amenity effects of the development are split into two categories, being views from the immediate vicinity and wider context views. Specific visual and amenity effects will depend on more detailed master planning and development proposals.

From the immediate vicinity the level of effects is considered to be low for less sensitive viewers (such as visitors to Te Awamutu or road users), and moderate-low for more sensitive immediate viewing audiences (such as neighbours). For less sensitive viewers, the residential development will seamlessly integrate with the existing residential development in T1 to the east and will form an attractive gateway into Te Awamutu. In relation to the immediate viewing audience, the primary visual effect will be the loss of the existing rural outlook from their properties, however this is anticipated in this location to eventually occur, and therefore effects will be short term and minor.

From the wider context, views from the east will be screened by the high point of the site being along the eastern boundary. Views from the farmland to the west will be softened by the use of building setbacks and planting requirements and as outlined above, the changes to urban land use are anticipated by the existing zoning of the site.

The plan change will lead to a change in the character of the landscape, however the site will retain a response to the natural landscape and environmental features. The development outcomes are considered to be in line with the expectations of the WDP for the following reasons:

- The stormwater ponds will provide restoration and enhancement of the identified water bodies/gullies on the site and provide for integrated open space and recreational opportunities;
- The site contains very little vegetation and no significant vegetation of ecological value or mature native trees;
- Design and planning of the rural/urban interface on the western boundary of the growth cell will include a range of setbacks and planting (as per the recommendations of the LVA set out below); and
- The wider landscape context will not be altered (backdrop of Mount Pirongia).

The LVA makes a number of recommendations to ensure that landscape and amenity values in the surrounding environment are maintained, particularly along Frontier Road where development will adjoin existing residential properties and the western boundary adjoining the rural zone. These recommendations include;

- A buffer planting zone, building setbacks and shared pathways along the western boundary of the growth cell;
- Height restrictions for buildings and fencing along Frontier Road and Pirongia Road; and
- Requirements for specimen tree planting along Frontier Road and Pirongia Road.

Further to the above, landscape plan requirements are also recommended to be included in the District Plan for subdivision applications and when building on lots within the growth cell. The above recommendations will be included in the District Plan as rules where appropriate. Refer to **Appendix A** which sets out the proposed amendments to the District Plan. These provisions will ensure that development responds to the

surrounding existing environment and to the existing character and amenity associated with the wider Te Awamutu Residential Zone.

In summary, the site is well placed to accommodate urban built form. Subject to implementation of the recommendations of the LVA, landscape and visual effects are considered to be short term, limited to the adjoining neighbours and no more than minor.

5.3 Infrastructure Effects

A key constraint of the growth cell, and an important factor in ensuring efficient use of land is the current lack of urban infrastructure to service residential development. The District Plan outlines that integrated development will be achieved by development occurring in planned locations and in an integrated manner, that is for the structure plan to outline the infrastructure requirements for future development in this location. While the growth cell is identified as suitable for residential development, this plan change results in the timing of development not being consistent with the timeframes originally anticipated for this location. Therefore, infrastructure requirements need to be assessed, to determine if there is a workable solution utilising the existing infrastructure or if new infrastructure is required. In this instance, there are some existing services available in the locality that are available for connection and extension into the development area.

Nicklin CE have been engaged to undertake infrastructure design and assessment for the growth cell. A report has been prepared by Nicklen CE, and is attached within **Appendix D** of this report. The following sets out a summary of the servicing proposed for the growth cell, for more detail refer to the report and plans within **Appendix D**.

There is more detail available for the southern half of the growth cell as a result of the development proposals for the retirement village and the subdivision, than for the north. For this reason, Nicklin CE have split their assessment into two areas described as T2 north and T2 south.

5.3.1 Wastewater

For T2 south, there are three main components to the wastewater system, being gravity reticulation network, wastewater pumping station and a rising main.

The gravity fed reticulation system is proposed to be constructed over the site conveying wastewater from lots to the new pump station located adjacent to the wetland on the site. The pump station will pump wastewater through the new rising main that will be constructed from the pump station to the eastern boundary then travel north to Pirongia Road. The rising main will continue east down Pirongia Road to connect to an existing manhole and existing gravity reticulation that will convey the wastewater to the nearby Te Awamutu Wastewater Treatment Plant. The existing manhole was previously designed to be the receiving infrastructure for the T1 and T2 growth cells.

The wastewater pump station and rising main will be constructed to the Regional Infrastructure Technical Specifications (RITS) standards and will be vested in Council. Easements will be required over the rising main. All infrastructure within the retirement village will be privately owned and will connect to the public system via roads and reserves.

For T2 north, the wastewater network will be similar to that of T2 south, containing a gravity reticulation network, and a pump station to pump wastewater to Stage 3 of the adjoining development within growth cell T1. If Stage 3 of T1 is not completed prior to development of T2 north, other options of new rising mains along Pirongia Road or new infrastructure to the Te Awamutu Wastewater Treatment Plan are viable.

As such, there is a viable solution for wastewater reticulation within the growth cell and discharge to the existing wastewater network and treatment plant. As such, it is considered there are no effects relating to wastewater.

5.3.2 Water Supply

A water supply assessment was undertaken by WSP-Opus for the entire growth cell. It was concluded that there is adequate water supply in the Council system for the growth cell. It is likely that supply will be obtained via a water main in Frontier Road for T2 south. It is anticipated that the infrastructure and roading for the T1 growth cell will be completed prior to development of T2 north, therefore further consideration will be given to T2 north connections at the time of development of that area.

A booster pump is required to provide adequate pressure for the demands within growth cell T1 and T2. The booster pump is being developed by Waipa District Council and will likely be located on the adjacent water reservoir containing the existing water tower. Detailed design of the reticulation and booster pump will be provided at a later date following further reporting from Council and WSP-Opus.

Overall, adequate supply is available in the locality and adequate water pressure will be provided from a booster pump being designed by WDC.

5.3.3 Stormwater

Wainui Environmental have considered stormwater management for the growth cell and have provided a report outlining the stormwater philosophy and design. Refer to the Stormwater Management Plan in **Appendix E** for a copy of the report.

Stormwater treatment will be via one of two strategies for T2 south:

- Open swale system; or
- Centralised wetland.

Reticulated infrastructure will convey stormwater to the treatment devices and will then be discharged into the downstream receiving environment. The catchment makes its way to the Mangapiko Stream. Secondary overland flow paths will be provided within the road network and will be safely conveyed to the downstream watercourses.

T2 north comprises a separate sub catchment area which drains northward to the Mangapiko Stream. The Stormwater Management Plan within **Appendix E** is focussed on the T2 south area where there is more detail available relating to specific developments, however this report is also relevant to the T2 north area in so far as it relates to the best practise design guidelines and overall stormwater management philosophy. The SMP states that those guidelines and philosophies will be used to guide the future design of an appropriate stormwater management regime for T2 north at the time of development.

The SMP concludes that there is a workable solution for treatment and disposal of stormwater for the entire growth cell and provides further detail regarding the stormwater management regime for the southern portion (as a result of more detailed design outcomes being available). As such, it is considered that stormwater effects will be managed appropriately to ensure less than minor effects on the environment.

5.3.4 Roading

Roading infrastructure on the site has been designed with inputs from Nicklin CE, Boffa Miskell and Stantec, and has also been influenced by the adjoining T1 development in relation to the connection points at the common boundary of the two growth cells.

Roading layout for T2 south is displayed on the concept plan prepared by Nicklin CE. This layout comprises three main roads (with three different road cross-section concepts), including:

- Road 1: Main road through the development area providing a connection to Frontier Road and the adjoining T1 development. This road will be 20m wide. The road includes two round abouts, one connecting the three roads and one providing access to the retirement village. This road will also provide property access.
- Road 2: Cul-de-sac providing property access. This road will be 15m wide.
- Road 3: Loop road providing property access and access to the reserve. This road will be 18m wide.

These roads will be vested in Council. More detailed design will be undertaken at the resource consent stage, in consultation with WDC. Refer to the Nicklin CE plan set within **Appendix D** for preliminary details on the road layout.

Further to the above, Frontier Road is proposed to be upgraded to urban standards. Detailed design of the upgrading works will be undertaken in due course, in consultation with WDC.

A preliminary roading layout for T2 north area is displayed in the Structure Plan in **Appendix A**. This network includes connection to Pirongia Road and two connections to the adjoining T1 growth cell. Walkways and cycleways are also proposed linking roading and reserves and providing recreational connectivity. Two road cross-section concepts are provided, including an 18m-20m corridor and a 15-16m corridor.

In summary, appropriate roading infrastructure can be provided throughout the growth cell to provide connectivity within the growth cell, to adjoining roads, the rest of Te Awamutu and the wider Waipa District. Transportation effects have been assessed and further commentary has been made in the Integrated Transportation Assessment within **Appendix F** and in Section 5.4 below.

5.3.5 Utilities

Confirmation has been obtained from Waipa Networks, Ultrafast Fibre, and First Gas that the T2 south development can be serviced via the existing networks in the locality. Infrastructure design for those services will be undertaken by the providers in due course. T2 north will be able to be serviced via connections to T1 infrastructure, alternatively in the event of T2 north being developed prior to T1 development, infrastructure is available from Pirongia Road.

In relation to existing infrastructure within Pirongia and Frontier Roads, the location of existing services will need to be identified and approvals obtained for works in the vicinity of the infrastructure.

Overall, electricity, gas and telecommunications infrastructure is available to connect to and will be extended into the site.

5.3.6 Conclusion on Infrastructure Effects

The above commentary and report within **Appendix D** outlines the key infrastructure concepts regarding supply and design, and demonstrates the availability of services and feasibility of infrastructure in this location. As such, infrastructure effects are considered to be benign.

5.4 Transportation Effects

Transport networks are significant pieces of infrastructure that can have adverse effects on people, development and the environment. Conversely, development can have adverse effects on the adjoining transport network if attention to matters such as the provision of suitable access, parking, manoeuvring areas and loading spaces have not been considered. Attention at the early stages of the planning and development processes can ensure that these effects are mitigated and that land use and transport are integrated to ensure that a safe and efficient roading network is provided.

A new section of roading network is proposed to service the growth cell and provide connections to the existing road network and adjacent T1 growth cell development. The roading layout is included in the Structure Plan within **Appendix A**. Upgrades are also proposed to the existing Frontier and Pirongia Roads.

An Integrated Transportation Assessment (ITA) has been prepared by Stantec for the Plan Change to assess the traffic and transportation effects associated with the proposed rezoning and structure plan layout. The ITA is attached in **Appendix F**.

The ITA considers the effects of the rezoning and subsequent development on the surrounding network, taking into account traffic volumes, intersection operation, visibility, intersection spacing and road safety effects. The following summarises the assessment and recommendations.

Traffic volumes in the locality will increase as a result of development of the growth cell. There are also other sources of traffic growth that are required to be included in the assessment to accurately assess the effects. These include:

- The consented T1 growth cell development;
- Other background traffic growth (Council data suggests annual growth rate of 3.8% per annum).

Taking into account future development of growth cell T2 and the above other sources of traffic growth traffic volumes are predicted to increase on:

- Frontier Road from the existing 1,500-1,600 vpd to 3,000-4,200 vpd. The ITA concludes that a daily volume of 3,000-4,200 vpd is well within the expected and acceptable range as a future collector road and can be suitably accommodated subject to the proposed upgrades along the Structure Plan frontage; and
- Pirongia Road from the existing 2,660 vpd to 5,300-6,550 vpd. The ITA concludes that 5,300-6,550 vpd is well within the expected and acceptable range for a collector road and can be suitably accommodated, subject to the proposed upgrades along the Structure Plan frontage.

Traffic volumes can therefore be accommodated within the existing road network, subject to the proposed upgrades of both Frontier and Pirongia Roads along the Structure Plan frontage.

New intersections are proposed on both Frontier Road and Pirongia Road into the site. The new intersections have been modelled in SIDRA (intersection modelling program) using all sources of traffic growth outlined above in the modelling. Overall a high degree of efficiency and minimal delay outcomes are expected with the proposed intersection forms, with both the intersections (at the new local road and Frontier Road and the new local road and Pirongia Road) being able to operate within its capacity during the morning and evening peaks.

The ITA adopted a required sight distance of 123m in a 60km/h speed environment. Visibility at the new intersections on Frontier Road and Pirongia Road have been assessed to be in excess of 123m in both directions at each intersection. As such, visibility is adequate and effects are less than minor.

The new intersections on Frontier Road and Pirongia Road are appropriately placed to ensure separation from the nearest intersection achieves compliance with standards. On both roads, the nearest intersection is the intersection into the T1 growth cell. On Frontier Road the two intersections are located 250m apart, complying with the required separation of 60m. On Pirongia Road the two intersections are located over 500m apart, complying with the required separation of 90m. Intersections within the Structure Plan are also placed to comply with the required separation distances.

The proposed roading network and upgrades to the existing network are considered to provide a safe road environment for the following reasons:

- A network of shared paths are provided throughout the network to ensure the safe movement of people and vehicles;
- Intersections have been placed to comply with sight distances and separation requirements;
- Rural and urban threshold features are proposed to create a clear transition between rural and urban areas, including a right turn bay on Pirongia Road;
- Upgrade of Frontier and Pirongia Road to full urban standards are proposed; and
- A reduction in the speed limit is proposed along Frontier and Pirongia Roads in the vicinity of growth cell T2.

The shared path network is a mixture of on road cycling routes and off-road shared pedestrian/cycle paths also utilising the proposed open spaces, as shown on the structure plan. Connectivity is enhanced by the three road connections to the adjacent T1 area meaning that in the long term the two growth cells will be fully integrated with seamless connections between them.

While the majority of the pedestrian and cycle paths will be on land that will vest in Council as either roads or reserves, the path along the western boundary of the retirement village will be privately owned, as will other infrastructure within the retirement village. Sanderson Group will provide for public access along this path as connectivity to walking and cycling paths is a key factor in the marketability and success of their retirement villages. However, due to security issues that access may not be publicly available 24 hours a day. The detail of the management of that path, and other aspects of public accessibility within the village, are matters that should be addressed at resource consent stage, as they can be subject to consent conditions.

The ITA concludes that the planned transport networks and upgrades to the existing network are appropriate to accommodate the activities generated by the rezoning of the growth cell. The traffic and transport elements of the plan change have been appropriately established within the proposed structure plan. The network will ensure a safe and efficient road environment and integration of the T2 growth cell with the wider Te Awamutu area. As such, the transportation effects of the rezoning are considered to be less than minor and appropriately managed through the design.

5.5 Ecological Effects

An Ecological Impact Assessment (EIA) has been prepared by Ecology New Zealand for the proposed plan change. The assessment considers the overall suitability for urban development, further specific and detailed ecological management requirements will be addressed through subsequent resource consents required for development of the site. A copy of the EIA is included in **Appendix G** of this report.

The EIA concludes that:

- Development on the site will only result in removal of exotic and pest plant dominated vegetation and low ecological value natives on the site. Further no vegetation of high botanical significance will be removed. No specific mitigation in relation to vegetation clearance is required.
- Impacted vegetation on the site may cause impacts on nesting birds and their eggs during breeding season. Vegetation is noted to only support common native and exotic species. Vegetation removal

should be undertaken outside of bird breeding season (October to April), otherwise inspections by an ecologist may be required prior to removal.

- Loss of vegetation may result in a loss of potential habitat and resources for lizards. Vegetation clearance also has potential to result in lizard mortalities. Survey for lizard species should be undertaken and Lizard Management Plan prepared if lizards are present.
- No bat roost habitat has been identified on the site. However, conservatively there may be indirect impacts on long-tailed bats (i.e. loss of commuting and foraging across the site, disturbance or avoidance of the site from artificial lighting). Further survey work is proposed to assess potential effects on bats and potential mitigation or management of the effects. Further survey work should be undertaken in November to April to provide more certainty of information, and this will be an input to the subsequent resource consent applications. Provision of better feeding habitat within the stormwater pond design and incorporation of low lumen, directional lighting design are potential mitigation measures.
- Potential for there to be a loss of aquatic habitat and wetland habitat and potential mortality of native fish during stream works. Targeted fish surveys should be undertaken and a Fish Management Plan prepared if fish are encountered.

Overall, with the implementation of appropriate ecological management in accordance with usual practice at the time of resource consent applications any potential effects of the plan change can be adequately managed to be no more than minor. No site-specific plan provisions are required.

5.6 Archaeological Effects

An archaeological assessment of the entire Growth Cell T2 area has been undertaken by Warren Gumbley Archaeologists. The assessment is split into two reports, one for the southern portion of the growth cell containing the residential subdivision and retirement village, and one for the balance of the growth cell to the north. Both reports are attached within **Appendix H** of this report.

No archaeological sites have been recorded on or adjacent to growth cell T2. However, it is noted in the reports that there has been no systematic archaeological survey surrounding the growth cell and all recorded archaeological sites locally have been recorded on an ad hoc basis. The only systematic survey was carried out in 1980 and was focused on the Puniu River which is located approximately 1.5km to the south of the growth cell. Despite the absence of systematic archaeological survey, archaeological sites follow generally distinctive patters strongly clustered to the Puniu River and Mangapiko Stream.

The closest site is the pa site recorded as S15/86, S15/233 and the Otawaho Pa (S15/332). These pa sites are displayed in the following figure. The proposed rezoning and structure plan will not disturb or destroy any of these pa.

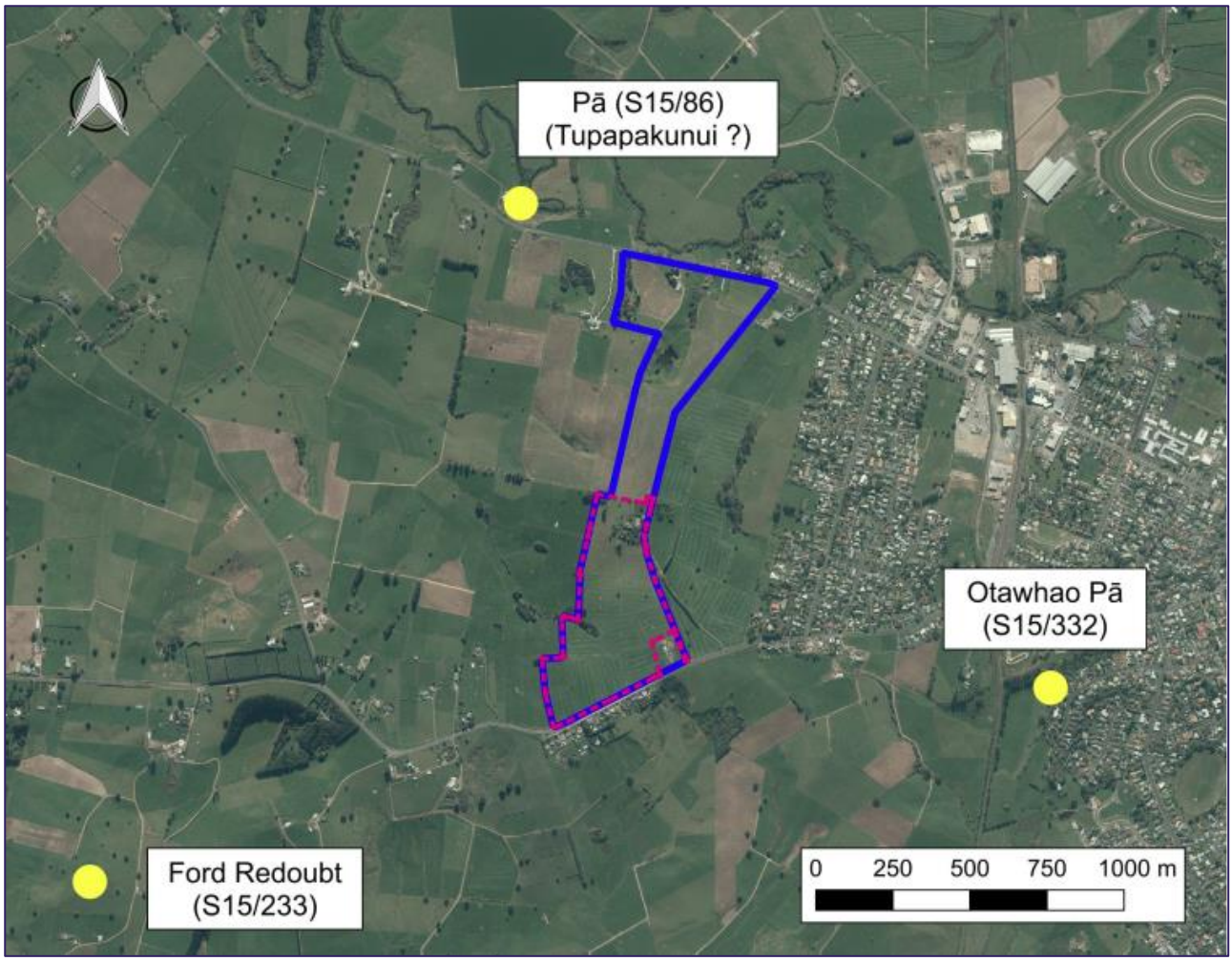


Figure 6: Recorded Archaeological Sites in the locality

A review of historic maps and aerial photographs was also undertaken by Warren Gumbley. Historic aerial photographs show the growth cell was previously used for farming activities, a dwelling and associated out-buildings.

A site investigation was undertaken for the southern half of the growth cell and no evidence of archaeology was noted. A site investigation was not undertaken for the northern half of the growth cell. The archaeological report for this area notes that potential for archaeological sites within this area is considered to be low, however there is slightly increased potential for archaeological remains within proximity to Mangapiko Stream and the pa recorded as S15/86.

Overall, the proposed rezoning will not have any archaeological effects. It is expected, as is standard practice, that at the time of resource consent application for future development consent conditions relating to accidental discovery will be imposed. However, there is no evidence that warrants specific recording of sites or specific rules in the structure plan relating to archaeology.

5.7 Geotechnical Effects

CMW Geosciences (CMW) was engaged to undertake a geotechnical desktop assessment relating to broad development suitability of growth cell T2 for residential development and to identify any geotechnical hazards affecting the site. The report is attached within **Appendix I**.

The geotechnical report concludes that the site is geotechnically suitable for the proposed rezoning and subsequent residential development. While the site has been considered as suitable for residential development, the assessment undertaken to date is limited to a desktop assessment and at the time of development of the site further geotechnical investigations are required to provide a full understanding of the geotechnical hazards and risks across the site. The following additional assessment and investigations will be required (as a minimum):

- Sampling and testing of surface soils;
- CPT investigations are required in conjunction with geotechnical design to appropriately mitigate and manage the liquefaction risk.
- Steeper slopes across the site (particularly near gullies) require detailed geotechnical investigation and assessment to determine the slope stability/instability. Further. specific slope stability analysis required in areas where currently active or historic instabilities are noted.
- Areas of uncontrolled fill require investigation to determine nature, depth and extent of fill.
- Where soft and compressible soils are present, further detailed geotechnical investigations (test pits, boreholes, CPTs) would be required.

Further testing will be undertaken at the time of resource consents for subdivision and development of the site. It is considered that the proposed plan change will not have any geotechnical effects.

5.8 Contamination Effects

A Preliminary and Detailed Site Investigation has been prepared for the southern half of the growth cell, directly relating to the retirement village and residential subdivision. The PSI and DSI concludes the following:

- Mean concentrations of heavy elements in surface soils are below applicable standards across the site;
- Asbestos fibres are not present;
- Offal pits may be present near the former dairy shed adjoining the southern eastern boundary that may contain non-organic wastes;
- Elevated lead and zinc are present.

Overall, due to the potential for waste disposal pits to be encountered on the site during bulk earthworks it is recommended that contingency measures are adopted into earthworks management plans to manage the risks associated with these wastes if encountered.

A contamination assessment for the northern portion of the site has not yet been undertaken however as a result of the land uses across the balance of the growth cell being much the same as the investigated portion, the results and recommendations are likely to be similar.

These matters will be addressed at resource consent stage for bulk earthworks and future development on the site. As such, the effects associated with contamination on the site are considered to be less than minor.

5.9 Positive Effects

This plan change will allow for residential development in a location that has been earmarked for future residential development in the District Plan. As such, despite the timing being out of keeping with the District Plan expectations, development of the growth cell at this point in time will assist in the shortfall of housing and retirement living options in the locality. This will introduce additional competition in the market and contribute to housing supply which will subsequently have positive implications on housing affordability.

The plan change also allows Sanderson and Kotare to subdivide and develop in accordance with their desired timeframes.

5.10 Cultural Effects

Attached as **Appendix A** is a copy of the Cultural Impact Assessment (CIA) prepared by Norman Hill of Epiha Consultants. The CIA records that mana whenua are Ngati Apakura and Ngati Hikairo and the three iwi with identified interests in the area are Ngati Maniapoto, Raukawa and Waikato-Tainui. These iwi are represented by post-settlement governance entities, being Maniapoto Maori Trust Board, Raukawa Settlement Trust and Te Whakakitanga o Waikato Incorporated, respectively.

The CIA confirms that the area is of historic, cultural and spiritual significance to iwi. It notes that the Mangapiko Stream at the northern end of the site is a watercourse of significance to iwi and the heritage overlay in the WDP confirms mana whenua expectations that the appropriate protocols (tikanga and kawa) are followed throughout the project.

It also confirms the relevance of iwi management plans produced by the relevant iwi, being Te Rautaki Taiao a Raukawa, Ko Ta Maniapoto Mahere Taiao and Tai TumuTai Pari Tai Ao. It notes that PC 12 will not lead directly to development of the land and that subsequent resource consent applications will be the methods whereby the recommendations for environmental and cultural initiatives will be implemented.

The CIA includes six recommendations as follows;

Recommendation 1: To establish, grow and maintain relationships with mana whenua by entering into working or formal relationships with mana whenua to oversee the implementation of the project and the relevant conditions and undertakings. This could also include facilitating economic and social development opportunities for mana whenua.

Recommendation 2: Ensure that cultural protocols are established for, but not limited to: (a) observing tikanga before works commence. (b) The placement of cultural features within the development.

Recommendation 3: That an accidental discovery protocol (ADP) be implemented as part of any future consent is granted/or work undertaken.

Recommendation 4: That any contractors involved in earthworks be given appropriate guidance on mana whenua tikanga and protocols including an understanding of the ADP which may be delivered by a mana whenua representative or designate, and that agreement is duly noted.

Recommendation 5: A cultural health indicator framework for water quality standards and water quantity take in relation to Mangapiko Stream be applied.

Recommendation 6: A partnership Kawenata be developed, agreed, and signed by mana whenua and Sanderson Group Ltd and Kotare Properties.

In addition, it proposes that the wetland be developed to encourage wildlife and road names be chosen to commemorate the origins of the site. These recommendations are accepted by the applicants and will be implemented through the subsequent resource consenting, design and construction phases.

5.11 Historic Heritage Effects

As identified in this report, the site contains a heritage item at the northern end near Pirongia Road, located on the property at 67 Pirongia Road. The heritage item is a house named Isla Bank and is listed in the District Plan and the New Zealand Heritage List. The District Plan listing is as follows:

Map #	Ref #	Site Name	Address	Style	Description	HNZ Class	Legal Description	DP Cat
TE AWAMUTU								
38	6	House (Isla Bank)	67 Pirongia Road	Villa	Twin bay villa, 1907-1909	2	LOT 1 DPS 514120 (RT 796970), South Auckland Land District	B

Figure 7: Extract of Waipa District Plan

Isla Bank is listed in the New Zealand Heritage List as a Category 2 Historic Place. The listing number is 4328 and was listed on 5 September 1985. The Isla Bank house is shown in the following image.

Figure 8: Isla Bank

The location of Isla Bank is shown in the following aerial image. The property boundaries are outlined in red:

Figure 9: Aerial View Isla Bank Property

The plan change does not propose any changes to the heritage building on the site, the building's listing in the District Plan and identification on the District Plan maps, or the listing on the New Zealand Heritage List. The proposed roading layout shown on the structure plan avoids any impact on the property.

As such, the plan change will not have any direct physical effects on Isla Bank and the house will continue to be protected under the District Plan.

Heritage NZ have raised the issue of potential effects on the setting of the building, including the tree-lined driveway. Neither the District Plan nor the Heritage NZ listing identify the setting as part of the item to be protected. The building is contained in a separate title of 1.6389ha (Lot 1 DP 514120).

Rule 22.4.1.1 (l) of the WDP requires a discretionary activity consent for construction of new buildings and relocated buildings within the surroundings of a listed heritage item and Objective 22.3.3 seeks to ensure that '*any development undertaken within the surroundings of a heritage item [does] not detract from the heritage item'*. The WDP defines 'surroundings' as meaning '*for the purpose of listed heritage items, the land immediately surrounding the listed item including any closely associated buildings, gardens, monuments and structures, but excluding any immediately adjacent open fields'*.

Therefore, the WDP has already addressed effects on heritage items on a District-wide basis and implemented objectives and rules that will apply to any future resource consents to develop close to or around the building. If the Stage 2 structure plan area is developed it will be the Isla Bank landowner's decision as to the extent to which (if at all) their land is incorporated into the wider development plans.

Therefore, there is no need to implement any site specific rules in PC12 to protect the heritage item.

5.12 Conclusion on Environmental Effects

The environmental effects described in this report are consistent with the effects anticipated when the land was given a Deferred Residential zone and are broadly in line with those expected with the urbanisation of rural land.

There are no environmentally sensitive features of the land that require any different approach to other residential growth cells on the outskirts of Te Awamutu. Importantly, urban services can be extended and upgraded to service the site, largely extending westward from the adjacent T1 cell and along the existing Pirongia and Frontier Roads. The only issues requiring a slightly different approach are the landscape and visual effects of interfaces with existing rural and residential neighbours, that are addressed by additional rules.

6. Consultation

6.1 Waipa District Council

Multiple meetings have been held with WDC planning, engineering and recreation staff, and drafts of the structure plan and development plans have been shared with them. A collaborative approach has allowed for issues such as water and wastewater servicing and transport infrastructure to be advanced to the point where there is broad agreement is principle.

The applicants appreciate the constructive approach taken by WDC staff to date. Ongoing engagement is proposed.

6.2 Waikato Regional Council

Resource consent authorisations are required under the WRP for the bulk earthworks activities associated with site development and the permanent discharge of stormwater from the development site. A preapplication meeting was undertaken with key WRC staff in July 2020 to outline the proposed activities and associated environmental management methods including erosion and sediment control management for the earthworks and stormwater quality and quantity control for the permanent site discharges. The proposed management methods have been developed in accordance with the WRCs best practice guidelines for earthworks and stormwater management and were well received at this meeting by WRC with no specific concerns raised.

The required earthworks and stormwater consent applications were lodged with the WRC for processing in the name of the joint Applicants Sanderson Group and Kotare Properties and they were approved in September 2020. Copies of these consents are included in **Appendix M**. These approvals are a separate process to this plan change as they deal only with the environmental effects of the earthworks and the stormwater discharge. However, they confirm that the site is suitable for urban development taking into account stormwater and earthworks matters. The consents include conditions requiring a wetland planting plan for the stormwater pond, an accidental discovery protocol in the case of disturbance of archaeological items and a dust management plan.

A further regional consent application will be required for a temporary short term water take to allow sufficient volume for dust suppression during earthworks and a permanent long term water take for irrigation of the retirement village. A resource consent application will be prepared and lodged with regional council prior to undertaking any works relating to the water take.

6.3 Tangata Whenua

Waikato-Tainui have been advised of the plan change and comments sought. Information resulting from engagement with tangata whenua is included in the CIA at **Appendix L**.

6.4 Nearby Landowners and Residents

All neighbouring landowners have been contacted to advise them of the proposed development. Meetings and discussions have been held with many of them. As a result seven written approvals from neighbours have been received. They are included in **Appendix K**.

Some neighbours, particularly those on Frontier Road have raised concerns about the land use change, with particular reference to the residential subdivision. They are concerned that the land use change will happen much earlier than the 2035 date in the WDP. This will lead to the loss of their rural outlook sooner than

expected, and earlier visual impacts of houses on the other side of Frontier Road. In addition to this, neighbouring properties are concerned with effects of stormwater, flooding and increased traffic on Frontier Road. The proposed plan rules setting a lower height limit and requiring landscaping and lower fencing along that frontage will assist in mitigating those effects.

Many of their concerns such as vibration and noise relate to the construction phase of development which are matters that can be addressed through conditions on subsequent resource consents. The WRC earthworks consent that has been granted includes a condition requiring no objectionable dust discharges beyond the site, and a requirement for a dust management plan to be prepared and implemented.

7. Planning Assessment

7.1 Vision and Strategy for the Waikato River

The Vision and Strategy for the Waikato River (Te Ture Whaimana o Te Awa o Waikato) forms part of the Waikato RPS and responds to four fundamental issues in respect of the River, as follows:

- The degradation of the Waikato River and its catchment has severely compromised Waikato River iwi in their ability to exercise mana whakahaere or conduct their tikanga and kawa;
- Over time, human activities along the Waikato River and land uses through its catchments have degraded the Waikato River and reduced the relationships and aspirations of communities with the Waikato River;
- The natural processes of the Waikato River have been altered over time by physical intervention, land use and subsurface hydrological changes. The cumulative effects of these uses have degraded the Waikato River; and
- It will take commitment and time to restore and protect the health and wellbeing of the Waikato River.

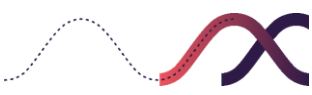
While the development site does not discharge directly to the Waikato River, the site will have stormwater discharges into land and watercourses within the Waipa catchment.

The following strategies to meet the above objectives have also been considered as part of this rezoning:

- Ensure that the highest level of recognition is given to the restoration and protection of the Waikato River;
- Encourage and foster a 'whole of river' approach to the restoration and protection of the catchment, including the development, recognition and promotion of best practice methods for restoring and protecting the health and wellbeing of the Waikato River; and
- Ensure that the cumulative adverse effects on the Waikato River of activities are appropriately managed.

This is a plan change and therefore does not lead directly to development. The effects on the catchment and the river are more appropriately addressed in the context of subsequent resource consents and conditions of consent. However, the land use change is likely to lead to some improvements in water quality. Firstly, the current dairy farm will be retired, creating potential for reduced runoff of nutrients. The plan change includes a Preliminary Site Investigation (PSI) and Detailed Site Investigation (DSI) of soil contamination. While no specific sources of contamination were identified above acceptable levels, recommendations were made to remove any contaminated material if encountered during earthworks. The plan change includes a comprehensive stormwater management plan approach that will implement treatment swales and wetlands in accordance with WRC's Low Impact Design Matrix, which is a best practice stormwater management. This will avoid any adverse effects within the downstream receiving environment and will result in a positive outcome for the receiving environment, and therefore for the river.

Therefore, the plan change is consistent with the Vision and Strategy.



7.2 District Plan and Waipa 2050

This section assesses the policy fit of this plan change with the WDP. The WDP was made operative on 14 August 2017, therefore is a recent and up to date planning instrument. It incorporates the key outcomes of Waipa 2050, the Waipa District Growth Strategy.

Growth Cell T2 is one of several identified growth cells in the Waipa District. Appendix S1 of the Waipa District Plan contains information about all growth cells in the District. These are split between two groups; growth cells which are intended to be opened and developed from now to 2035 and growth cells which are intended to be opened and developed after 2035.

The growth cells identified in Appendix S1 derive primarily from the Waipa 2050 District Growth Strategy, a long term, integrated approach to managing growth in the District, based on the population projection that Waipa will have an additional 25,000 people in the District by 2050. Most of the Growth Cells have been included within a Deferred Zone in the District Plan to indicate the intended future land use (i.e. Deferred Residential/Deferred Industrial). The Te Awamutu Growth Map is displayed in **Figure 1** of this report.

As displayed above, there are a total of 16 growth cells in Te Awamutu, two of which are Industrial and 14 are Residential. Of the 14 residential growth cells, there are two which are anticipated for large lot residential development and 12 anticipated for standard residential development. The growth cells are further split into areas that can be developed from now to 2035 (areas outlined in blue in **Figure 1**) and 2035 onwards (areas outlined in yellow in **Figure 1**).

As aforementioned, Growth Cell T2 is the subject of this plan change request, located at the western edge of Te Awamutu. This growth cell has been identified for future residential development after 2035. The entirety of Growth Cell T2 is zoned Deferred Residential, meaning that residential development is appropriate in this location, however not in the immediate future. Growth Cell T2 has a total size of 41ha as identified in Appendix S1 of the WDP, made up of a number of properties, and has a dwelling capacity of approximately 492 dwellings in total.

Growth Cell T2 adjoins Growth Cell T1 which is currently under development with subdivision of stages 1 and 2 approved and earthworks under way.

While Growth Cell T2 has been identified for development after 2035, the Waipa District Plan provides an opportunity to open up a growth cell for development earlier than originally anticipated. This is required to be undertaken via a plan change to the Waipa District Plan, subject to meeting a number of requirements in Rule 14.4.1.10 of the WDP, including:

- Proving to the satisfaction of Council that within the relevant town or village there are less than three Open Growth Cells or there is less than three years supply of land that is 'Development Ready' for Te Awamutu;
- The Deferred Zone will be required to be rezoned for its intended future use, i.e. Residential in this instance (via a plan change);
- A structure plan for the entire growth cell, is to be approved by way of a change to the Waipa District Plan;
- The Development Infrastructure required to service the Deferred Zone area is either in place, or Council is satisfied that there is a solution to deliver the necessary infrastructure (this can be outlined at a high level in the structure plan);
- No amendments are required to the District Plan objectives, policies or rule framework.

Sanderson Group and Kotare Properties propose to make use of the opportunity to rezone the site opening it up for residential development to occur now. The following addresses the four bullet points above.

Currently four of the residential growth cells in Te Awamutu are open as follows:

a) The T1 Growth Cell located between Frontier Road and Pirongia Road on the western side of Te Awamutu. Stage 1 and 2 of this development has been consented for 41 residential lots.

b) The T9 Growth Cell located on the northern side of Cambridge Road on the eastern side of Te Awamutu. Subdivision consent has been applied for to subdivide this site into 85 residential lots. The application is currently on hold at the request of the applicant.

c) Part of the T3 Growth Cell located between Bond Road and Te Rahu Road. This Growth Cell had its zoning uplifted in part in May 2017 and subdivision consent for 41 residential lots approved in July 2017. To date approximately half of the subdivision has new dwellings on them. In terms of the remaining part of the Growth Cell, this is still deferred zoning.

d) Part of the T8 Growth Cell located on Golf Road and Park Road. This Growth Cell had the non-flood areas uplifted in July 2019 and subdivision consent for 98 residential lots.

Despite the number of growth cells open, there are limited options in terms of actual sections developed and for sale. Approximately 180 lots have been consented in the open growth cells, of which only a portion have been developed. This is unlikely to be keeping pace with the annual household demand of 169 noted in Table 2 below. There is demand for additional residential sites and increased range of residential products and price points and locations. In particular, as evidenced by the unsolicited approaches to Sanderson Group, there is specific demand for additional retirement options.

Waipa 2050 identifies that growth is not expected to be linear through to 2050. A higher proportion of growth is expected in the first 10 years (2017-2027), and will slow after that. This is illustrated for Cambridge and Te Awamutu/Kihikihi urban areas below.

TABLE 1: CAMBRIDGE & TE AWAMUTU / KIHIKIHI HOUSEHOLD DEMAND 2017-2050

Location	2017 Population	2050 Estimated Population	2050 Households	Annual Household Demand	Annual Land Supply Required
Cambridge	16,100	30,300 (+14,200)	13,500 (+7,000)	212	18ha
Te Awamutu / Kihikihi	13,000	18,400 (+5,400)	8,700 (+3,400)	104	9ha

TABLE 2: CAMBRIDGE & TE AWAMUTU / KIHIKIHI HOUSEHOLD DEMAND 2017-2027

Location	2017 Population	2027 Estimated Population	2027 Households	Annual Household Demand	Annual Land Supply Required
Cambridge	16,100	23,200 (+ 7100)	9,800 (+3400)	340	28 ha
Te Awamutu / Kihikihi	13,000	15,700 (+2700)	7,000 (+1700)	169	14ha

Figure 10: Projected Household demands extracted from Waipa 2050

From 2017 until 2027 (10 years), land supply for residential use requires 14ha per year to become available and 169 dwellings per year to be provided in Te Awamutu. Over the next 3 years, this equates to approximately 42ha and 507 dwellings. By 2027 approximately 169ha will need to have been provided to meet anticipated demand, when taking into account the additional 20% required by the NPS-UD.[2]

T2 adds to existing residential options and will ensure there is an ample supply of land taking into account the long lead times for land development and the varied intents and drivers of landowners in the growth cells. T2 adds to the options, ensuring there is healthy competition in the residential land market, which will support improved affordability.

This plan change fulfils bullet points two and three, by rezoning the land to residential and including a structure plan for the entire growth cell prior to undertaking development.

As set out in the infrastructure report the development infrastructure is either already in place or able to be provided as part of the development, satisfying bullet point four.

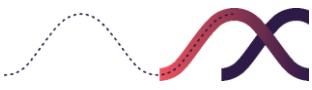
As described elsewhere in this plan change, the use of this land for residential development has previously been determined as appropriate and has been zoned to allow for future residential development. As such, the plan change proposes only minimal and necessary additional rules relating only to the land in question. Overall, the plan change is designed to fit into the objective, policy and method frameworks of the WDP, not affecting its overall coherence. Therefore, the fifth bullet point is also satisfied.

Further to the above, assessment criteria 21.1.14.1 of the District Plan are relevant to the Deferred Zone and development of structure plans for an identified growth cell. The following sets out an assessment of the plan change against these criteria.

Table No. 3

Assessment against Waipa District Plan Assessment Criteria		
Assessment Criteria No.	**Criteria**	**Comment**
21.1.14.1 – Structure Plans for an entire Deferred Zone area identified on the Planning Maps	a) The extent to which the structure plan and/or its staging is consistent with the programmed growth allocation and/or staging in the Waipa District Growth Strategy and the Waikato Regional Policy Statement. If it is not consistent, then the extent to which the criteria for alternative land release has been met.	The staging of this plan change and structure plan is not in accordance with the staging in Waipa 2050 as outlined in section 7.2.. There are criteria for alternative land release set out in Policy 6.14.3 of the RPS. They anticipate that the land release assumptions in the RPS may be varied through district plans and structure plans, with a focus on ensuring land development is coordinated with infrastructure provision. However, those higher level criteria have effectively been converted into these more detailed WDP assessment criteria, together with Rule 14.4.1.10. Therefore, there is no need to revisit the RPS criteria. This assessment demonstrates that the WDP criteria are met.
	b) The extent to which the infrastructure needs for the site have been met and any network	Infrastructure needs for the site have been assessed by Nicklin CE, Wainui Environmental and Stantec (refer to **Appendix D**, **Appendix E** and **Appendix F** for each of those assessments).

[2] Waipa 2050, Table 7, p24



	and/or capacity constraints have been addressed.	Overall, as set out in each of the assessment reports and in the above reporting, there are viable infrastructure solutions for wastewater, water supply, stormwater, roading, telecommunications, electricity and gas. The growth cell will be able to be appropriately serviced without resulting in adverse effects on the environment or surrounding landowners and occupiers.
	c) The extent to which the stormwater system for the site has taken into account a catchment management approach and provides for the anticipated level of service. Guidance on stormwater design is provided in the Regional Infrastructure Technical Specifications.	The proposed stormwater treatment and disposal for the growth cell is split into two subcatchments (north and south) and it is demonstrated by Wainui Environmental in their Stormwater Management Plan (refer **Appendix E**) that an appropriate stormwater management regime can be achieved for each subcatchment of the growth cell. Stormwater design is consistent with the Regional Infrastructure Technical Specifications.
	d) The extent to which the structure plan provides for multimodal transport options, within the area as well as connections to routes, facilities and sites outside of the structure plan area.	The structure plan has evolved through a comprehensive, integrated, multidisciplinary design process. Provision has been made for multimodal transport options. A main road network is outlined in this structure plan which connects to Pirongia Road in the north, Frontier Road to the south and the road network within growth cell T1 to the east. A supporting cycle and pedestrian network is provided throughout. Overall, the structure plan has been designed to have a clear and legible structure with pedestrian and cycle connections through the site.
	e) The extent to which the structure plan provides for the key elements of character of the area in which it is located and provides for the valued characteristics of the area.	The structure plan identifies the surrounding locality, including the rural/urban interface to the east, and responds to key characteristics of Te Awamutu. The structure plan will allow for seamless integration with the existing urban areas of Te Awamutu and provide appropriate treatment along the rural/urban interface to ensure a positive relationship with the surrounding rural area to the west.
	f) The extent to which the relationship of Māori with their ancestral lands, water sites, wāhi tapu, and other taonga has been recognised and provided for.	Consultation with iwi has been undertaken and the relationship of tangata whenua with the site is addressed in the CIA in **Appendix L**.
	g) The extent to which the structure plan protects indigenous biodiversity of the	The Ecological Impact Assessment confirms that indigenous biodiversity will not be affected by the rezoning. The only identified heritage site on the site (Isla Bank – house) will not be affected

	area and/or heritage sites or features.	by the rezoning. The house will retain its heritage protection under the District Plan and with Heritage New Zealand and therefore will need to be considered at the time of development of any of the northern half of the Cell.
	h) The extent to which the structure plan is consistent with the outcomes and principles contained in the relevant Waipa District Town Concept Plan.	The proposed structure plan and rezoning is considered to be consistent with the Te Awamutu Town Concept Plan as the proposal is for residential development in a location which is earmarked for residential development. Infrastructure is able to be developed to service the entire growth cell. Connections within the growth cell and to surrounding areas are provided for in the structure plan. Upgrades to both Pirongia Road and Frontier Road are proposed to create attractive and safe gateways into Te Awamutu.
	i) The extent to which any risks associated with natural hazards or any geotechnical issues, contaminated sites, and or hazardous substance can be managed.	The growth cell has been subject to various geotechnical and contamination assessment to ensure site suitability, and no significant hazards have been identified. Overall, the site is considered to be suitable for residential development.
	j) The extent to which the proposed land use will result in a reverse sensitivity effect and any proposals to mitigate that effect.	The rezoning will not result in any reverse sensitivity effects. Potential effects at the western boundary interface with rural land are mitigated by the additional building setbacks.

Overall, the proposal is consistent with the above assessment criteria and the above matters have been included in the structure plan where appropriate. Therefore, it is considered suitable, in the context of the above assessment criteria, for the growth cell to be rezoned and a structure plan inserted into the District Plan.

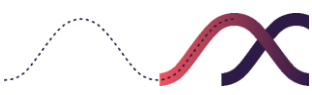
7.3 National Policy Statements

National Policy Statements (NPS) are prepared under the RMA. They establish objectives and policies for matters of national significance relevant to achieving the purpose of the RMA. All District and Regional Plans are to give effect to NPS in their plans and policies.

It is considered that the only NPS applicable to the plan change is the NPS on Urban Development (NPS-UD). The NPS-UD came into effect on the 10 August 2020 and replaces the National Policy Statement on Urban Development Capacity.

It includes several objectives that are relevant to this plan change. They are;

Objective 1; New Zealand has well-functioning urban environments that enable all people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety, now and into the future



Objective 2; Planning decisions improve housing affordability by supporting competitive land and development markets.

Objective 4; New Zealand's urban environments, including their amenity values, develop and change over time in response to the diverse and changing needs of people and communities and future generations.

Objective 6; Local authority decisions on urban development that affect urban environments are;

(a) Integrated with infrastructure planning and funding decisions; and
(b) Strategic over the medium term and long term; and
(c) Responsive, particularly in relation to proposals that would supply significant development capacity.

These objectives are supported by several relevant policies that refer to enabling a variety of homes (Policy 1(a)), supporting the competitive operation of land and development markets (Policy 1(c)) and being responsive to plan changes that would add significant development capacity, even when it is out of sequence with planned land release (Policy 8).

Policy 8 is particularly relevant as it states;

Local authority decisions affecting urban environments are responsive to plan changes that would add significantly to development capacity and contribute to well-functioning urban environments, even if the development capacity is:

(a) unanticipated by RMA planning documents, or

(b) out of sequence with planned land release.

This policy directs that adding capacity is more important (subject to some provisos) than inflexibly adhering to the development sequences in planning documents.

These objectives and policies provide support for Plan Change 12 as they emphasise the importance of increasing development capacity, supporting additional competition, encouraging choice of housing types and locations, and responding to opportunities even when the sequence and timing of development does not match the assumptions in the planning documents. The emphasis is one of erring on the side of more capacity rather than less capacity. The need for a strategic approach has been satisfied by the implementation of Waipa 2050.

In addition, Policy 6(b) is relevant. It states;

When making planning decisions that affect urban environments, decision makers have particular regard to the following matters;
…(b) that the planned urban built form in those RMA planning documents may involve significant changes to an area and those changes;.
(i)may detract from amenity values appreciated by some people but improve amenity values appreciated by other people, communities and future generations, including by providing increased and varied housing densities and types; and
(ii) are not, of themselves, an adverse effect…

The development of T2 represents planned urban built form, as it is anticipated by Waipa 2050 and Appendix S1 to the WDP. It will involve a change to the current environment, and that change will have some adverse effects on some people. However, for others such as future residents and the wider community it will improve amenity values by providing additional housing choice plus upgraded infrastructure and additional reserves and cycleways/walkways. In this respect the NPS supports change and growth within urban areas,

indicating that when that change is flagged and anticipated, as in this case, it should not be considered an adverse effect. That is to say individual environmental effects still need to be addressed, but the land use change itself from rural to urban is not an effect.

Plan Change 12 gives effect to these objectives and policies, and is consistent with the NPS-UD.

7.4 Regional Policy Statement

The RPS aims to achieve integrated management and protection of Waikato's natural and physical resources by identifying and addressing resource management issues within the region. The RPS must give effect to National Policy Statements, although the NPS-UD post-dates the RPS so it does not reflect it. The main issue of relevance for this development is the management of the Built Environment (Section 6).

Section 6 of the RPS aims to ensure that the built environment is planned and coordinated, including coordination with the provision of infrastructure. This section of the RPS ensures that the Future Proof Land Use pattern is implemented through District Plan provisions in order to provide appropriately zoned and serviced land to enable development to occur now and in the future. It is considered that the key policies are as follows.

- Policy 6.1 - ensures that subdivision, use and development of the built environment occurs in a planned and co-ordinated manner.
- Policy 6.3 – ensures co-ordination of growth and infrastructure.
- Policy 6.14 – Adopting Future Proof land use pattern.

The Infrastructure Report at **Appendix D** and the ITA at **Appendix F** demonstrate that urban services can be readily extended and upgraded to service the site, and is coordinated with adjacent development of T1. T2 is planned development as it is anticipated by Waipa 2050 and the WDP. Therefore, it is consistent with Policies 6.1 and 6.3.

Policy 6.14 states that new urban development shall be within the urban limits and managed in accordance with the timing in RPS Table 6-1 which allocates population growth at a high level.

Plan Change 12 is not within Te Awamutu's urban limits as the current urban limit is on the T1 boundary. However, it is broadly consistent with the population projections in Table 6-1 which indicate a population of 15,900 in 2021. Current population growth is slightly less than anticipated in the RPS/Future Proof with the 2018 population estimated at 14,000. It forms part of the 20% split allocated to towns in the region.

The RPS only provides a high level policy direction for residential growth as set out in Table 6-1, leaving the implementation with local and subregional growth strategies and district plans. Despite the site being outside the current urban limits it is consistent with the Future Proof land use pattern as it has been allocated to residential development via Waipa 2050 which in turn has been developed in accordance with the Future Proof growth strategy. It is only the timing that has changed, and the WDP clearly provides a method (via plan change) that enables the removal of the deferral and the implementation of a 'live' zoning.

Therefore, Plan Change 12 gives effect to the relevant policies of the RPS.

7.5 Waikato Tainui Environmental Management Plan – Tai Tumu Tai Pari Tai Ao

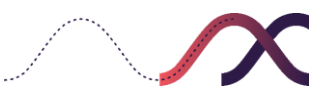
This plan is designed to enhance Waikato-Tainui participation in resource and environmental management. It is developed out of Whakatupuranga 2050, a 50-year long development approach to build the capacity of Waikato-Tainui. The vision of the Environmental Plan is not only to maintain the environment, but also to restore or enhance the quality of natural and physical resources.

The goal of Waikato-Tainui is to ensure that the needs of present and future generations are provided for in a manner that goes beyond sustainability towards an approach of environmental enhancement.

Section B, Chapter 6 sets out the consultation and engagement expectations of Waikato-Tainui. These have been satisfied through the engagement described in the CIA at **Appendix L**.

Section D of the plan addresses specific elements of natural resources and the environment and sets out specific issues, objectives, policies and methods for specific environmental areas. The following table comments on the relevant aspects.

Environmental Element Chapter	Comments
Te Wai Maori – Fresh Water	The plan change provides for a reduction of nutrients as a result of the retirement of the dairy farm. Alongside enhancement plantings within open space areas and the wetland areas and a Low Impact Design approach, water quality is expected to improve with the retirement of farming. Construction effects will be addressed via erosion and sediment control and a strict monitoring regime, as set out in the conditions of the WRC resource consents in **Appendix M.** Wastewater and water supply will be by connection to the WDC systems so there are no impacts on those aspects.
Ngaa Repo – Wetlands	As described in the Stormwater Management Plan at **Appendix E** the site currently contains an artificial farm pond that will be converted to a wetland for both extended detention and water quality treatment purposes. There are no existing wetlands on the site or nearby.
Whenua – Land	The site is currently dairy farmed. Development will retire land from dairying and provide an opportunity to enhance the site through planting and the management of stormwater. All development will be managed by best practice erosion and sediment control measures. There is minimal contamination on the site and this will be managed or removed using best practice.
He Mahinga Ika – Fisheries	As the only waterways on the site are farm ponds and ephemeral or artificial drains effects on fisheries are limited. Investigations of drains may be required at resource consent stage.



Te Ararangi – Air	The only issue relating to air will be potential dust discharges during construction. These will be managed through resource consent conditions.
Ngaa Whakaritenga Moo Ngaa Whenua O Waikato-Tainui – Land Use Planning	The overall development of the site will provide opportunities for environmental enhancement, particularly within the proposed open space network and stormwater treatment wetland. It has land use planning benefits by increasing the range of housing opportunities.
Waihanga Matua – Infrastructure	The provision of infrastructure will be a component of the development as this is a greenfield site, but it is adjacent to existing development already under way in T1. Generally infrastructure will be extended to the site. And roads will be upgraded.

Overall Plan Change 12 is well aligned with the objectives of the Waikato-Tainui Environmental Plan.

8. Notification

Plan Changes are subject to a notification process, as set out in Schedule 1 of the RMA. Clause 5A of Schedule 1, enables private plan changes to be subject to limited notification. The test for limited notification (as set out in Clause 5A(2)) is that the local authority may limited notify a private plan change but only if it is able to identify all the persons directly affected by the proposed change.

In this case the applicant agreed that the plan change would be publicly-notified.

9. Conclusion

Plan Change 12 provides additional residential land capacity in Te Awamutu, and also provides for a large retirement village that would otherwise have difficulty finding a suitable site in Te Awamutu. The residential development of the land has been flagged for many years by the current deferred zoning and is therefore an anticipated form of development. It is only the timing that has been brought forward.

The plan change gives effect to the NPS-UD and the RPS as it is broadly consistent with the Future Proof land use pattern, and represents additional development capacity and market choice. The NPS-UD encourages additional development capacity to support a competitive land market.

The plan change has few adverse effects, and the minor landscape and visual effects can be mitigated by way of additional rules that apply to the interface with other land.

Appendix A – Proposed District Plan Amendments

Appendix B – Record of Titles

Appendix C – Landscape and Visual Assessment prepared by Boffa Miskell

Appendix D – Infrastructure Report prepared by Nicklin CE

Appendix E – Stormwater Management Plan prepared by Wainui Environmental

Appendix F – Integrated Transportation Assessment prepared by Stantec

Appendix G – Ecological Impact Assessment prepared by Ecology New Zealand

Appendix H – Archaeological Assessment prepared by Warren Gumbley Archaeologists

Appendix I – Geotechnical Desktop Report prepared by CMW Geosciences

Appendix J – Preliminary Site Investigation and Detailed Site Investigation prepared by HAIL Environmental

Appendix K – Written Approvals

Appendix L – Cultural Impact Statement

Appendix M – Copy of Regional Council Resource Consent

Proposed District Plan Amendments

1. **Add the following to Residential Zone Rule 2.4.2.4 after Rule 2.4.2.4(c);**

   '(d) In the Te Awamutu T2 Growth Cell Structure Plan area the minimum setback from the western rear boundary adjoining Rural zoned land shall be 4m. This rule shall not apply to retirement villages.'

2. **Add the following to Residential Zone Rule 2.4.2.9;**

   '(g) In the Te Awamutu T2 Growth Cell Structure Plan area buildings on lots adjoining the Frontier Road boundary or Pirongia Road boundary - 5m'

3. **Add the following to Residential Zone Rule 2.4.2.20;**

   '… In the Te Awamutu T2 Growth Cell Structure Plan area all fences within the building setback from Frontier Road or Pirongia Road shall be no more than 1.2m in height, whether or not they are visually permeable.'

4. **Add the following to Rule 15.4.2.69 after item (u);**

   '(v) Te Awamutu T2 Growth Cell Structure Plan'

5. **Add the following after Rule 15.4.2.90;**

   'Te Awamutu T2 Growth Cell Structure Plan Area

   15.4.2.91 In the T2 Growth Cell Structure Plan area a landscaping plan shall be prepared and implemented as a condition of subdivision consent. The landscaping plan shall be in general accordance with the Te Awamutu T2 Growth Cell Structure Plan and shall as a minimum include the following;

   a) Overall design approach.

   b) A planting area of a minimum of 2m wide adjoining the western boundary adjoining Rural zoned land shall be planted in a mix of native shrubs and trees with a minimum mature height of 1.5m, including specimen trees within the 2m wide area generally located near side boundaries. This rule shall not apply to retirement villages.

   c) A plan of landscaping treatment along the Frontier Road boundary and the Pirongia Road boundary, including specimen trees. Any hedges are to be no higher than 1.2m.

   d) Details of proposed street tree planting in accordance with Rules 15.4.2.26 and 15.2.27.

   e) Details of wetland and reserve planting.

   f) Landscape design for proposed neighbourhood playground.

   g) Design and landscape treatment of cycleway and pedestrian network.

h) Entrance and lighting features for the retirement village.

i) Landscape treatment of communal recreational areas in the retirement village.

j) Provision for maintenance of the landscaping.

Activities which fail to comply with this rule will require resource consent for a discretionary activity.

Advice note: These rules apply in addition to the Residential Zone rules.

15.4.2.92 In the T2 Growth Cell Structure Plan area subdivision and development in the Stage 1 area is allowed in accordance with the Residential Zone rules, but such subdivision and development in Stage 2 is not allowed until 2035. The Deferred Zone rules apply in Stage 2 until 2035.

Activities which fail to comply with this rule will require resource consent for a non-complying activity.

6. Add the following new Appendix after Appendix S22;

Appendix S23 - Te Awamutu T2 Growth Cell Structure Plan

S23.1 Purpose

S23.1.1 The purpose of the T2 Growth Cell Structure Plan is to enable general residential development and to incorporate a site strategically located in the centre of the cell for a retirement village, integrated with residential development to the north and south.

S23.1.2 The Structure Plan is to integrate with and complement the adjacent T1 Structure Plan area and existing residential development on Frontier Road and Pirongia Road.

S23.1.2 The structure plan covers an area of some 38ha and is located at the western extent of Te Awamutu.

S23.2 Key Elements

S23.2.1 The Structure Plan is designed to have a clear and legible structure, with pedestrian and cycle connections throughout the site connecting to Pirongia Road to the north and Frontier Road to the south and integrating with the adjacent T1 Growth Cell Structure Plan. The pedestrian/ cycle connection through the retirement village is to be accommodated within a multi-use stormwater/open space swale running along the western boundary.

S23.2.2 The Structure Plan provides three local road connections into Growth Cell T1. A supporting network of local roads and cul-de-sacs for access are also shown. The internal local road cross-sections are based on an 18-20m corridor width and a 15-16m corridor width as shown on the Structure Plan. These indicative widths allow for flexibility in final cross-section design.

S23.2.3 *The open space network has multiple functions of pedestrian and cycle access, stormwater detention and treatment ponds, stormwater treatment swales, ecological rehabilitation and recreational space.*

S23.2.4 *Key design drivers are to provide an appropriate rural interface to the west and a positive interconnected relationship with adjacent residential development to the east.*

S23.2.5 *The Structure Plan is staged so that the southern half (Stage 1) is enabled for development first, with the northern half (Stage 2) to be developed after 2035.*

S23.3 Design Objectives

S23.3.1 *Create a walkable greenfields residential area that connects seamlessly to the neighbouring T1 Growth Cell and supports the neighbourhood commercial centre in T1.*

S23.3.2 *Provide strategic east-west road connections.*

S23.3.3 *Provide for a range of housing types, achieving a yield of 12-15 units per net developable hectare, with higher density development being provided through a retirement village typology.*

S23.3.4 *Ensure that residential development adjoining Frontier Road and Pirongia Road is sympathetic to existing residential development.*

S23.3.5 *Provide for vistas over adjoining rural land to Mt Pirongia and Mt Kakepuku.*

S23.3.6 *Recognise the visual and landscape sensitivity of the interface with rural land to the west.*

S23.3.7 *Reduce vehicle speeds on Pirongia Road and Frontier Road to reflect their urban character and manage the transition from a rural to an urban traffic environment.*

S23.4 Design Measures

The proposed design measures to address the above key objectives are;

23.4.1 *A buffer planting area along the western boundary, where residential development adjoins the rural area.*

23.4.2 *A combined open space area/shared pathway/stormwater swale adjoining the western boundary of the retirement village site.*

23.4.3 *A minimum building offset of 4m along the western rural boundary where residential subdivision adjoins the boundary.*

23.4.4 *A limit on fencing height of 1.2m along the Frontier Road and Pirongia Road boundaries.*

23.4.5 *A limit on building height of 5m along the Frontier Road and Pirongia Road boundaries.*

23.4.6 *A specimen tree planting requirement along the Frontier Road and Pirongia Road frontages.*

23.4.7 *Speed change gateway treatments on Pirongia Road and Frontier Road at the western extent of the structure plan area with kerb build outs and supporting landscaping and signage.*

23.4.8 *Generally adopting the Residential Zone rules for consistency of built form and layout with the T1 structure plan area.*

23.4.9 *A design speed environment for internal roads of 40km/hr.*

23.4.10 *Provision of landscape plans at resource consent stage to include the following;*

- *Design approach*
- *Street tree and amenity planting*
- *Boundary treatments including planting and fencing*
- *Wetland and reserve planting*
- *Reserve and recreational play space*
- *Cycleway and pedestrian network*
- *Entrance and lighting features for the retirement village*
- *Communal recreational areas in the retirement village.*

23.4.11 *Indicative local road cross-sections*

Road Reserve width	**Carriageway width**	**Lane width**	**Cycle width**	**Street parking width**	**Front berm**	**Footpath width**	**Utilities corridor**
18-20m	5.7m total width within the 18m reserve. 9m inclusive of 1.5-2m planted median within the 20m reserve.	5.7m total width within the 18m reserve. 3.5m each within the 20m reserve.	On-street in 40km/hr or lower speed zones. Shared environment plus off-carriageway paths in 50km/hr or above speed zones.	2.2m indented bays	1m both sides	2 @ 1.5m	2.55m both sides
15-16m	5.7m	5.7m total width	Shared environment on-street.	2.2m indented bays	-	2 @ 1.5m	2.55m both sides

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
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R.W. Muir
Registrar-General
of Land

Identifier **110811**
Land Registration District **South Auckland**
Date Issued 22 December 2003

Prior References
SA72D/550

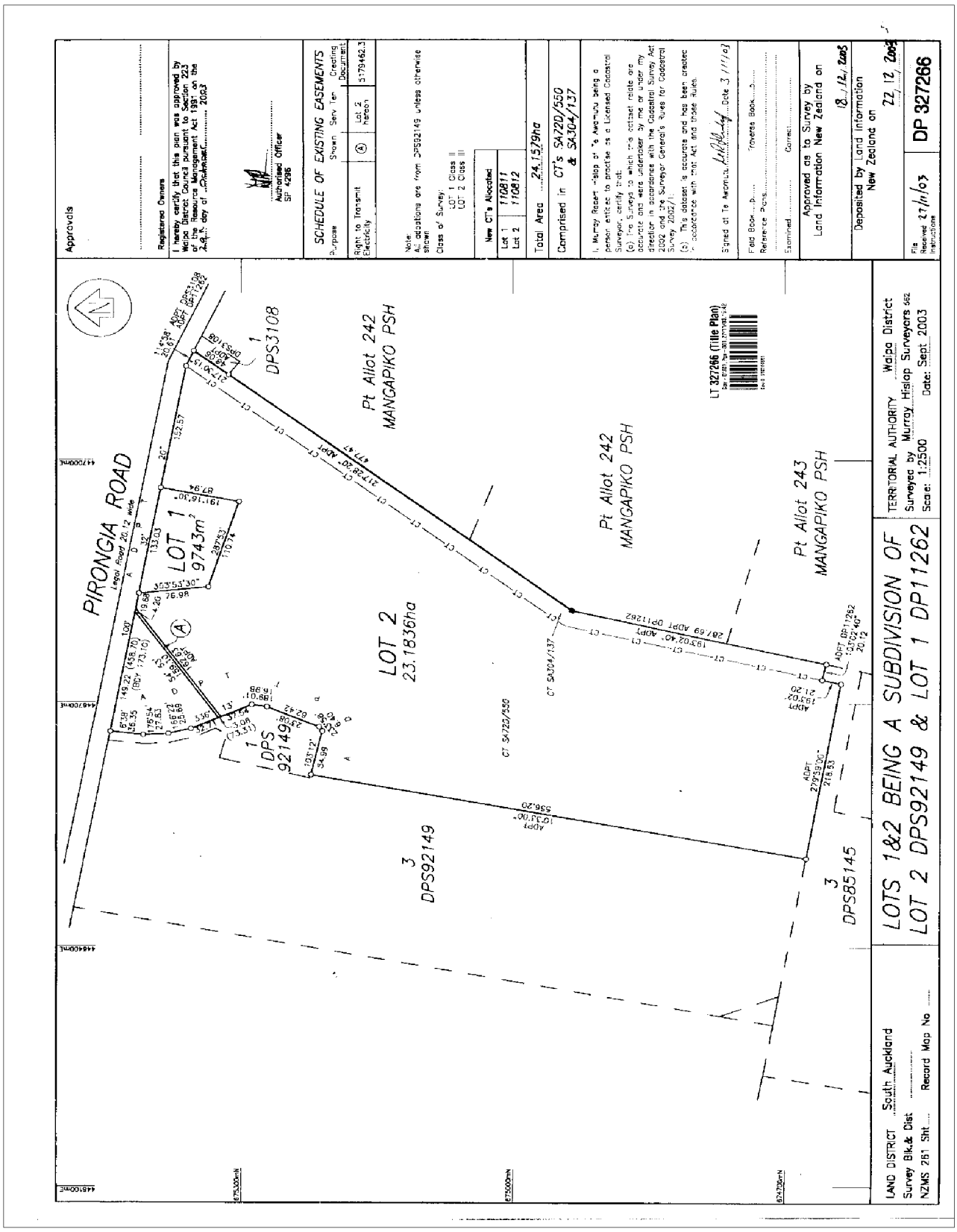
Estate	Fee Simple
Area	9743 square metres more or less
Legal Description	Lot 1 Deposited Plan 327266

Registered Owners
Blenddyn Thomas Sterling and Elizabeth Ann Sterling

Interests

5900094.2 Mortgage to Bank of New Zealand - 16.2.2004 at 9:00 am

Identifier **110811**



RECORD OF TITLE
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R.W. Muir
Registrar-General
of Land

Identifier	**607016**
Land Registration District	**South Auckland**
Date Issued	07 June 2013

Prior References
252922 252923 593615

Estate	Fee Simple
Area	24.8190 hectares more or less
Legal Description	Lot 7 Deposited Plan 461400 and Lot 2 Deposited Plan 362045

Registered Owners
Peter Hugh Thompson as to a 1/4 share
Tracy Lee Thompson as to a 1/4 share
Steven Bruce Thompson as to a 1/4 share
Yvonne Margaret Thompson as to a 1/4 share

Interests

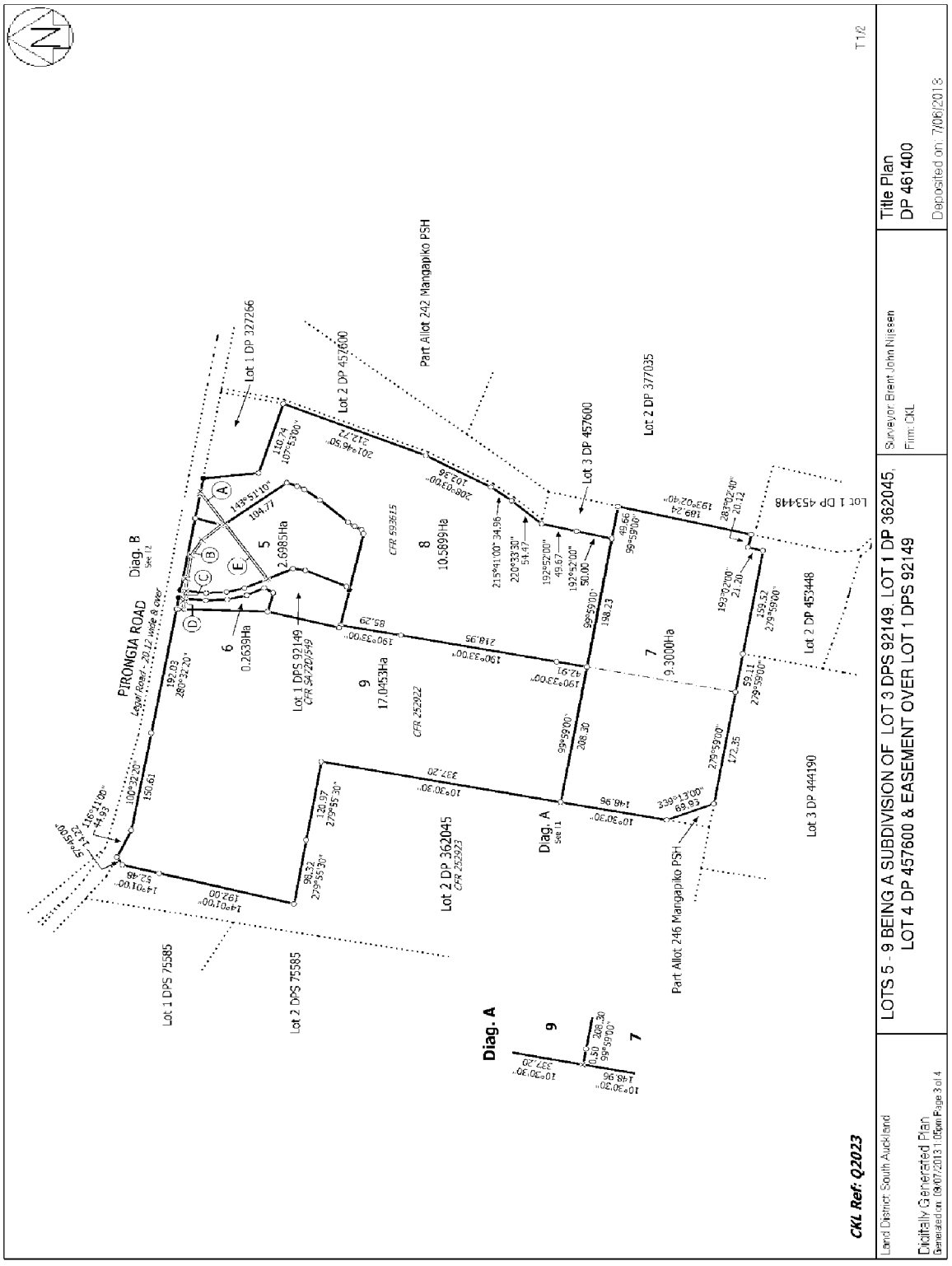
Subject to a right to convey electricity over part Lot 2 DP 362045 marked A on DP 362045 created by Easement Instrument 6865945.3 - 16.5.2006 at 9:00 am

The easements created by Easement Instrument 6865945.3 are subject to Section 243 (a) Resource Management Act 1991

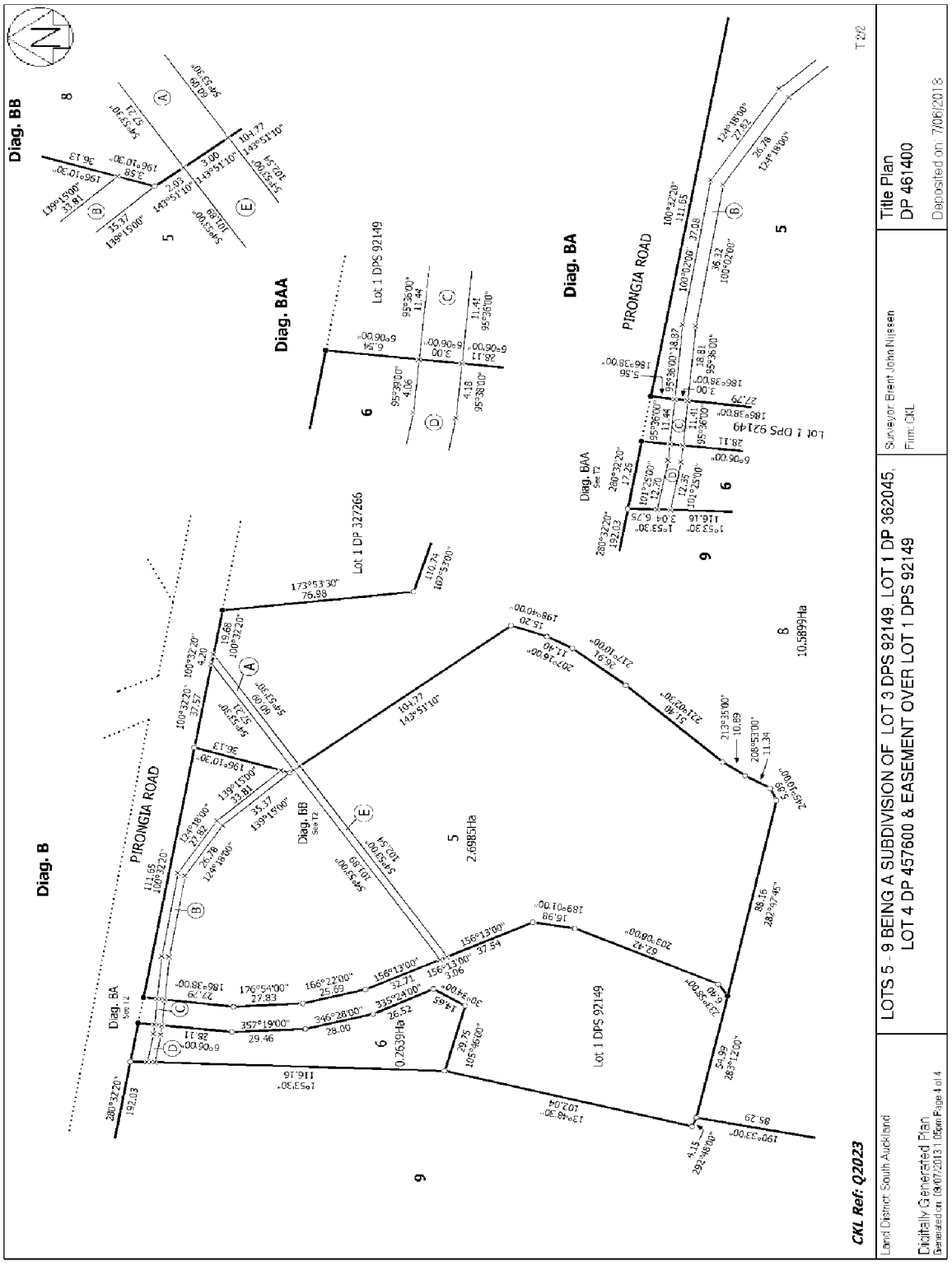
Subject to Section 241(2) Resource Management Act 1991 (affects DP 461400)

9534828.1 Mortgage to ANZ Bank New Zealand Limited - 5.2.2014 at 11:09 am

Identifier **607016**



Identifier **607016**



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R.W. Muir
Registrar-General
of Land

Identifier **696840**
Land Registration District **South Auckland**
Date Issued 07 April 2016

Prior References
630860

Estate	Fee Simple
Area	15.6835 hectares more or less
Legal Description	Lot 1 Deposited Plan 487281

Registered Owners
Rodney James Spiers as to a 7/20 share
Raewyn Dale Spiers as to a 7/20 share
Rodney James Spiers, Raewyn Dale Spiers and Aubrey Mark Irwin as to a 3/10 share

Interests

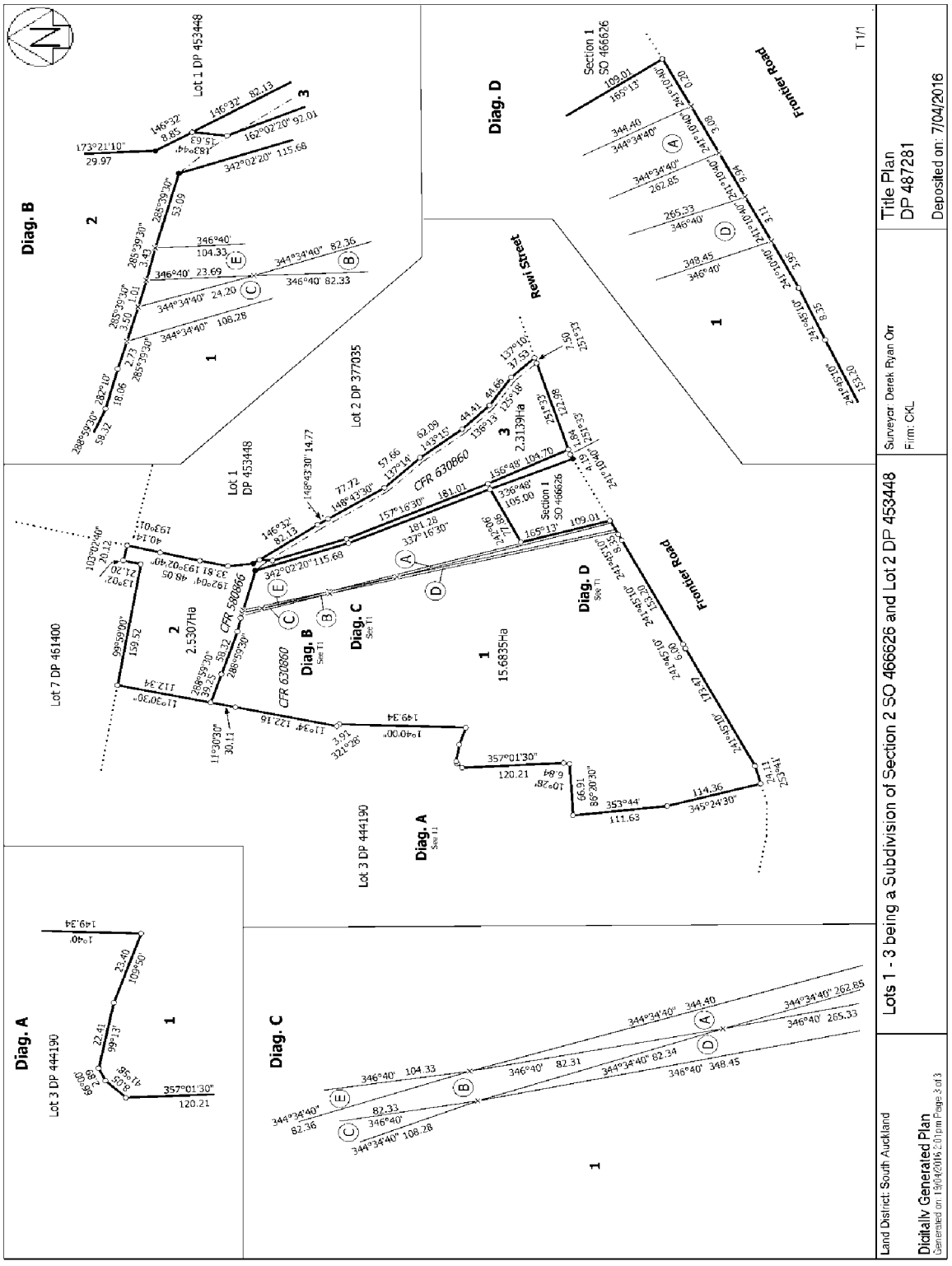
8852276.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 18.10.2011 at 11:04 am (Affects part formerly Lot 3 DPS 85145)

Subject to a right to convey electricity over parts marked A, B & C and a right to convey water over parts marked B, D & E all on DP 487281 created by Easement Instrument 9161449.6 - 11.9.2012 at 10:32 am

The easements created by Easement Instrument 9161449.6 are subject to Section 243 (a) Resource Management Act 1991

9433009.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Waipa District Council - 19.6.2013 at 7:00 am

Identifier **696840**



RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
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R.W. Muir
Registrar-General
of Land

Identifier	**696841**
Land Registration District	**South Auckland**
Date Issued	07 April 2016

Prior References
580866 630860

Estate	Fee Simple
Area	2.5307 hectares more or less
Legal Description	Lot 2 Deposited Plan 487281

Registered Owners
Rodney James Spiers as to a 1/2 share
Raewyn Dale Spiers as to a 1/2 share

Interests

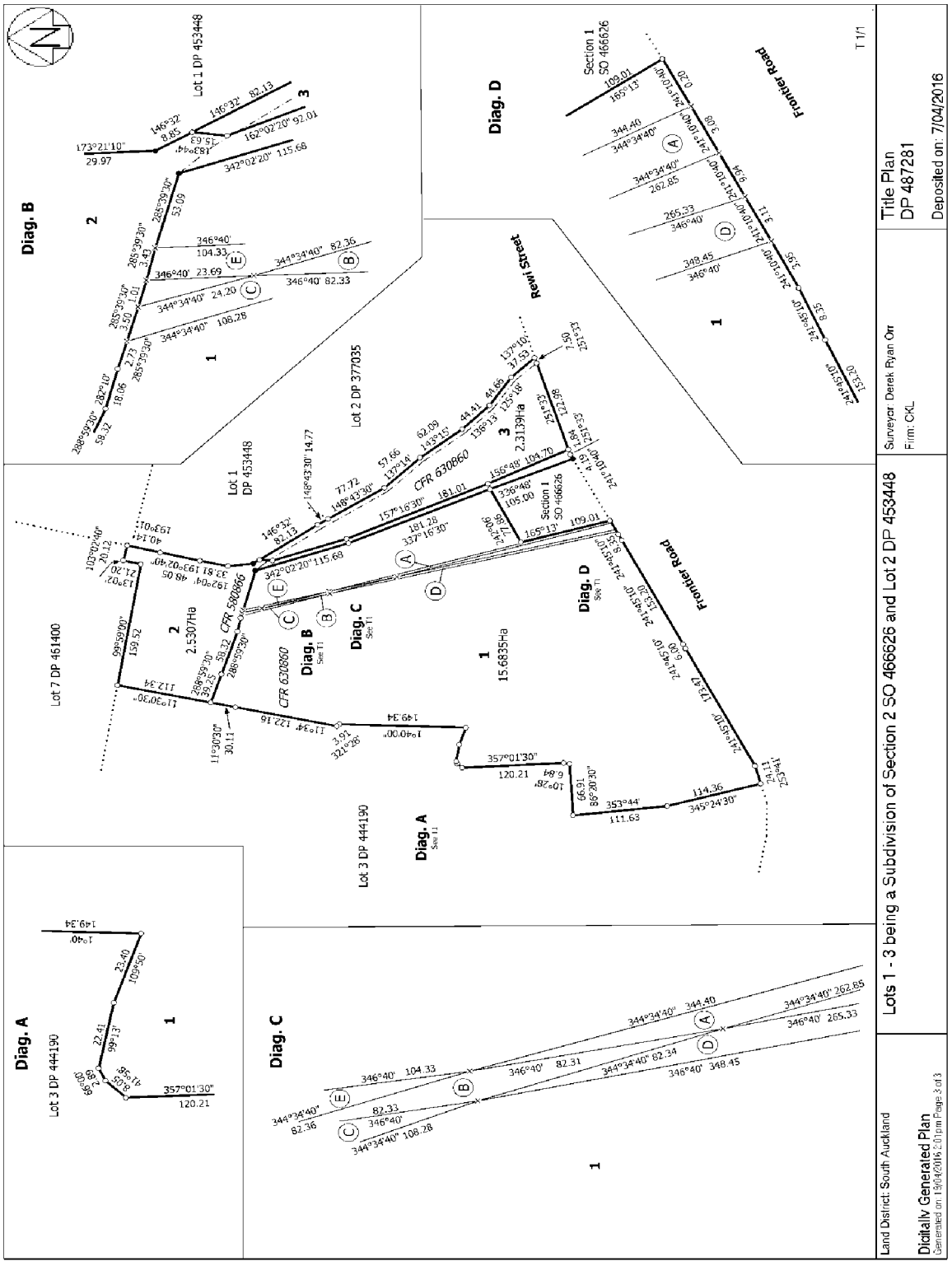
8852276.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 18.10.2011 at 11:04 am (Affects parts formerly Lot 2 DP 444190 and Lot 3 DPS 85145)

Appurtenant to part formerly Lot 2 DP 453448 is a right to convey electricity and water created by Easement Instrument 9161449.6 - 11.9.2012 at 10:32 am

The easements created by Easement Instrument 9161449.6 are subject to Section 243 (a) Resource Management Act 1991

9433009.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Waipa District Council - 19.6.2013 at 7:00 am (affects part formerly Section 2 SO 466626)

Identifier **696841**



RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
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R.W. Muir
Registrar-General
of Land

Identifier	**796970**
Land Registration District	**South Auckland**
Date Issued	12 September 2017

Prior References
607015

Estate	Fee Simple
Area	1.6389 hectares more or less
Legal Description	Lot 1 Deposited Plan 514120

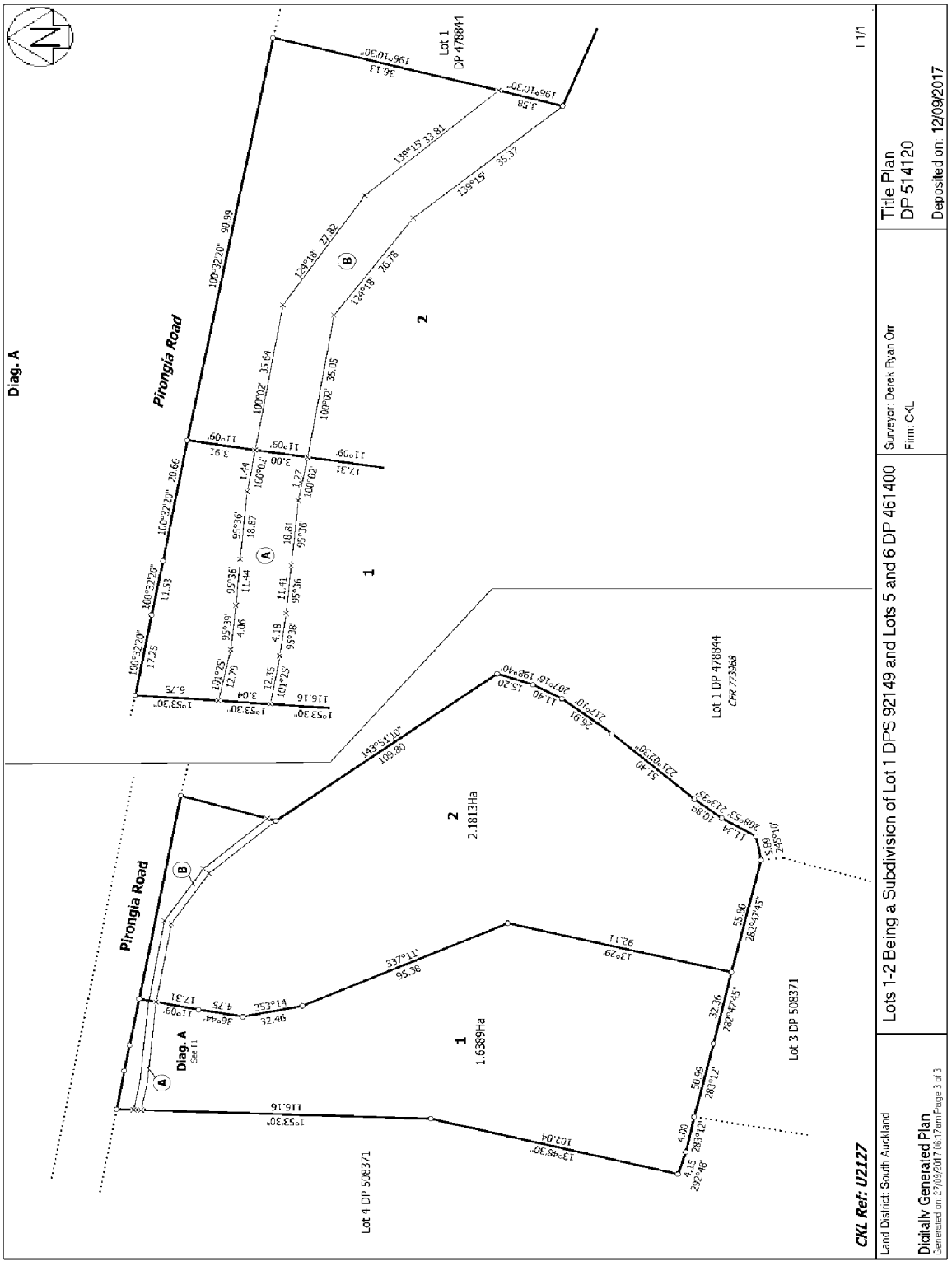
Registered Owners
Graeme James Blackstock and Kevin Ross Blackstock

Interests

Subject to a right to convey water over part marked A on DP 514120 created by Easement Instrument 9394292.8 - 7.6.2013 at 2:22 pm

The easements created by Easement Instrument 9394292.8 are subject to Section 243 (a) Resource Management Act 1991

Identifier **796970**



RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
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R.W. Muir
Registrar-General
of Land

Identifier **880622**
Land Registration District **South Auckland**
Date Issued 13 June 2019

Prior References
796971

Estate	Fee Simple
Area	7288 square metres more or less
Legal Description	Lot 1 Deposited Plan 534367

Registered Owners
Rodney James Spiers as to a 7/20 share
Raewyn Dale Spiers as to a 7/20 share
Rodney James Spiers, Raewyn Dale Spiers and Aubrey Mark Irwin as to a 3/10 share

Interests

Land Covenant in Easement Instrument 9680157.3 - 1.4.2014 at 2:21 pm (affects part formerly Lot 3 DP 508371 and part formerly Lot 11 DP 471594)

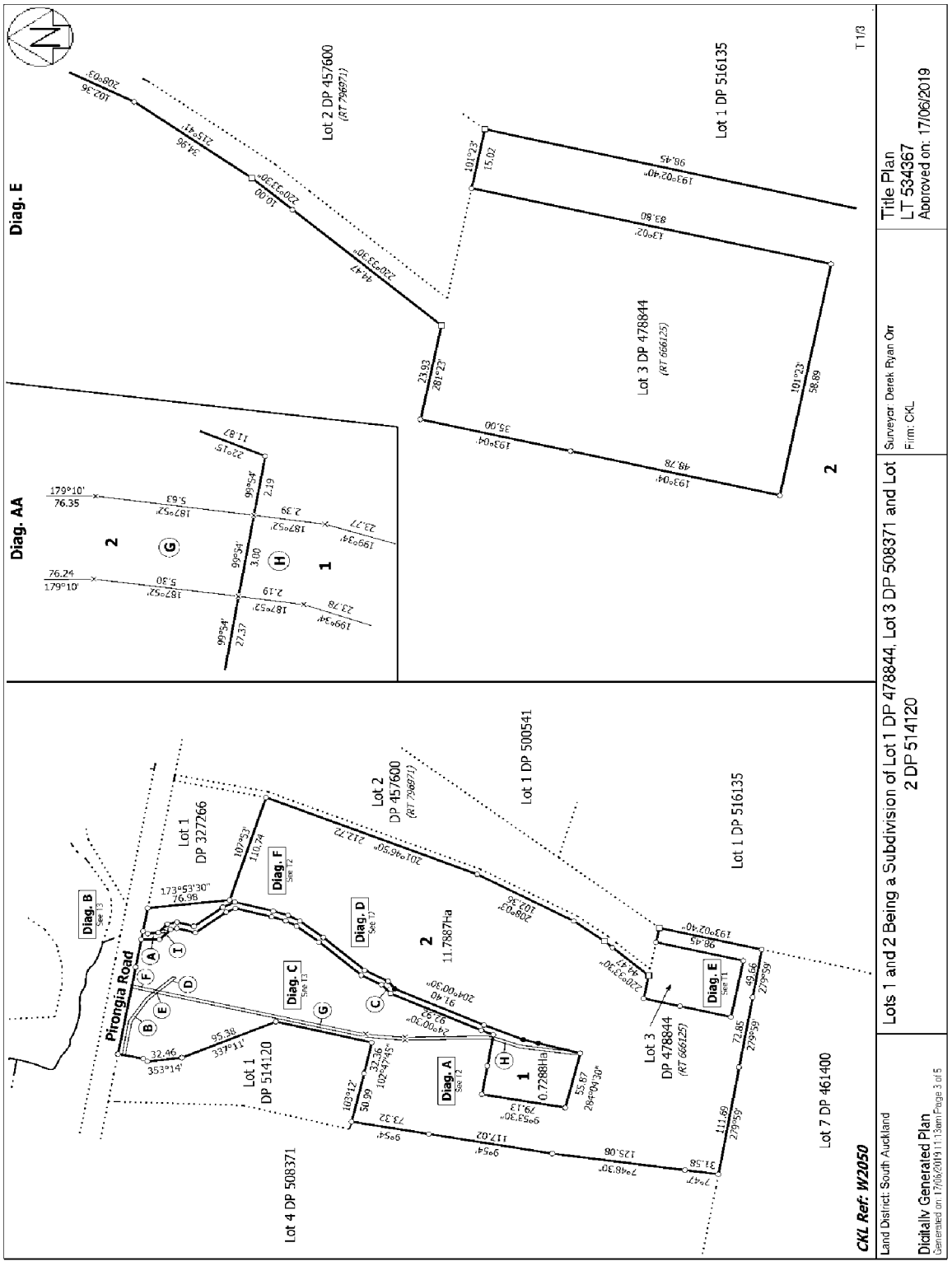
11464149.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 13.6.2019 at 1:44 pm

Subject to a right of way over parts marked A and C and a right to convey electricity over parts marked H and I all on DP 534367 created by Easement Instrument 11464149.4 - 13.6.2019 at 1:44 pm

Appurtenant hereto is a right to convey electricity created by Easement Instrument 11464149.4 - 13.6.2019 at 1:44 pm

Some of the easements created by Easement Instrument 11464149.4 are subject to Section 243 (a) Resource Management Act 1991 (affects DP 534367)

Identifier **880622**



RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
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R.W. Muir
Registrar-General
of Land

Identifier **880623**
Land Registration District **South Auckland**
Date Issued 13 June 2019

Prior References
666125 796971

Estate	Fee Simple
Area	16.6403 hectares more or less
Legal Description	Lot 2 Deposited Plan 534367 and Lot 2 Deposited Plan 457600 and Lot 3 Deposited Plan 478844

Registered Owners
Rodney James Spiers as to a 7/20 share

Raewyn Dale Spiers as to a 7/20 share

Rodney James Spiers, Raewyn Dale Spiers and Aubrey Mark Irwin as to a 3/10 share

Interests

Subject to a right to convey water over part Lot 2 DP 534367 marked B, D and E all on DP 534367 created by Easement Instrument 9394292.8 - 7.6.2013 at 2:22 pm

The easements created by Easement Instrument 9394292.8 are subject to Section 243 (a) Resource Management Act 1991

Land Covenant in Easement Instrument 9680157.3 - 1.4.2014 at 2:21 pm (affects part Lot 2 DP 534367 formerly Lot 3 DP 508371 and part Lot 3 DP 478844 formerly Lot 11 DP 471594)

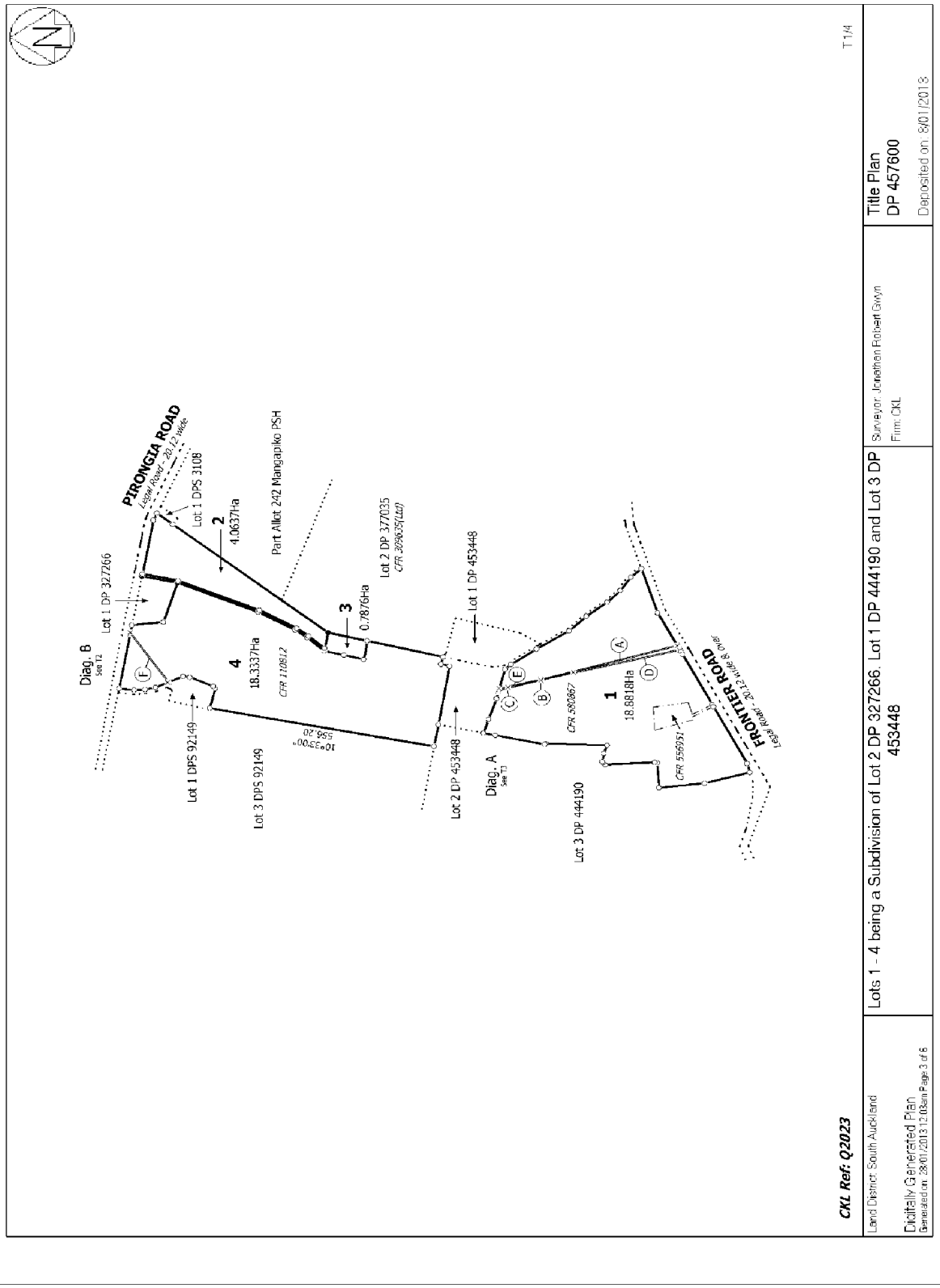
Subject to Section 241(2) Resource Management Act 1991 (affects DP 534367)

Subject to a right to convey electricity over part Lot 2 DP 534367 marked E , F and G on DP 534367 created by Easement Instrument 11464149.4 - 13.6.2019 at 1:44 pm

Appurtenant to Lot 2 DP 534367 is a right of way and a right to convey electricity created by Easement Instrument 11464149.4 - 13.6.2019 at 1:44 pm

Some of the easements created by Easement Instrument 11464149.4 are subject to Section 243 (a) Resource Management Act 1991 (affects DP 534367)

Identifier **880623**



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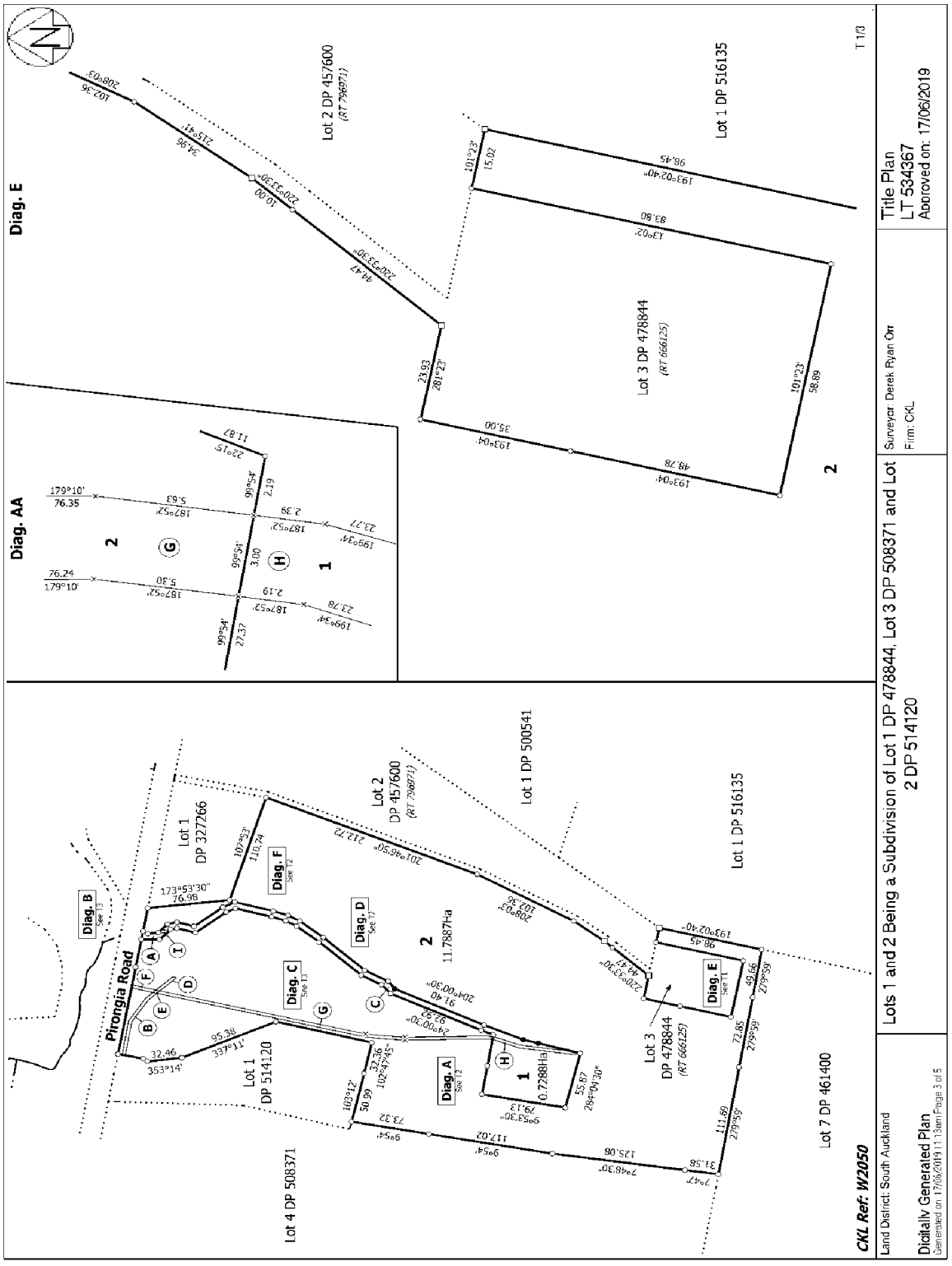

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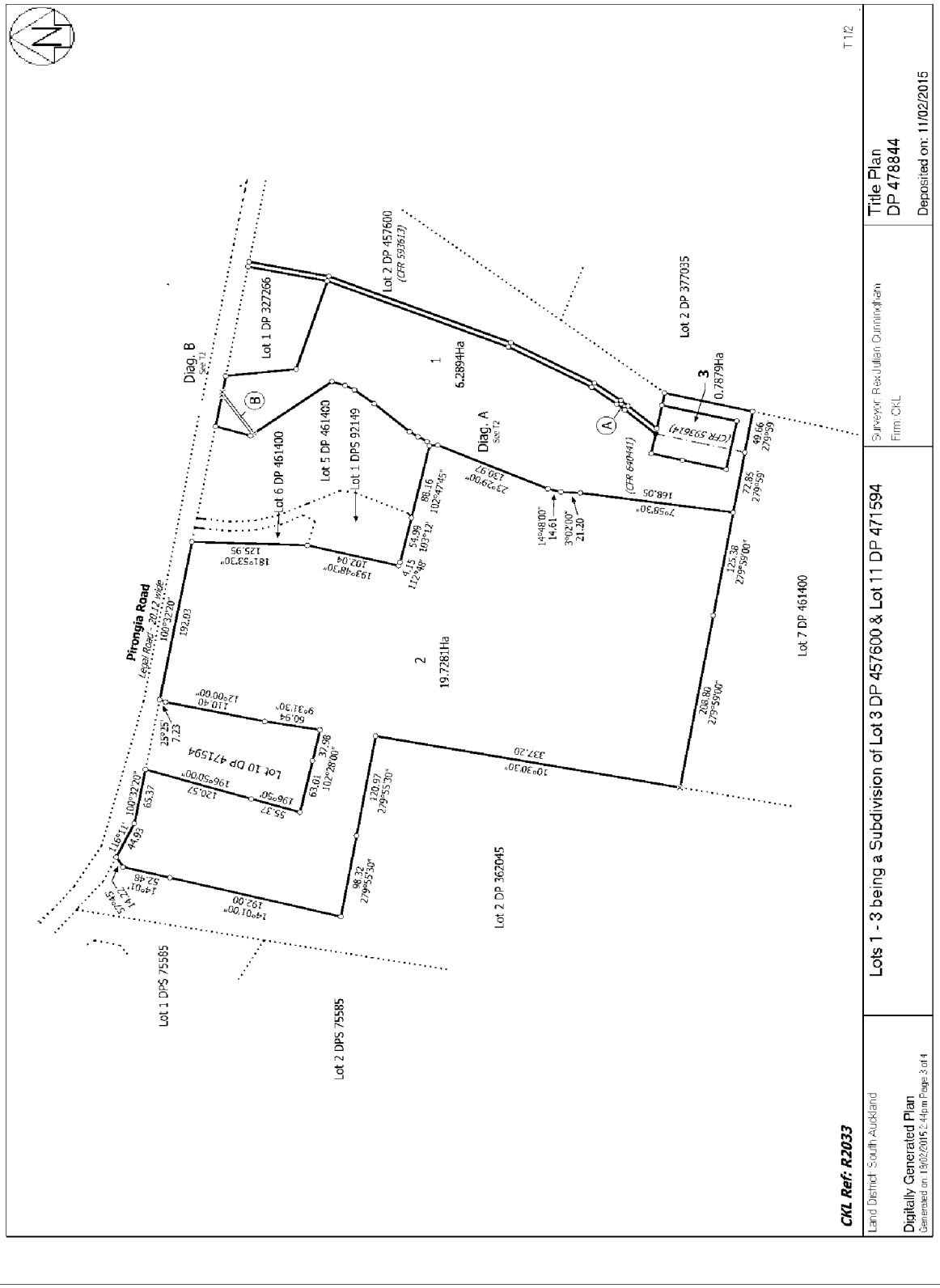

View Instrument Details

Instrument No.	8852276.2
Status	Registered
Date & Time Lodged	18 Oct 2011 11:04
Lodged By	Hewitt, Kathryn Emma
Instrument Type	Consent Notice under s221(4)(a) Resource Management Act 1991

Affected Computer Registers	Land District
309634	South Auckland
556951	South Auckland
556952	South Auckland
556953	South Auckland

Annexure Schedule: Contains 3 Pages.

Signature

Signed by Hayley Jane Willers as Territorial Authority Representative on 11/10/2011 01:46 PM

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

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CONSENT NOTICE

IN THE MATTER	of the Land Transfer Act 1952
AND	
IN THE MATTER	of Section 221 of the Resource Management Act 1991
AND	
IN THE MATTER	of the Land in Certificates of Title 309634 and SA56D/364 (South Auckland Registry) and Plan No. DP 444190

WHEREAS -

1 **WAIPA DISTRICT COUNCIL** has pursuant to Sections 34A(1), 104,104D, 108 and 220 of the Resource Management Act 1991 granted a resource consent for the subdivision of Lot 3 DPS 85145 and Lot 1 DP 377035.

2 The registered proprietor of Lot 3 DPS 85145 and Lot 1 DP 377035 is **ROCHDALE HOLDINGS LIMITED.**

3 The subdivision to which consent has been given is shown on Plan No. DP 444190.

4 It was a condition of the said consent that:

(a) For subsequent development of Lot 1 DP 444190 (for which new Certificate of Title 556951 has been allocated) a suitably qualified and experienced engineer will be required to inspect the site and submit to Council for approval, at the time of building consent, design details on the proposed on-site stormwater disposal system.

(b) For subsequent development of Lot 1 DP 444190 (for which new Certificate of Title 556951 has been allocated) a suitably qualified and experienced engineer will be required to inspect the site and submit to Council for approval, at the time of building consent, design details on the proposed on-site domestic waste water disposal system.

(c) For subsequent development of Lot 1 DP 444190 (for which new Certificate of Title 556951 has been allocated) a suitably qualified and experienced engineer will be required to inspect the site and submit to Council for approval, at the time of building consent, design details on the foundations of buildings.

(d) Subdivision consent has been granted for a lot under the provisions of the Operative Waipa District Plan Rule 10.6.1.4(a) "Dwelling for a Person with a Long Association with a Holding". The rule states that one lot can be subdivided from the "holding" (Lots 1 and 2 DP 444190 for which new Certificates of Title 556951 and 556952 have been allocated) when the applicant has resided on the land forming part of the holding continuously for a minimum period of fifteen (15) years. Only one lot per holding must be permitted under this Rule notwithstanding the number of people who may qualify.

Note: A "holding" is defined in the District Plan as a property or collection of property under common occupancy or in a single certificate of title which are farmed in conjunction with one another and are contiguous.

(e) Lot 2 DP 444190 (for which new Certificate of Title 556952 has been allocated) must not be subdivided further pursuant to Rule 10.6.1.4(d) of the Operative Waipa District Plan.

(f) The amalgamated title of Lot 3 DP 444190 (for which new Certificate of Title 556953 has been allocated), Lot 1 DPS 70713, Lot 3 DPS 27881, Lot 1 DPS 68642 and Lot 1 DPS 758510, must not be subdivided further pursuant to Rule 10.6.1.1 (General Standards for Allotments) of the Operative Waipa District Plan.

5 The said conditions are to be complied with on a continuing basis by the subdividing owners and subsequent owners pursuant to the provisions of Section 221 of the Resource Management Act 1991.

NOW PURSUANT TO Section 221 of the Resource Management Act 1991 **WAIPA DISTRICT COUNCIL HEREBY** issues this Consent Notice.

DATED at Te Awamutu this 22nd day of September 2011

.....
Authorised Officer

IN THE MATTER of the Land Transfer Act 1952

AND

IN THE MATTER of Section 221 of the Resource Management Act 1991

AND

IN THE MATTER of the Land in Certificates of Title 309634 and SA56D/364 (South Auckland Registry) and Plan No. DP 444190

CONSENT NOTICE

GALLIE MILES
SOLICITORS
TE AWAMUTU

SP/0042/11

6103.909.01

View Instrument Details

Instrument No.	9680157.3
Status	Registered
Date & Time Lodged	01 Apr 2014 14:21
Lodged By	Gedye, Emma Jane
Instrument Type	Easement Instrument

Affected Computer Registers	Land District
640410	South Auckland
640411	South Auckland

Annexure Schedule: Contains 3 Pages.

Grantor Certifications

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

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

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

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

Signature

Signed by Simon Brdanovic as Grantor Representative on 01/04/2014 01:15 PM

Grantee Certifications

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

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

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

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

Signature

Signed by Simon Brdanovic as Grantee Representative on 01/04/2014 01:16 PM

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

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Form B

Easement instrument to grant easement or *profit à prendre*, or create land covenant

(Sections 90A and 90F Land Transfer Act 1952)

Grantor

Colin Harold Pinkerton, Lynette May Pinkerton and Redoubt Trustees Limited

Grantee

Colin Harold Pinkerton, Lynette May Pinkerton and Redoubt Trustees Limited

Grant of Easement or *Profit à prendre* or Creation of Covenant

The Grantor being the registered proprietor of the servient tenement(s) set out in Schedule A **grants to the Grantee** (and, if so stated, in gross) the easement(s) or *profit(s) à prendre* set out in Schedule A, **or creates** the covenant(s) **set out** in Schedule A, with the rights and powers or provisions set out in the Annexure Schedule(s)

Schedule A *Continue in additional Annexure Schedule, if required*

Purpose (Nature and extent) of easement; *profit* or covenant	Shown (plan reference)	Servient Tenement (Computer Register)	Dominant Tenement (Computer Register) or in gross
Land Covenant (as per attached annexure schedule)	471594	640410	640411

Form B - continued

~~Easements or *profits à prendre* rights and powers~~ (including terms, ~~covenants and conditions~~)

~~Delete phrases in [ ] and insert memorandum number as required; continue in additional Annexure Schedule, if required~~

~~Unless otherwise provided below, the rights and powers implied in specified classes of easement are those prescribed by the Land Transfer Regulations 2002 and/or Schedule Five of the Property Law Act 2007~~

~~The implied rights and powers are hereby **[varied] [negatived] [added to]** or **[substituted]** by:~~

~~[Memorandum number _____, registered under section 155A of the Land Transfer Act 1952]~~

~~[the provisions set out in Annexure Schedule]~~

Covenant provisions

Delete phrases in [ ] and insert Memorandum number as require; continue in additional Annexure Schedule, if required

The provisions applying to the specified covenants are those set out in:

~~[Memorandum number _____, registered under section 155A of the Land Transfer Act 1952]~~

[Annexure Schedule 2]

Approved by Registrar-General of Land under No. 2002/5032

Annexure Schedule

Registrar-General of Land Approval 02/5032EF A.D.L.S.

Insert type of instrument
"Mortgage", "Transfer", "Lease" etc

Easement	Dated		Page 2 of 2 Pages

(Continue in additional Annexure Schedule, if required.)

Restrictive Covenants

The Grantor for all the Lots and for the benefit of all the Lots in respect of each of the Lots shown on the plan to the intent that the benefit and burden of the covenants runs with the land hereby agrees with the Grantee as follows:-

The Grantor shall:

1. Not plant any tree or plant which is noxious to animals on or near the boundary of the lot which may encroach onto the residue of the land in part certificates of title 607017 and 607018 or any residual title or titles derived therefrom.

2. Not use or permit the property to be used for piggery, or any activity associated with the aforementioned uses.

3. Not object to, or hinder, or in any way complain about:

   3.1 any lawfully authorized activity carried out on the land presently comprised in the title to the Grantees adjacent land or in any residual titles or titles derived therefrom; and

   3.2 Noise and smells emanating from neighbouring farmland and arising out of commercial farming operations.

Should the Grantor fail to comply with, observe, perform or complete any of the covenants and restrictions contained in this agreement, then, without prejudice to any other liability the Grantor may have to the Grantee including the owner of any other lot in the Grantee's subdivisional plan the Grantor will pay to the Grantee as liquidated damages the sum of $25,000.00 immediately upon receipt of a written demand for payment from the Grantee or the Grantee's solicitors.

If this Annexure Schedule is used as an expansion of an instrument, all signing parties and either their witnesses or solicitors must sign or initial in this box.

View Instrument Details

Instrument No.	11464149.2
Status	Registered
Date & Time Lodged	13 Jun 2019 13:44
Lodged By	Russell, Kate Michelle
Instrument Type	Consent Notice under s221(4)(a) Resource Management Act 1991

Affected Records of Title	Land District
796971	South Auckland

Annexure Schedule: Contains 2 Pages.

Signature

Signed by Lucy Margaret Sim as Territorial Authority Representative on 13/06/2019 01:28 PM

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

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CONSENT NOTICE

IN THE MATTER AND	of the Land Transfer Act 2017
IN THE MATTER AND	of Section 221 of the Resource Management Act 1991
IN THE MATTER	of the Land in Record of Title 796971 (South Auckland Registry) and Plan No DP 534367

WHEREAS:

1. The **WAIPA DISTRICT COUNCIL** has pursuant to Sections 34A(1), 104, 104B and 108 of the Resource Management Act 1991 granted to **RODNEY JAMES SPIERS as to a 7/20 share, RAEWYN DALE SPIERS as to a 7/20 share and RODNEY JAMES SPIERS, RAEWYN DALE SPIERS and AUBREY MARK IRWIN as to a 3/10 share** subdivision consent for the subdivision of Lot 2 DP 514120, Lot 3 DP 508371 and Lot 1 DP 478844.

2. The subdivision to which consent has been given is shown on Plan No. DP 534367.

3. It was a condition of the said consent that pursuant to Section 108(2) of the Resource Management Act 1991 that:

   (a) For subsequent development of Lot 1 DP 534367 (for which new record of title 880622 has been allocated), a suitably qualified and experienced Engineer will be required to inspect the site and submit to Council for approval, at the time of building consent, design details on the proposed on-site storm water disposal system.

   Reason: *The above condition is required to ensure that storm water generated from the development on Lot 1 DP 534367 (for which new record of title 880622 has been allocated) is wholly disposed of on site.*

   (b) For subsequent development of Lot 1 DP 534367 (for which new record of title 880622 has been allocated), a suitably qualified and experienced Engineer will be required to inspect the site and submit to Council for approval, at the time of building consent, design details on the proposed on-site waste water disposal system.

   Reason: *The above condition is required to ensure that all waste water generated from development on Lot 1 DP 534367 (for which new record of title 880622 has been allocated) is wholly disposed of within the new boundaries for this lot.*

   (c) For subsequent development of Lot 1 DP 534367 (for which new record of title 880622 has been allocated), a suitably qualified and experienced Engineer will be required to inspect the site and submit to Council for approval, at the time of building consent, design details on the foundations of the buildings.

   Reason: *The above condition is required as the lot contains soils of unknown quality.*

(d) The registered owner of Lot 1 DP 534367 (for which new record of title 880622 has been allocated) shall, prior to the issue of a building consent, demonstrate to the satisfaction of Council's Building Compliance Team Leader compliance with Rule 15.4.2.20 (b) (where water is not supplied by Council) of the Waipa District Plan, or any Rule enacted in variation or substitution of that Rule.

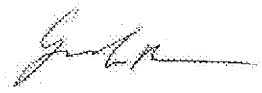
Reason: *It is important that any future owners of Lot 1 DP 534367 (for which new record of title 880622 has been allocated) are made aware of this requirement when undertaking work on Lot 1 DP 534367 (for which new record of title 880622 has been allocated).*

4. The said conditions are to be complied with pursuant to the provisions of Section 221 of the Resource Management Act 1991 on a continuing basis.

NOW PURSUANT TO Section 221 of the Resource Management Act 1991 the **WAIPA DISTRICT COUNCIL HEREBY CONSENTS** to the deposit of the Survey Plan of Subdivision under the Land Transfer Act 2017.

DATED at Cambridge this 09 day of April 2019

SIGNED by Waipa District Council



.....
Authorised Officer

Gareth Elliot Moran
.....
Name of Authorised Officer

Boffa Miskell

T2 Te Awamutu Plan Change

Landscape and Visual Effects Assessment
Prepared for Sanderson Group and Kotare Properties Limited

14 October 2020

Document Quality Assurance

Bibliographic reference for citation:
Boffa Miskell Limited 2020. *T2 Te Awamutu Plan Change: Landscape and Visual Effects Assessment*. Report prepared by Boffa Miskell Limited for Sanderson Group and Kotare Properties Limited.

Prepared by:	Jo Soanes Principal Landscape Architect Boffa Miskell Limited	
Reviewed by:	Julia Wick Associate Principal Landscape Architect Boffa Miskell Limited	
Status: FINAL	Revision / version: 1	Issue date: 14 October 2020

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Template revision: 20180621 0000

File ref: Document2

Cover photograph: Mt Pirongia, Te Awamutu from T2 site, © Jo Soanes 2020

CONTENTS

1.0	Introduction	3
2.0	Assessment Methodology	3
3.0	The Site and its Landscape Setting	5
4.0	Background Documents & Statutory Context	10
5.0	Proposed T2 Te Awamutu Plan Change	13
6.0	Visual Catchment and Viewing Audiences	16
7.0	Assessment of Landscape and Visual Effects	17
8.0	Recommendations	20
9.0	Conclusions	21

Appendices

Appendix 1: Landscape and Visual Effects Assessment Methodology

Appendix 2: Relevant District Plan Provisions

Appendix 3: T2 Structure Plan Concept Plan

Appendix 4: Visual Simulation

Graphic Supplement (bound separately)

1.0 Introduction

Boffa Miskell Limited ('**BML**') has been engaged by Sanderson Group and Kotare Properties Limited ('**the applicant'**) to undertake a Landscape and Visual Effects Assessment ('LVA') and Concept Design for the proposed Growth Cell T2 Residential Plan Change (Plan Change 12), located in Te Awamutu (otherwise referred to as 'the site' in this report).

The land is currently zoned "Deferred Residential" within the Waipa District Plan (WDP). The growth cell has a total of 41 ha, has been identified for future residential development after 2035 and has a dwelling capacity of approximately 492 dwellings.

The following Landscape and Visual Assessment assesses the landscape and visual effects of the proposed residential development on the immediate and surrounding environment character, recognising that land use change from rural to urban has long been signalled for this locality as part of the future zoning for the Te Awamutu area.

This assessment:

- Briefly describes the site and its landscape setting;
- Provides description around relevant background documents to support the proposed plan change;
- Describes the nature of the plan change and the ways in which landscape attributes and visual amenity are provided for;
- Sets out an assessment of landscape and visual effects in respect of the plan change; and
- Provides design recommendations for resource consent applications to ensure appropriate future development.

The applicant has engaged Boffa Miskell to undertake a master planning exercise for the site, with inputs from Stantec (transport), BBO (planning), Wainui Environmental (stormwater) and Nicklin CE (civil engineering). Nicklin CE led the concept design for Kotare Heights proposed subdivision which has been incorporated into the structure plan concept.

2.0 Assessment Methodology

This assessment has been undertaken with reference to a number of nationally and internationally recognised guidance documents. These include the Quality Planning Landscape Guidance Note[1] with its signposts to examples of best practice (including: the UK guidelines for landscape and visual impact assessment[2]).

A full methodology of this assessment is included as **Appendix 1**. In summary, the assessment of the significance of effects identified within this assessment is based upon a seven-point scale

[1] https://www.qualityplanning.org.nz/node/805

[2] Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, 2013

which includes very low; low; moderate-low; moderate; moderate-high; high; and very high ratings.

The effects covered in this assessment include:

- Landscape character and amenity effects derived from changes in the physical landscape, which may give rise to changes in its character and how this is experienced. This may in turn affect the perceived value ascribed to the landscape.
- Visual effects relating to the changes that arise in the composition of available views as a result of changes to the landscape, to people's responses to the changes, and to the overall effects with respect to visual amenity.

Landscape and visual effects result from natural or induced change in the components, character or quality of a landscape. Usually these are the result of landform or vegetation modification or the introduction of new structures, activities or facilities into the landscape.

The nature of landscape and visual effects generated by any particular project can therefore be:

- positive (beneficial), contributing to the visual character and quality of the environment;
- negative (adverse), detracting from existing character and quality of environment; or
- neutral (benign), with essentially no effect on existing character or quality of environment.

The degree to which landscape and visual effects are generated by a proposal depends on a number of factors, these include:

- The degree to which the proposal contrasts, or is consistent, with the qualities of the surrounding landscape.
- The proportion of the proposal that is visible, determined by the observer's position relative to the objects viewed.
- The distance and foreground context within which the proposal is viewed.
- The area or extent of visual catchment from which the proposal is visible.
- The number of viewers, their location and situation (static or moving) in relation to the view.
- The backdrop and context within which the proposal is viewed.
- The predictable and likely known future character of the locality.
- The quality of the resultant landscape, its aesthetic values and contribution to the wider landscape character to the area.

Change in a landscape does not, of itself, necessarily constitute an adverse landscape or visual effect. Landscape is dynamic and is constantly changing over time in both subtle and more dramatic transformational ways. These changes are both natural and human induced. What is important in managing landscape change is that adverse effects are avoided or sufficiently mitigated to ameliorate the effects of the change in land use.

To determine the level of landscape and visual effects, both the sensitivity of the landscape or viewing audience and level of change resulting from a proposed development are considered. The sensitivities of the viewing audiences to visual change vary, however residential and recreational viewing audiences are generally considered to be more sensitive to change, while

travelling and working viewing audiences are less sensitive. When assessing the potential effects arising from a plan change the assessment should consider the nature of maximised potential future development enabled by the provisions of the plan change. In this respect the present owner of the land is not a consideration as the zoning follows the land independent of ownership and the intentions of a particular landowner.

Prior to conducting the assessment, a desktop study was completed which included a review of the relevant information relating to the landscape and visual aspects of the proposal. This information included:

- Waipa District Plan (WDP);
- Proposal Drawings; and
- Aerial photography and existing contours.

The desktop study was also undertaken to determine likely viewing audiences, landscape character types, prominent ridge lines and the planning context of the site and surrounding area. This information collected was used to inform site visits, to the site and the surrounding area, on 27th February and 19th June 2020.

3.0 The Site and its Landscape Setting

The site is located within the Waipa District Council (WDC) and comprises some 41 ha and is located on the western side of Te Awamutu and is currently used for rural and rural residential living. To the east of the site is Te Awamutu township which is extensively developed for residential living. The site is approximately 2.25 km to the west from Te Awamutu CBD. Te Awamutu is the second largest town in the Waipa District behind Cambridge which is located approximately 26 km to the north east from the site.

In the wider context Mount Pirongia and associated Forest Park located 25 km directly west of the site and Mount Kakepuku located approximately 12 km south of the site. These provide a well-defined landscape and visual backdrop to the site.

Other key features of the local area include:

- Specialised Dairy Industrial Area (WDP), including Fonterra Dairy Factory;
- North Island Main Trunk Line;
- Mangapiko Stream is located north of the site flows through Te Awamutu, connecting with the Waipa River at Pirongia. The Mangapiko Stream is subject to a Cultural Landscape Area in the WDP;
- Within the existing residential development, the nearest schools are Te Awamutu Primary and St Patricks Catholic School and Te Awamutu College. Along with a number of childcare and community facilities;
- Two other growth cells are located near the site on the western side of Te Awamutu, including T12 (11 ha residential) and Paterangi Road Industrial (14 ha); and
- Te Awamutu water storage tank is located within the T2 growth cell on Frontier Road.

The T2 growth area is outlined in the Te Awamutu Growth map as illustrated below in *Figure 1*. The Waipa District Plan identifies growth cells adjacent to each of the towns which are appropriate locations to accommodate future growth, taking into account the increasing demand for, particularly, residential and industrial zoned land.

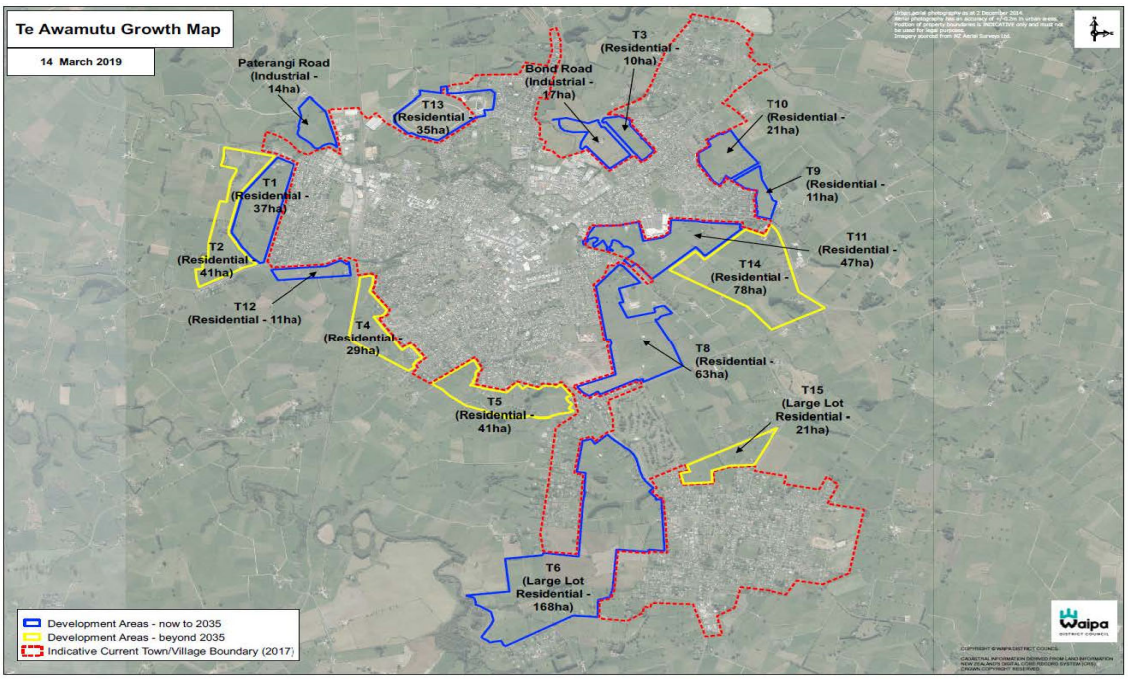

Figure 1: Te Awamutu Growth Map (extracted from Appendix S1 of the Waipa District Plan)

The site sits adjacent to the T1 (Frontier Estate) growth cell that is currently under earthworks construction and is similar in size (39 ha) and includes 309 residential lots including compact and comprehensive housing, recreation and stormwater reserves, shared walking and cycling connections, café and commercial hub. (Refer to *Figure 2* for subdivision layout). The Frontier Estate subdivision provides for three road connections to T2 growth cell.

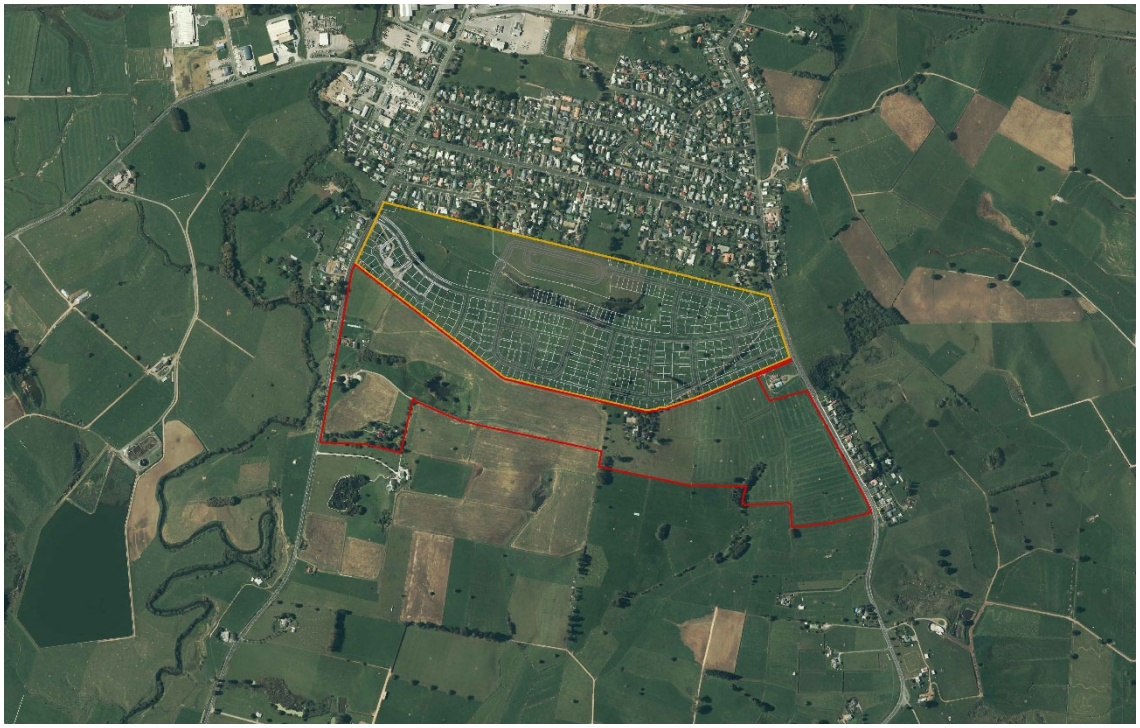

Figure 2: Aerial with site and immediate context 'Frontier Estate' to the immediate north of the site

The overall topography of the site is undulating, with steeper areas associated with the lower parts of the site where there are existing ponds. The highest elevation of the site is 80 RL located mid site adjacent to Frontier Estate and where the existing residential dwelling for 10 Frontier Road is located. This dwelling and garden obtain views of the wider rural landscape including views to the west of Mount Pirongia and Mount Kakepuku (Refer *Figure 4* below). The lowest elevation of the site is 50 RL at the north of the site adjacent to Pirongia Road. There is an existing pond located in this low point. Vegetation of the site reflects its current agricultural land use and predominantly comprises rural grassland with sparsely distributed linear hedges and individual trees. Larger clusters of trees are located near and around existing pond areas and associated residential dwellings.

Vegetation within the wider surrounding landscape broadly reflects the patterns within the site. Within individual placed trees and hedgerows.

Within the site and the immediate context, built form predominantly comprises individual residential dwellings, agricultural storage structures (sheds and barns) and agricultural production buildings.

Directly to the south of the site across Frontier road is a row of 19 residential dwellings. These dwellings are predominantly single storey, set back from Frontier Road, planting and fencing screening the road. To the north the properties obtain rural views and to the west towards Mount Pirongia and Mount Kakepuku to the south. The living areas for these properties appear to be towards the south away from the road and the site.

From Pirongia Road, the properties located directly opposite the site on the northern side of the road obtain rural views of the northern part of the site. Due to the land sloping up from the Road, views are predominantly limited to the northern part of the site of open pasture and the existing residential development within the site. The current earthworks for the adjacent Frontier Development to the east is apparent from these properties.

In summary, the site is characterised by its gently undulating landform, and high point to the east of the site and its generally open rural land use. The site does not have any areas considered to be of high landscape values, there is a pond located to the north of the site. Within the wider landscape context, the site is relatively unremarkable, with a number of qualities and attributes that are commonly found in the wider rural landscape.

Figure 3: Aerial with site and immediate context 'Frontier Estate' to the immediate north of the site

Figure 4: Site Photo From 10 Frontier Road gardeni looking south toward Mount Kakepuku

Figure 5: Site Photo from within the Site looking west towards Mount Pirongia

Figure 6: From 39 Pirongia Road looking towards gardening looking south toward Mount Kakepuku.

4.0 Background Documents & Statutory Context

The following describes relevant background documents that have influenced the development of the T2 Te Awamutu Plan Change Concept.

In requesting a plan change to move forward the development of this site, a key consideration is whether the proposed zoning is the most appropriate way to achieve the purpose of the RMA (Part 2). One element of that consideration is assessing whether the form of land use makes best practicable use of land whilst avoiding adverse effects particularly on land beyond the site and whether the proposal would deliver on the urban form, which is sought by the Waipa District Plan.

Waipa District Plan

The land is currently zoned "Deferred Residential Zone" within the Waipa District Plan and has been identified for development beyond 2035[3]. Deferred Zones have an objective, policy and rule framework which generally reflects existing land use and zoning (in this case, rural), but recognises that the area is intended to evolve over time. The relevant objectives, policies and assessment criteria are included in **Appendix 2** and summarised below.

Analysis and Assessment Against Statutory Provisions

The relevant themes of the objectives and policies relating to the current land use at the site include:

- Development occurs at an appropriate scale and location that maintains rural character; and
- Amenity values are maintained, and reverse sensitivity effects are avoided.

As the proposed use of the site is intended to be residential, the relevant Residential Zone objectives and policies are more important and have been taken into consideration and include:

- Development of land occurs in a planned and integrated manner;
- The maintenance and enhancement of residential character and Te Awamutu's character;
- The maintenance of neighbourhood amenity values and safety;
- Height, bulk and location of buildings; and
- Provision of open space, landscaping and stormwater disposal.

Section 21.1.14 of the Waipa District Plan provides assessment criteria for any application for a structure plan. Of particular relevance to this assessment is 21.1.14.1(e): The extent to which the structure plan provides for the key elements of character of the area in which it is located and provides for the valued characteristics of the area.

The assessment of landscape effects addresses the landscape character and rural character values attributed to the site and its relationship to the surrounding rural landscape and properties. The assessment of visual effects more specifically addresses visual amenity and visual effects resulting from the proposed structure plan change.

Growth Strategy Waipa 2050

Waipa 2050 provides direction as to how and where an additional 25,000 people will be accommodated in the Waipa District (between 2017 and 2050), whilst retaining the special features of the District.

Te Awamutu and Kihikihi are expected to grow to a total of 18,400 people by 2050, an increase of 5,400 on the 2017 population. This is equivalent to annual growth of 104 households.

[3] The District Plan identifies broad timing for each growth cell and is based on growth projections within the Waipa 2050 District Growth Strategy and calculation of available land supply.

Compact housing such as retirement villages is expected to make up 20% of the growth in Te Awamutu.

The site is within the 'T2' area of the Urban Growth Plan. This a 41ha growth cell identified for future residential development, abutting the T1 residential growth cell currently under construction.

FIGURE 3: WAIPA 2050 DISTRICT MAP

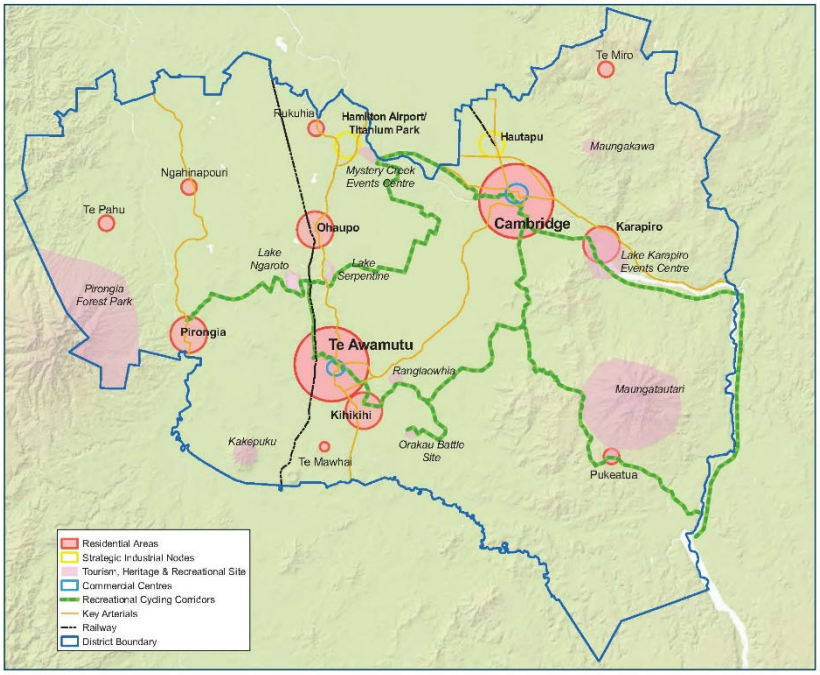

Figure 5: Waipa 2050 Map indicates future residential growth node in Te Awamutu (Source: Waipa 2050 District Plan)

Appendix S1 – Future Growth Cells

The growth cells identified in Waipa 2050 currently do not have the required servicing, including roading and three waters, telecommunications, electricity and gas infrastructure. Therefore, there are infrastructure requirements that must precede land within growth cells being made available for development. Appendix S1 of the District Plan sets out the future growth cells within the Waipa District, these growth cells derive primarily from the Waipa 2050 District Growth Strategy outlined above. By identifying growth cells in the District Plan and staging when development within the growth cells can occur, the Council is able to plan for the required infrastructure and associated costs. The growth cells are split between two separate groups, growth cells which are intended to be opened and developed from now to 2035 and growth cells which are intended to be opened and developed after 2035.

T2 has been identified for residential growth anticipated beyond 2035 and has the capacity of approximately 492 dwellings.

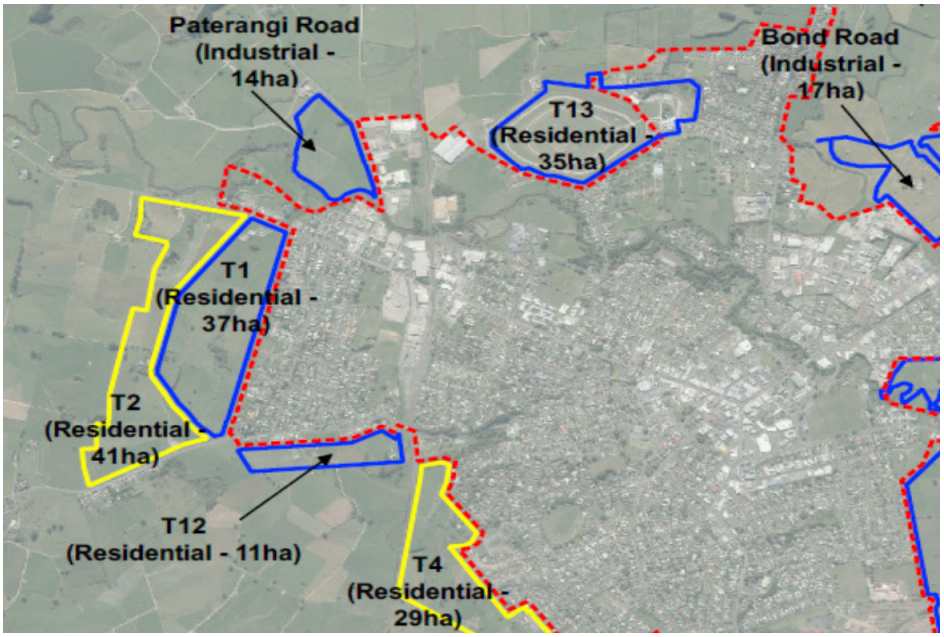

Figure 6: Te Awamutu Growth Map, Site located at T2 (Source: Waipa District Plan Appendix S1)

5.0 Proposed T2 Te Awamutu Plan Change

As outlined above Growth Cell T2 has been identified for development after 2035. Sanderson Group and Kotare Properties propose to bring forward development of this land via a plan change (namely Plan Change 12) to rezone the growth cell to residential (ultimately lifting the deferred status off the land to allow for residential development to occur now) and insert a structure plan into the District Plan which outlines at a high level what development on the site may look like,.

Plan Change 12 proposes residential development within the site based on single houses on residential sections and an Open Space and transport framework, including walking and cycling (Refer *Figure 9* below) and incorporating a retirement village in a central position.

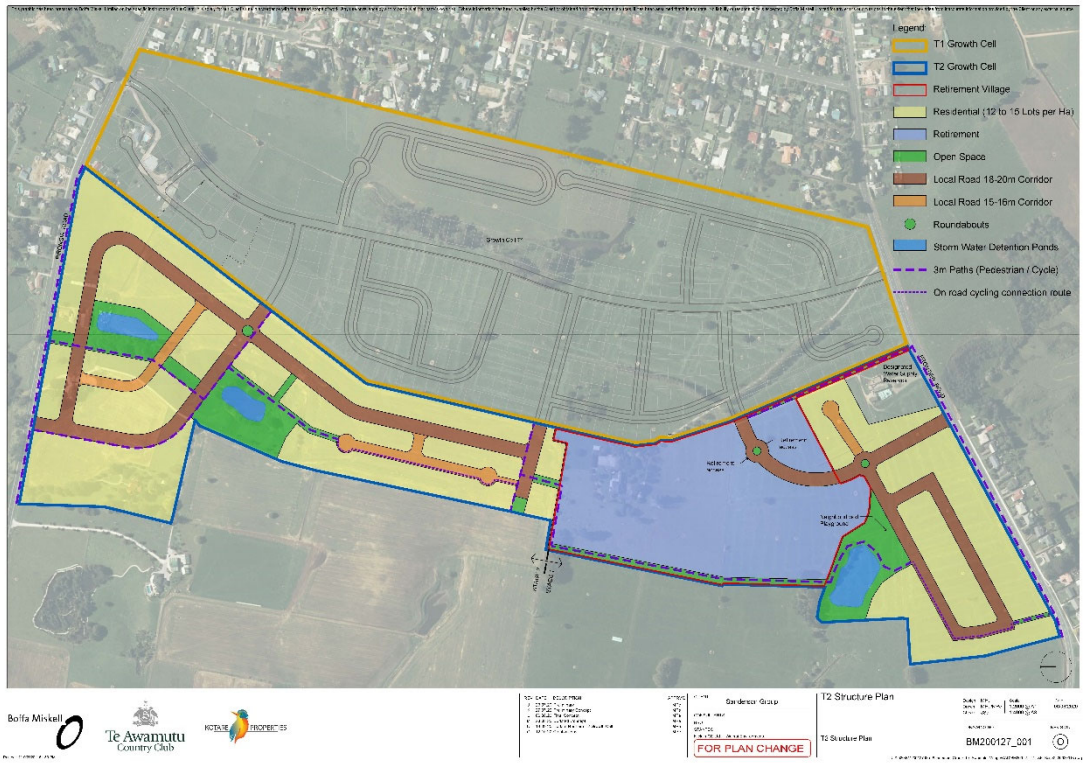

Figure 7: Proposed T2 Structure Plan Concept

The purpose of the plan change is to facilitate residential development within the site, mainly allowing for general residential development as provided for in the Residential zone. The 41ha T2 structure plan has been designed to incorporate the proposed Sanderson Group retirement village within the mid-section of the site, abutting proposed residential development to the north and south. The plan change seeks a density and diversity of development around 12 to 15 lots per ha for the residential areas.

Overall, the structure plan has been designed to have a clear and legible structure, with pedestrian and cycle connections through the site connecting with Pirongia and Frontier Roads and the Frontier Estate development to the east.

A key design driver has been to provide appropriate rural interface to the west (rural farmland) and ensure future development creates a positive relationship with adjacent existing residential development to the east.

In order for the plan change to be successful, a Structure Plan is required to be developed and included in the District Plan. In summary the plan indicates:

- Northern section (Pirongia Road) a 22-ha area proposed for residential development. The concept plan includes residential development, stormwater detention ponds, open space reserve, roading/cycleway and pedestrian network.
- The mid-section of the structure plan is the proposed Sanderson Group retirement village site and is 9.56 ha. The retirement village will obtain access from Frontier Road and the T1 development (Frontier Estate). The current concept includes 98 villas, clubhouse facility and age care facility with dementia care. Sanderson Group will lodge

resource consent applications following the plan change application for this development.

- The southern section of the masterplan is proposed for residential development and is 8.65 ha in size. Kotare Properties have engaged Nicklin CE to design the Kotare Heights subdivision concept layout. The subdivision includes 105 residential lots, wetland, reserve area and play space. Kotare Properties will lodge the subdivision consent application following the plan change application.
- To the south of the site is a 0.89ha area that is presently occupied by a District Council water reservoir. This is included in the Structure Plan site.
- The Structure plan provides three local road connections into the adjacent Frontier Estate. A supporting network of local roads, cul-de-sacs and private ROWs providing property access are also outlined; and
- A supporting network of on and off-road cycle and pedestrian paths throughout the Structure Plan area connecting to both road frontages and the T1 Growth Cell at multiple points.

Summary of Specific Elements:

The design of the proposed structure plan has evolved through a comprehensive and integrated, multidisciplinary design process. Part of the process has been to reflect the rural character of the land around Te Awamutu.

Provision has also been made for continuity of the shared path network by running the 3m path around the periphery of the retirement village. Walking and cycling access is also proposed via a strip of land running along the eastern side of the reservoir. Collectively, these features provide for a connected community with continuous access to a range of local walking and cycling circuits.

Landscape Design and Planting

The current structure plan layout does not include specific landscape and planting design. It is envisioned through the consenting design process that the following landscape design recommendations are incorporated to ensure appropriate amenity landscape framework to enhance the rural interface and existing residential development:

a. Retain existing matures trees around the boundaries of the site (where practical);
b. Appropriate boundary treatments to reflect adjacent land uses;
c. Amenity planting will be integrated throughout the site, including alongside internal accessways, road frontages, and communal spaces incorporating both native and exotic species found in the surrounding landscape;
d. Swales and wetland features;
e. Communal open spaces; and
f. Provide appropriate planting to soften the rural interface.

6.0 Visual Catchment and Viewing Audiences

To assist in determining the visual catchment and potential viewing audiences of future development within the plan change area, two Site visits were undertaken – noting that over time, the makeup of these viewing audiences will change as the wider Te Awamutu context evolves in line with the proposed outcomes of the WDP anticipated growth.

The site visit included walking within the site, the surrounding footpaths and driving the surrounding roads, complementing a prior desktop survey of aerial mapping, land use and contour information.

The most notable public viewing opportunities currently existing as a result of the site's road frontage with both Frontier Road (south) and Pirongia Road (north), albeit due to the site's orientation and the longer boundaries adjoin to Frontier Estate (east) and rural interface (west).

The primary viewing audiences of the site / potential future development enabled by the plan change have been identified as the following:

Viewing Audiences in the immediate vicinity

- Users[4] of surrounding local roads such as Frontier Road, Pirongia Road, Frontier Estate (T1 Growth area roads);
- Residents located at the properties to the immediately south of Frontier Road (Including 67, 65, 63, 61, 59, 57, 55, 51, 49, 47, 45, 43, 41, 39, 37, 35, 33, 31, and 29 Frontier Road)
- Frontier Road 8 and Pirongia Road 5 (Frontier Estate)
- Pirongia Road (north) Properties located along the opposite, northern, side of Pirongia road. (Including 68, 36, 32, 30, 28, 26, 24, 22, 20, and 18 Pirongia Road)
- Properties located directly to the west of Pirongia Road (, 73 Pirongia Road).

Viewing Audiences in the wider context

- Residents located on Burns Road,
- Future residential of Frontier Estate.

As outlined earlier, a range of viewpoints representing the key viewing audiences have been selected **(refer to graphic supplement**) and are referred to in the visual effects assessment. The viewpoints have been selected as it is considered they address the key aspects of the visual catchment for the potential future development.

[4] Including people walking, cycling and traveling in vehicles

7.0 Assessment of Landscape and Visual Effects

Landscape and visual impacts result from natural or induced change in the components, character or quality of landscape. When plan changes are proposed the inevitable consequence is a transition of the landscape to a new form of land use with its consequent changed character and amenity. In this case, a change has long been signalled and foreshadowed by being identified in Waipa 2050 as a future growth cell and through the deferred zoning in the WDP.

When assessing the potential effects arising from a plan change the assessment should consider the nature of the maximised potential future development enabled by the provisions of the plan change.

Landscape Effects

The conversion of the 41ha site from rural use to residential (urban form) development will lead to a change in the character of the landscape. A change from rural landscape to urbanised is however signalled in the WDP and largely anticipated.

It is consistent with change that is already occurring on land immediately to the east, where the T1 growth cell is under development.

Whilst substantial landscape change will occur, the proposed structure plan locates proposed stormwater ponds within the location of existing wetland ponds, providing possible restoration and enhancement of the identified water bodies on the site. The proposed stormwater ponds provide for integrated open space and recreational opportunities for the future residential development. The Mangapiko Stream is located north of the site.

Earthworks across the site, to establish the street network and land suitable for development, will reduce the undulating nature of the topography. The characteristic highpoint to the east of the site will ultimately undergo a level of modification as a result of preparing the land, however this area will still remain as a high point within the site. The arrangement of the open space and wetlands will retain a conceptual relationship with the original topography in relation to the low elevation of the site.

The extensive nature of the proposed earthworks will result in very little vegetation within the site being retained other than around the site boundary. However, the site includes very little existing vegetation. Importantly there is no vegetation identified to be significant in terms of ecological value or are mature native trees. The existing vegetation within the site, associated with its rural pastoral landuse, is not considered of sufficient value to justify retention or protection and does not relate to the intended future residential use. Development of the site enabled by the plan change will ultimately provide an enhanced level of soft landscape, including street trees throughout the site, along the western boundaries connecting with the enhancement of stormwater wetlands.

The site includes a western boundary to the rural environment. While the house density is obviously greater than the existing rural environment, design and planning of this proposed interface includes a range of proposed building setbacks and proposed planting. This will enable the creation of an integrated development capable of accommodating the increased density, minimise effects and an appropriate interface with the neighbouring rural zone.

In the Northern section the concept layout allows for building setbacks of 5 -10 m and planting to soften the boundaries. The retirement village, due to a lower density, swales and shared pathway boundary treatment the building set back is greater.

In the wider landscape context, the site is backdropped by the Mount Pirongia and associated Forest Park in the far distance (located 25 km away). Potential development of the site has the potential to reduce views towards Mount Pirongia from Frontier Road.

In summary, a substantial change will be introduced over time. The site will retain a response to the natural landscape and environmental features and connect future residents and users to the natural environment. The potential development outcomes are considered to be in line with the expectations of the WDP. They are consistent with the staged landscape change resulting from urban development immediately to the east.

The proposed landscape integration through streetscape design enabled by the plan change will provide an appropriate quality of vegetated streetscapes and pedestrian walkways / cycleways that link together a network of open spaces. This provides a legible and appropriate transition to a residential development and the Te Awamutu Centre.

Visual Amenity Effects

Visual effects relate to the amenity values of a landscape including the “natural and physical qualities and characteristics of an area that contribute to people’s appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes”[5].

The specific nature of the visual effects will depend on the future more detailed masterplanning and design of specific development proposals. Each proposal will require resource consent and be subject to a range of assessment criteria, including those which address visual amenity and interface outcomes. Future resource consents for retirement village, subdivisions, earthworks, the establishment of infrastructure and for residential development will include restricted discretionary status for the retirement village and residential subdivision that include the opportunity for the comprehensive review of proposals.

The level of change is considered in relation to the sensitivity of the viewing audience, when evaluating the significance of any effects. The sensitivity may be influenced by a number of factors, which include but are not limited to: the reason for a viewing audience being at the viewpoint of looking at the view (e.g. if they are residents or motorists); the existing (and likely future) character of the view, the viewing distance and duration.

Judgements made in relation to the potential effects are based upon the information contained within the structure plan concept and infrastructure reports, proposed development and design considerations section above, and the relationship these have with the underlying development of the structure plan. This includes the proposed Te Awamutu Country Club retirement village and Kotare Heights subdivision and future residential development in the north of the site.

Views from the immediate vicinity

Views from the immediate vicinity include the users of surrounding local roads and existing residents along Frontier Road and Pirongia Road. Photographs of these viewpoints are provided in the Graphic Supplement attached to this report. These views need to be considered

against the expectations of the WDP. The WDP provides high level guidance on the zoning of the site, which envisages residential development. Viewing audiences in the immediate vicinity are therefore broadly anticipated to view such zones and interfaces with their outlooks, notwithstanding that this change in land use from rural to residential will ultimately result in a high level of visual change. There will undoubtably be a high level of visual change resulting from the transition from a generally open, rural to a more urbanised residential landscape as envisaged by the WDP.

The increase in density is considered to be an appropriate response to Frontier and Pirongia Roads in that residential dwellings will address the street and enhance the 'entrance gateway' to Te Awamutu.

Increased density (compared to the rural environment) is proposed to the western edge of the site. Viewing audiences in the immediate vicinity with views across the site will observe the proposed one to two level buildings as part of the middle / to background of their view. It is recommended that setbacks and mitigation planting be provided to this boundary interface to reinforce the visual relationship with the neighbouring rural zone.

Road users and visitors to Te Awamutu are considered to have a lower sensitivity to such landscape change and will observe adverse visual effects at a level of effects up to **low**. This is particularly given the anticipated level of visual change within the locality.

Residential viewing audiences in the immediate context of the site will have a higher sensitivity to change and there will ultimately be a loss of rural outlook for these residents. The proposed land use change is however anticipated within the WDP. It is therefore considered that the potential adverse effects on established residential viewing audiences in the immediate vicinity of the site will be up to **moderate-low**.

Wider Context Views

Wider contextual views of the site are defined as views which include the site within the context of the wider area. These views are more obtainable to the west of the site as the highpoint of the site screens views from the east and Te Awamutu.

The increase in development will result in a change from the rural to more built development when viewed from the wider landscape. The potential adverse effects for the wider area will be dependent on the design of future development including; density, building setbacks and landscape boundary treatment with the rural interface to ensure the wider rural views are appropriately considered. The proposed structure plan has allowed for a varied boundary treatment including shared pathways and open spaces associated with stormwater ponds. Locating these features along the western boundary along with appropriate building offsets with allow for potential adverse effects on wider views to be up to **moderate-low**.

8.0 Recommendations

The overall design for the proposed development incorporates rural characteristics, albeit in the context of higher density. These are in relation to provision of open space, stormwater ponds particularly and the wider connections and interface with the rural zone.

The objective of the following mitigation and design control measures are to ensure that future development within the site occurs in such a way that landscape and visual effects are acceptable.

Mitigation and Design Control Measures

Western Boundary

- Buffer planting zone maintained to a minimum height of 1.5 m. Planting to be a native mix of shrubs and small trees. Specimen trees planted between buildings to soften the built form adjacent to rural interface. Buffer planting not required for Retirement Village area.
- Consideration of generous building offset along rural boundary.
- Consideration of shared pathway along rural boundary.

Frontier Road Boundary

- Consideration of single-story buildings (maximum building height of 5 m).
- Fencing requirement limit height to 1.2 m along road frontage.
- Specimen tree planting requirement along road frontage.

Pirongia Road Boundary

- Consideration of single-story buildings (maximum building height of 5 m).
- Fencing and hedge planting requirements limit height to 1.2 m along road frontage.
- Specimen tree planting requirement along road frontage.
- Design integration of boundary treatment with the retention of entrance gate associated heritage item property (Isla Bank villa).

Landscape Plan

It is recommended that concept landscape plans are provided as part of the resource consenting process, including the following:

- Design approach
- Street tree and amenity planting
- Boundary treatments including planting and fencing
- Integrated wetland and reserve planting
- Reserve and play space (natural play)
- Cycleway and pedestrian network

- Entrance and light features (retirement village)
- Communal facilities (retirement village)

9.0 Conclusions

The site is well positioned to accommodate built form. The proposed plan change provides for residential development in this area whilst preserving the landscape qualities of the site.

Whilst the site does not contain features of significant value (such as SNAs or notable trees), the general overall topography will remain reflected in the proposed development, with the proposed layout designed to address this. Open space linkages will be provided through the site that enable accessibility and permeability across the site. Existing pond areas will be re contoured to create.

Views from the local context will observe a change from rural to more urban residential development. In the short term this will introduce new elements and forms into the visual landscape. The proposed development will be able to seamlessly integrate with the proposed and existing development on the western edge of Te Awamutu. The proposed masterplan has included provisions that addresses the rural interface to the west of the development. Including the use of building setback, no build zones and proposed vegetation.

It is considered that the future residential built form of the development will respond to and maintain a connection to natural landscape attributes of the site and wider Te Awamutu context. It is consistent with current urban development immediately to the east. It will result in a diverse community that provides a range of residential opportunities that is consistent with the anticipated growth outcomes envisaged by the WDP.

Appendix 1: Landscape and Visual Effects Assessment Methodology

11 February 2019

Introduction

The Boffa Miskell Ltd Landscape and Visual Effects Assessment (LVA) process provides a framework for assessing and identifying the nature and level of likely effects that may result from a proposed development. Such effects can occur in relation to changes to physical elements, the existing character of the landscape and the experience of it. In addition, the landscape assessment method may include an iterative design development processes, which includes stakeholder involvement. The outcome of any assessment approach should seek to avoid, remedy or mitigate adverse effects (see **Figure 1**). A separate assessment is required to assess changes in natural character in coastal areas and other waterbodies.

This outline of the landscape and visual effects assessment methodology has been undertaken with reference to the **Quality Planning Landscape Guidance Note**[6] and its signposts to examples of best practice, which include the **UK guidelines for landscape and visual impact assessment**[7] and the **New Zealand Landscape Institute Guidelines for Landscape Assessment**[8].

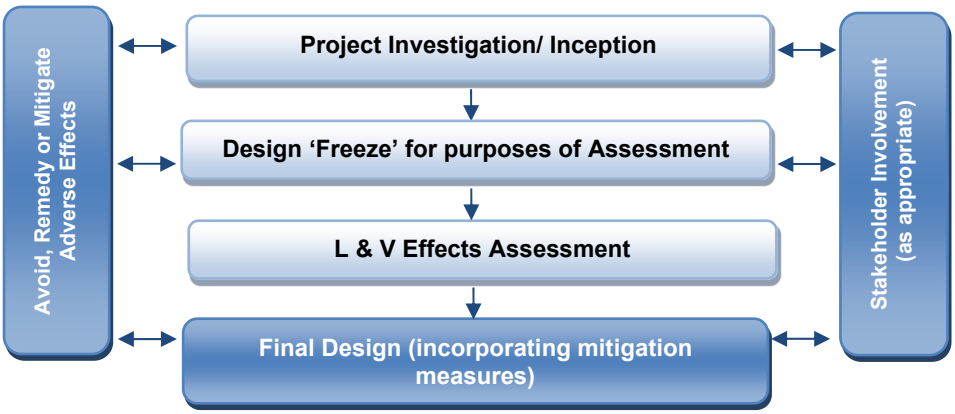

Figure 1: Design feedback loop

When undertaking a LVA, it is important that a **structured and consistent approach** is used to ensure that **findings are clear and objective**. Judgement should be based on skills and experience and be supported by explicit evidence and reasoned argument.

While landscape and visual effects assessments are closely related, they form separate procedures. The assessment of the potential effect on the landscape forms the first step in this process and is carried out as an effect on landscape elements, features and on landscape character. The assessment of visual effects considers how changes to the physical landscape affect the viewing audience. The types of effects can be summarised as follows:

Landscape effects: *Change in the physical landscape, which may affect its characteristics or qualities.*

Visual effects: *Change to views which may affect the visual amenity experienced by people.*

[6] http://www.qualityplanning.org.nz/index.php/planning-tools/land/landscape
[7] Landscape Institute and Institute of Environmental Management and Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3)
[8] Best Practice Note Landscape Assessment and Sustainable Management 10.1, NZILA

The policy context, existing landscape resource and locations from which a development or change is visible, all inform the 'baseline' for landscape and visual effects assessments. To assess effects, the landscape must first be **described**, including an understanding of the **key landscape characteristics and qualities**. This process, known as landscape characterisation, is the basic tool for understanding landscape character and may involve subdividing the landscape into character areas or types. The condition of the landscape (i.e. the state of an individual area of landscape or landscape feature) should also be described together with, a judgement made on the value or importance of the potentially affected landscape.

Landscape Effects

Assessing landscape effects requires an understanding of the landscape resource and the magnitude of change which results from a proposed activity to determine the overall level of landscape effects.

Landscape Resource

Assessing the sensitivity of the landscape resource considers the key characteristics and qualities. This involves an understanding of both the ability of an area of landscape to absorb change and the value of the landscape.

Ability of an area to absorb change

This will vary upon the following factors:

- Physical elements such as topography / hydrology / soils / vegetation;
- Existing land use;
- The pattern and scale of the landscape;
- Visual enclosure / openness of views and distribution of the viewing audience;
- The zoning of the land and its associated anticipated level of development;
- The scope for mitigation, appropriate to the existing landscape.

The ability of an area of landscape to absorb change takes account of both the attributes of the receiving environment and the characteristics of the proposed development. It considers the ability of a specific type of change occurring without generating adverse effects and/or achievement of landscape planning policies and strategies.

The value of the Landscape

Landscape value derives from the importance that people and communities, including tangata whenua, attach to particular landscapes and landscape attributes. This may include the classification of Outstanding Natural Feature or Landscape (ONFL) (RMA s.6(b)) based on important biophysical, sensory/ aesthetic and associative landscape attributes, which have potential to be affected by a proposed development. A landscape can have value even if it is not recognised as being an ONFL.

Magnitude of Landscape Change

The magnitude of landscape change judges the amount of change that is likely to occur to areas of landscape, landscape features, or key landscape attributes. In undertaking this assessment, it is important that the size or scale of the change is considered within the geographical extent of the area influenced and the duration of change, including whether the change is reversible. In some situations, the loss /change or enhancement to existing landscape elements such as vegetation or earthworks should also be quantified.

When assessing the level of landscape effects, it is important to be clear about what factors have been considered when making professional judgements. This can include consideration of any

benefits which result from a proposed development. **Table 1** below helps to explain this process. The tabulating of effects is only intended to inform overall judgements.

Contributing Factors		Higher	Lower
Landscape (sensitivity)	**Ability to absorb change**	The landscape context has limited existing landscape detractors which make it highly vulnerable to the type of change resulting from the proposed development.	The landscape context has many detractors and can easily accommodate the proposed development without undue consequences to landscape character.
	The value of the landscape	The landscape includes important biophysical, sensory and shared and recognised attributes. The landscape requires protection as a matter of national importance (ONF/L).	The landscape lacks any important biophysical, sensory or shared and recognised attributes. The landscape is of low or local importance.
Magnitude of Change	**Size or scale**	Total loss or addition of key features or elements. Major changes in the key characteristics of the landscape, including significant aesthetic or perceptual elements.	The majority of key features or elements are retained. Key characteristics of the landscape remain intact with limited aesthetic or perceptual change apparent.
	Geographical extent	Wider landscape scale.	Site scale, immediate setting.
	Duration and reversibility	Permanent. Long term (over 10 years).	Reversible. Short Term (0-5 years).

Table 1: Determining the level of landscape effects

Visual Effects

To assess the visual effects of a proposed development on a landscape, a visual baseline must first be defined. The visual 'baseline' forms a technical exercise which identifies the area where the development may be visible, the potential viewing audience, and the key representative public viewpoints from which visual effects are assessed.

The viewing audience comprises the individuals or groups of people occupying or using the properties, roads, footpaths and public open spaces that lie within the visual envelope or 'zone of theoretical visibility (ZTV)' of The Site and proposal. Where possible, computer modelling can assist to determine the theoretical extent of visibility together with field work to confirm this. Where appropriate, key representative viewpoints should be agreed with the relevant local authority.

The Sensitivity of the viewing audience

The sensitivity of the viewing audience is assessed in terms of assessing the likely response of the viewing audience to change and understanding the value attached to views.

Likely response of the viewing audience to change

Appraising the likely response of the viewing audience to change is determined by assessing the occupation or activity of people experiencing the view at particular locations and the extent to which their interest or activity may be focussed on views of the surrounding landscape. This relies on a landscape architect's judgement in respect of visual amenity and the reaction of people who may be affected by a proposal. This should also recognise that people more susceptible to change generally include: residents at home, people engaged in outdoor recreation whose attention or interest is likely to be focussed on the landscape and on particular views; visitors to heritage assets or other important visitor attractions; and communities where views contribute to the wider landscape setting.

Value attached to views

The value or importance attached to particular views may be determined with respect to its popularity or numbers of people affected or reference to planning instruments such as viewshafts

or view corridors. Important viewpoints are also likely to appear in guide books or tourist maps and may include facilities provided for its enjoyment. There may also be references to this in literature or art, which also acknowledge a level of recognition and importance.

Magnitude of Visual Change

The assessment of visual effects also considers the potential magnitude of change which will result from views of a proposed development. This takes account of the size or scale of the effect, the geographical extent of views and the duration of visual change, which may distinguish between temporary (often associated with construction) and permanent effects where relevant. Preparation of any simulations of visual change to assist this process should be guided by best practice as identified by the NZILA[9].

When determining the overall level of visual effect, the nature of the viewing audience is considered together with the magnitude of change resulting from the proposed development. **Table 2** has been prepared to help guide this process:

Contributing Factors		Higher	Lower	Examples
The Viewing Audience (sensitivity)	**Ability to absorb change**	Views from dwellings and recreation areas where attention is typically focussed on the landscape.	Views from places of employment and other places where the focus is typically incidental to its landscape context. Views from transport corridors.	Dwellings, places of work, transport corridors, public tracks
	Value attached to views	Viewpoint is recognised by the community such as an important view shaft, identification on tourist maps or in art and literature. High visitor numbers.	Viewpoint is not typically recognised or valued by the community. Infrequent visitor numbers.	Acknowledged viewshafts, Lookouts
Magnitude of Change	**Size or scale**	Loss or addition of key features in the view. High degree of contrast with existing landscape elements (i.e. in terms of form scale, mass, line, height, colour and texture). Full view of the proposed development.	Most key features of views retained. Low degree of contrast with existing landscape elements (i.e. in terms of form scale, mass, line, height, colour and texture. Glimpse / no view of the proposed development.	- Higher contrast/ Lower contrast. - Open views, Partial views, Glimpse views (or filtered); No views (or obscured)
	Geographical extent	Front on views. Near distance views; Change visible across a wide area.	Oblique views. Long distance views. Small portion of change visible.	- Front or Oblique views. - Near distant, Middle distant and Long distant views
	Duration and reversibility	Permanent. Long term (over 15 years).	Transient / temporary. Short Term (0-5 years).	- Permanent (fixed), Transitory (moving)

Table 2: Determining the level of visual effects

Nature of Effects

In combination with assessing the level of effects, the landscape and visual effects assessment also considers the nature of effects in terms of whether this will be positive (beneficial) or negative (adverse) in the context within which it occurs. Neutral effects can also occur where landscape or visual change is benign.

It should also be noted that a change in a landscape does not, of itself, necessarily constitute an adverse landscape or visual effect. Landscape is dynamic and is constantly changing over time in both subtle and more dramatic transformational ways; these changes are both natural and

[9] Best Practice Guide: Visual Simulations BPG 10.2, NZILA

human induced. What is important in managing landscape change is that adverse effects are avoided or sufficiently mitigated to ameliorate the effects of the change in land use. The aim is to provide a high amenity environment through appropriate design outcomes.

This assessment of the nature effects can be further guided by **Table 3** set out below:

Nature of effect	Use and Definition
Adverse (negative):	The activity would be out of scale with the landscape or at odds with the local pattern and landform which results in a reduction in landscape and / or visual amenity values
Neutral (benign):	The activity would be consistent with (or blend in with) the scale, landform and pattern of the landscape maintaining existing landscape and / or visual amenity values
Beneficial (positive):	The activity would enhance the landscape and / or visual amenity through removal or restoration of existing degraded landscape activities and / or addition of positive elements or features

Table 3: Determining the Nature of Effects

Determining the Overall Level of Effects

The landscape and visual effects assessment concludes with an overall assessment of the likely level of landscape and visual effects. This step also takes account of the nature of effects and the effectiveness of any proposed mitigation. The process can be illustrated in Figure 2:

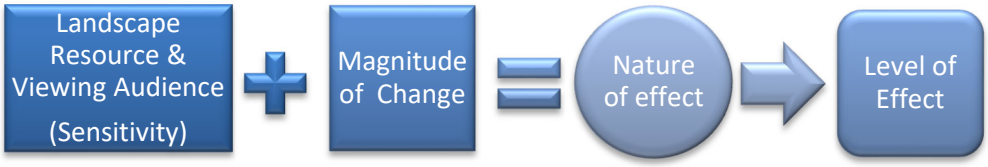

Figure 2: Assessment process

This step informs an overall judgement identifying what level of effects are likely to be generated as indicated in **Table 4** below. This table which can be used to guide the level of landscape and visual effects uses an adapted seven-point scale derived from NZILA's Best Practice Note.

Effect Rating	Use and Definition
Very High:	Total loss of key elements / features / characteristics, i.e. amounts to a complete change of landscape character and in views.
High:	Major modification or loss of most key elements / features / characteristics, i.e. little of the pre-development landscape character remains and a major change in views. *Concise Oxford English Dictionary Definition* *High: adjective- Great in amount, value, size, or intensity.*
Moderate- High:	Modifications of several key elements / features / characteristics of the baseline, i.e. the pre-development landscape character remains evident but materially changed and prominent in views.
Moderate:	Partial loss of or modification to key elements / features / characteristics of the baseline, i.e. new elements may be prominent in views but not necessarily uncharacteristic within the receiving landscape. *Concise Oxford English Dictionary Definition* *Moderate: adjective- average in amount, intensity, quality or degree*
Moderate - Low:	Minor loss of or modification to one or more key elements / features / characteristics, i.e. new elements are not prominent within views or uncharacteristic within the receiving landscape.
Low:	Little material loss of or modification to key elements / features / characteristics. i.e. modification or change is not uncharacteristic or prominent in views and absorbed within the receiving landscape. *Concise Oxford English Dictionary Definition*

	*Low: adjective- **1.** Below average in amount, extent, or intensity.*
Very Low:	Negligible loss of or modification to key elements/ features/ characteristics of the baseline, i.e. approximating a 'no change' situation and a negligible change in views.

Table 4: Determining the overall level of landscape and visual effects

Determination of "minor"

Decision makers determining whether a resource consent application should be notified must also assess whether the effect on a person is less than minor[10] or an adverse effect on the environment is no more than minor[11]. Likewise, when assessing a non-complying activity, consent can only be granted if the s104D 'gateway test' is satisfied. This test requires the decision maker to be assured that the adverse effects of the activity on the environment will be 'minor' or not be contrary to the objectives and policies of the relevant planning documents.

These assessments will generally involve a broader consideration of the effects of the activity, beyond the landscape and visual effects. Through this broader consideration, guidance may be sought on whether the likely effects on the landscape or effects on a person are considered in relation to 'minor'. It must also be stressed that more than minor effects on individual elements or viewpoints does not necessarily equate to more than minor effects on the wider landscape. In relation to this assessment, moderate-low level effects would generally equate to 'minor'.

The third row highlights the word 'significant' which has particular reference to the NZCPS and Policy 13 and Policy 15 and where on the effects-spectrum 'a significant' effect would be placed.

Less than Minor		**Minor**	**More than Minor**			
Very Low	**Low**	**Moderate – Low**	**Moderate**	**Moderate-High**	**High**	**Very High**
					Significant[12]	

Table 5: Determining minor effects for notification determination and non-complying activities

[10] RMA, Section 95E

[11] RMA Section 95D

[12] To be used only about Policy 13(1)(b) and Policy 15(b) of the New Zealand Coastal Policy Statement (NZCPS), where the test is 'to avoid significant adverse effects'.

Appendix 2: Relevant District Plan Provisions

Objectives and Policies

Rural Zone Objectives and Policies

Objective 4.3.7 Rural character

Rural character and amenity is maintained.

Policy 4.3.7.1 Rural character

Land use activities should be at a density, scale, intensity and location to maintain rural character.

Policy 4.3.7.2 Rural character

Rural character and associated amenity values shall be maintained by ensuring rural land uses predominate in the Rural Zone, and buildings are of an appropriate scale and location.

Objective 4.3.8 Rural amenity: setbacks

To maintain rural character and amenity and avoid reverse sensitivity effects

Policy 4.3.8.2 Internal boundaries

Buildings and activities are set back from rear and side boundaries to maintain rural character and amenity and avoid reverse sensitivity effects.

Residential Zone Objectives and Policies

Objective 2.3.1 Key elements of residential character

To maintain and enhance the existing elements of the Residential Zone that give each town its own character.

Policy 2.3.1.2 Te Awamutu

To maintain and enhance Te Awamutu's character by:

a) *Maintaining a road pattern that follows the natural contour of the landform and which provides for the occasional view to the rural hinterland; and*

b) *Providing for wide grassed road verges that enable sufficient space for mature trees; and*

c) *Providing for development that is of a low density, one to two storeys, and set back from road frontages to enable sufficient open space for the planting of trees and private gardens; and*

d) *Providing linkages to the Mangapiko Stream with development actively facing and providing access to the stream.*

Objective 2.3.2 Neighbourhood amenity and safety

To maintain amenity values and enhance safety in the Residential Zone.

Policy 2.3.2.1 Building setback: road boundary

All buildings shall be designed and setback from roads in a manner which:

a) *Maintains the predominant building setback within the neighbourhood except in relation to compact housing areas and Neighbourhood and Local Centres; and*

b) *Allows sufficient space for the establishment of gardens and mature trees on the site except in compact housing areas; and*

c) *Accentuates the dwelling on the site; and*

d) *Provides for passive surveillance to roads and avoids windowless walls to the street.*

Policy 2.3.2.2 Building setback: character street

To maintain the existing character of character streets by having a consistent building setback.

Policy 2.3.2.3 Building setback: side boundaries

To maintain spaciousness when viewed from the road, provide opportunities for planting, provide a degree of privacy, maintain sunlight and daylight, provide ongoing access to the rear of the site and enable building maintenance from within the site by maintaining a consistent setback between buildings on different sites.

Policy 2.3.2.4 Building setback: side boundaries

A reduced setback from a side boundary may be acceptable where it:

a) *Assists in retaining existing mature trees on the site; or*

b) *Enables the more effective development of the site because of on-site topographic constraints; or*

c) *Is located within a greenfield subdivision, where a reduced or nil setback on one side is offset by an increased setback on the other side.*

Provided that there is no loss of privacy, sunlight or daylight on adjoining properties, and where sufficient area is maintained on site for outdoor living, and the building does not unduly dominate outdoor living areas on adjoining sites.

Policy 2.3.2.5 Height of buildings

The height of new buildings shall not be out of character with the Residential Zone. For developments within the compact housing area identified on the Planning Maps this policy applies at the boundary of the site.

Policy 2.3.2.6 Site coverage and permeable surfaces

To ensure that all sites have sufficient open space to provide for landscaping, outdoor activities, storage, on-site stormwater disposal, parking, and vehicle manoeuvring by maintaining a maximum site coverage requirement for buildings in the Residential Zone.

Policy 2.3.2.7 Policy – Site coverage and permeable surfaces

Maintain a proportion of each site in permeable surfaces such as lawn and gardens, in order to ensure there is sufficient capacity to enable the on-site disposal of stormwater.

Policy 2.3.2.16 Earthworks

To ensure that earthworks are carried out in a manner that avoids adverse effects between properties and on water bodies.

Policy 2.3.2.19 Safety and design

To enhance the safety of residential neighbourhoods through site layouts and building designs that incorporate Crime Prevention through Environmental Design (CPTED) principles.

Policy 2.3.2.20 Safety and design

To ensure that passive surveillance is provided to roads, reserves and walkways.

Objective 2.3.5 Comprehensive design and development

To ensure that developments are comprehensively designed, incorporate urban design and CPTED principles, are co-ordinated with infrastructure provision, and integrated with the transportation network.

Policy 2.3.5.1 Comprehensive design of in-fill housing, compact housing, retirement village accommodation and associated care facilities, rest homes, and visitor accommodation

To ensure that in-fill housing, compact housing, retirement village accommodation and associated care facilities, rest homes and visitor accommodation are comprehensively designed by:

a) *Ensuring that developments effectively relate to the street, existing buildings, and adjoining developments in the neighbourhood; and*

b) *Ensuring that in the Cambridge Residential Character Area new dwellings between existing dwellings on the site and the road shall be avoided; and*

c) *Avoiding long continuous lengths of wall; and*

d) *Maximising the potential for passive solar gain; and*

e) *Providing for sufficient private space for the reasonable recreation, service and storage needs of residents; and*

f) *Retaining existing trees and landscaping within the development where this is practical; and*

g) *Where appropriate provide for multi-modal transport options and provide for links with existing road, pedestrian and cycleways; and*

h) *Incorporating CPTED principles; and*

i) *Addressing reverse sensitivity effects; and*

j) *Mitigating adverse effects related to traffic generation, access, noise, vibration, and light spill; and*

k) *Being appropriately serviced and co-ordinated with infrastructure provision and integrated with the transport network.*

Deferred Zone Objectives and Policies

Objective 14.3.1 Deferred Zoning

Land intended for conversion from its current land use to an alternative land use in order to respond to growth demands is clearly identified, occurs in a planned manner, and its resources are protected for its anticipated future use.

Policy 14.3.1.3 Structure planning

To provide a framework for new growth areas through a comprehensive and integrated structure planning process.

Assessment Criteria

21.1.14 Deferred Zones

The application of the assessment criteria to any application for a structure plan will depend on the anticipated land use, by way of example the infrastructure needs for the Large Lot Residential Zone are different than those for a Residential Zone. The criteria below are therefore a guide to the matters to be considered.

(a) The extent to which the structure plan and/or its staging is consistent with the programmed growth allocation and/or staging in the Waipa District Growth Strategy and the Waikato Regional Policy Statement. If it is not consistent, then the extent to which the criteria for alternative land release has been met.

(b) The extent to which the infrastructure needs for the site have been met and any network and/or capacity constraints have been addressed.

(c) The extent to which the stormwater system for the site has taken into account a catchment management approach and provides for the anticipated level of service. Guidance on stormwater design is provided in the Regional Infrastructure Technical Specifications.

(d) The extent to which the structure plan provides for multimodal transport options, within the area as well as connections to routes, facilities and sites outside of the structure plan area.

(e) The extent to which the structure plan provides for the key elements of character of the area in which it is located and provides for the valued characteristics of the area.

(f) The extent to which the relationship of Māori with their ancestral lands, water sites, wāhi tapu, and other taonga has been recognised and provided for.

(g) The extent to which the structure plan protects indigenous biodiversity of the area and/or heritage sites or features.

(h) The extent to which the structure plan is consistent with the outcomes and principles contained in the relevant Waipa District Town Concept Plan.

(i) The extent to which any risks associated with natural hazards or any geotechnical issues, contaminated sites, and or hazardous substance can be managed.

(j) The extent to which the proposed land use will result in a reverse sensitivity effect and any proposals to mitigate that effect.

Appendix 3: T2 Structure Plan Concept Plan

This graphic has been prepared by Boffa Miskell Limited on the specific instructions of our Client. It is solely for our Client's use in accordance with the agreed scope of work. Any use or reliance by a third party is at that party's own risk. Where information has been supplied by the Client or obtained from other external sources, it has been assumed that it is accurate. No liability or responsibility is accepted by Boffa Miskell Limited for any errors or omissions to the extent that they arise from inaccurate information provided by the Client or any external source.

Legend:

- T1 Growth Cell
- T2 Growth Cell
- Retirement Village
- Residential (12 to 15 Lots per Ha)
- Retirement
- Open Space
- Local Road 18-20m Corridor
- Local Road 15-16m Corridor
- Roundabouts
- Storm Water Detention Ponds
- 3m Paths (Pedestrian / Cycle)
- On road cycling connection route

PIRONGIA ROAD

Growth Cell T1

FRONTIER ROAD

Designated Water Supply Reservoir

Retirement access

Retirement access

Neighbourhood Playground

STAGE 2

STAGE 1

Boffa Miskell

Te Awamutu Country Club

KOTARE PROPERTIES

Printed 12/10/2020 1:51:39 PM

REV	DATE	DESCRIPTION	APPRV'D
J	23.07.20	Preliminary	MPe
K	27.07.20	Preliminary Concept	MPe
L	06.08.20	Final Concept	MPe
M	28.08.20	Updated Concept	MPe
N	18.09.20	Update Northern T2 Growth Cell	MPe
O	12.10.20	Clarifications	MPe

CLIENT

Sanderson Group

CONSULTANTS

BBO

STANTEC

Nicklin CE Ltd Wainui Environmental

FOR PLAN CHANGE

T2 Structure Plan

T2 Structure Plan

Design	MHu	Scale	Date
Drawn	MHu/MPe	1:2000 @ A1	06/08/2020
Check	JSo	1:4000 @ A3	

DRAWING NO. BM200127_001

REVISION O

U:\2020\BM200127JSo_Sanderson_Group_Te_Awamutu_Village\CAD\BM200127_T2_SP_Base2_20020918.dwg

Appendix 4: Visual Simulation

Boffa Miskell

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0 200 m

1:5,000 @ A3

Data Sources: Sourced from the LINZ Data Service and licensed for re-use under the Creative Commons Attribution 4.0 New Zealand licence

Projection: NZGD 2000 New Zealand Transverse Mercator

LEGEND

- Site Boundary
- Retirement Village
- Parcel Boundary
- Visual Simulation

TE AWAMUTU VILLAGE

Visual Simulation Locations

Date: 05 August 2020 | Revision: 0

Plan prepared for Sandersen Group by Boffa Miskell Limited

Project Manager: Jo.Soanes@boffamiskell.co.nz | Drawn: ATy | Checked: RGo

Figure X

Existing View

Proposed View

Boffa Miskell

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Viewpoint Details

NZTM Easting	: 1801219.5 mE	Horizontal Field of View	: 90°
NZTM Northing	: 5790047 mN	Vertical Field of View	: 25°
Elevation/Eye Height	: 70.5m / 1.5m m	Projection	: Rectilinear
Date of Photography	: 2:11 PM 20/07/2020 NZST	Image Reading Distance @ A3	: 20 cm

Data sources:

TE AWAMUTU VILLAGE

Western Boundary view from Frontier Road

Date: 5-Aug-20 | Revision: 0

Plan prepared for Sanderson Group by Boffa Miskell Limited

Project Manager: jo.soanes@boffamiskell.co.nz | Drawn: RGo | Checked: JMy

VP1

About Boffa Miskell

Boffa Miskell is a leading New Zealand professional services consultancy with offices in Auckland, Hamilton, Tauranga, Wellington, Christchurch, Dunedin and Queenstown. We work with a wide range of local and international private and public sector clients in the areas of planning, urban design, landscape architecture, landscape planning, ecology, biosecurity, cultural heritage, graphics and mapping. Over the past four decades we have built a reputation for professionalism, innovation and excellence. During this time we have been associated with a significant number of projects that have shaped New Zealand's environment.

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NICKLIN CE
SURVEYING PLANNING ENGINEERING

GROWTH CELL T2
PLAN CHANGE
INFRASTRUCTURE REPORT

Sanderson Group
Kotare Properties

Frontier & Pirongia Roads
TE AWAMUTU 3876

JULY 2020
OUR REF: 4500

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24 July 2020

Our Ref: 4500

SANDERSON GROUP LTD:

KOTARE PROPERTIES LTD:

Growth Cell T2 Plan Change Infrastructure Report:
Frontier and Pirongia Roads, Te Awamutu 3876

THREE WATERS, ROADING, AND UTILITY SERVICING CONCEPTS

TABLE OF CONTENTS

1. INTRODUCTION 3
2. WASTEWATER MANAGEMENT 3
3. STORMWATER MANAGEMENT 4
4. WATER SUPPLY 4
5. ROADING 4
6. UTILITY SERVICES 5
7. SUMMARY 5

Appendix A 4500 Sanderson Kotare (Frontier) Nicklin CE Development Concept Set Rev4
Appendix B Existing Underground Service Location Plans
Appendix C 3-39433.00 WSP T2 Water Supply Assessment July 2020
Appendix D Utility Service Providers Confirmation of Supply

1.0 Introduction:

Sanderson Group and Kotare Properties are applying for a plan change to zoning, from Rural to Residential, of the Waipa District Council 'T2' Growth Cell at Frontier and Pirongia Roads, Te Awamutu. This report provides an overview, at a conceptual level, of anticipated infrastructure. The purpose is to outline key infrastructure concepts regarding supply and design, and to demonstrate feasibility. The report will refer to 'T2 South' as comprising the proposed Kotare Properties Subdivision and Sanderson Group Retirement Development, and 'T2 North' comprising anticipated future development in the T2 Growth Cell to the North of the Sanderson Group Development. 'T1'will be used to refer to the 'T1 Growth Cell' currently being developed by Frontier Developments to the East of 'T2'.

Our report will be limited to the following matters:

- Wastewater Management;
- Stormwater Management;
- Water Supply;
- Roading;
- Utility Services.

2.0 Wastewater Management:

The overall wastewater strategy is similar for both T2 South and T2 North, however these are both somewhat independent systems. The concept for T2 South is a gravity reticulation network to a centralised low point, to proximity of the designed wetland, in the proposed Council reserve.

A wastewater pumping station will be constructed to Regional Infrastructure Technical Specification (RITS) standards, as required to vest in Waipa District Council. A rising main will be designed to RITS requirements to pump wastewater to the eastern boundary of T2 and all the way north to Pirongia Road. Appropriate easements will need to be registered to provide for this reticulation. The rising main would continue east along Pirongia Road to an existing Council manhole (Asset ID 20190725094422) where the 225mmø existing gravity reticulation will convey wastewater to the nearby Te Awamutu Wastewater Treatment Plant. See plan sets 4500-06 and 4500-07 within Appendix A. Pump Station and Rising Main design is currently in process.

Conversations with Council Development Engineering have confirmed this approach is acceptable and that prior planning has intended for the above-mentioned existing wastewater manhole to be the receiving infrastructure for both the T1 and T2 growth cells. There is the ability for this rising main to be modified and re-directed as required for future T1 and T2 development.

The strategy for T2 North is similar, with gravity reticulation to a low point on site, and conversations with Council Development Engineering suggest that wastewater can be pumped to T1 Stage 3 as it is anticipated this will be completed prior to the development of T2 North. There are also possible routes for rising main infrastructure to run along Pirongia Road or for new infrastructure to the Te Awamutu Wastewater Treatment to be developed dependant on design. See the reporting and structure by Boffa Miskell for the proposed layout of T2 North.

As noted on plan 4500-06, infrastructure within the Te Awamutu Country Club development will be private and will connect to the public system as indicated on the Kotare Heights development plan via roads and reserves to be vested in Council.

3.0 Stormwater Management:

The overall stormwater strategy for T2 South is for reticulated infrastructure to convey stormwater to either an open swale system or a centralised wetland, for treatment prior to discharge into the downstream receiving environment. Ultimately the catchment makes its way to the Mangapiko Stream. See plan set 4500-06 within Appendix A for possible layout. A similar strategy can be achieved within T2 North. See the reporting and structure by Boffa Miskell for the proposed layout of T2 North. See the reporting and plans from Wainui Environmental for more detail regarding stormwater philosophy and design.

4.0 Water Supply:

WSP has confirmed there is adequate water supply in the Council system for both the T1 and T2 growth cells. See the Water Supply Assessment in Appendix C for further details. A meeting was held on 21st July 2020 with WSP and Council Development Engineering to discuss required infrastructure and Council Development Engineering is currently in process developing a booster pump to provide adequate pressure for anticipated T1 and T2 pressure demands upon completion.

It is anticipated that supply will be made available from an existing 375mmø main in Frontier Road for T2 South and that future connection will be provided for T1 development at the common T1 T2 road interface. Detailed design of the water reticulation network will be undertaken in due course following further reporting from WSP and Waipa District Council.

It is anticipated that T1 roading and infrastructure as it relates and interfaces with T2 will be progressed prior to the development of T2 North. Infrastructure and design mentioned above will give due consideration to T2 North and will look to ensure appropriate supply and pressure will be available for water reticulation.

5.0 Roading:

Road infrastructure has been modelled from previous roading development within the Waipa District and modified with input from Stantec and Boffa Miskell. See plans Nicklin CE 4500-03 and 4500-08 within Appendix A for layout and road section concepts as they relate to the subdivision component of T2 South. Parking bays are proposed to be recessed and a central island is proposed for the main 20m 'Road 1'. Two roundabouts, one culdesac, and three access lots are also proposed. Roading upgrades are proposed for the north-western side of Frontier road abutting the development and speed limits are to be considered. More detailed design will be undertaken as part civil design works in due course.

T2 South provide connectivity to both Frontier Road and the T1 development, and T2 North has dual connectivity to the T1 development and connectivity to Pirongia road. Walkways and Cycleways are also proposed, linking roading and reserves and providing increased recreational connectivity. Roading infrastructure is anticipated to be of a similar nature to T2 South. See reports from Boffa Miskell and Stantec for further detail related proposed roading infrastructure, design, and layout for the T2 Growth Cell.

6.0 Utility Services:

Confirmation has been obtained from Waipa Networks, Ultrafast Fibre, and First Gas that the development of T2 South can be serviced via existing networks in respect electricity, telecommunications, and gas. Waipa Networks Ltd, Ultrafast Fibre Ltd and First Gas Ltd will be contacted in due course to undertake their infrastructure design for T2 South. Refer Appendix D for correspondence from these respective utility providers.

It is anticipated that T2 north will be able to be serviced once staged infrastructure within the T1 development is progressed to the common road interface with T2 and vested in Council. Further infrastructure could be provided from Pirongia Road.

Consideration of existing services needs to be given in the future development of T2 as follows:

- The First Gas trunk main and the Te Tahi Council water supply main will need to be located in Pirongia Road and approvals gained prior to the construction of rising main infrastructure in Pirongia road and any other civil works;
- Chorus has a telecommunications line running in proximity the common boundary between T2 South and T2 North, running West to East into the T1 development, and will need to be located and possible relocated prior to any works in this location;
- General utility infrastructure withing Frontier and Pirongia roads requires identification consideration prior to works in these locations;
- Overhead power and private water supply line servicing the existing dwelling within T2 South, and as contained within easements as shown on plan 4500-02 within Appendix 1, will need to be located and possible relocated prior to any works.

Refer Appendix B for as-built and location plans for the utility services detailed above.

7.0 Summary:

This report, in conjunction with the enclosed development concept plan set, water supply assessment, and utility services appendices, and other reporting as detailed above and enclosed within the master plan change application, outlines key infrastructure concepts regarding supply and design, and demonstrates availability of service and feasibility of infrastructure.

Should you have any queries, please do not hesitate to contact the writer.

Yours faithfully,

C P Murphy
MNZIS, BSurv.
Licensed Cadastral Surveyor
Project Management
Nicklin CE Ltd

APPENDIX A

4500 Sanderson Kotare (Frontier) Nicklin CE Development Concept Set

Rev4

FILE: 4500

SANDERSON GROUP & KOTARE PROPERTIES

ENGINEERING CONCEPT SET

Te Awamutu Country Club

TE AWAMUTU COUNTRY CLUB

KOTARE PROPERTIES

KOTARE HEIGHTS

10 & 52 FRONTIER ROAD, TE AWAMUTU

JULY 2020

CONTENTS

SHEET 01: TOPOGRAPHICAL SITE PLAN
SHEET 02: EXISTING ALLOTMENTS PLAN
SHEET 03: SUBDIVISION CONCEPT PLAN
SHEET 04: FINAL CONTOURS EARTHWORKS PLAN
SHEET 05: CUT FILL EARTHWORKS PLAN
SHEET 06: COMBINED SERVICES CONCEPT PLANS
SHEET 07: SEWER RISING MAIN CONCEPT PLANS
SHEET 08: TYPICAL ROAD SECTIONS CONCEPT

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NICKLIN CE
SURVEYING PLANNING ENGINEERING

SCHEDULE OF EXISTING EASEMENTS			(EI 9161449.6)
Purpose/Interest	Shown	Burdened Land (Servient Tenement)	Benefited Land (Dominant Tenement)
RIGHT TO CONVEY ELECTRICITY	A B C	LOT 1 DP 487281	LOT 2 DP 487281
RIGHT TO CONVEY WATER	B D E		

Te Awamutu Country Club

KOTARE PROPERTIES

DRAFT

LOT 2
DP 487281
(RT 696841)
2.5307 Ha

LOT 1
DP 487281
(RT 696840)
15.6835 Ha

Lot 7 DP 481400

Lot 1 DP 453448

Lot 1 DP 516135

Lot 3 DP 487281

Lot 3 DP 444190

Section 1 SO 466626

Pt Allot 228 Mangapiko Psh

Right to Convey Electricity

Right to Convey Water

FRONTIER ROAD
Legal Road Sealed and In Use

DATUM: IRON BOLT RL 80.45m

PROPERTY DETAILS:
LEGAL DESCRIPTION:
LOTS 1 & 2 DP 487281
- AREA: 18.2142 Ha
- COMPRISED IN 696840 / 696841
- WAIPA DISTRICT COUNCIL
- ZONING: RURAL

NOTES:

1. HEIGHTS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953
2. DATUM MARK IB 1 SO 466626 RL=80.45
3. CONTOUR INTERVAL 0.5m
4. AREAS AND DIMENSIONS SHOWN ARE SUBJECT TO FINAL SURVEY.

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PROJECT TITLE

TOPOGRAPHICAL SITE PLAN

OVER LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU
SANDERSON GROUP & KOTARE PROPERTIES

ALTERATION	JOB	SHEET
	4500	01
CAD CPM	ORIGINAL SCALE AT A3	REV 1
DATE 7 MAY 2020	1:2000	

C:\USERS\CIARAN\NICKLIN CE\NICKLIN CE TEAM SITE - DOCUMENTS\4500 SANDERSON GROUP (52 FRONTIER ROAD, TE AWAMUTU)\CAD\TOPO PLAN\4500-01 TOPOGRAPHICAL SITE PLAN REV1.DWG

SCHEDULE OF EXISTING EASEMENTS (EI 9161449.6)			
Purpose/Interest	Shown	Burdened Land (Servient Tenement)	Benefited Land (Dominant Tenement)
RIGHT TO CONVEY ELECTRICITY	A B C	LOT 1 DP 487281	LOT 2 DP 487281
RIGHT TO CONVEY WATER	B D E		

Te Awamutu Country Club

KOTARE PROPERTIES

DRAFT

LOT 2
DP 487281
(RT 696841)
2.5307 Ha

LOT 1
DP 487281
(RT 696840)
15.6835 Ha

Lot 7 DP 461400

Lot 1 DP 453448

Lot 1 DP 516135

Lot 3 DP 487281

Lot 3 DP 444190

Section 1 SO 466626

Pt Allot 228 Mangapiko Psh

Right to Convey Electricity

Right to Convey Water

99°59'00" 159.52
13°02' 21.20
103°02'40" 20.12
193°02'40" (88.20)
192°04' 33.81
173°21'10" 29.97
146°32' 8.85
183°44' 15.39
162°02'20" 92.01
342°02'20" 115.68
11°30'30" 112.34
11°30'30" 30.11
288°59'30" 97.57
282°10' 18.06
285°39'30" (63.76)
11°34'00" 122.16
321°28' 6.33
1°40'00" 149.34
109°50' 33.40
99°13' 22.41
41°58'00"
357°01'30" 120.21
86°20'30" 66.91
82°10' 84.9
353°44'00" 111.63
345°24'30" 114.36
253°41' 24.71
337°16'30" 181.28
157°16'30" 181.01
242°06'00" 17.86
336°48'00" 105.00
156°48'00" 104.70
165°13'00" 109.01
241°10'40" 251°33' 4.19 1.84
(20.28) 241°10'40"
241°45'10" (341.02)

DATUM: IRON BOLT RL 80.45m

FRONTIER ROAD
Legal Road Sealed and In Use

Section 1 SO 61091
Section 2 SO
LOT 1 DPS 4408
LOT 2 DPS 4408
LOT 3 DPS 4408
LOT 4 DPS 4408
LOT 5 DPS 4408
LOT 6 DPS 4408
LOT 7 DPS 4408
LOT 8 DPS 4408
LOT 9 DPS 4408
LOT 10 DPS 4408
LOT 11 DPS 4408
LOT 12 DPS 4408

PROPERTY DETAILS:
LEGAL DESCRIPTION:
LOTS 1 & 2 DP 487281
– AREA: 18.2142 Ha
– COMPRISED IN 696840 / 696841
– WAIPA DISTRICT COUNCIL
– ZONING: RURAL

NOTES:

1. HEIGHTS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953
2. DATUM MARK IB 1 SO 466626 RL=80.45
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PROJECT TITLE

EXISTING ALLOTMENTS PLAN

OVER LOTS 1 & 2 DP 487281 AT 10 & 52 FRONTIER ROAD, TE AWAMUTU SANDERSON GROUP& KOTARE PROPERTIES

ALTERATION	JOB	SHEET
	4500	02
CAD CPM	ORIGINAL SCALE AT A3	REV 1
DATE 7 MAY 2020	1:2000	

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Te Awamutu Country Club

A 98 Villa 9.56 Hectare Sanderson Group Development

KOTARE PROPERTIES

KOTARE HEIGHTS

An 8.65 Hectare
105 RESIDENTIAL
LOT DEVELOPMENT

Concept Only

Lot 7 DP 461400

Lot 1 DP 453448

LOT 111
TE AWAMUTU COUNTRY CLUB
8.12 Ha

T1 - 20m wide

Lot 1 DP 516135

LOT 112
TE AWAMUTU COUNTRY CLUB
0.82 Ha Net
0.93 Ha Gross

Lot 3 DP 487281

LOT 110
1.3040 Ha
RESERVE
To Vest

SW

Sewer Pump

LOT 113
Road to Vest
2.14 Ha

ROAD 2 (15m) - 100m

Access 6m wide

Section 1 SO 466626

2700 m² Terrace

25m x 15m Playground

ROAD 1 (20m) - 372m FRONTIER Rd - T1

ROAD 3 (18m) - 668m

Pt Allot 228 Mangapiko Psh

Lot 3 DP 444190

ACCESS LOT 109 (6m) 425 m²

ACCESS LOT 108 (6m) 270 m²

ACCESS LOT 107 (6m) 251 m²

Lot 106 348 m² Walkway (6m)

FRONTIER ROAD Legal Road Sealed and In Use

Section 1 SO 466626

LOT 1 DPS 4408

LOT 2 DPS 4408

LOT 3 DPS 4408

LOT 4 DPS 4408

LOT 5 DPS 4408

LOT 6 DPS 4408

LOT 7 DPS 4408

LOT 8 DPS 4408

LOT 9 DPS 4408

LOT 10 DPS 4408

LOT 11 DPS 4408

LOT 12 DPS 4408

LOT 2 DP 378

AVERAGE RESIDENTIAL
LOT SIZE = 532m²

PROPERTY DETAILS:
LEGAL DESCRIPTION:
LOTS 1 & 2 DP 487281
– AREA: 18.2142 Ha
– COMPRISED IN 696840 / 696841
– WAIPA DISTRICT COUNCIL
– ZONING: RURAL

NOTES:

1. HEIGHTS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953
2. DATUM MARK IB 1 SO 466626 RL=80.45
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PROJECT TITLE
SUBDIVISION CONCEPT PLAN
LOTS 1–113 BEING A SUBDIVISION
OF LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU
SANDERSON GROUP & KOTARE PROPERTIES

ALTERATION	JOB	SHEET
	4500	03
CAD CPM	ORIGINAL SCALE AT A3	REV 16
DATE 24 JULY 2020	1:2000	

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Te Awamutu Country Club

A 98 Villa
9.56 Hectare
Sanderson Group
Development

KOTARE PROPERTIES

KOTARE HEIGHTS

An 8.65 Hectare
105 RESIDENTIAL
LOT SUBDIVISION

Concept Only

Lot 7 DP 461400

Lot 1 DP 453448

T1 - 20m wide

Lot 1 DP 516135

Lot 3 DP 487281

Section 1 SO 466626

Pt Allot 228 Mangapiko Psh

Lot 3 DP 444190

LOT 111
TE AWAMUTU COUNTRY CLUB
8.12 Ha

LOT 112
TE AWAMUTU COUNTRY CLUB
0.82 Ha Net
0.93 Ha Gross

LOT 110
1.3040 Ha
RESERVE
To Vest

Sewer Pump

2700 m² Terrace

25m x 15m Playground

LOT 113
Road to Vest
2.14 Ha

ROAD 1 (20m) - 372m (FRONTIER Rd - T1)

ROAD 2 (15m) - 100m

ROAD 3 (18m) - 668m

Access 6m wide

DATUM: IRON BOLT RL 80.45m

FRONTIER ROAD Legal Road Sealed and In Use

LOT 1 DPS 4408

LOT 2 DPS 4408

LOT 3 DPS 4408

LOT 4 DPS 4408

LOT 5 DPS 4408

LOT 6 DPS 4408

LOT 7 DPS 4408

LOT 8 DPS 4408

LOT 9 DPS 4408

LOT 10 DPS 4408

LOT 11 DPS 4408

LOT 12 DPS 4408

LOT 2 DP 378

Section 1 SO 6

Section 2 SO

PROPERTY DETAILS:
LEGAL DESCRIPTION:
LOTS 1 & 2 DP 487281
– AREA: 18.2142 Ha
– COMPRISED IN 696840 / 696841
– WAIPA DISTRICT COUNCIL
– ZONING: RURAL

NOTES:

1. HEIGHTS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953
2. DATUM MARK IB 1 SO 466626 RL=80.45
3. CONTOUR INTERVAL 1.0m
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PROJECT TITLE
FINAL CONTOURS PLAN
LOTS 1–113 BEING A SUBDIVISION OF LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU
SANDERSON GROUP & KOPTARE PROPERTIES

ALTERATION	JOB	SHEET
	4500	04
CAD CPM	ORIGINAL SCALE AT A3	REV 7
DATE 24 JULY 2020	1:2000	

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Te Awamutu Country Club

A 98 Villa
9.56 Hectare
Sanderson Group
Development

CUT = 221,000m3 Solid
Fill = 157,000m3 Solid
x1.4

KOTARE PROPERTIES

KOTARE HEIGHTS

An 8.65 Hectare
105 RESIDENTIAL
LOT SUBDIVISION

CUT = 70,000m3 Solid
Fill = 50,000m3 Solid
x1.4

Concept Only

Fill (+)
11.418 (m) Max
0.000 (m)
-8.909 (m) Min
CUT (-)

Lot 7 DP 461400
Lot 1 DP 453448
Lot 1 DP 516135
Lot 3 DP 487281
Lot 3 DP 444190
Section 1 SO 466626
Pt Allot 228 Mangapiko Psh
LOT 111 TE AWAMUTU COUNTRY CLUB 8.02 Ha
LOT 112 TE AWAMUTU COUNTRY CLUB 0.82 Ha Net 0.98 Ha Gross
LOT 110 1.3040 Ha RESERVE To Vest
2.14 Ha
2700 m² Terrace
25m x 15m Playground
Sewer Pump
ROAD 2 (15m) - 100m
ROAD 3 (18m) - 668m
FRONTIER ROAD Legal Road Sealed and In Use
T1 - 20m wide
Access 6m wide
DATUM: IRON BOLT RL 80.45m

PROPERTY DETAILS:
LEGAL DESCRIPTION:
LOTS 1 & 2 DP 487281
– AREA: 18.2142 Ha
– COMPRISED IN 696840 / 696841
– WAIPA DISTRICT COUNCIL
– ZONING: RURAL

NOTES:

1. HEIGHTS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953
2. DATUM MARK IB 1 SO 466626 RL=80.45
3. CONTOUR INTERVAL 1.0m
4. AREAS AND DIMENSIONS SHOWN ARE SUBJECT TO FINAL SURVEY.

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PROJECT TITLE
CUT FILL CONTOURS PLAN
LOTS 1–113 BEING AN SUBDIVISION OF LOTS 1 & 2 DP 487281 AT 10 & 52 FRONTIER ROAD, TE AWAMUTU SANDERSON GROUP & KOTARE PROPERTIES

ALTERATION	JOB	SHEET
	4500	05
CAD CPM	ORIGINAL SCALE AT A3	REV 7
DATE 24 JULY 2020	1:2000	

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Te Awamutu Country Club

A 98 Villa 9.56 Hectare Sanderson Group Development

KEY

- 74.00 Finished Contour
- SSMH_1 Wastewater / MH
- Sewer Rising Main
- SWMH_1 Stormwater / MH
- CP Catchpit
- SWWW_30 SW Wing Wall
- SW Swale

KOTARE PROPERTIES

KOTARE HEIGHTS

An 8.65 Hectare
105 RESIDENTIAL
LOT SUBDIVISION

Concept Only

NOTES:
1. Internal Country Club Reticulation is Private infrastructure

Lot 7 DP 461400
Lot 1 DP 453448
Lot 1 DP 516135
Lot 3 DP 487281
Lot 3 DP 444190
Section 1 SO 466626
Pt Allot 228 Mangapiko Psh
LOT 111 TE AWAMUTU COUNTRY CLUB
LOT 112 TE AWAMUTU COUNTRY CLUB
LOT 110 RESERVE To Vest
LOT 113 Road to Vest
2700 m² Terrace
25m x 15m Playground
Sewer Pump_0
T1 - 20m wide
ROAD 1 (20m) - 372m
ROAD 2 (15m) - 100m
ROAD 3 (18m) - 668m
Access 6m wide
Legal Road Sealed and In Use
FRONTIER ROAD
DATUM: IRON BOLT RL 80.45m

PROPERTY DETAILS:
LEGAL DESCRIPTION:
LOTS 1 & 2 DP 487281
- AREA: 18.2142 Ha
- COMPRISED IN 696840 / 696841
- WAIPA DISTRICT COUNCIL
- ZONING: RURAL

NOTES:
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2. DATUM MARK IB 1 SO 466626 RL=80.45
3. CONTOUR INTERVAL 1.0m
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6 Wilson Street
P.O. Box 754
Cambridge 3450

PROJECT TITLE
COMBINED SERVICE PLAN
STORMWATER AND WASTEWATER
LOTS 1–113 BEING A SUBDIVISION
OF LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU

ALTERATION	JOB	SHEET
	4500	06
CAD CPM	ORIGINAL SCALE AT A3	REV 1
DATE 24 JULY 2020	1:2000	

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Concept Only

NOTES:

1. Country Club is Private infrastructure

KEY

- 74.00 Finished Contour
- SSMH_1 Wastewater / MH
- Sewer Rising Main
- SWMH_1 Stormwater / MH
- CP Catchpit
- SWWW_30 SW Wing Wall
- SW Swale

Te Awamutu Country Club

KOTARE PROPERTIES

Lot 3 DP 444190

SSMH_25 IL=65.0
SWMH_25 IL=65.5
SSMH_24 IL=63.0
SWMH_24 IL=63.5
LOT 110 RESERVE To Vest
SSMH_23 IL=62.5
SWMH_23 IL=63.0
SWWW_0 IL=61.8
Sewer Pump_0
SSMH_1 IL=60.5
SWMH_1 IL=62.0
SSMH_26 IL=70.00
SWMH_26 IL=70.5
SSMH_27 IL=71.00
SWMH_27 IL=71.5
SWMH_8 IL=75.0
SSMH_8 IL=74.5
LOT 113 Road to Vest
LOT 20
LOT 19
LOT 21
LOT 22
LOT 18
LOT 24
LOT 23
LOT 13
LOT 17
LOT 16
LOT 15
LOT 14
LOT 29
LOT 30
LOT 31
LOT 32
LOT 33
LOT 34
LOT 35
LOT 39
LOT 38
LOT 37
LOT 36
LOT 6
LOT 5
LOT 4
LOT 3
LOT 2
LOT 1
LOT 64
LOT 65
LOT 66
LOT 67
LOT 68
LOT 69
LOT 70
LOT 71
LOT 72
LOT 63
LOT 62
LOT 61
LOT 60
LOT 59
LOT 58
LOT 57
LOT 56
LOT 55
LOT 54
LOT 53
LOT 52
LOT 51
LOT 50
LOT 49
LOT 48
LOT 87
LOT 80
LOT 79
LOT 78
LOT 77
LOT 76
LOT 75
LOT 74
LOT 73
LOT 46
LOT 45
LOT 44
LOT 43
LOT 42
LOT 41
LOT 40
LOT 27
LOT 28
LOT 25
LOT 26
LOT 47
2700 m² Terrace
25m x 15m Playground
SSMH_2 IL=61.15
SWMH_2 IL=62.3
SSMH_16 IL=62.5
SWMH_16 IL=63.3
SSMH_3 IL=61.65
I/D IL= 68.00
I/D IL= 68.5
SWMH_3 IL=62.7
SSMH_4 IL=72.0
SWMH_4 IL=72.5
SSMH_11 IL=62.0
SWMH_11 IL=63.0
SWMH_17 IL=63.6
SSMH_12 IL=62.5
SWMH_12 IL=63.3
SSMH_13 IL=65.00
SWMH_13 IL=65.5
SSMH_18 IL=66.5
SWMH_18 IL=67.0
SSMH_19 IL=68.5
SWMH_19 IL=69.0
SSMH_20 IL=70.5
SWMH_20 IL=71.0
SSMH_21 IL=74.5
SWMH_21 IL=75.0
SSMH_10 IL=74.00
SWMH_10 IL=74.5
SSMH_15 IL=73.0
SWMH_15 73.5
SSMH_14 IL=71.00
SWMH_14 IL=71.5
ROAD 3 (18m) - 668m
ACCESS LOT 109
ACCESS LOT 108
Access Lot 107
Lot 106 Walkway
FRONTIER ROAD
Legal Road Sealed and In U
CP
58.00
60.00
62.00
64.00
66.00
68.00
70.00
72.00
74.00
76.00

PROPERTY DETAILS:
LEGAL DESCRIPTION:
LOTS 1 & 2 DP 487281
- AREA: 18.2142 Ha
- COMPRISED IN 696840 / 696841
- WAIPA DISTRICT COUNCIL
- ZONING: RURAL

NOTES:

1. HEIGHTS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953
2. DATUM MARK IB 1 SO 466626 RL=80.45
3. CONTOUR INTERVAL 1.0m
4. AREAS AND DIMENSIONS SHOWN ARE SUBJECT TO FINAL SURVEY.

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Cambridge 3450

PROJECT TITLE
COMBINED SERVICE PLAN
STORMWATER AND WASTEWATER
LOTS 1–113 BEING A SUBDIVISION
OF LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU

ALTERATION	JOB	SHEET
	4500	06A
CAD CPM	ORIGINAL SCALE AT A3	REV 1
DATE 24 JULY 2020	1:1000	

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Concept Only

NOTES:

1. Country Club is Private infrastructure

LOT 112
TE AWAMUTU COUNTRY CLUB

LOT 113
Road to Vest

Section 1
SO 466626

2700 m² Terrace

25m x 15m Playground

ROAD 2 (15m) - 100m

ROAD 1 (20m) - 372m

FRONTIER ROAD

Legal Road Sealed and In Use

Te Awamutu Country Club

KOTARE PROPERTIES

KEY

- 74.00 Finished Contour
- SSMH_1 Wastewater / MH
- SWMH_1 Stormwater / MH
- CP Catchpit
- SWWW_30 SW Wing Wall
- SW Swale
- Sewer Rising Main

PROPERTY DETAILS:
LEGAL DESCRIPTION:
LOTS 1 & 2 DP 487281
- AREA: 18.2142 Ha
- COMPRISED IN 696840 / 696841
- WAIPA DISTRICT COUNCIL
- ZONING: RURAL

NOTES:

1. HEIGHTS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953
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PROJECT TITLE
COMBINED SERVICE PLAN
STORMWATER AND WASTEWATER
LOTS 1-113 BEING A SUBDIVISION
OF LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU

ALTERATION	JOB	SHEET
	4500	06B
CAD CPM	ORIGINAL SCALE AT A3	REV 1
DATE 24 JULY 2020	1:1000	

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Te Awamutu Country Club

KOTARE PROPERTIES

Concept Only

NOTES:

1. Interal Country Club Reticulation is Private infrastructure

SWWW_41 IL=72.6
SSMH_41 IL=73.0
SSMH_42 IL=74.0
SSMH_43 IL=75.5
SWMH_42 IL=73.5
SWMH_43 IL=75.0
SWWW_38 IL=72.3
SSMH_38 IL=71.8
SSMH_39 IL=74.0
SSMH_40 IL=75.5
SWMH_39 IL=74.5
SWMH_40 IL=76.0
SWWW_36 IL=71.9
SSMH_36 IL=71.0
SSMH_37 IL=73.0
SWMH_37 IL=74.5
SSMH_44 IL=76.0
SWMH_44 IL=76.5
SSMH_33 IL=69.5
SSMH_34 IL=73.5
SWMH_34 IL=74.0
SSMH_35 IL=73.3
SWMH_35 IL=73.8
SSMH_45 IL=75.0
SWMH_45 IL=75.5
SSMH_30 IL=68.5
SSMH_31 IL=73.00
SWMH_31 IL=73.5
SWMH_31 IL=75.5
SSMH_32 IL=74.5
SWMH_28 IL=67.5
SWMH_29 IL=73.5
SSMH_29 IL=73.00
SWMH_25 IL=65.5
SSMH_26 IL=70.00
SWMH_9 IL=76.5
SWMH_8 IL=75.0
CP

KEY
- 74.00 Finished Contour
- SSMH_1 Wastewater / MH
- Sewer Rising Main
- SWMH_1 Stormwater / MH
- CP Catchpit
- SWWW_30 SW Wing Wall
- SW Swale

LOT 111
TE AWAMUTU COUNTRY CLUB

Lot DP 45

T1

PROPERTY DETAILS:
LEGAL DESCRIPTION:
LOTS 1 & 2 DP 487281
- AREA: 18.2142 Ha
- COMPRISED IN 696840 / 696841
- WAIPA DISTRICT COUNCIL
- ZONING: RURAL

NOTES:

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PROJECT TITLE
COMBINED SERVICE PLAN
STORMWATER AND WASTEWATER
LOTS 1–113 BEING A SUBDIVISION
OF LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU

ALTERATION	JOB	SHEET
	4500	06C
CAD CPM	ORIGINAL SCALE AT A3	REV 1
DATE 24 JULY 2020	1:1000	

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Te Awamutu Country Club

KOTARE PROPERTIES

KEY

- 74.00 Finished Contour
- SSMH_1 Sewer Manhole
- Sewer Rising Main
- 70 Finished Spot Height
- Ch 627 Chainage

Concept Only

Lot 7 DP 461400

Lot 1 DP 453448

Lot 1 DP 516135

Lot 3 DP 487281

Lot 3 DP 444190

Pt Allot 228 Mangapiko Psh

Section 1 SO 466626

LOT 111 TE AWAMUTU COUNTRY CLUB 8.12 Ha

LOT 112 TE AWAMUTU COUNTRY CLUB 0.82 Ha Net 0.93 Ha Gross

LOT 110 1.3040 Ha RESERVE To Vest

LOT 113 Road to Vest 2.14 Ha

SSMH_1 IL=60.3

Sewer Pump Station

New Rising Main

2700 m² Terrace

25m x 15m Playground

ROAD 2 (15m) - 100m

ROAD 1 (20m) - 372m FRONTIER Rd - T1)

ROAD 3 (18m) - 668m

T1 - 20m wide

Access 6m wide

FRONTIER ROAD Legal Road Sealed and In Use

LOT 1 DPS 4408

PROPERTY DETAILS:
LEGAL DESCRIPTION:
LOTS 1 & 2 DP 487281
- AREA: 18.2142 Ha
- COMPRISED IN 696840 / 696841
- WAIPA DISTRICT COUNCIL
- ZONING: RURAL

NOTES:

1. HEIGHTS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953
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PROJECT TITLE

DEVELOPMENT ENGINEERING
WASTEWATER RISING MAIN PLAN
LOTS 1–113 BEING A SUBDIVISION OF LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU

ALTERATION	JOB	SHEET
	4500	07A
CAD CPM	ORIGINAL SCALE AT A3	REV 1
DATE 24 JULY 2020	1:2000	

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Te Awamutu Country Club

KOTARE PROPERTIES

Lot 1
DP 327266

PIRONGIA ROAD
Legal Road Sealed and In Use

Ch 1446

53.5

50

exSSMH_03
IL(In)=45.00

Ex 225Ø WW Line

48

50.00

T1 Stage 1

T1 Stage 2

54

Ex 225Ø WW Line

FRONTIER DEVELOPMENTS

60.00

New Rising Main

Lot 1
DP 580541

66

Ch 1100 T1 Stage 3

70.00

Concept Only

80

Ch 916

Lot 3
478844

83.5

Lot 1
DP 515135

New Rising Main

78

78

KEY

- 74.00 Finished Contour
- SSMH_1 Sewer Manhole
- Sewer Rising Main
- 70 Finished Spot Height
- Ch 627 Chainage

PROPERTY DETAILS:
LEGAL DESCRIPTION:
LOTS 1 & 2 DP 487281
- AREA: 18.2142 Ha
- COMPRISED IN 696840 / 696841
- WAIPA DISTRICT COUNCIL
- ZONING: RURAL

NOTES:

1. HEIGHTS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953
2. DATUM MARK IB 1 SO 466626 RL=80.45
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PROJECT TITLE
DEVELOPMENT ENGINEERING
WASTEWATER RISING MAIN PLAN
LOTS 1–113 BEING A SUBDIVISION
OF LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU

ALTERATION	JOB	SHEET
	4500	07B
CAD CPM	ORIGINAL SCALE AT A3	REV 1
DATE 24 JULY 2020	1:2000	

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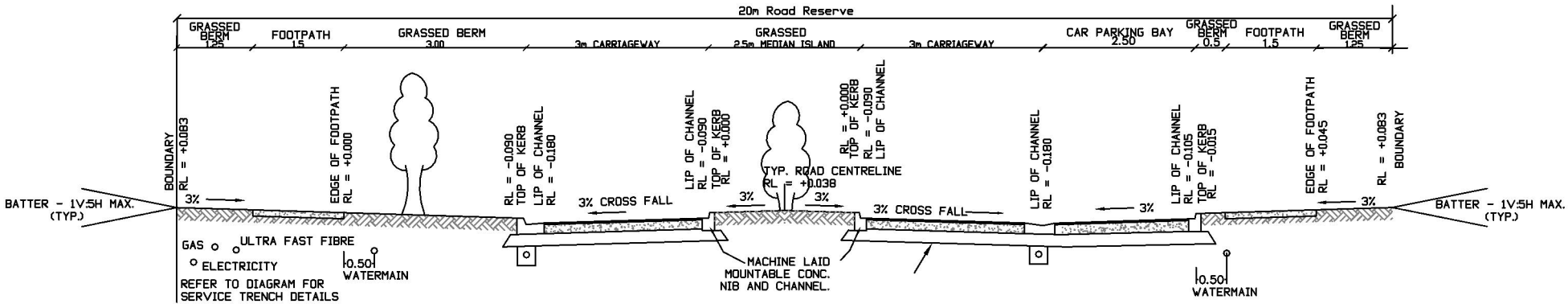
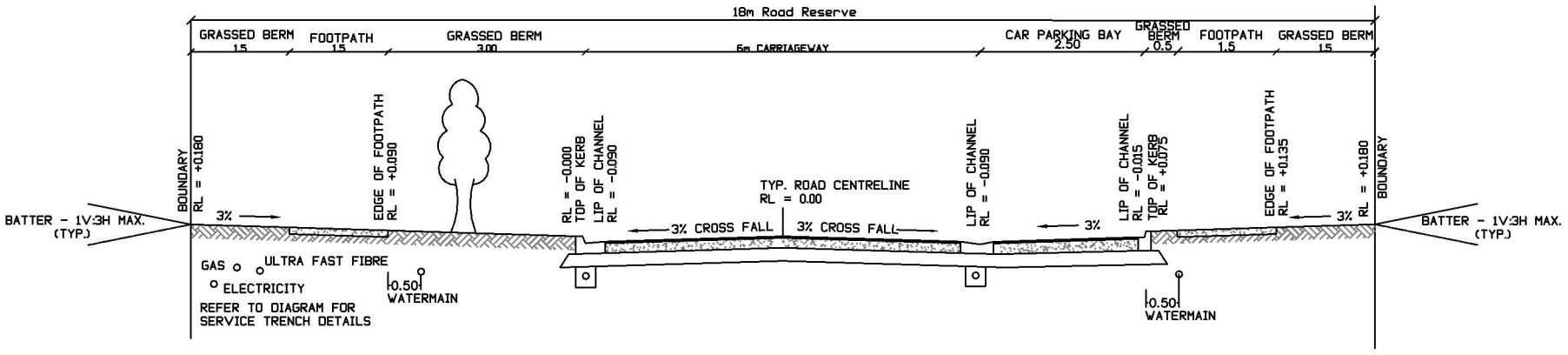
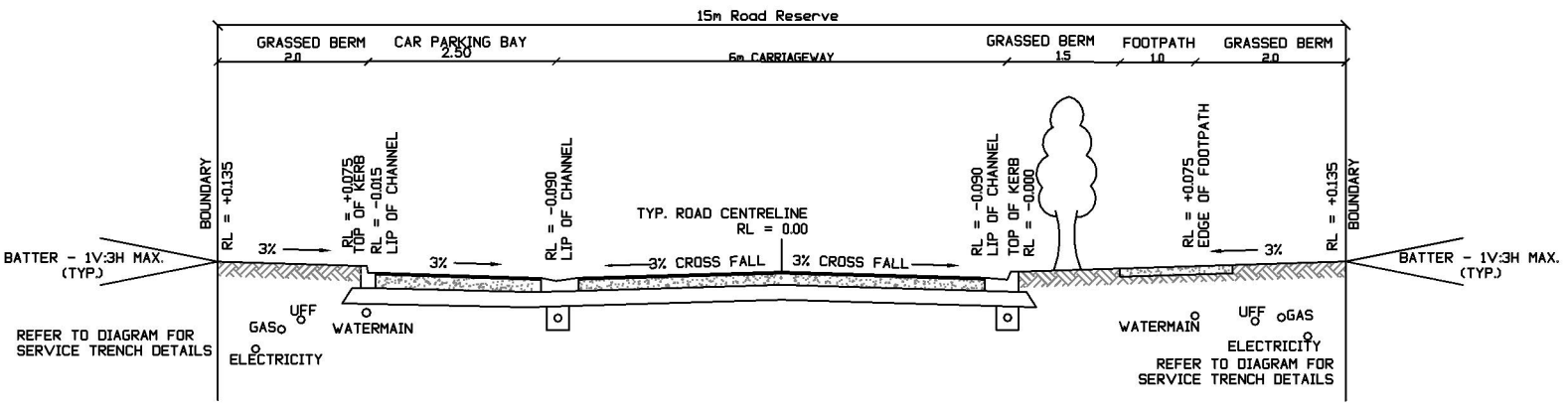


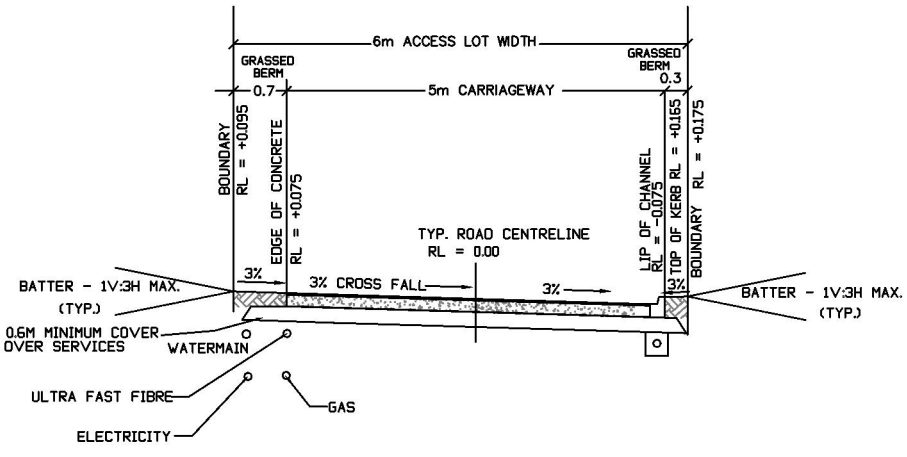
TYPICAL CROSS-SECTION A – A' DOUBLE CAR PARKING BAY (20m Road Reserve)



TYPICAL CROSS-SECTION B – B' DOUBLE CAR PARKING BAY (18m Road Reserve)



TYPICAL CROSS-SECTION C – C' SINGLE CAR PARKING BAY (15m Road Reserve – 6m Carriageway)



TYPICAL CROSS-SECTION D – D' 6.0M WIDTH
ACCESS LOT 109

REFER TO PLAN 4500-03 FOR ROAD LAYOUT

NOTES:

1. AREAS AND DIMENSIONS SHOWN ARE SUBJECT TO FINAL SURVEY.

Te Awamutu Country Club

KOTARE PROPERTIES

Concept Only

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PROJECT TITLE

DEVELOPMENT ENGINEERING
TYPICAL ROAD SECTIONS
LOTS 1-113 BEING A SUBDIVISION
OF LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU

ALTERATION	JOB 4500	SHEET 08
CAD CPM	ORIGINAL SCALE AT A3 1:100	REV 0
DATE 24 JULY 2020		

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APPENDIX B

Existing Underground Service Location Plans

BEWARE

The position of cables is subject to reasonable tolerance.

Depth of cover may have changed since installation. It is your responsibility to locate and verify exact position and depth of cables before excavating with machinery.

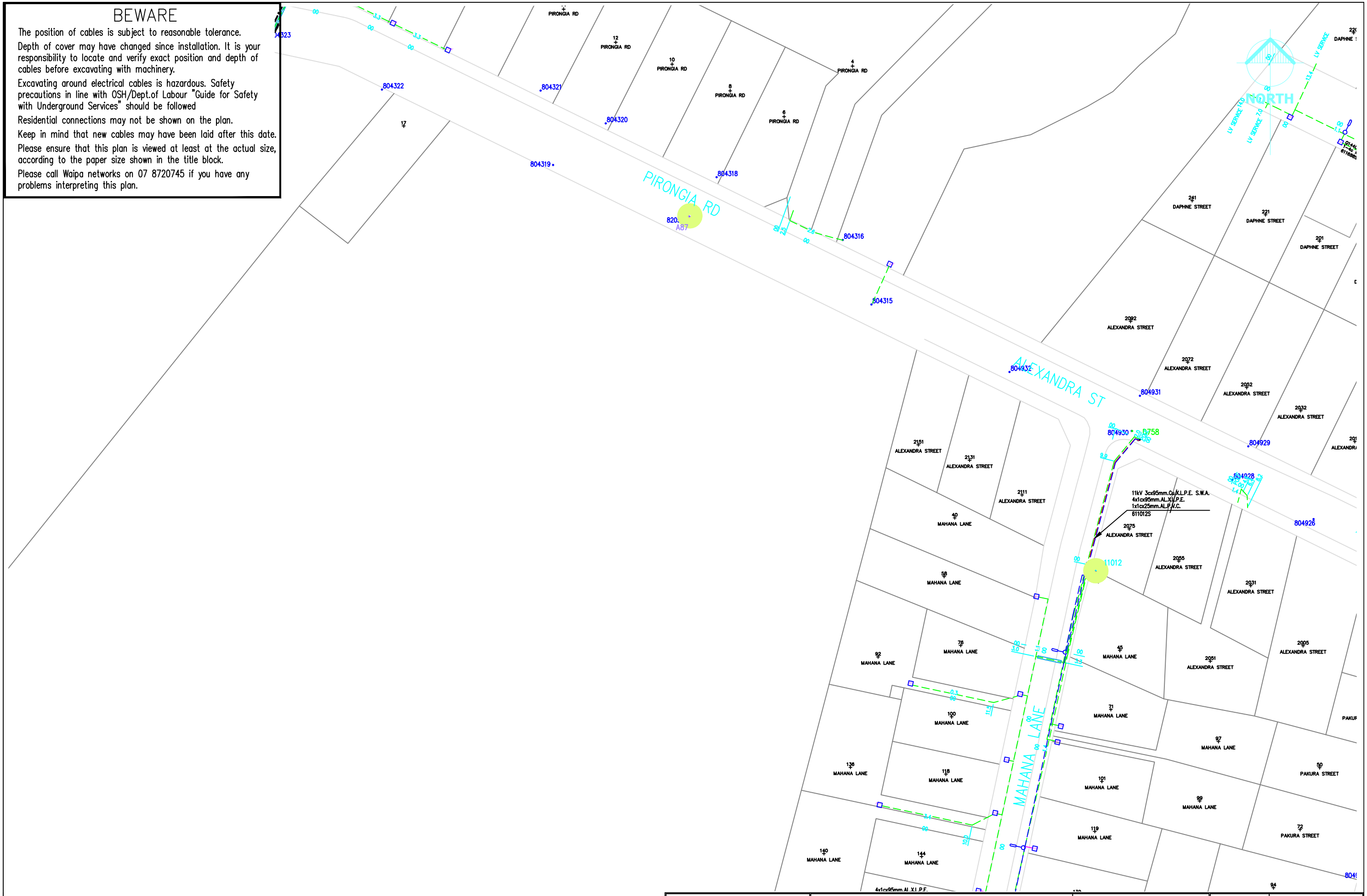
Excavating around electrical cables is hazardous. Safety precautions in line with OSH/Dept.of Labour "Guide for Safety with Underground Services" should be followed

Residential connections may not be shown on the plan.

Keep in mind that new cables may have been laid after this date.

Please ensure that this plan is viewed at least at the actual size, according to the paper size shown in the title block.

Please call Waipa networks on 07 8720745 if you have any problems interpreting this plan.



WAIPA NETWORKS	WAIPA NETWORKS	240 Harrison Dve, PO Box 505, TE AWAMUTU Ph. (07) 872 0745 Fax (07) 870 2401	SCALE: NTS
	TITLE: TE AWAMUTU: Pirongia Road Te Awamutu Sequence Number: 7968905 Underground Reticulation		DRAWN: Planning
			DATE: 3/6/20
			A3 SHT. 3 of 11

BEWARE

The position of cables is subject to reasonable tolerance.

Depth of cover may have changed since installation. It is your responsibility to locate and verify exact position and depth of cables before excavating with machinery.

Excavating around electrical cables is hazardous. Safety precautions in line with OSH/Dept.of Labour "Guide for Safety with Underground Services" should be followed

Residential connections may not be shown on the plan.

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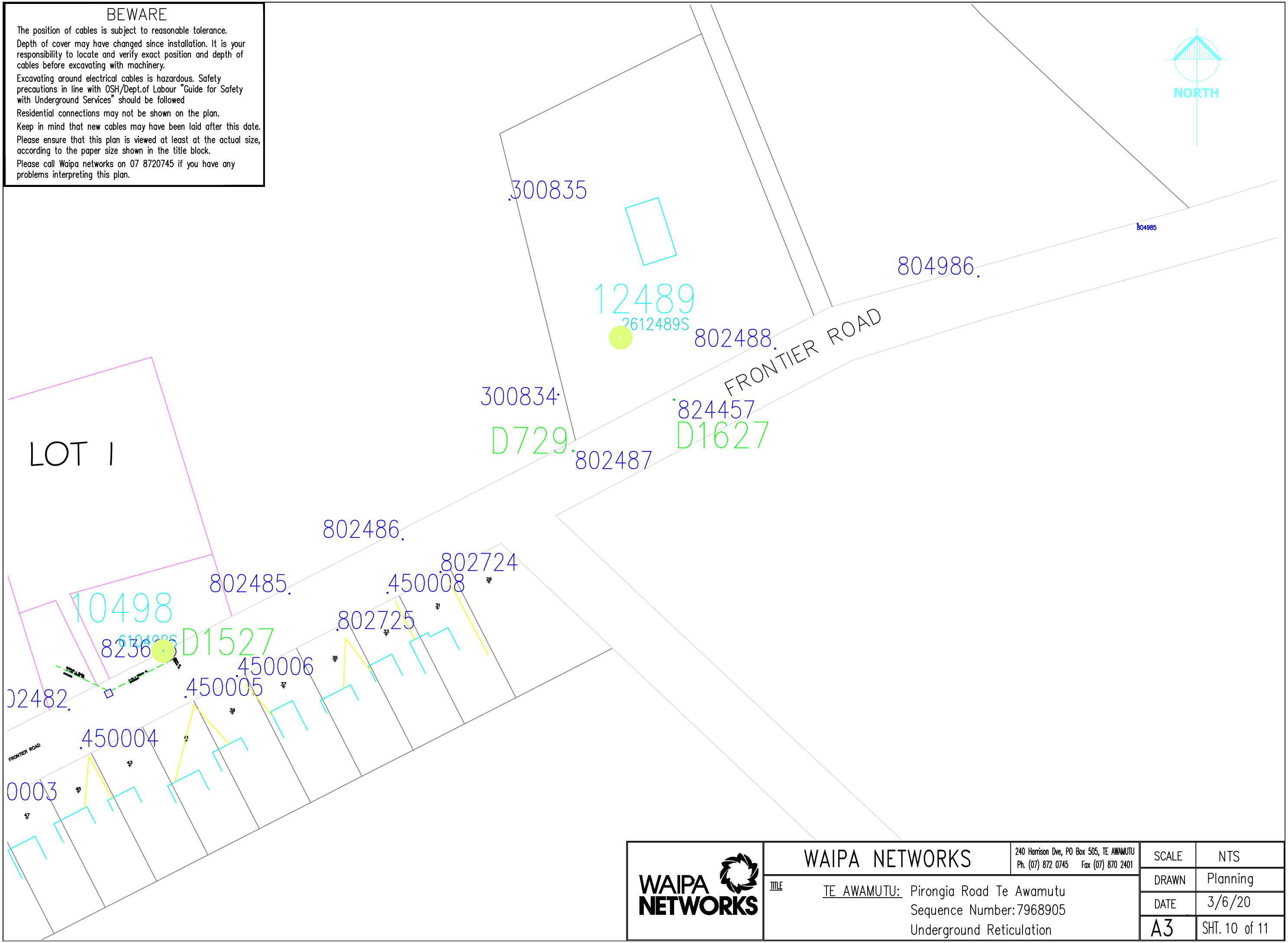
Please ensure that this plan is viewed at least at the actual size, according to the paper size shown in the title block.

Please call Waipa networks on 07 8720745 if you have any problems interpreting this plan.



WAIPA NETWORKS	WAIPA NETWORKS	240 Harrison Dve, PO Box 505, TE AWAMUTU Ph. (07) 872 0745 Fax (07) 870 2401	SCALE: NTS
	TITLE: TE AWAMUTU: Pirongia Road Te Awamutu Sequence Number: 7968905 Underground Reticulation		DRAWN: Planning
			DATE: 3/6/20
			A3 SHT. 10 of 11

BEWARE

The position of cables is subject to reasonable tolerance.

Depth of cover may have changed since installation. It is your responsibility to locate and verify exact position and depth of cables before excavating with machinery.

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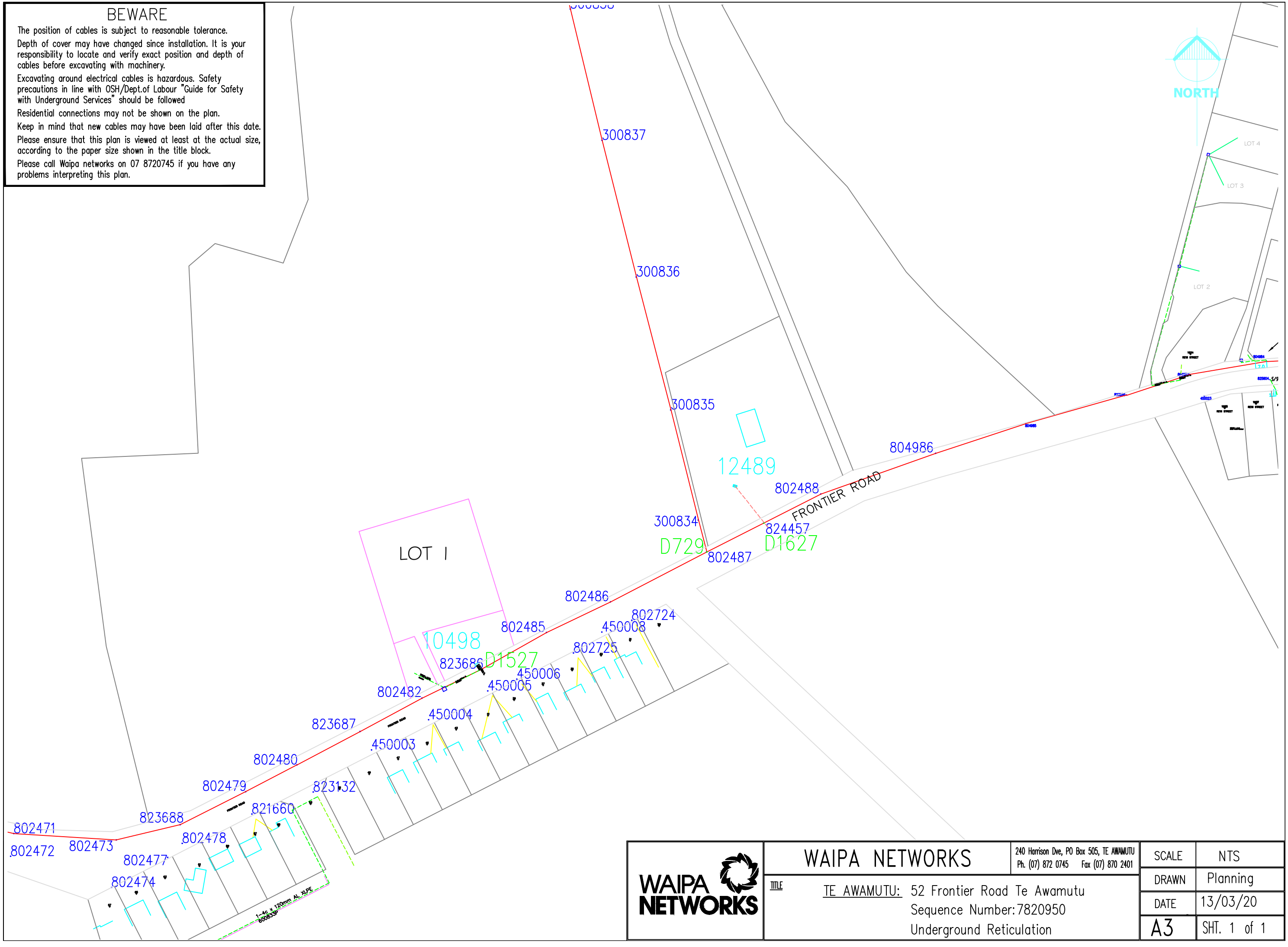
Residential connections may not be shown on the plan.

Keep in mind that new cables may have been laid after this date.

Please ensure that this plan is viewed at least at the actual size, according to the paper size shown in the title block.

Please call Waipa networks on 07 8720745 if you have any problems interpreting this plan.



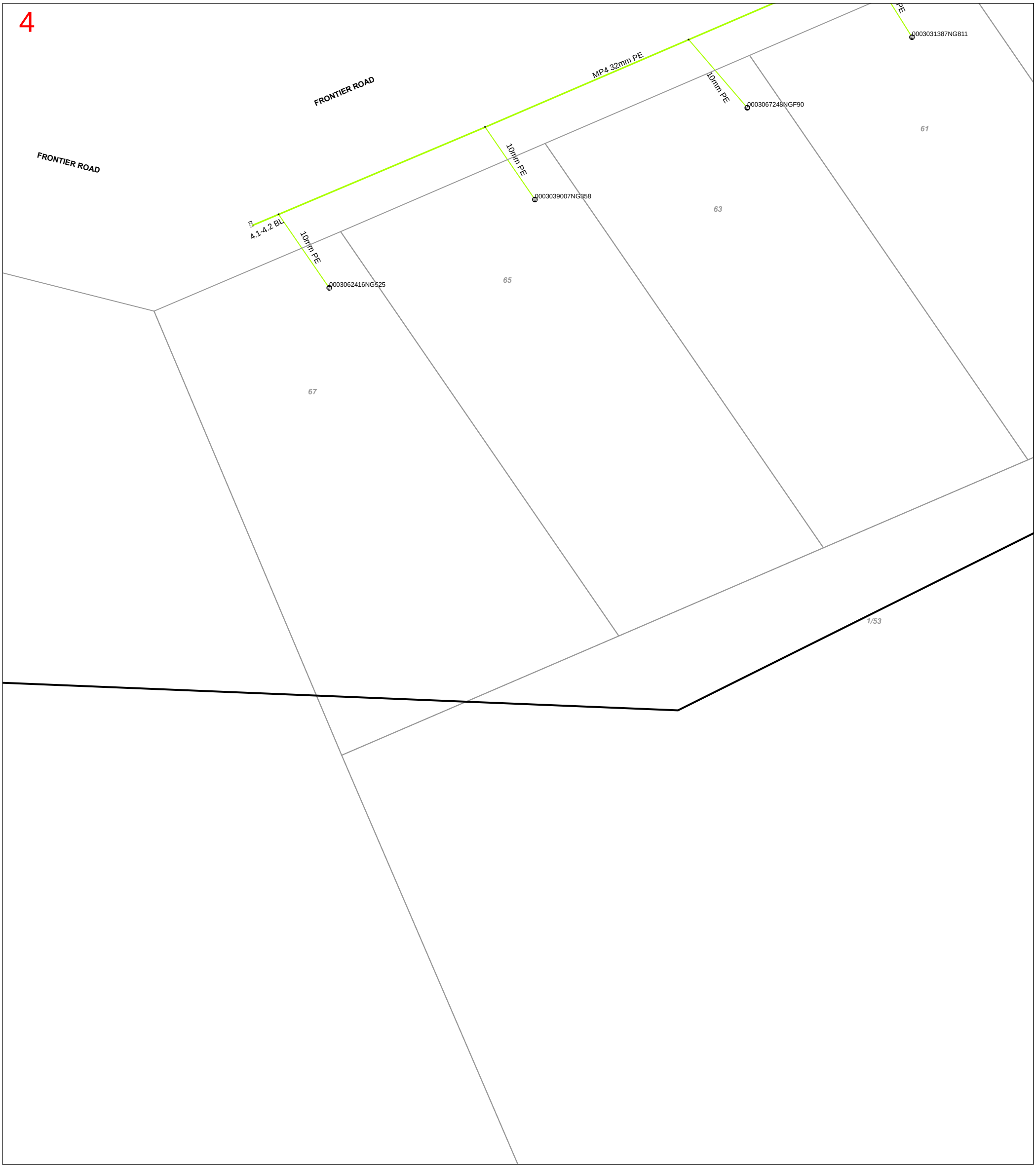
WAIPA NETWORKS	WAIPA NETWORKS	240 Harrison Dve, PO Box 505, TE AWAMUTU Ph. (07) 872 0745 Fax (07) 870 2401	SCALE: NTS
	TITLE: TE AWAMUTU: 52 Frontier Road Te Awamutu Sequence Number: 7820950 Underground Reticulation		DRAWN: Planning
			DATE: 13/03/20
			A3 SHT. 1 of 1

Firstgas

Detailed Map

Sequence No: 7884251

52 Frontier Road Te Awamutu



Request ID: 7884251	
Work Location: 52 Frontier Road Te Awamutu	
Intended Work: Hand Digging	
Company Name: Nicklin CE	
Contact: Mr Ciaran Murphy	
Original Scale: A3 – 1:300	**Date:** 29/04/2020

PIPE COLOUR BY PRESSURE

- HP > 2000 kPa
- IP20 1000-2000 kPa
- IP10 700-1000 kPa
- MP7 420-700 kPa
- MP4 210-420 kPa
- MP2 110-210 kPa
- MP1 7-110 kPa
- LP 0-7 kPa
- 0 kPa
- Pipe Casing

- Information Uncertainty
- Active Project
- Proposed Project

WARNING: TRANSMISSION PIPELINES
Indication only additional data is required
Prior to commencing work please contact First Gas on **0800 800 393**, or email locations@firstgas.co.nz for **FREE** on site locations and permits. A minimum of two working days notice is required.

OTHER GAS FEATURES

All dimensioning are in metres unless otherwise stated.

Gate Station	Valve Open	CP Rectifier	Squeeze Off
District PRS	Valve Closed	CP Test Point	End Cap
Service PRS	Reducer	CP Anode	Coupling
Meter	Shortstopp	Rectifier Cable	Tee

IKL	Inside Kerb Line
BL	Boundary Line
FL	Fence Line
OKL	Outside Kerb Line

N

WARNING: Special conditions apply for strategic gas pipelines.
(HP, IP20, IP10, MP7)
A close approach consent is required for any excavation within 2 meters of this pipeline. A MINIMUM of 3 working days' notice is required when applying for a close approach consent.

DISCLAIMER: Whilst care has been taken in the preparation of this plan, First Gas Limited and its subsidiaries do not accept any liability for its accuracy and completeness and do not make any representation or warranty, express or implied, in relation to the same. These drawings are not to scale and may not show customer connections or obsolete lines. Works may have occurred in the vicinity which may not be represented in this plan at the date of issue. The information contained in this plan is supplied for reference purposes only; actual dimensions and locations on site may differ from those indicated. Without limiting the foregoing, where plans are more than 28 days old they should not be used; a new plan should be requested from First Gas.

First Gas reminds you of your responsibilities under the Health and Safety at Work Act 2015, whereby you must establish the location of underground services before commencing excavation.

If you hit any gas pipeline call the Fire Service first on 111

Emergency Contact Numbers: Transmission Pipelines: 0800 734 567 Distribution Pipelines: 0800 802 332

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Firstgas **Detailed Map**

Sequence No: 7884251
52 Frontier Road Te Awamutu

Request ID: 7884251	
Work Location: 52 Frontier Road Te Awamutu	
Intended Work: Hand Digging	
Company Name: Nicklin CE	
Contact: Mr Ciaran Murphy	
Original Scale: A3 – 1:300	**Date:** 29/04/2020

PIPE COLOUR BY PRESSURE
- HP > 2000 kPa
- IP20 1000-2000 kPa
- IP10 700-1000 kPa
- MP7 420-700 kPa
- MP4 210-420 kPa
- MP2 110-210 kPa
- MP1 7-110 kPa
- LP 0-7 kPa
- 0 kPa
- Pipe Casing

- Information Uncertainty
- Active Project
- Proposed Project

WARNING: TRANSMISSION PIPELINES
Indication only additional data is required
Prior to commencing work please contact First Gas on **0800 800 393**, or email locations@firstgas.co.nz for **FREE** on site locations and permits. A minimum of two working days notice is required.

OTHER GAS FEATURES
All dimensioning are in metres unless otherwise stated.

- Gate Station
- District PRS
- Service PRS
- Meter
- Valve Open
- Valve Closed
- Reducer
- Shortstopp
- CP Rectifier
- CP Test Point
- CP Anode
- Rectifier Cable
- Squeeze Off
- End Cap
- Coupling
- Tee

IKL Inside Kerb Line
BL Boundary Line
FL Fence Line
OKL Outside Kerb Line

N

WARNING: Special conditions apply for strategic gas pipelines.
(HP, IP20, IP10, MP7)
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If you hit any gas pipeline call the Fire Service first on 111

Emergency Contact Numbers: Transmission Pipelines: 0800 734 567 Distribution Pipelines: 0800 802 332

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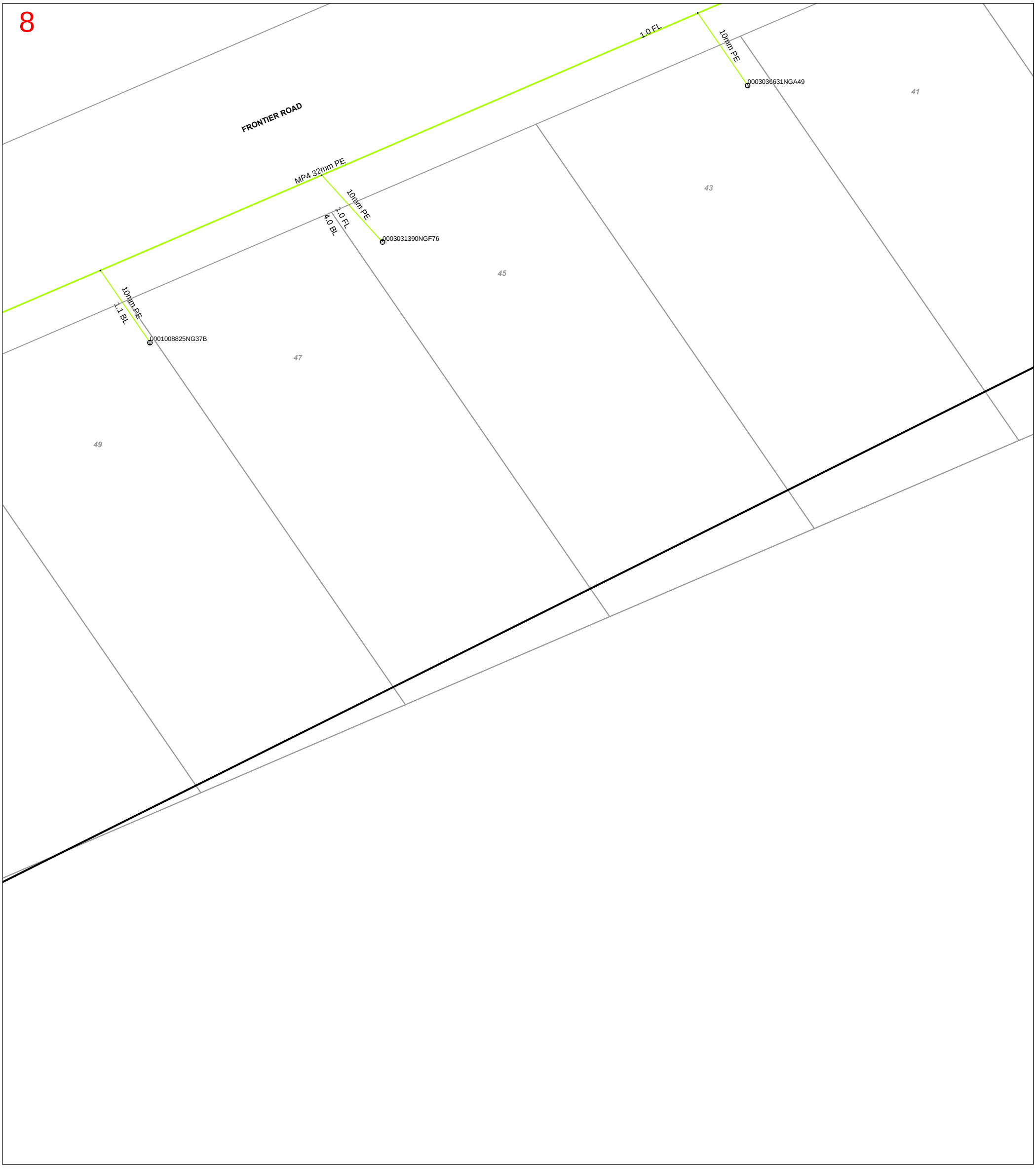
Firstgas

Detailed Map

Sequence No: 7884251

52 Frontier Road Te Awamutu



Request ID: 7884251	
Work Location: 52 Frontier Road Te Awamutu	
Intended Work: Hand Digging	
Company Name: Nicklin CE	
Contact: Mr Ciaran Murphy	
Original Scale: A3 – 1:300	**Date:** 29/04/2020

PIPE COLOUR BY PRESSURE

- HP > 2000 kPa
- IP20 1000-2000 kPa
- IP10 700-1000 kPa
- MP7 420-700 kPa
- MP4 210-420 kPa
- MP2 110-210 kPa
- MP1 7-110 kPa
- LP 0-7 kPa
- 0 kPa
- Pipe Casing

- Information Uncertainty
- Active Project
- Proposed Project

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OTHER GAS FEATURES

All dimensioning are in metres unless otherwise stated.

Gate Station	Valve Open	CP Rectifier	Squeeze Off
District PRS	Valve Closed	CP Test Point	End Cap
Service PRS	Reducer	CP Anode	Coupling
Meter	Shortstopp	Rectifier Cable	Tee

IKL	Inside Kerb Line
BL	Boundary Line
FL	Fence Line
OKL	Outside Kerb Line

N

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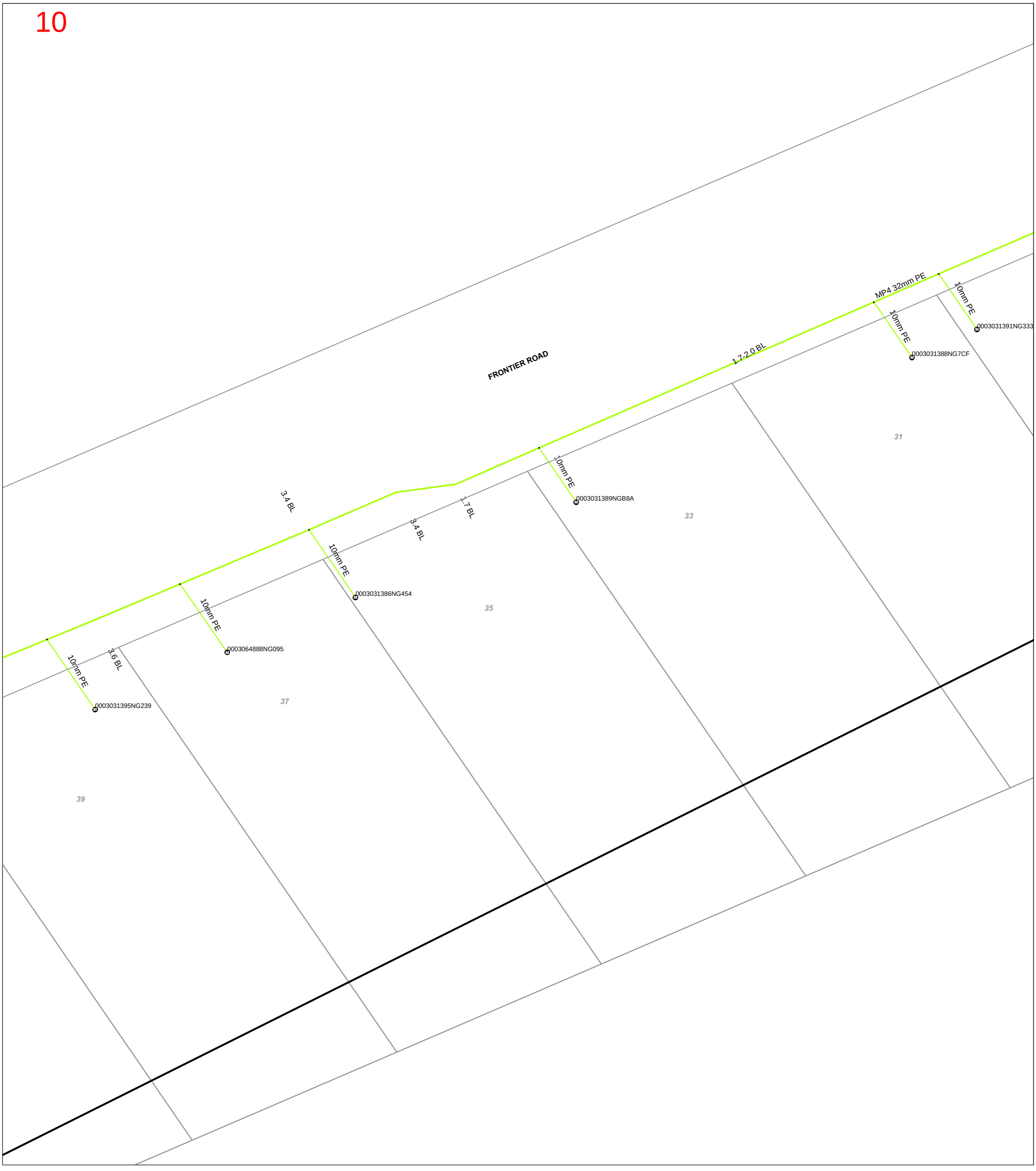

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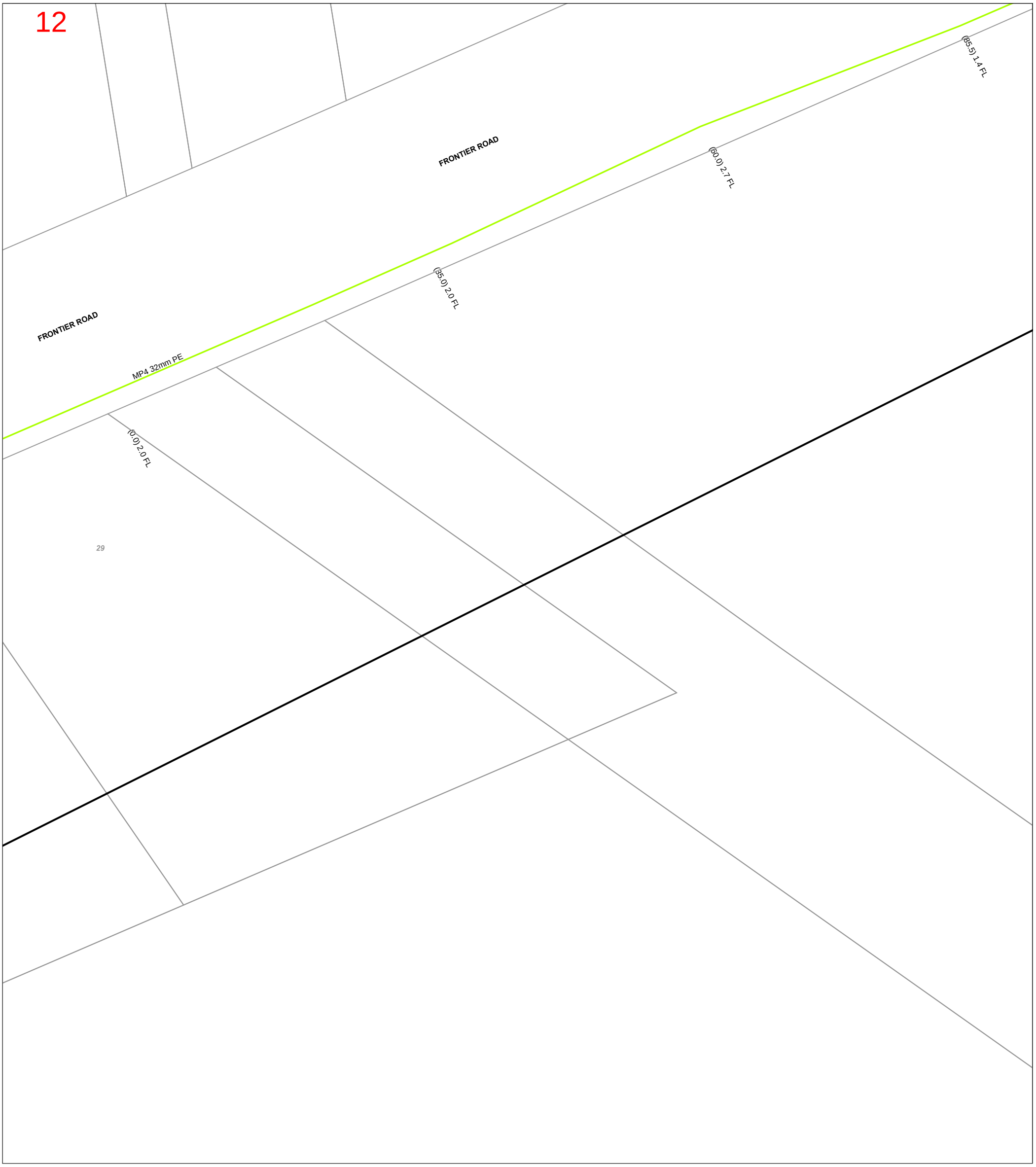

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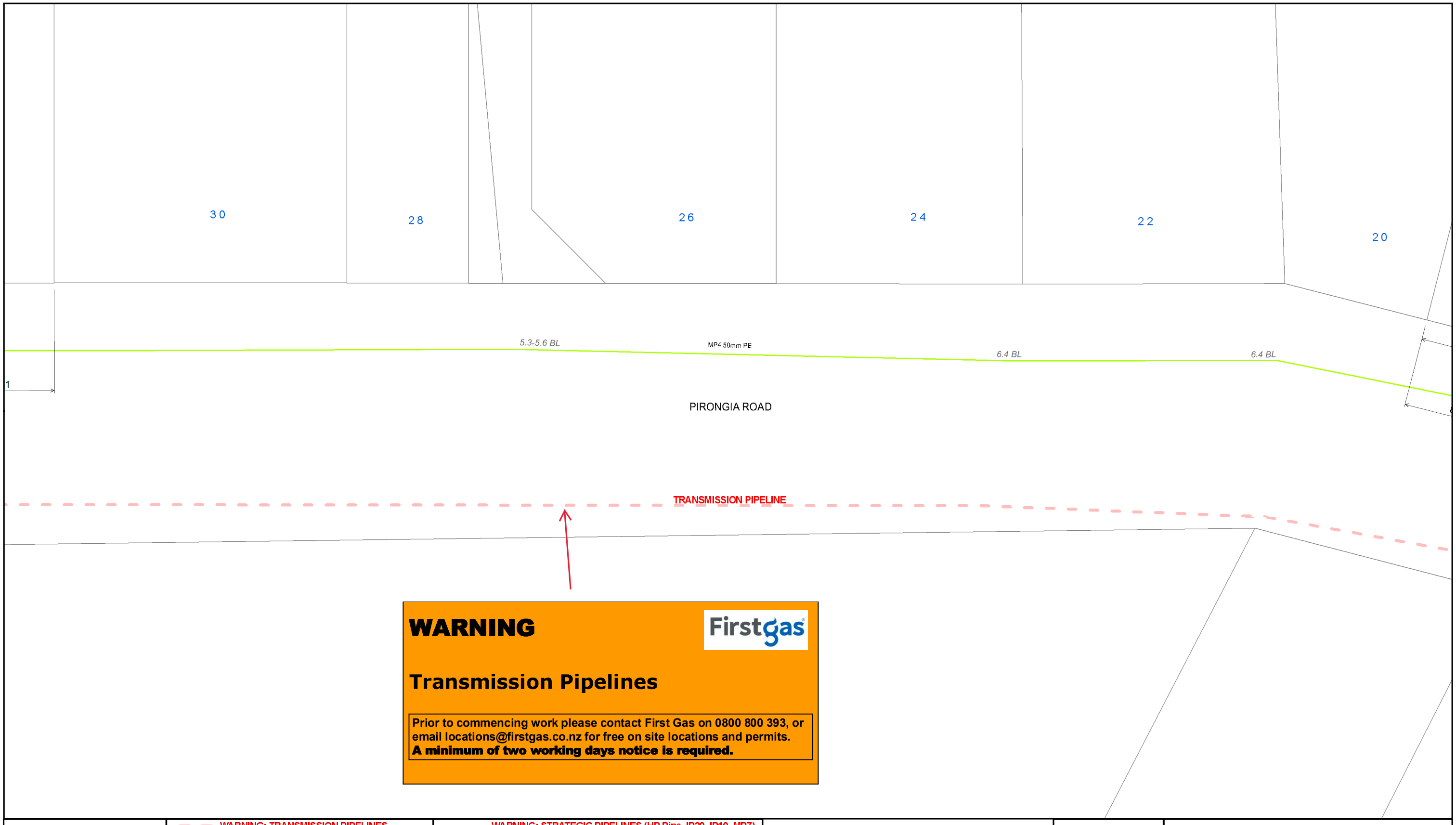

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Title: Pirongia Road, Te Awamutu

Request Title:	
Company Name: Mocl;om CE	
Usage:	Request ID: 7968910
Request for:	Scale: 1:300
Customer Contact: Ciaran Murphy	Printed By: Christine.Innes
Phone: 027 534 0991	Date Printed: 6/3/2020
Client Reference: Job 1602618	Page: 2 of 11

PIPE COLOUR BY PRESSURE

- HP > 2000 kPa
- IP20 1000-2000 kPa
- IP10 700-1000 kPa
- MP7 420-700 kPa
- MP4 210-420 kPa
- MP2 110-210 kPa
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ACTIVE CAPITAL PROJECT

OTHER GAS FEATURES

- Valve Open
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- Regulator Station
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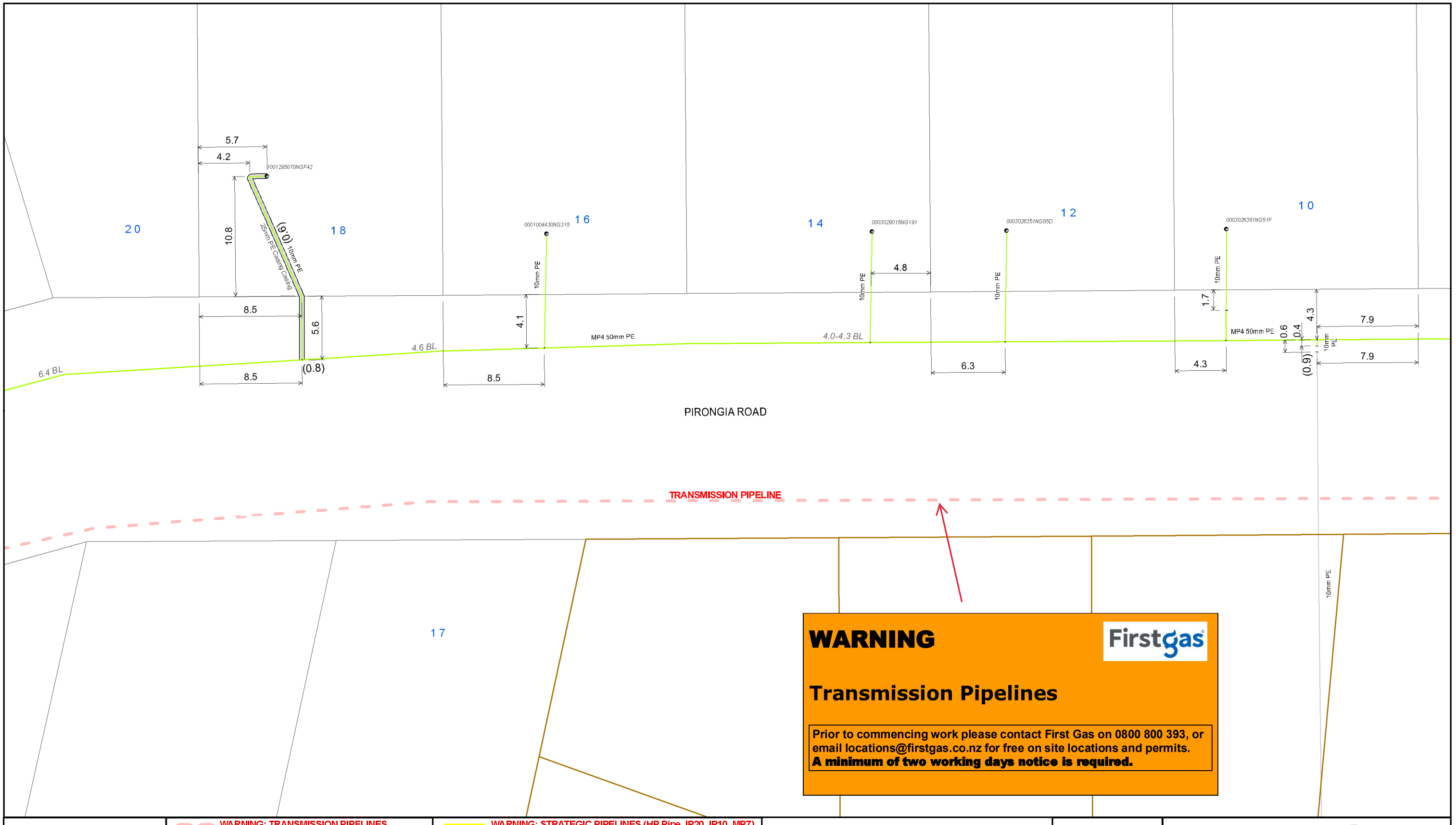
All Dimensioning in metres unless otherwise stated



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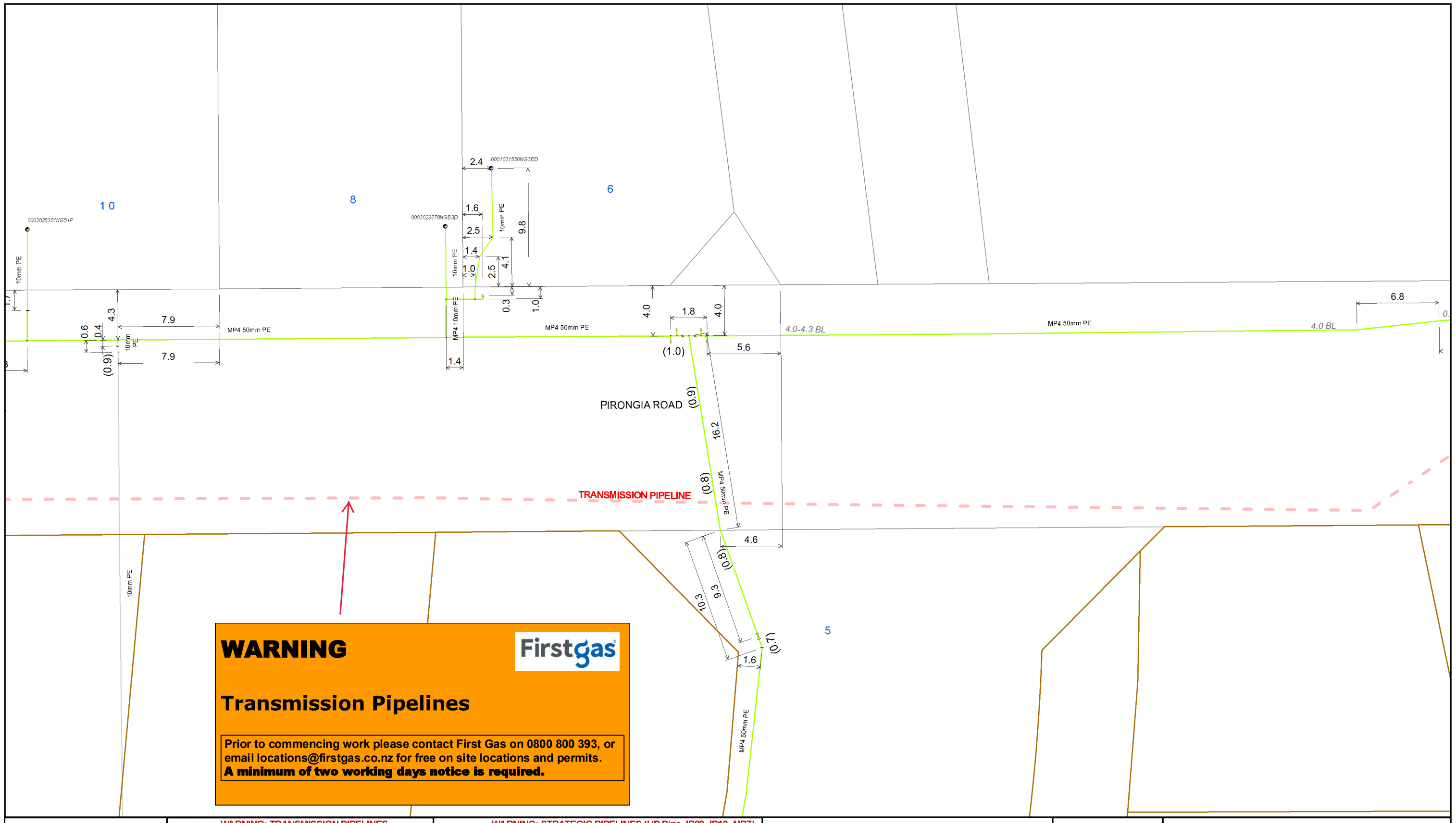

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Asbuilt District Wide Mains Replacement

Pirongia Road
Te Awamutu

Contrct No. 27-17-26

Installer: Allens United Drainage and Earthworks Ltd

ALIGN SURVEYORS
REGISTERED SURVEYORS
43 Malcolm Street, Hamilton
Ph 8566652
Office@alignsurveyors.co.nz

ALIGN SURVEYORS

File No. 2026

SCALE 1:5000 @ A3

DATE: May 2018

NOTE: BOUNDARIES AND DIMENSIONS AND AREAS ARE APPROXIMATE AND SUBJECT TO ALTERATION BY FINAL SURVEY

ORIGINAL PLAN SIZE: A3

Sluice Valve 1
375mm mPVC Pipe
Gate Valve 1
Water Meter
Water Meter
375mm mPVC Pipe
63MDPE
Sluice Valve 2
Water Meter 3
Water Meter 4
Gate Valve 2

Lot 1
DPS 57810
Water Meter 3
Pirongia Road
375mm mPVC Pipe
63MDPE
Gate Valve 2
Water Meter 4

Lot 1
DP 495818
Gate Valve 3
Pirongia Road
375mm mPVC Pipe
63MDPE
Water Meter 5
Water Meter 6

Existing Steel in Paddock
new Gibualt
Sluice Valve 1
375mm mPVC Pipe
Pirongia Road

Air Valve 1 (manhole)
Sluice Valve 3
375mm mPVC Pipe
63MDPE
Gate Valve 3
Water Meter 5
Water Meter 6
Scour Valve 1
Water Meter 7
Sluice Valve 4
Air Valve 2
Gate Valve 4
Water Meter 8
Water Meter 9
375mm mPVC Pipe
Ex Sluice Valve 5

Gate Valve 1
375mm mPVC Pipe
63MDPE
Water Meter 1
Water Meter 2
Pirongia Road

Lot 1
DPS 12284
Tee
375ø PVC
100ø Scour Valve 1
100ø 5m long
100ø Branch comes off Tee at invert of 375ø Pipe
Lot 1
DP 327266
Water Meter 7

Sluice Valve 4
Air Valve 2
Gate Valve 4
Pirongia Road
375mm mPVC Pipe
63MDPE
Water Meter 8
Water Meter 9
Lot 1
DPS 3108

WM 1	5791995.46	1800567.90
WM 2	5791996.64	1800568.11
WM 3	5791860.94	1800963.71
WM 4	5791833.66	1800973.91
WM 5	5791605.87	1801518.10
WM 6	5791599.53	1801549.63
WM 7	5791552.94	1801774.91
WM 8	5791493.80	1802025.46
WM 9	5791484.92	1802047.07
Sluice Valve 1	5792087.93	1800317.72
Sluice Valve 2	5791908.91	1800819.53
Sluice Valve 3	5791676.31	1801212.33
Sluice Valve 4	5791507.88	1802005.67
Sluice Valve 5	5791433.88	1802162.79
Scour Valve 1	5791567.56	1801725.89
Air Valve 1	5791699.87	1801149.09
Air Valve 2	5791504.95	1802013.65
Gate Valve 1	5791998.94	1800568.00
Gate Valve 2	5791838.37	1800976.39
Gate Valve 3	5791611.37	1801518.00
Gate Valve 4	5791488.81	1802049.41

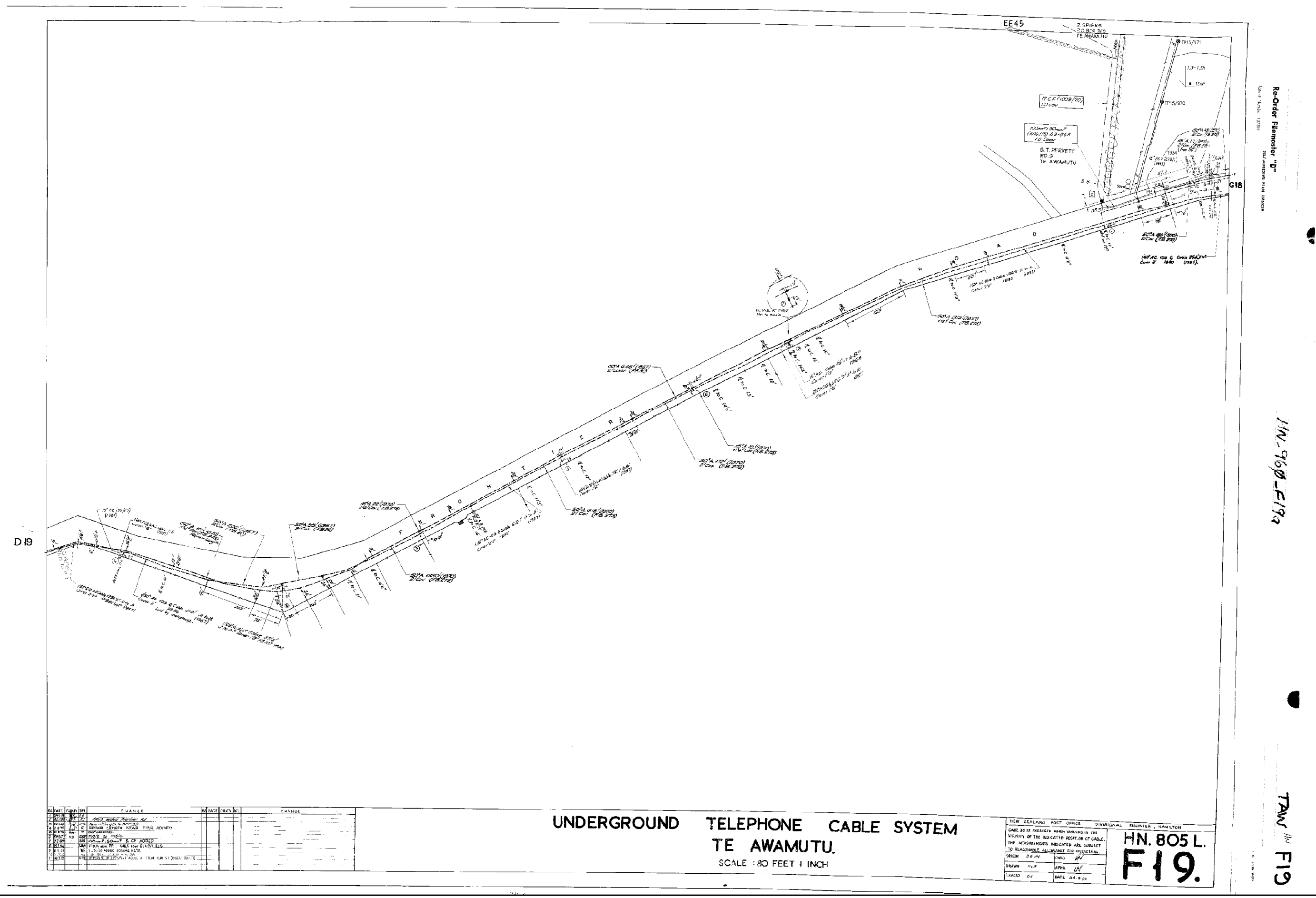
Note:
Total length of 375mm mPVC PN16 Series 2 – 2062.50m
Total Length of 63MDPE SDR13 6 PN12 – 992m (2 Sections)
9 Property Connections off 63 MDPE Pipe
All Sluice Valves are on 375mm Pipe
All Gate Valves are on 63MDPE Pipe
Abandoned Line 375mm GL

CHORUS

WARNING: Buried services are widespread and it should be assumed that they are present until it is proven otherwise.
Cables should be expected to be found at ANY depth.
In most instances Chorus plans do NOT show house service feeds on private property.
Refer to cover letter provided with your request for additional information - use all plans provided in conjunction with each other
You are responsible for interpreting the information provided and should refer to Worksafe.govt.nz for the 'Guide for safety with underground services'
For assistance contact Chorus Network Protection on 0800 822 003 or if you suspect damage has occurred contact 0800 463 896 opt 2

N

Plan Name	F19
Plan ID	110608
Version	GC
Current at	02/06/2020



UNDERGROUND TELEPHONE CABLE SYSTEM
TE AWAMUTU.
SCALE : 80 FEET 1 INCH

NEW ZEALAND POST OFFICE. DIVISIONAL ENGINEER, HAMILTON
CARE SHOULD BE EXERCISED WHEN WORKING IN THE VICINITY OF THE INDICATED POSITION OF CABLE. THE MEASUREMENTS INDICATED ARE SUBJECT TO REASONABLE ALLOWANCE FOR INACCURACIES.

ORIGIN D.E.HN.	CHKD. HN
DRAWN FWP	APPD. HN
TRACED DA	DATE 18-9-59.

HN. 805 L.
F19.

HN-960-F19a

TRACING No F19

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N

Plan Name	EJ45
Plan ID	117328
Version	GA
Current at	02/06/2020

DEL	CHKD	DATE	ISS	CHANGE
DA HG.		47.5.88 30.11.99	1 2 3	TAW-PIR PCM & SUBS ADDED KERBS ADDED DATAFIX 11/118

DRAWN : D.W.B.A
CHKD :
APPD :
DATE : 17.5.88

TE AWAMUTU
UNDERGROUND TELEPHONE CABLE SYSTEM

CAUTION
POSITIONAL MEASUREMENTS ARE SUBJECT TO REASONABLE TOLERANCE.
COVER AT INSTALLATION WAS : ROADWAY 0.50m FOOTWAY 0.35m
UNLESS SHOWN OTHERWISE. NOTE : COVER MAY HAVE CHANGED AND MUST BE CHECKED ON SITE.

ORIGINAL SCALE 1 : 1000 A1

TELECOM CORPORATION OF NEW ZEALAND LIMITED
DISTRICT TELECOM MANAGER
HAMILTON

TCNZ DRG No : HN 1077
TCNZ SHT No : EJ 45
NZMG REF : S15-1000 / 45.23

S15-1000-EJ45_117328

EE 45 EJ 45 EL 46

PIRONGIA ROAD
TE AWAMUTU
MAHANA LN.
3 Cables
4 Cables
2/15"+100"(761/64)
2/15"+100"+50"(761/63)
2.6 DP W
1.4 DP W
1.1 DP W
3.0 DP W
1.0 DP W
4.0 DP W
UNT(102)
Cables TO BE LEFT IN, P2, P LOADING COIL
3.0 DP E
3.0 DP E
1.3 DP E
4 Cables
1.3 DP E
OBSOLETE CABLE IN VICINITY
100mm P (466/84)
2.7 DP E
50"(1041/69) 0.2 Path
3.8
100mm P (466/83)
50"(1041/70) 0.8-12.84v
50"(1041/67) 0.2 Path
37 DP X
UNT in DP
37 DP B
37 DP A
34 DP E
37 DP D
50"(466/85)
37 DP E
DP Y
37 DP Y
33 DP C
34 DP F
METRES
0 20 40 60 80 100 120 140 160 180 200
SCALE 1:1000

Neg. No 160408
Flown 13-8-87
AIR MAPS (NZ) LTD - Taupo

CHORUS

WARNING: Buried services are widespread and it should be assumed that they are present until it is proven otherwise.
Cables should be expected to be found at ANY depth. In most instances Chorus plans do NOT show house service feeds on private property.
Refer to cover letter provided with your request for additional information - use all plans provided in conjunction with each other
You are responsible for interpreting the information provided and should refer to Worksafe.govt.nz for the 'Guide for safety with underground services'
For assistance contact Chorus Network Protection on 0800 822 003 or if you suspect damage has occurred contact 0800 463 896 opt 2

N

Plan Name	EE49
Plan ID	117994
Version	GD
Current at	02/06/2020

DEL	CHKD	DATE	ISS	CHANGE
ADW & M°C.		6.11.07 18.8.08	1 2	PLR EE49/1 'A1' ADDED U.G.L. T35049 63mmP ADDED (86272 90306)

DRAWN: A.D.W.
CHKD :
APPD :
DATE : 24·1·92

TE AWAMUTU
UNDERGROUND TELEPHONE CABLE SYSTEM

CAUTION
POSITIONAL MEASUREMENTS ARE SUBJECT TO REASONABLE TOLERANCE. COVER AT INSTALLATION WAS: ROADWAY 0.50m FOOTWAY 0.35m. UNLESS SHOWN OTHERWISE NOTE: COVER MAY HAVE CHANGED AND MUST BE CHECKED ON SITE.

ORIGINAL SCALE 1:2000 A1

TELECOM CORPORATION OF NEW ZEALAND LTD. DISTRICT MANAGER HAMILTON

TCNZ DRG No: HN 1077
TCNZ SHT No: EE 49
NZMG REF: 315-2000/22.13

315-2000-EE49_0117994

EA 49 | EE 49 | F19

20mmP
FRONTIER ROAD
EE49/1
50°(80)
INT 2 PLR
EE49/1'A'
50°(273)
EE49/1'A1'
50°(1082/1)
63mmP
15E
080°

SCALE 1:1 000
METRES

AERIAL SURVEYS LTD NELSON
NEG. REF. 121606
FLOWN 14.4.91
S.N. 11851.C

1107A1-1988

CHORUS

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N

Plan Name	EE45
Plan ID	657212
Version	GC
Current at	02/06/2020

DEL	CHKD	DATE	ISS	CHANGE
D.A		18.5.88	2	TAW-PIR PCM & SUBS ADDED
HG		9.8.99	3	CATTLE UNDERPASS DATAFIX 8/298
MS		21.7.03	4	
MS		29.8.03	5	PLR EH45/1(B) ADDED GOODER H5/616
DH		06.04.14	6	PLR EH45/1(B) SHIFTED GOODER H6/621
HA		1.8.14	7	EH45/1 ADDED 78.5m PAST 103 PIRONGA RD (88207 01134)
				TP17/234 ADDED PIRONGA RD (88207 01287)

DRAWN : D.W.B.A
CHKD :
APPD :
DATE : 18.5.88

TE AWAMUTU
UNDERGROUND TELEPHONE CABLE SYSTEM

CAUTION
POSITIONAL MEASUREMENTS ARE SUBJECT TO REASONABLE TOLERANCE.
COVER AT INSTALLATION WAS : ROADWAY 0.90m FOOTWAY 0.35m.
UNLESS SHOWN OTHERWISE. NOTE : COVER MAY HAVE CHANGED AND MUST BE CHECKED ON SITE.

ORIGINAL SCALE 1 : 2000 A1

TELECOM CORPORATION OF NEW ZEALAND LIMITED
DISTRICT TELECOM MANAGER
HAMILTON

TCNZ DRG No : HN 1077
TCNZ SHT No : EE 45
NZMG REF : S15 - 2000 / 22.12

S15-2000-EE45_0118404

EA 41 | EE 44
EA 45 | EE 45 | EJ 45
D10 | F10

PIRONGA
4 Cables
63.0F
Mkr.
2.4 P.P. 'B'
0.6 cnr.
100mm P
6 CATTLE UNDER PASS
9.9F 12.8F
EH45/1
50mm P
1.5
15.8 15.1
TE AWAMUTU
103
Through Gate
18
135
117
2/15x JNTS FOR 100x 25x & 50x JNT
2/15x JNTS 100x-25x & 50x JNT
4 Cables
ROAD
EH45/1(B)
TP17/234
1.2 0.5
1.9
3 CABLES
17.0D
2.0
EH45 ④ 'A'
2/15*+100*(761/65)
2/15*+50*+25*(761/3)

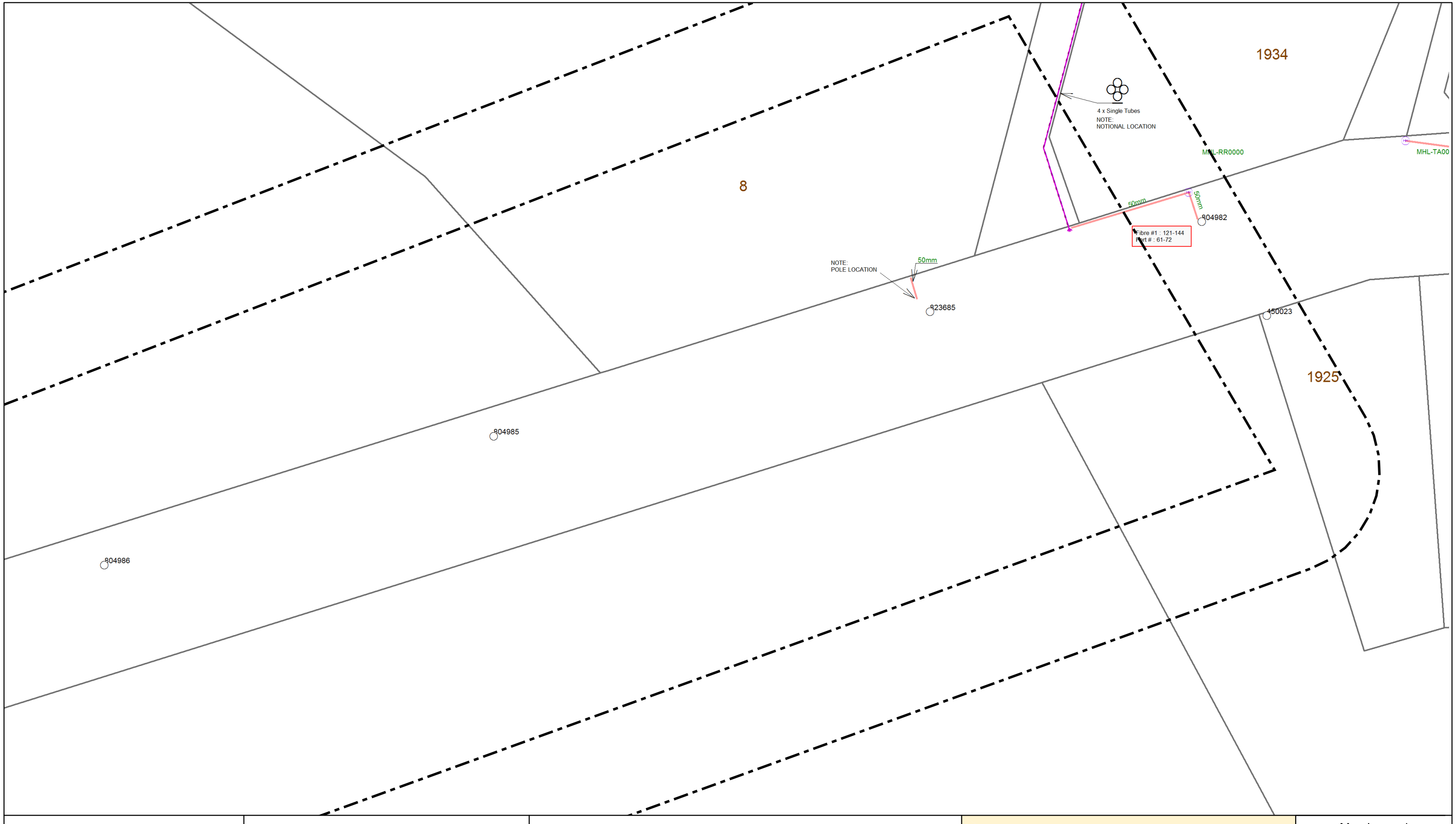
F.B QUINN
RD.6
TE AWAMUTU

D.K.QUINN
PO BOX 113
TE AWAMUTU

Pole crossing
6.2
8.1
16.0F
16.2F
Mkr
15.3F
8.1F
12CF(1009/22)
1.0cov
4.8F
3.8F
R.SPIERS
P.O.BOX 269
TE AWAMUTU

0 40 80 120 160 200 240 280 320 360 400 METRES
SCALE 1:2000

Neg. No 160379
Flown 13-8-87
AIR MAPS



ultrafast FIBRE
11 Ken Browne Drive Te Rapa, Hamilton, 3200
PO Box 27050 Garnett Avenue 3257

DIG SITE LOCATION

N
W
E
S

Notification No: 1572075
Sequence No: 7820953
Requested By: Mr Ciaran Murphy
Issue Date: 13/03/2020

52 Frontier Road, Te Awamutu, Waikato 3876

Scale: 1:500 (A3) | Tile No: 6

NOTE:
1. **DESTROY ALL PLANS AFTER USE**
2. UFF Multiducts may appear in orange and red colour
3. UFF Multiducts should be treated with fiber cable inside

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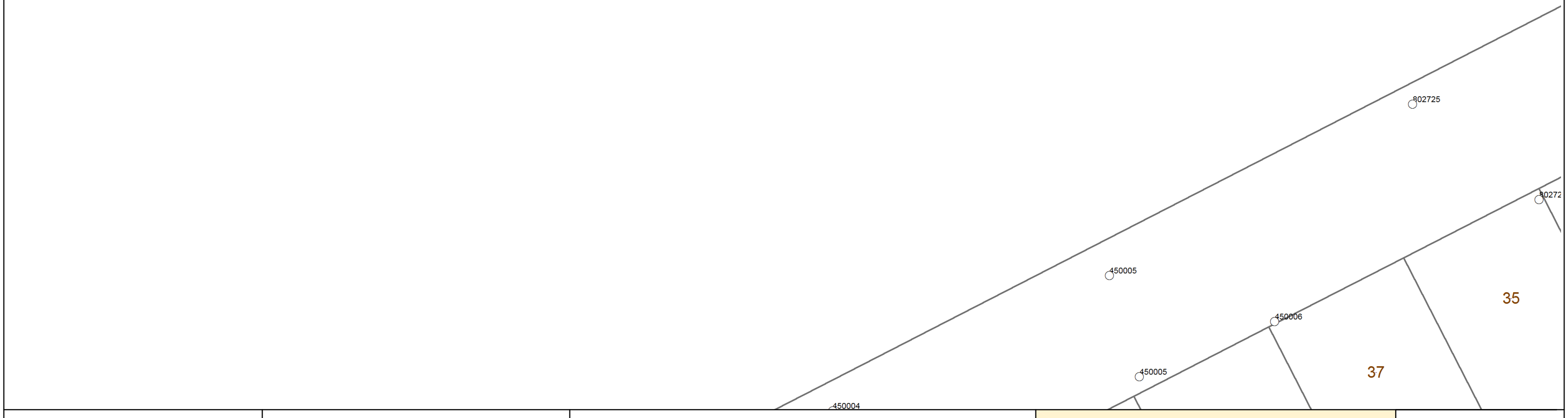
Map Legend:

- 3rd Party Conduit
- UFF Conduit
- Construction Line
- UFF Multiducts
- Number of Ducts in a trench
- HH — Hand Hole
- Manhole
- Fiber Distribution Hub - Cabinet
- T500 — Street Central Office



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DIG SITE LOCATION

N
W
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S

Notification No: 1572075
Sequence No: 7820953
Requested By: Mr Ciaran Murphy
Issue Date: 13/03/2020

52 Frontier Road, Te Awamutu, Waikato 3876

Scale: 1:500 (A3)

Tile No: 7

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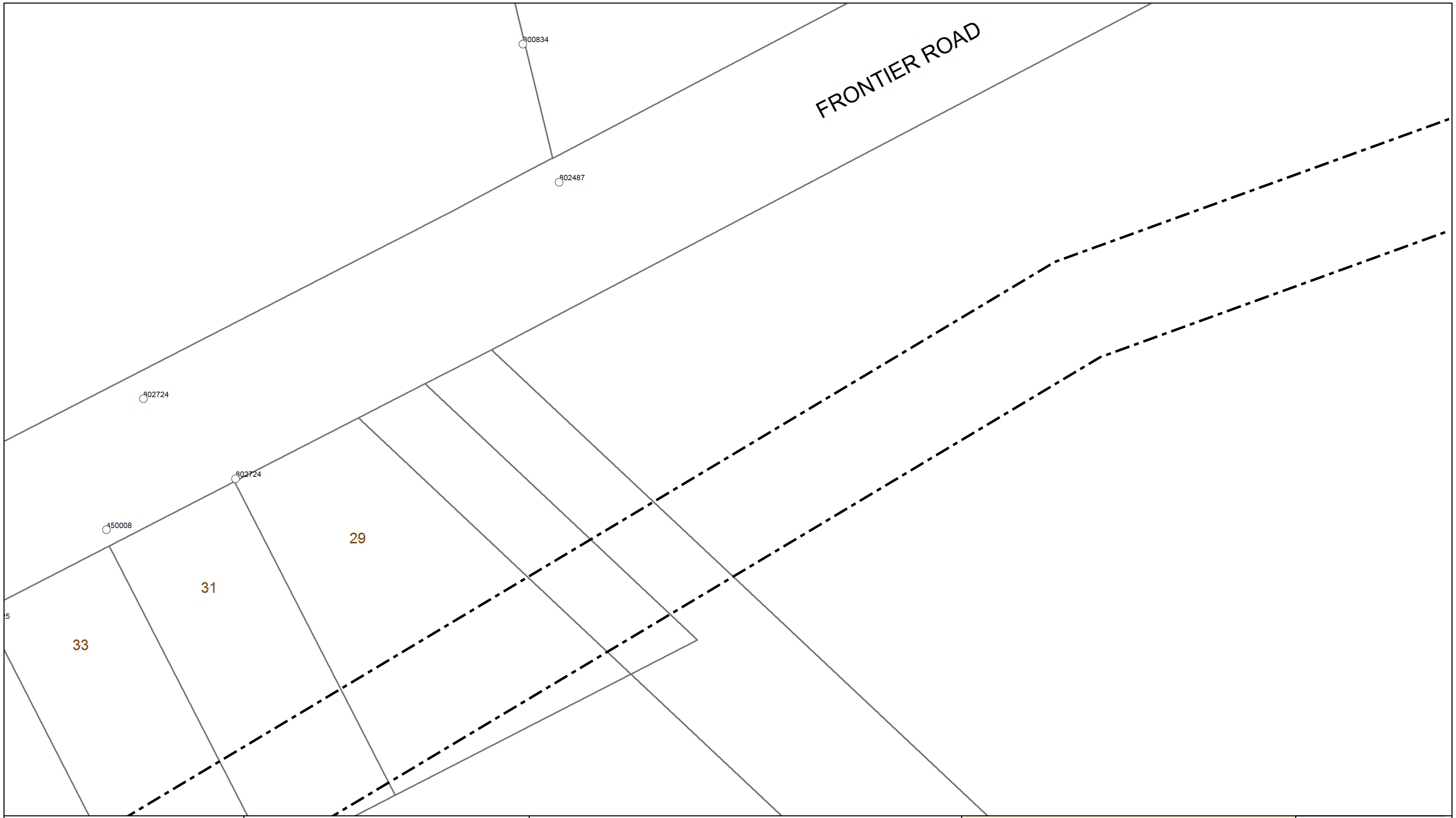

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DIG SITE LOCATION

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Notification No: 1572075
Sequence No: 7820953
Requested By: Mr Ciaran Murphy
Issue Date: 13/03/2020

52 Frontier Road, Te Awamutu, Waikato 3876

Scale: 1:500 (A3)

Tile No: 8

802470

802471

802472

802477

802478

802478

802478

59

61

ultrafast FIBRE

11 Ken Browne Drive Te Rapa, Hamilton, 3200
PO Box 27050 Garnett Avenue 3257

DIG SITE LOCATION

N
W E
S

Notification No: 1572075
Sequence No: 7820953
Requested By: Mr Ciaran Murphy
Issue Date: 13/03/2020

Scale: 1:500 (A3) | Tile No: 9

52 Frontier Road, Te Awamutu, Waikato 3876

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- HH — Hand Hole
- Manhole
- Fiber Distribution Hub - Cabinet
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APPENDIX C

3-39433.00 WSP T2 Water Supply Assessment July 2020

Memorandum

To	Ciaran Murphy, Nathan Sanderson
Copy	Rebecca Francis, Dan Johnson
From	Daniel Edwards
Office	Christchurch
Date	10/07/2020
File	3-39433.00
Subject	T2 Water Supply Development Enquiry

Disclaimer

This report ('**Report**') has been prepared by WSP exclusively for Sanderson Group ('**Client**') in relation to the T2 Water Supply Development Enquiry ('**Purpose**') and in accordance with the Short Form Agreement with Sanderson Group dated 26 May 2020. The findings in this Report are based on and are subject to the assumptions specified in the Report, communication with Waipa District Council on 16 June 2020 and the Offer of Service dated 26 May 2020. WSP accepts no liability whatsoever for any reliance on or use of this Report, in whole or in part, for any use or purpose other than the Purpose or any use or reliance on the Report by any third party.

In preparing the Report, WSP has relied upon data, surveys, analyses, designs, plans and other information ('**Client Data**') provided by or on behalf of the Client. Except as otherwise stated in the Report, WSP has not verified the accuracy or completeness of the Client Data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in this Report are based in whole or part on the Client Data, those conclusions are contingent upon the accuracy and completeness of the Client Data. WSP will not be liable in relation to incorrect conclusions or findings in the Report should any Client Data be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP.

1 Introduction

Sanderson Group engaged WSP to investigate the impact of developing the T2 growth cell on the western edge of Te Awamutu. This memorandum assesses Stage 1 of T2. Stage 1 involves the southern portion of the T2 growth cell. This development shares its Eastern boundary with the T1 growth cell, where construction has begun.

In this investigation WSP assessed the following:

- The impact of the proposed development demand only on the wider Te Awamutu Water Supply network Level of Service (LOS)
- The impact of the proposed development and T1 development combined on the wider Te Awamutu Water Supply network Level of Service (LOS)
- Whether FW2 fire flow can be provided in the proposed development.
- Whether required LOS can be provided to the proposed development in normal conditions and in the event of a water main failure on Frontier Road.
- Investigated different connection points for the proposed development.

The base water model used was the Waipa District Council Water Model which was built and calibrated in 2019. It was updated in April 2020 to incorporate new developments.

2 Methodology

2.1 Proposed Development Layout and Demand

The proposed development is between Pirongia Road and Frontier Road, on the western edge of the Te Awamutu urban area.

There are two possible connection points for the development to the existing / proposed network:

- Frontier Road
- Two interconnecting roads between the T1 and T2 growth cells.

The T1 growth cell is being developed and will include a trunk main from Pirongia Road to Frontier Road. Long-term, the T2 development will also include a trunk main from Pirongia to Frontier Road, but not in stage 1.

WSP have investigated three options to service stage 1 of the T2 development:

- The demand from stage 1, T2 is supplied from the water network at one location on Frontier Road (standard operation)
- The demand from stage 1, T2 and all the T1 demand is supplied from the water network at one location on Frontier Road (standard operation)
- The demand for stage 1, T2 and all the T1 demand is supplied from the connection point to T1 on Pirongia Road (emergency operation if there is a pipe failure on Frontier Road).

The two connection options are shown in Figure 1 below.

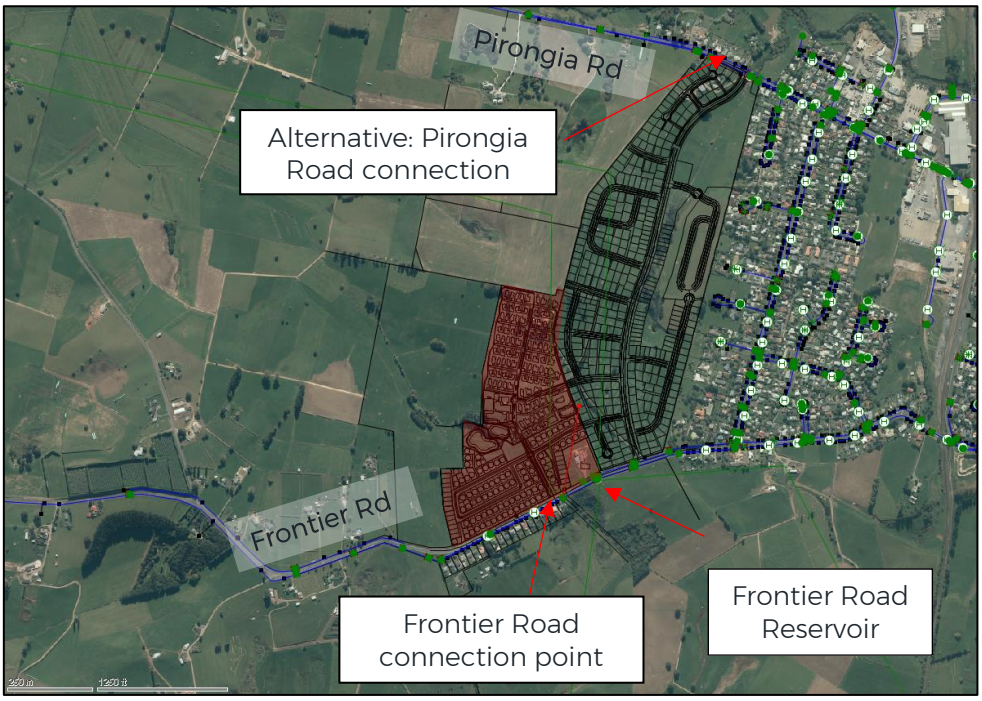

Figure 1. Development Location and Proposed Water Supply Connection Points

The assumed demand has been taken from the Masterplan Ultimate Growth System Performance Assessment for Water Supply. Demand was 266L/person/day, and leakage was 72L/person/day. The assumed population of the Stage 1, T2 Development was 450 as stated in the email from Ciaran Murphy to WSP on 28/5/2020.

WSP have assumed the population for growth area T1 based on ultimate development of 444 households and 2.5 people per household, as outlined in Appendix S17 of the 2019 Waipa Growth Management Structure Plans and Concept Plans. See the modelled demand in Table 1.

Table 1. Modelled demand at T1 and T2, stage 1 developments

Area	Population	Demand (L/person/day)	Demand (m^3/day)	Leakage (L/person/day)	Leakage (m^3/day)
T2 Development, Stage 1	450	266	119.7	72	32.4
T1 Development	1,154	266	307.0	72	83.1

The demand profile for the new development demand was a standard domestic demand profile (see Figure 2 below). The daily peak factor was 2.41.

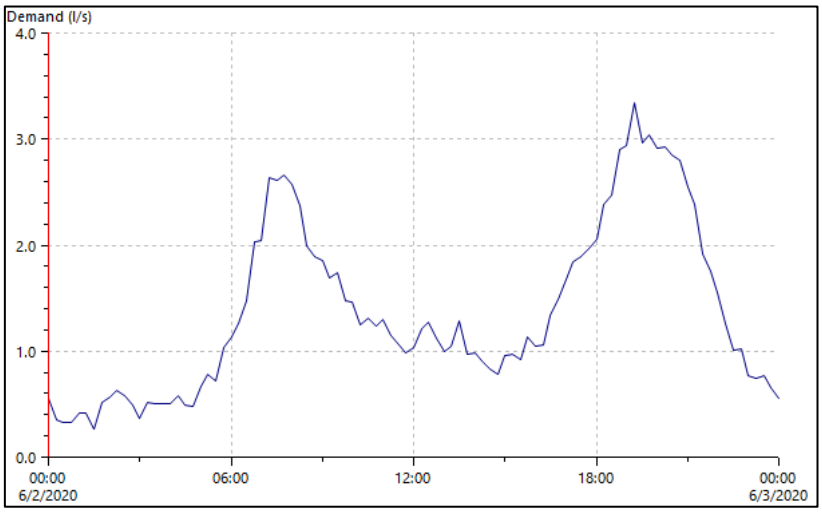

Figure 2. Demand Profile for T1 and T2 developments

2.2 Assessment on Te Awamutu Water Network

The following assessment was carried out to determine the effect of T2 stage 1 development alone, and the effect of T2, stage 1 development and T1 development combined on:

- The network pressure in the wider network
- The Frontier Road Reservoir level
- The trunk main capacity from Te Tahi, as the existing DN375 steel main currently experiences high headlosses.

2.3 High Point

A node was represented in the model at the highest elevation customer in the proposed development (see Figure 3 below). This high point was at 81m AD. This high point was used as the worst-case for the investigations.

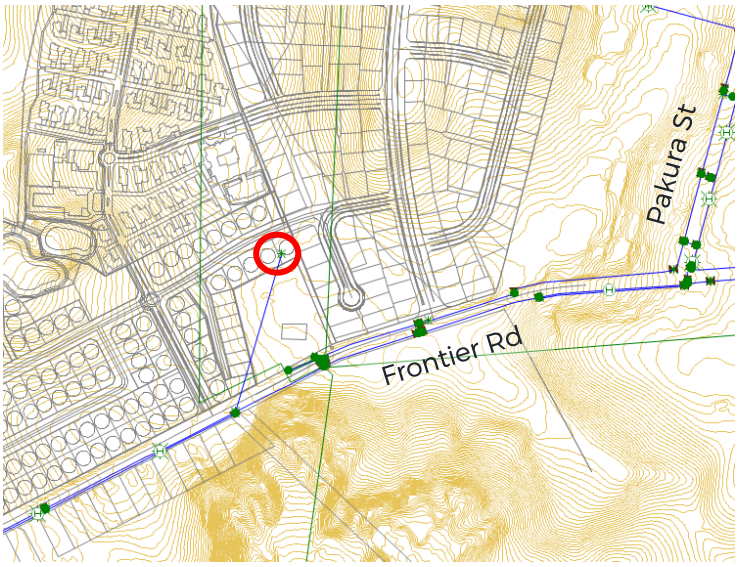

Figure 3. The Highest Point within Stage 1, T2 Growth Cell.

2.4 FW2 Fire Flow

The development is required to achieve FW2 fire flow as outlined in *SNZ PAS 4509:2008 - New Zealand Fire Service Firefighting Water Supplies Code of Practice*. FW2 flow is 25L/s for 30 minutes, which was modelled at a time which coincides with 60% of peak demand. The pressure provided under FW2 flow conditions at the high-point of the proposed development was modelled. This was assessed only from the Frontier Road connection.

The FW2 Fire Flow was assessed with the demand from T2, stage 1 and T1 combined.

No allowance for fire sprinkler or FW3 demand has been considered in this assessment.

2.5 Level of Service

It was determined whether the current water supply network can provide adequate pressure for LOS. This assessment was done in two scenarios:

- Normal flow conditions, where the demand from the proposed development and T1 development is connected to the Frontier Road main.
- Worst-case scenario where the Frontier Road main failed. Demand from T1 and T2 was connected to the Pirongia Road main. It was also determined whether the Pirongia Road main has capacity for the combined demand from T1 and T2 developments.

Alternative connections were investigated to determine whether they were more suitable.

2.6 Limitations

This model did not review the proposed internal network with the development site.

The assessment considers the current operation from Te Tahi and does not allow for the change to consent conditions in 2030, where the main supply will be from Parallel Road Water Treatment Plant via Taylors Hill Reservoirs. It also does not account for any proposed changes to the network as part of Waipa District Council's Master Planning.

3 Assessment

3.1 Effect on Te Awamutu Water Network

3.1.1 Pressure in Wider Network

The proposed development has no significant effect on the pressure in the wider Te Awamutu network (see Figure 4 below).

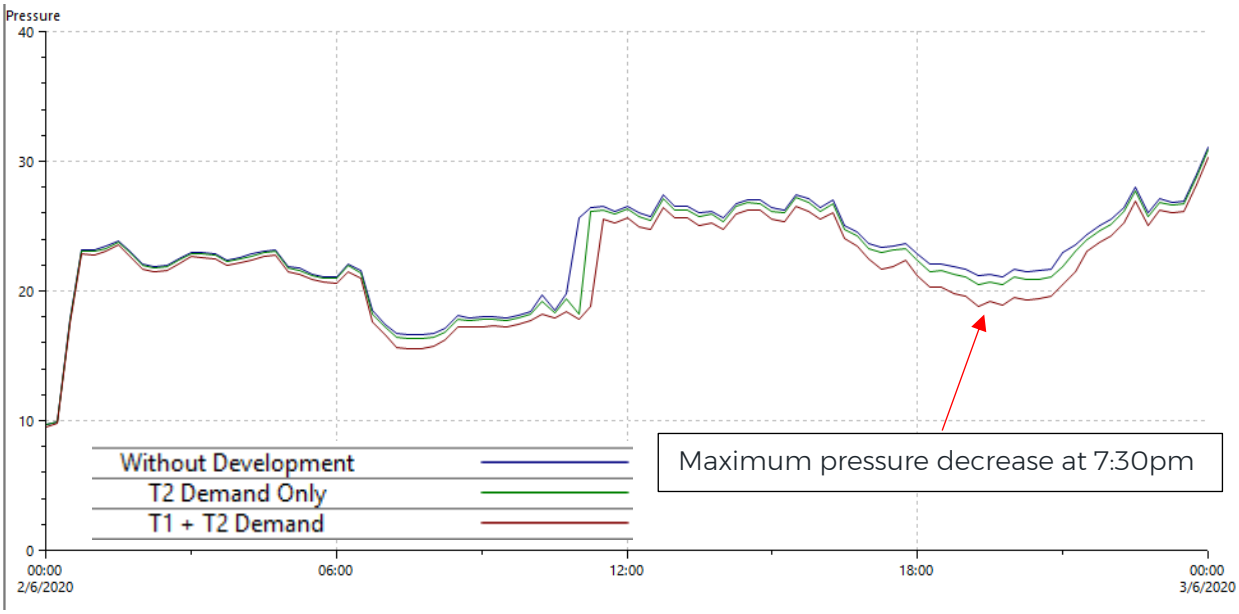

Figure 4. Pressure at the connection point of proposed development on the Frontier Road main

Figure 4 shows that the pressure in the wider Te Awamutu network is not adversely affected by the proposed development. The demand from the proposed development decreases the pressure in the Frontier Road main by a maximum of 0.6m.

Figure 4 also shows that the demand from T2 and T1 combined decrease the pressure in the Frontier Road main by a maximum of 2.2m.

3.1.2 Frontier Road Reservoir

T2 development and T1 development combined have no significant effect on Frontier Road Reservoir water levels under normal demand conditions, FW2 fire flow, and in the worst-case scenario where the water main on Frontier Road has failed.

3.1.3 Te Tahi Supply Loading

It is known to WSP that the DN375 steel pipe from the Te Tahi reservoirs is currently at capacity. (see Figure 5 below).

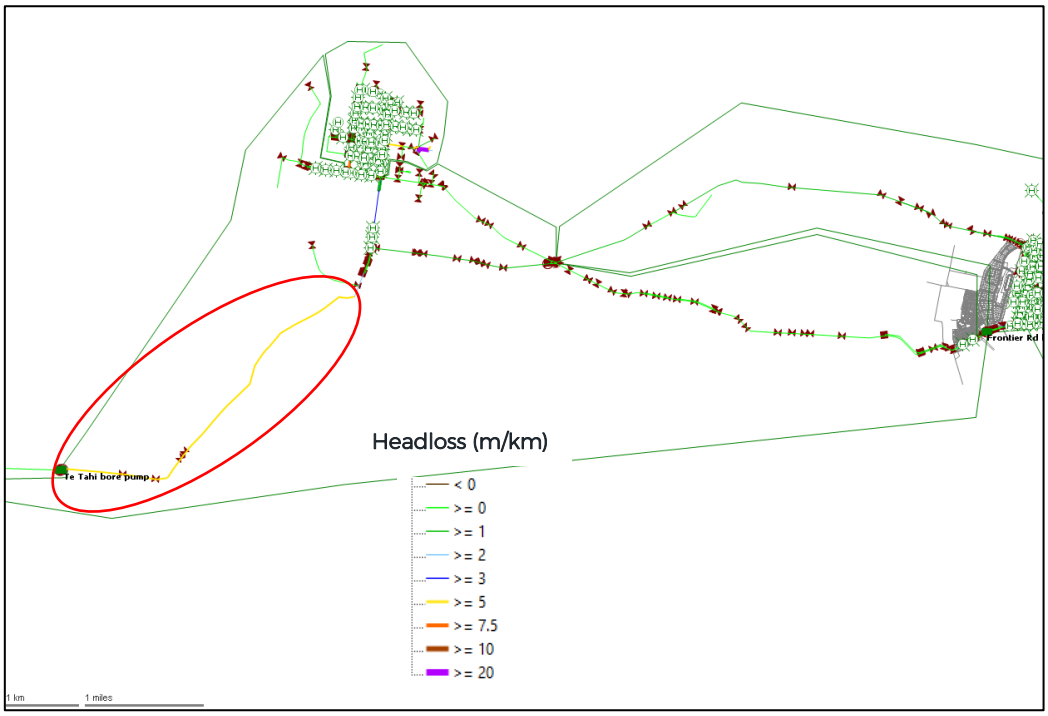

Figure 5. Headloss per km in Te Awamutu – Pirongia network without proposed development.

The circled area in Figure 5 shows that the maximum headloss in the DN375 steel trunk main is above 5m/km without the proposed development. Figure 6 below shows the impact of the proposed development (T2) alone, and the impact of T1 + T2 developments combined, on this pipe.

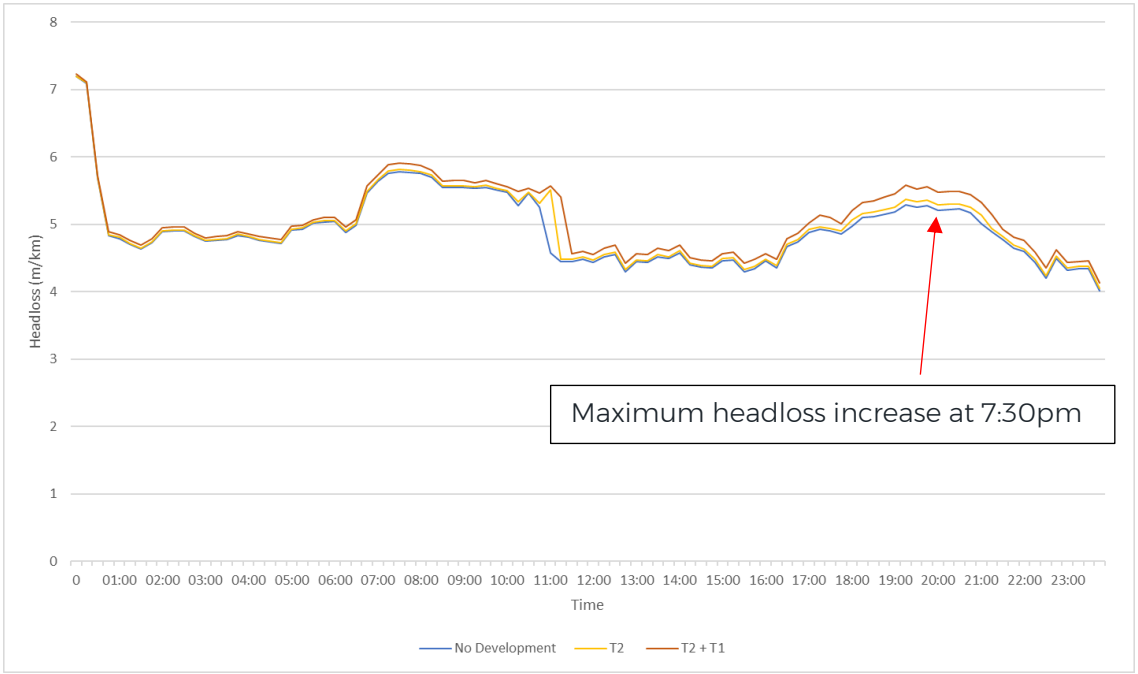

Figure 6. Headloss per km in the DN375 steel trunk main from Te Tahi reservoirs with and without the proposed development demand.

The proposed development does not affect this pipe, as the headloss only increase by a maximum of 0.1m/km.

T2 and T1 developments combined do not affect this pipe significantly, as the headloss only increases by a maximum of 0.3m/km.

Figure 6 shows that the pipe headloss is in excess of 5m/km across the entire peak day.

3.2 FW2 Fire Flow

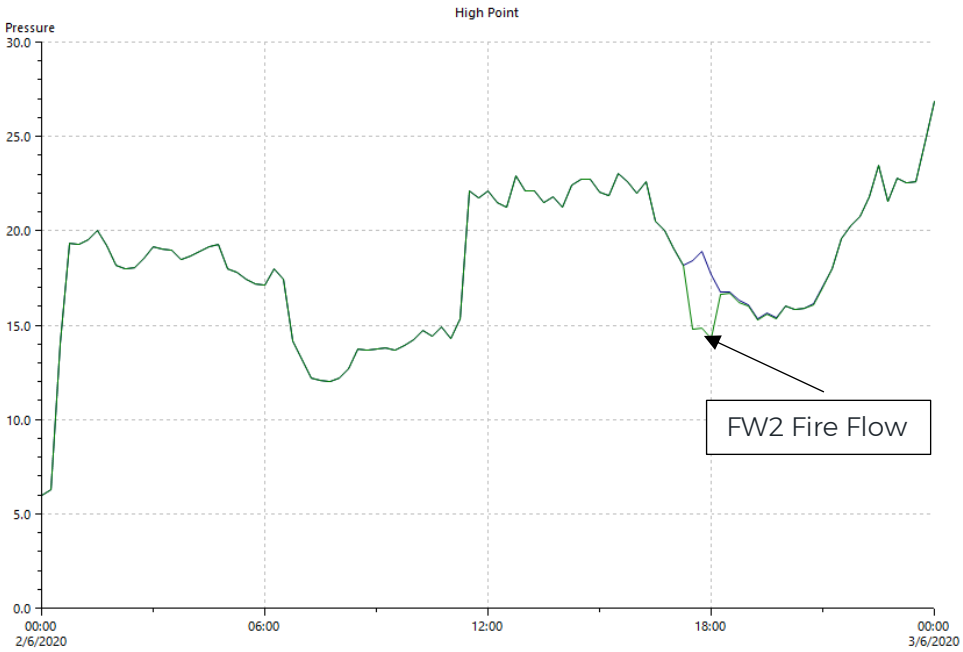

Figure 7. Pressure at high-point within proposed development under FW2 fire flow.

The minimum pressure during FW2 flow conditions is 14.3m at the high point in the proposed development which is higher than the required 10m (see Figure 7). This means that the network can provide FW2 fire flow throughout the entire proposed development, this accounts for the demands from both T1 and T2 developments.

3.3 Level of Service

3.3.1 Normal Conditions

Figure 8 below represents the pressure at the highest point within the proposed development under normal conditions where the water is supplied through the Frontier Road main.

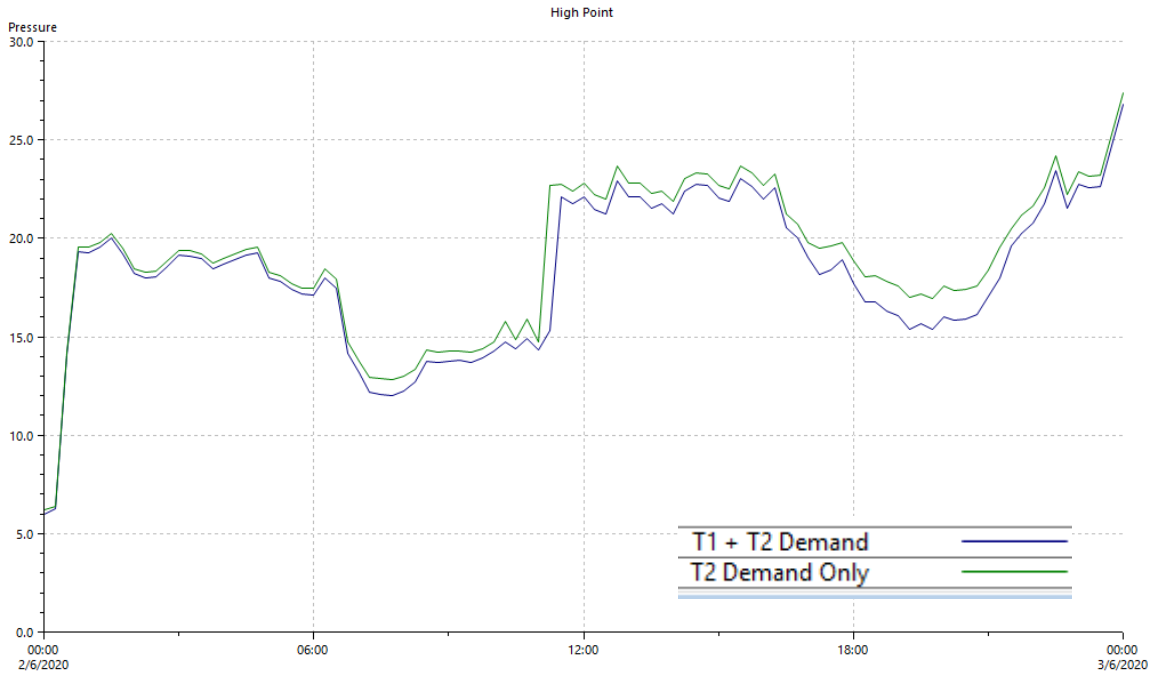

Figure 8. Pressure at the high point of the proposed development under demand from T2 only and demand from T2 and T1 combined.

Figure 8 shows that the pressure at the high point in the proposed development is lower than the required LOS pressure of 20m for most of the day, under both demand from T2 only and the demand from T1 and T2 combined.

3.3.2 *Worst Case – Failed Frontier Road Main*

The effect on the pressure in the T2 growth cell was analysed under the worst-case scenario of the failure of the Frontier Road main. The demand from the T2 Growth cell and the demand from the T1 Growth cell were allocated to the Pirongia Road main as described in section 2.1. The effect on the pressure in the proposed development are in Figure 9 below.

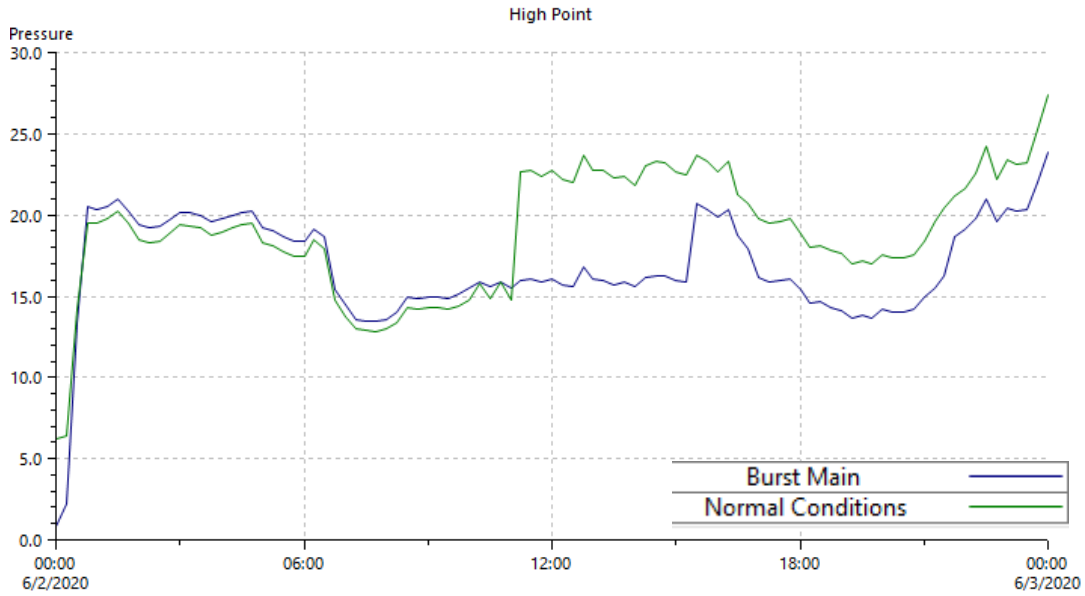

Figure 9. Pressure provided at the worst-case customer in the proposed development

Figure 9 shows that in the event of the Frontier Road main failing, the worst-case customers can still be supplied with the minimum 10m head to ensure continuous water supply.

See Figure 10 below which shows the effect of the trunk main on Frontier Road failing on the flow in the Pirongia Road main.

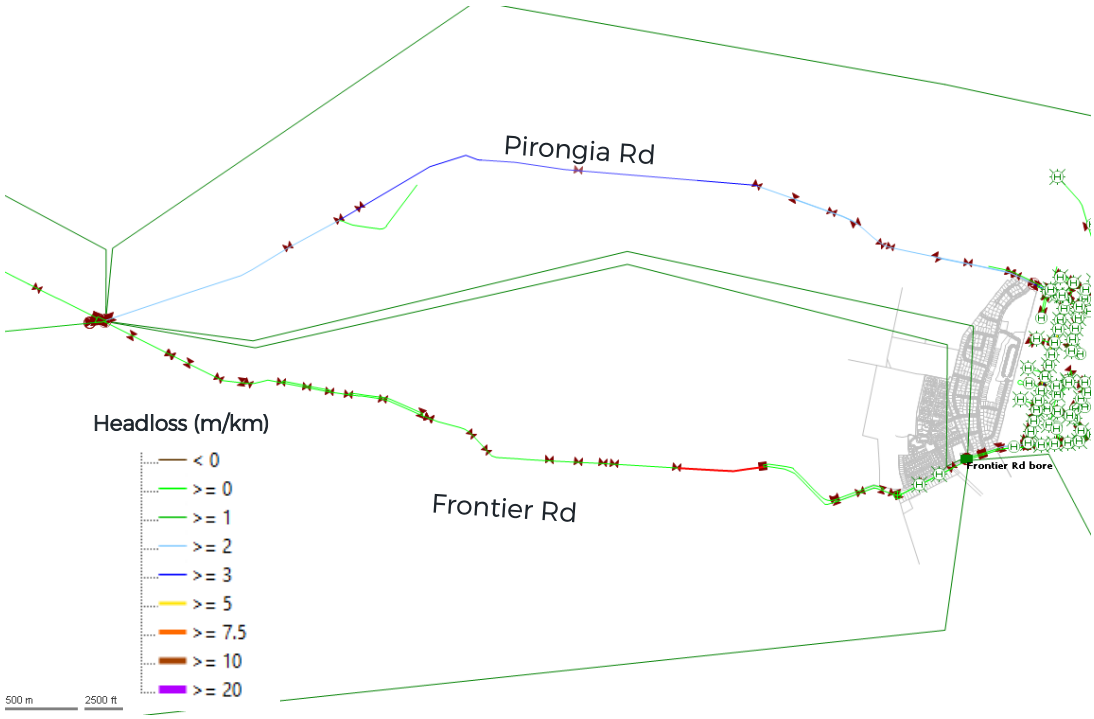

Figure 10. The headloss along Pirongia Road trunk main during failure of the trunk main on Frontier Road.

The headloss along the trunk main on Pirongia Road was low, showing that the trunk main on Pirongia Road has sufficient capacity to deliver the required flow should the trunk main on Frontier Road fail.

3.4 Alternative Connections

Two potential alternative connections were investigated, however neither were suitable:

- Connecting downstream of the booster pump which is directly downstream of the Frontier Road reservoir. However, WSP understands that this pump operates infrequently, and only during the daytime, meaning that connecting downstream of this pump would not provide the required LOS in the proposed development. There are no other connection points which would improve the LOS pressure.
- Connecting to the Pirongia Road main. This does not increase the pressure at the high-point.

4 Conclusions and Recommendations

4.1 Effect on Te Awamutu Water Network

- The proposed development alone does not adversely affect the wider Te Awamutu Water network.
- Furthermore, the proposed development and T1 development combined do not adversely affect the wider Te Awamutu Water network.

4.2 Level of Service

- The required pressure of 20m for LOS cannot be provided by the current network at the highest point within the proposed development. There are no alternative connections which would improve the pressure within the proposed development, without a local booster supplied within the development. A localised booster pump is required at the high area in the south of the proposed development to meet the LoS. This option requires further investigation.
- The T1 development will experience similar pressure issues to the T2 development. It is recommended that the two adjacent developments should consider installing a combined booster pump which will provide the required pressure to both T1 and T2 developments.
- The ground level in most of the proposed development is 5m or more below the high point used in this investigation. This means that the required pressure could be provided under the current network conditions in all areas except those in the high ground in the south of the proposed development.

4.3 FW2 Fire Flow

- FW2 fire flow can be provided throughout the proposed residential development (retirement villas) when supplied from the Frontier Road main.
- FW3 (50L/s) flows were not assessed. It is highly unlikely that FW3 flow can be achieved. Consideration should be given to this requirement for any specific fire sprinkler requirements for the Country Club and any other proposed non-residential facilities.
- This study has considered just the existing Te Awamutu distribution mains network and not the localised pipework within the development. The internal development pipework will need to be designed accordingly to accommodate peak day / hour demand.

4.4 Future Changes to Network

- This assessment only considers the current operation where Te Awamutu is supplied from Te Tahi. It does not allow for the change to consent conditions in 2030, where the main supply will be from Parallel Road Water Treatment Plant via Taylors Hill Reservoirs. Furthermore, the Waipa District Council Master Planning states that the Te Tahi main will be renewed with an equivalent DN375 pipe. It is expected that these changes will improve the LOS within the proposed development, although further investigations are required to confirm.

APPENDIX D

Utility Service Providers Confirmation of Supply

21 July 2020

WAIPA NETWORKS

N Sanderson
Sanderson Group Ltd
PO Box 15803
TAURANGA 3144

Email: nathan@sandersongroup.co.nz

Dear Nathan

Re: **Te Awamutu Country Club** **Frontier Road Te Awamutu**
Our Ref: **17291**

Waipa Networks Ltd confirms that our distribution network has the capacity to supply the above retirement village development.

The full design and Capital Contribution costs incurred for the reticulation of the development along with any electricity easements that are required will be the responsibility of the developer and these will be forwarded once the design is completed.

Yours faithfully

Bill Gray
CUSTOMER CONNECTIONS SUPERVISOR
K:\ADMIN\wpJul20\ta country clbu_sanderson bg

WAIPA NETWORKS LTD
240 Harrison Drive
PO Box 505
Te Awamutu, 3840

TE AWAMUTU
Telephone: 07 872 0745
Facsimile: 07 870 2401

CAMBRIDGE
Telephone: 07 827 4014
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enviro mark GOLD

First Gas Limited
42 Connett Road West, Bell Block
Private Bag 2020, New Plymouth, 4342
New Zealand

P +64 6 755 0861
F +64 6 759 6509

16 July 2020

Te Awamutu Country Club
c/- Nathan Sanderson
Sanderson Group
nathan@sandersongroup.co.nz

Dear Nathan

Te Awamutu Country Club proposed development, Te Awamutu

I refer to your email of Wednesday 16 July regarding the availability of natural gas to supply the proposed retirement village and subdivision on Frontier Road.

First Gas can confirm that the existing network can supply the required load. We look forward to providing a design for the subdivision in due course.

If you have any questions, please contact me on (04) 979 5367 or via email Paul.Bird@firstgas.co.nz.

Kind regards

Paul Bird
Firstgas Distribution

Ref: Te Awamutu Country Club
ID: MDU-HN-20026

Date: 16th July 2020

0800 342 735
info@ultrafast.co.nz
ultrafastfibre.co.nz

CONDITIONAL ACCEPTANCE BY ULTRAFAST FIBRE LIMITED AS TELECOMMUNICATIONS OPERATOR

Subdivision: Te Awamutu Country Club and residential lots

1. Ultrafast Fibre Limited (UFF) confirms that a UFF telecommunications connection will be made available for each site in the development, **providing the developer was to sign an UFF Installation Agreement.** Upon approval of this agreement, UFF will undertake to become the telecommunications operator of the telecommunications reticulation in the proposed public roads for Te Awamutu Country Club (the "**Subdivision**"), to provide network connections to all lots and apartments, in the Subdivision (the "**Reticulation**").

2. The Reticulation will be installed in accordance with:

   (a) the requirements and standards set by the Waipa District Council and advised to UFF via the Council's website; and

   (b) the requirements of the Telecommunications Act 2001 and all other applicable laws, regulations and codes (as amended).

3. The Reticulation will be installed by Broadspectrum Limited to UFF's satisfaction.

4. UFF will be the owner, operator and maintainer of the Reticulation.

5. One or more retail service providers will be available to supply telecommunications services over the completed Reticulation when service is available, provided that UFF shall not be responsible if the retail service provider's offer to supply such telecommunications services or the number of such providers varies from time to time.

SIGNED for and on behalf of
ULTRAFAST FIBRE LIMITED by:

Signature: *MGleeson*

Name: Mark Gleeson

Date: 16th July 2020

wainui environmental

SANDERSON GROUP LTD & KOTARE DEVELOPMENTS LTD

STORMWATER MANAGEMENT PLAN

FRONTIER ROAD, TE AWAMUTU NZ

Te Awamutu Country Club

KOTARE PROPERTIES

REV 01 / July 2020 / Sanderson & Kotare

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Contents

1 INTRODUCTION 5
1.1 Report Scope 5
1.2 The Site 5
1.2.1 Receiving Environment 5
1.3 Strategic Context 10
1.3.1 Resource Management Act 1991 (RMA) 10
1.3.2 National Policy Statement for Freshwater Management. 10
1.3.3 Waikato Regional Infrastructure Technical Specifications (RITS) 11
1.3.4 Waipa District Plan 11
1.4 Geotechnical Assessment 11
1.5 Existing Services 12
2 PROPOSED DEVELOPMENT 13
2.1 Introduction 13
3 STORMWATER MANAGEMENT PHILOSOPHY 14
3.1 Discharge Parameters 14
3.1.1 Water Quality Treatment Criteria 14
3.1.2 Stormwater Quantity Criteria 14
3.2 At-source Volume Control Consideration 15
4 STORMWATER MANAGEMENT STRATEGY 17
4.1 Stormwater Conveyance Systems 17
4.1.1 Primary Reticulation 17
4.1.2 Secondary Overland Flow 17
4.2 Sub-catchment Wetland 17
4.2.1 Design Process 17
4.2.2 Wetland Catchment Description 18
4.2.3 Hydrology Results 19
4.2.4 Wetland Forebay 19
4.2.5 Water Quality Treatment 19
4.2.6 Extended Detention 20
4.2.7 Outlet Structure and Spillway 20
4.2.8 Wetland Planting/Landscaping 20
4.2.9 Habitat Enhancements 21

4.2.10 Wetland Operation and Maintenance....21
4.3 Te Awamutu Country Club Treatment Swale....21
4.3.1 Preliminary Swale Design....21
4.3.2 Water Quality Treatment....22
4.3.3 Extended Detention....22
4.3.4 Swale Planting/Landscaping....22
4.3.5 Swale Operation and Maintenance....23
5 WRC Low Impact Design (LID) Matrix....24

APPENDICES

Appendix A – Development Layout Plans

Appendix B – Stormwater Design Plans

Appendix C – Stormwater Design Calculations

1 INTRODUCTION

Wainui Environmental has been commissioned by Sanderson Group and Kotare Properties to prepare a Stormwater Management Plan (SMP) for the proposed development located at Frontier Road, Te Awamutu. The purpose of the SMP is to outline how stormwater runoff from the post development surfaces will be managed for the proposed development. The report has been prepared to support the subdivision application to Waipa District Council (WDC) and the Discharge Consent Application to the Waikato Regional Council (WRC).

1.1 Report Scope

This report provides preliminary design of the proposed stormwater management system for the proposed development of a retirement village (Sanderson Group) and residential subdivision (Kotare Properties) at 52 Frontier Road (the 'subject site'). The report specifically addresses:

a) Description and analysis of the catchment and the downstream receiving environment.

b) A review of design criteria and stormwater management objectives

c) Assessment of stormwater management options to determine the design requirements and best practice options for site stormwater management, and

d) Preliminary design requirements for the recommended stormwater management measures

As noted, the scope of this SMP is focussed on the retirement village and residential subdivision development activities within the subject site area. This area comprises a localised/isolated development catchment which forms the southern portion of the larger T2 Growth Cell as identified in the Waipa District Council with the northern portion of the growth cell comprising a separate, subcatchment area which drains northward, independent of the subject sit to the Mangapiko Stream. While this SMP does not present a stormwater management regime for this separate northern part of the growth cell, the best practice design guidelines and stormwater management philosophies presented in this report are also applicable to the northern subcatchment and will be used to guide the future design of an appropriate stormwater management regime for that area at the time of development. It is notable that this future development area again comprises a separate subcatchment and hence the future design can be developed independently of the subject site without any specific need for integration of the stormwater management systems across the overall T2 Structure Plan area.

1.2 The Site

Street Address	52 Frontier Road, Te Awamutu
Legal Description	Lots 1 & 2 DPS 487281
Site Area	18.2ha
Local Authority	Waipa District Council
Site Location	The subject site is located on the western outskirts of the Te Awamutu urban area currently separated from the existing established residential development area by the T1 growth cell which is currently subject to large scale residential development activities.
Topography & Catchment	The site topography is characterised by a natural basin area which extends westward from the ridgeline located along the eastern site boundary as gentle to moderate pasture slopes falling towards a central site outlet point at the western site boundary. In this respect, the site comprises a localised headwater catchment area with all runoff occurring as surface runoff across the pasture surfaces to this outlet. The site is located within the Mangapiko Stream/Waipa River catchment.

1.2.1 *Receiving Environment*

As noted, the site extends westward from the existing ridgeline features along the eastern and southern boundaries and in this respect comprises a wide basin which forms the very upper reaches of a first order tributary drainage catchment.

The site area can generally be split into three separate sub-catchment areas with runoff within each of these areas being limited to surface flows down the existing pasture slopes during/following any rain events only.

Drainage from the central site sub-catchment area drains across the pasture slopes to enter an existing artificial farm pond located at the western site boundary. During site visits undertaken in May and June, 2020 this pond feature was found to be entirely dry with a thick layer of cracked mud covering the pond surface with establishing weed growth – refer Figure 2. Nonetheless, the pond is understood to hold some water through the winter months which is likely fed by both surface runoff and groundwater seepage flows during wet conditions.

Figure 2 – Existing farm pond

The pond discharges to the downstream channel via an informal overflow channel/spillway which is set at a low level only allowing for shallow surface ponding within the pond feature during wet periods.

Drainage from the northern and southern sub-catchment areas occurs as informal surface runoff across the sites pasture slopes to enter the downstream channel directly below the central catchment farm pond outlet.

The drainage outlet channel at this point comprises the very upper reaches of a first order tributary which commences at the western site boundary extending through the rural farmland in a north westerly direction from the site. At the site boundary this channel comprises a small artificial channel of around 0.5m wide to 0.5m deep with grassed banks/base being characteristic of an excavated/artificial drainage channel. During the site inspections the channel was observed to be entirely dry with no evidence of any recent flows – refer Figure 3.

Figure 3 – Site outlet watercourse

Immediately below the site boundary, the drainage channel passes through a farm culvert crossing to enter another on-line pond feature. At the time of inspection, this pond was again observed to be entirely dry with a thick layer of cracked mud covering the pond surface – refer Figure 4.

Figure 4 – On-line pond within downstream property.

Directly below this pond, the watercourse enters a wide, low gradient valley floor comprising a dairy grazing pasture environment. The watercourse extends north-westward through this area as an incised, straightened drain feature typically1.2m deep by 1.8m wide. Observations of this drainage channel observed shallow depths of ponded water with no noticeable flow and with an established weed coverage and with evidence of spraying to maintain channel capacity There was no evidence of channel erosion or clearance activities.– refer Figure 5.

Figure 5 – Drainage channel below on-line pond.

The watercourse extends north-westward through this farm-scape as a low gradient, modified drainage channel. The straightened, incised nature of the water course through this area along with the presence of numerous lateral, excavated drainage channels suggests the primary purpose of the identified channel modifications has been to suppress/convey the groundwater table through this low gradient, valley floor pasture landscape to assist pasture maintenance/grazing.

Approx. 2.5km below the site, the channel passes under Pirongia Road via a 1200mm culvert and shortly after enters another piped section where it is conveyed below an area of farmyards/sheds. The stream then discharges into the Mangapiko Stream approximately 3km below the subject development site. The Mangapiko Stream drains a large rural and urban (Te Awamutu urban area) catchment and flows westward flowing along a meandering course within an incised gully system eventuating in the Waipa River at Pirongia. The site catchment location and drainage flow path to the Mangapiko Stream is outlined in Figure 6.

Figure 6 – Site catchment location and drainage flow path

Review of historical aerial imagery has also been undertaken to help characterise the natural condition of the sites receiving watercourse and historic condition. An aerial image from 1944 appears to show the wide, low gradient gully floor area below the site as comprising an area of scrub/vegetation within the broader pasture environment, suggesting catchment flows as likely occurring through wetland type habitat conditions through this area at this time – refer Figure 7.

Figure 7 – 1944 aerial image suggesting wetland type habitat below the site.

Specific water quality assessment of the downstream watercourse has not been undertaken for the purposes of this SMP. However, it is considered likely that based upon the intensive dairy grazing activities occurring throughout the catchment, water quality would be impacted by elevated levels of nutrients and sediment within catchment runoff during and immediately following storm events. Water quality observed in the stream flows at the Pirongia Road culvert (during dry conditions) showed good water clarity although large depths of deposited fine sediments were observed around the culvert outlet basin.

The Mangapiko Stream drains a large catchment extending back to its headwaters on Maungatautari and receives runoff from an extensive agricultural catchment along with urban inputs from the Te Awamutu urban area. Water quality has been described as poor with high levels of bacterial contamination resulting from the wastewater treatment plant effluent; dairy factory effluent from Fonterra, and urban stormwater discharges from the Te Awamutu township. Stream flows are observed to be subject to significant discolouration during storm events due to catchment sediment inputs. Pollution impacts have affected the stream ecology leading to pollution-sensitive species being absent in more contaminated parts of the stream.

The tributary watercourse draining the site is not identified on the WRC water classification maps and hence defaults to a Waikato Surface Water classification under the Waikato Regional Plan (WRP). The Mangapiko Stream has an

indigenous fish and trout fishery classification under the WRP reflective of its large scale catchment area and connectivity to the Waipa River.

1.3 Strategic Context

1.3.1 *Resource Management Act 1991 (RMA)*

Section 5 of the RMA defines 'sustainable management' as follows:

> *In this Act, "sustainable management" means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while—*
>
> *(a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
>
> *(b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
>
> *(c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

To this end, the starting point of the proposed development is to avoid as far as possible any adverse effects on the environment. This Report will lay out strategies which will ensure the development occurs within the natural limitations of the site, by way of managing the stormwater in a way which ensures the life supporting capacity of the receiving environment is not degraded, with the local environment enhanced where possible. This will be balanced with providing for the communities social, economic and cultural wellbeing.

1.3.2 *National Policy Statement for Freshwater Management.*

The Freshwater Management NPS has policies and objectives that direct local government to manage water in an integrated and sustainable way while providing for economic growth within specified water quality and quantity limits. The NPS requires councils to develop Regional Policy Statements and standards to safeguard the life supporting capacity of water bodies, with the objective that water quality will be maintained or improved. This will involve protection of high-quality water bodies and implementation of methods to improve degraded water bodies.

Specifically, Section C of the Freshwater Management NPS relates to "Integrated Management" and has the below Objective and associated Policies.

> *Objective C1*
> *To improve integrated management of fresh water and the use and development of land in whole catchments, including the interactions between fresh water, land, associated ecosystems and the coastal environment.*
>
> *Policy C1*
> *By every regional council:*
> *a) recognising the interactions, ki uta ki tai (from the mountains to the sea) between fresh water, land, associated ecosystems and the coastal environment; and*
> *b) managing fresh water and land use and development in catchments in an integrated and sustainable way to avoid, remedy or mitigate adverse effects, including cumulative effects.*
>
> *Policy C2*
> *By every regional council making or changing regional policy statements to the extent needed to provide for the integrated management of the effects of the use and development of:*
> *a) land on fresh water, including encouraging the co-ordination and sequencing of regional and/or urban growth, land use and development and the provision of infrastructure; and*
> *b) land and fresh water on coastal water.*

Managing developments in a holistic and whole of catchment way ensures that cumulative effects are identified at the planning stage and accounted for, with resources protected and used in a manner which ensures degradation is avoided and environmental improvement is the overall outcome. In accordance with this Objective, the proposed development

seeks to fulfil this directive through ensuring development and services are not designed in isolation of the wider catchment context.

At this point, no specific water quality standards are considered to have been established for these purposes within the subject catchment, however in the interim, when considering development proposals/consent applications, councils must have regard for any effects (actual or cumulative) that contaminants contained in the discharge from developments may have on freshwater and freshwater ecology. The principle of adopting best practicable options in order to minimise effects is included in the decision-making process under this policy.

1.3.3 *Waikato Regional Infrastructure Technical Specifications (RITS)*

The Regional Infrastructure Technical Specifications (RITS) was developed as a Regional document to set the specifications for designing and constructing transportation, water supply, wastewater, stormwater, and landscaping infrastructure. Prior to the RITS there were differing standards and requirements across the Waikato Region which were determined by each District and City Council. Consistency with the RITS when planning new infrastructure as part of any subdivision usually ensures compliance with the conditions set by councils as part of the resource consenting process.

This Report will outline the proposed design concepts for the infrastructure associated with the proposed development of the subject site that are in-line with the RITS standards and specifications.

1.3.4 *Waipa District Plan*

The site subject to the proposed development activities is located within Growth Cell T2 as identified within the Waipa District Plan (WDP). This growth cell has been earmarked for future residential development with the site having a Deferred Residential zoning under the WDP, meaning that residential development is appropriate in this location, although not currently anticipated to occur within the immediate future. However, a plan change is currently being sought by Sanderson Group/Kotare Properties to the Waipa District Plan to enable the planned development of the site within a more imminent timeframe.

There is currently no established Structure Plan for development activities within the T2 Growth Cell. However from a stormwater management perspective, the site is identified as comprising a singular/isolated subcatchment area and hence is not considered to be reliant upon integration or adherence to any broader catchment stormwater management guidance/requirements to enable development activities within the site.

1.4 Geotechnical Assessment

A Geotechnical Investigation Report has been prepared for the development area by CMW Geosciences. This report outlines that the published geological map for the area depicts the local geology for the area as comprising alluvium dominated by primary and reworked, non-welded ignimbrite of the Walton Subgroup, and locally derived lacustrine mud, silt, gravel and peat of the Piako Subgroup. However, site geology encountered during site investigations was found to differ slightly to the published geology. Piako Subgroup soils were not encountered in the exploratory holes. Test pits and CPTs encountered Volcanic Ashes overlying Walton Subgroup soils, with Puketoka Formation soils encountered below 6.5m. The vertical distribution of the soils encountered is presented in Table 1.

Table 1 Soil Strata

Summary of Strata Encountered				
Strata	**Depth to top (m)**		**Thickness (m)**	
	Min	**Max**	**Min**	**Max**
Topsoil	GL	GL	0.3	0.3
Alluvium	0.3	5+	1	5
Colluvium (displaced Volcanic Ashes and Puketoka Formation soils)	0.3	0.3	5	5
Stiff to hard Silt/Clay (Volcanic Ash)	0.3	0.3	1.7	4.7
Firm to stiff Silt (Walton Subgroup)	2	5	3.5	9.5
Very stiff to hard Sandy Silt/Clayey Silt (Puketoka Formation)	6.5	14	2.5	>11

Sensitive Silt (Puketoka Formation)	9	17.5	1	1
Very stiff to hard Sandy Silt/Silty Sand (Puketoka Formation)	10	18.5	2	4.5
Dense to very dense Sand (Puketoka Formation)	12	15.5	-	-
Notes: Thickness only recorded were base of strata has been confirmed.				

Groundwater was encountered near ground surface level within the gully floor area in the area of the existing dry farm pond with increasing depth extending up the site slopes.

The stiff to hard clay/silt dominated geology has determined the use of ground soakage as unfeasible for stormwater disposal within the site.

1.5 Existing Services

As noted, the site catchment comprises a localised basin subcatchment area which drains westward, remote to any existing established stormwater reticulation network including the directly adjacent T1 growth cell development site to the east which drains northward within a separate sub-catchment to the Mangapiko Stream.

The only existing services available to the site comprise the existing 375mm watermain which extends along the southern site boundary within Frontier Road to convey the municipal supply from it's watertake location on Mount Pirongia to Te Awamutu. Two metered connections appear to be available to the southern site boundary from this main.

2 PROPOSED DEVELOPMENT

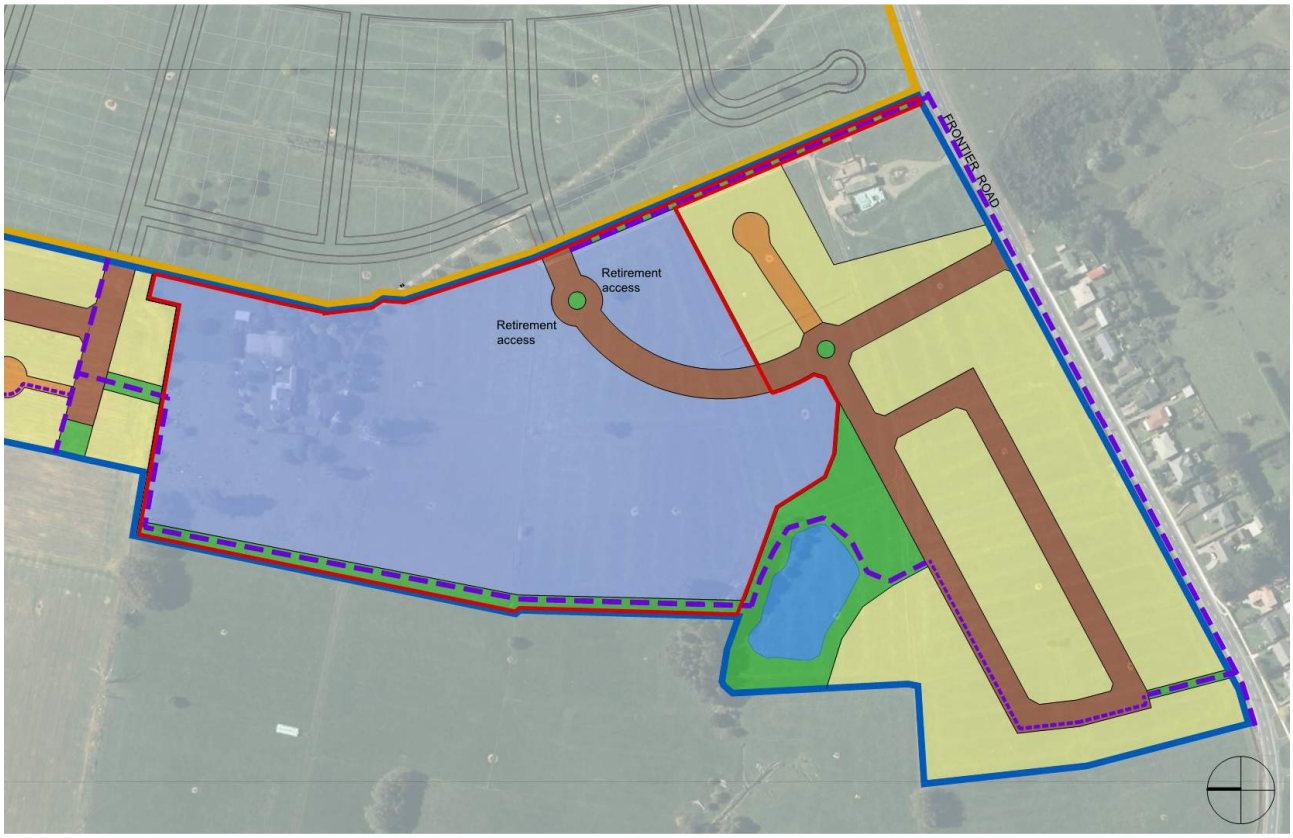
2.1 Introduction

The overall site development catchment will be split into two separate development types comprising the proposed Te Awamutu Country Club retirement village development within the northern half of the site and the Kotare Properties residential development within the southern half of the site.

Development of the retirement village activities will occur across an approximate 9.56ha area and will involve establishment of around 98 retirement units/dwellings, aged care facility/dementia unit and communal club house facilities along with associated roading and service infrastructure.

Development of the residential subdivison will occur across an approximate 8.65ha area and will involve establishment of 105 residential lots ranging from 500m^3 to 700m^3 along with associated roading and service infrastructure including a central reserve area containing a proposed stormwater management wetland device.

The proposed development layout/configuration is outlined on the plans contained within Appendix A.



3 STORMWATER MANAGEMENT PHILOSOPHY

Site development will result in the conversion of the existing site pasture slopes into areas of new impervious surfaces associated with the proposed retirement village/residential development including the development of dwellings/buildings and associated hard stand surfaces along with creation of the roading network and footpaths within the development site. Stormwater runoff from these surfaces will need to be captured and conveyed via a stormwater management system incorporating appropriate measures to manage the potential effects from these discharges within the site receiving environment.

The stormwater management system for the proposed development has considered the following guidance and policy documents:

- Waipa District Council's District Plan
- Waikato LASS Regional ITS (RITS)
- Objectives, policies, and rules for the management of water quality and stormwater discharges, as set out in the Proposed Waikato Regional Plan; and
- Waikato Regional Council Runoff Modelling Guidelines and Stormwater Management Guidelines 2020.

3.1 Discharge Parameters

Stormwater discharge parameters for the site are based on the requirements of the guidance documents above, the downstream receiving environment and current best practice. On this basis, the following discharge parameters and stormwater management principles have formed the basis for development of the sites stormwater management system.

- Treatment of stormwater runoff from all development surfaces to address any potential water quality effects;
- Attenuation of post development peak flows to predevelopment levels storm events to address any potential downstream flooding effects;
- Erosion control measures to mitigate any potential downstream channel effects;
- Discharge of all development flows in a controlled manner without creating adverse erosion/scour effects;
- Provision for conveyance of overland flows and greater than design events to prevent potential flooding/inundation with the subject development area;
- All discharges to be retained to the downstream western tributary watercourse;
- Maximise landscape and amenity values and public awareness of stormwater management devices; and
- Minimise operation and maintenance requirements.

3.1.1 *Water Quality Treatment Criteria*

Proposed water quality treatment criteria are outlined below in accordance with Table 4-3 of the RITS:

- Total suspended solids (TSS) (75% removal of post development loads taken as being at the discharge point from site).
- Total Metals (copper, zinc) to achieve maximum practical removal possible.
- Temperature (<25°C)
- Nutrients (total nitrogen, total phosphorus and ammoniacal nitrogen) to achieve maximum practical removal rates.
- Hydrocarbons to achieve maximum practical removal rates
- Removal of gross pollutants (litter and commercial waste).

3.1.2 *Stormwater Quantity Criteria*

- Match pre-development flow rates for the 2 and 10-year ARI events through controlled attenuation and multi-stage outlets.
- Extended Detention (capture and slow release of the 1/3 of the 2 year 24hour event over 24 hours.

- Conveyance of overland flows in excess of the reticulation networks capacity via the development roading network discharging to controlled outlet points.

There are no known flooding issues that have been identified within the downstream catchment with downstream landuses limited to open pasture grazing. Nonetheless, the provision for peak flow attenuation to predevelopment levels for the 2- and 10-year events is considered to comprise a best practice management approach to avoid exacerbation of flooding within the farmland environment or at the Pirongia Road culvert.

3.2 At-source Volume Control Consideration

The Waikato Stormwater Guideline 2020 refers to the potential for post development increases in stormwater runoff volumes to contribute to increased potential for downstream channel erosion effects and goes on to advocate two possible methods for managing these potential effects comprising runoff volume control (through at-source retention of the initial abstraction volume) and extended detention and slow release of 1/3 of the 2-year 24hour rainfall event over 24 hours.

An assessment of the receiving watercourse has been undertaken to assess the risk of potential stream channel erosion and determine the requirement for at-source retention within the development site with the following key features of the receiving environment noted:

- The immediate discharge environment for the site comprises a dry, heavily vegetated surface flow channel which conveys flows downstream into a large, existing, on-line farm pond feature;
- Below this feature, flows enter a lineal, heavily vegetated low gradient farm drainage channel extending through a wide valley floor pastoral environment. Historic habitat conditions within this area are considered likely to have comprised wetland habitat extending throughout the valley floor area with catchment runoff occurring as dispersed seepage flows. The current channel is considered to comprise an artificial drainage channel formed primarily to supress groundwater levels and convey intermittent catchment flows as low velocity flows through this drainage channel;
- Observations of both sections of the channel did not identify any evidence of adverse erosion effects, with the channel observed as comprising a stable, well vegetated condition with only shallow ponding and no discernible flows noted during the autumn 2020 site inspection.

In accordance with WRC Stormwater Management Guidelines an assessment of the flow velocities in the downstream channel reaches was undertaken to determine whether catchment flows are erosive in the pre and post development scenario. Two reaches of the channel were assessed, Reach 1- the short section of farm drain immediately downstream of the existing pond discharge, and Reach 2 the larger drain downstream of the dry farm pond. Reach 2 is typical of the remaining channel up to the Pirongia Road culver.

A summary of the assessment is presented below.

Drain Reach 1:

- Drain width 0.7m with 1V:0.8H banks
- Manning's n= 0.08 (Heavily vegetated base and sides)
- Pre-developed 2 Year ARI flow rate (and wetland discharge) = 1.10m^3/s
- Velocity = 0.97m/s

Drain Reach 2:

- Drain width 1.8m with 1V:0.5H banks
- Manning's n= 0.08 (Heavily vegetated base and sides)
- Pre-developed 2 Year ARI flow rate = 1.25m^3/s (includes downstream greenfields catchment)
- Velocity = 0.70m/s

Soil types found within the low-lying gully basins within the subject site generally comprised alluvium and colluvium soils consisting of volcanic ash and silts and it is inferred that these soils continue through the downstream catchment. Maximum permissible velocities for these soil types are in the order of 0.6-0.76m/s as presented in Table 7-1 from the WRC SW Management Guidelines 2020.

Based upon the above it is recognised that the first reach of channel, immediately downstream of the proposed wetland discharge has the potential for erosion effects, however in the further downstream channel the conditions would be considered to present minimal potential for adverse erosion effects as a result of site discharges.

The development site comprises an isolated, confined sub-catchment area and comprises the western extent of anticipated urban development activities within Te Awamutu. In this respect, the site comprises the only portion of this catchment which is identified for urban development with the balance of the catchment comprising a significant rural catchment with no anticipated landuse changes thus avoiding the potential for any future cumulative stormwater volume impacts upon the receiving watercourse.

For these reasons, the proposed stormwater management approach incorporating provision of extended detention exclusive of specific volume retention measures is considered to present an appropriate level of control to address any potential for downstream channel erosion effects which may arise within this catchment.

4 STORMWATER MANAGEMENT STRATEGY

Based upon the above assessment of the downstream receiving environment and associated stormwater discharge parameters/criteria, a stormwater management strategy has been developed for the site which comprises the following features.

1. Conveyance of catchment flows from the entire Kotare Properties residential development area, a portion of the existing Frontier Road carriageway at the southern site boundary and approximately 4.9ha of the retirement village development catchment via a piped stormwater reticulation network (sized to provide a 10-yr ARI primary level of service) discharging to a constructed stormwater management wetland device located within a central reserve area. The wetland is designed to provide water quality treatment, extended detention and peak flow attenuation of the 2- and 10-year events with discharges occurring via a controlled outlet to the downstream channel. The wetland will be vested to WDC within a combined drainage/recreation reserve area.
2. Conveyance of catchment flows from the remaining north-western retirement village development catchment (approx. 4.4Ha) directly to a planted treatment swale device extending down the western site boundary of the retirement village site. The swale is designed to provide water quality treatment and extended detention of catchment flows. At the southern end of the swale the Water Quality/ED event flows will discharge via an outlet into the site outlet channel directly below the proposed wetland device outlet. Larger flows will be diverted into the constructed wetland for attenuation of 2 and 10-year ARI peak flows. The proposed swale will be a private stormwater measure, owned and maintained in perpetuity by the Te Awamutu Country Club.
3. Design of appropriate energy dissipation/outfall erosion control structures, including wetland spillway to prevent any adverse erosion and scour effects at both the wetland and swale outfall points.
4. Secondary overland flow paths provided via the roading network (where possible) designed to accommodate flows from a 100-yr ARI rainfall event. These flows will be safely conveyed from lot/road surfaces to the downstream watercourse.

Further details of the above stormwater management features are presented in the following sections and are outlined on the plans included within Appendix B.

4.1 Stormwater Conveyance Systems

4.1.1 *Primary Reticulation*

The primary reticulated drainage network throughout the proposed development will need to be sized provide a 10-year ARI level of service in accordance with the RITS. Reticulation will convey flows to the wetland forebay or swale device.

Where possible high-flow by-passes will be incorporated, diverting flows from larger events around the forebay and directly into the main wetland body.

4.1.2 *Secondary Overland Flow*

Secondary overland flow paths are required to convey flows up to the 100-year ARI event safely though the site.

Where possible overland flows will discharge to the road corridors where they will be conveyed to or around the proposed wetland. Where this cannot be achieved overland flow-paths will be required. These will be designed at detailed engineering stage.

4.2 Sub-catchment Wetland

4.2.1 *Design Process*

Hydrologic modelling has been undertaken using HEC-HMS v4.2 to reflect the proposed development and associated imperviousness within the catchment. Flows have been routed via channel links through the proposed wetland.

The RITS Manual requires that for all catchments where detention storage is required, stormwater modelling shall be undertaken using 24-hour nested design storm. Rainfall data was taken from Hirds v4 software for the subject site. The post development analysis was determined using the 2.1 degree climate change adjusted rainfall with percentage change factors taken from Table 7-2 in the WRC Stormwater Management Guidelines.

The Water Quality Volumes were calculated based on 1/3rd of the 2-year 24hour rainfall event.

The EDV storm has been routed through the proposed wetland with the nested storm profile used for the 24mm rainfall event. Model runs of 48-hour duration were undertaken and the outflow curve analysed to determine the peak orifice discharge and the EDV discharge duration (the point at which the EDV is considered to be fully discharged has been taken at the 'knee' of the outflow hydrograph as beyond this point the 'tail' of the graph becomes infinitely long).

4.2.2 *Wetland Catchment Description*

Aerial LIDAR survey, specific topographic survey, design levels and proposed development layouts were utilised to determine the catchment extents and various physical properties of the site catchments.

The total wetland catchment extents (described above) consist of approximately 19.95Ha of future residential lots, proposed retirement village and associated roads.

The residential sub-catchments have been assumed to be fully developed according to their proposed land use and have been assigned impervious fractions according to the maximum allowable levels in the District Plan (70%). Road catchments have been assigned impervious percentages based on typical road cross-sections (typically 75%).

Noteworthy attributes of the sub-catchment breakdown are outlined below:

- The pre-developed site discharges via several different flow paths and ephemeral drains, with all channels ultimately converging into the main drain (described as Reach 2 above) downstream of the site. In the post developed scenario, it is proposed to reticulate the site to the wetland and discharge flows to the drain on the western boundary. The downstream section of drain will experience an increase in flows from this cross-catchment discharge, however the effects are contained to a short reach or stream "Reach 1' and are diminished once flows reach the main drain.
- Approximately 0.84Ha of the far NE corner of the site slopes to the NE and hasn't been included in the pre-developed catchment. In the post-developed scenario this part of the site will be collected and discharged to the wetland. The allowable wetland discharges don't however include this sub-catchment.
- The wetland has been designed for approximately 1.0Ha of Frontier Road and assumes a fully urbanised road (kerb channel, footpath etc.).
- The wetland design also allows for the treatment and attenuation (for climate change) of the existing water reservoir site located at the south-eastern corner of the site. Surface flows from this area are to be conveyed through to the subdivision reticulation – subject to detailed engineering design.

Table 2 below presents the adopted post-developed sub-catchments and their associated properties. Refer to Appendix B for the adopted catchment plan.

Table 2: Adopted Wetland Catchments

Description	Area (ha)
Kotare Wetlands Residential Area	8.65
Te Awamutu Country Club Retirement Village (2 and 10-year attenuation only)	9.56
Frontier Road	0.47
WDC Water Reservoir Site	0.90
Total Wetland Catchment	19.58

The wetland is located generally in the bottom corner of the catchment. Pre-developed times of concentration were calculated based on existing overland flow travel times and flows in channel links to the proposed wetland site. Post developed sub-catchments time of concentration were calculated to be 10 minutes.

Runoff calculations were undertaken in accordance with the methodology outlined in the WRC Stormwater Modelling Guidelines 2020. Soil types and CN numbers have been adopted based on soil testing across several sites within the catchment and with supporting information from S-Maps Online. S-Maps confirm soils within the wetland catchment range from moderately well drained soils consisting generally of silty loams over clay and the pre-developed soil types throughout the catchment have been broadly classified as Soil Type C.

It has been assumed that no soil remediation will be undertaken across the catchment as lots are developed so an increase in soil type and subsequent CN number has been adopted for post developed pervious areas in accordance with WRC methodology.

Weighted CN runoff curve numbers were calculated based on proposed impervious percentages and the soil types found within the catchment (where possible). A summary of soil types and CN numbers is provided below.

Table 3: Surface Types and CN Numbers

Surface Type	Surface Type	Soil Type	CN number
Pre-developed Site	Pasture	C	74
Post-developed Pervious	Grassed lots	D	80
Post Developed Impervious	Roof/ Sealed Area	D	98

See attached WRC SW calculations in Appendix C for further details.

4.2.3 *Hydrology Results*

HEC HMS modelling results and WRC stormwater calculations can be found in the attachments. The HEC HMS model is available on request.

A summary of the peak discharge rates and required detention volumes is presented in Table 4 below.

Table 4: Wetland Results

Return Period (ARI)	Greenfields discharge rate (m^3/s)	Wetland Peak outflow (m^3/s)	Peak Stage RL (m)	Peak Storage (m^3)
Extended Detention*	-	0.034	62.00	1,088
2- Year	1.12	1.069	62.69	4,356
10- Year	2.23	2.035	63.10	6,482

'* ED catchment excludes the Country Club Swale catchment

A summary of the wetland design is below.

- Normal Water Level Area = 4,000m^2 (approx. 2.7% of the catchment)
- Permanent Storage Zone (PSZ) = 1,550m^3 (increased by 25% to account for planting)
- Batters above and below NWL = minimum 1V:3H
- Top of batter area (excluding paths, tracks etc.) = Approx. 6,340m^2
- Total 10-year ARI volume = 6,480m^3
- Total Stormwater Reserve Area = 10,350m^2

4.2.4 *Wetland Forebay*

A sediment forebay is required within the wetland. The sediment forebay is provided to capture coarse sediments and is located to ensure ease of access to remove sediment accumulation. The forebay shall be designed to provide minimum 30% of the adjusted Water Quality Volume in accordance with WRC requirements. Preliminary design of the forebay requires a total volume of 350m^3.

4.2.5 *Water Quality Treatment*

As the wetland will provide extended detention, the required dead storage/permanent water volume is equal to 50% of the calculated WQV. Calculations show the required WQV = 1164m^3 (based on the 24mm water quality storm). The actual WQV provided has been increased by 25% to account for planting in accordance with the RITS, giving a total volume of 1,550m^3.

Banded bathymetry is provided within the wetland as a series of raised bunds which are proposed to maximise contact with vegetation and prevent short-circuiting. Wetland bathymetry has been designed in accordance with the RITS and to ensure minimum 80% vegetated area.

4.2.6 *Extended Detention*

In accordance with WRC requirements the capture and slow release of 1/3 of the 2-year ARI 24hr storm is required for erosion control. In accordance with WRC methodology the ED event has been routed through the wetland, discharging over 24 hours. A summary of the EDV event is below;

- EDV = 1,088m^3
- ED depth within wetland = RL62.00m (250mm above PWL)
- Peak Discharge @ ED level, Q_p = 0.035m^3/s
- EDV emptying time = 24hrs (to the 'knee' of the hydrograph)

4.2.7 *Outlet Structure and Spillway*

The wetland will discharge via an outlet structure (manhole) with the attenuation orifices and weirs. The outlet structure will discharge via a 1200mm pipe to the existing drain. Design of the outlet structure will be undertaken at detailed design stage.

In the event the main outlet structure and pipe becomes blocked, an emergency spillway is proposed on the north-western side of the wetland. the spillway will discharge flows down the batter to the drain below. Preliminary spillway design shows unattenuated 10-year ARI flows will discharge via a 14m wide spillway with a depth of approx. 350mm. The spillway deign includes 300mm freeboard to the top of the wetland bund.

The development layout has several overland flowpaths which discharge overland flows directly to the downstream land in larger events, by-passing the wetland. Calculations show peak 100-year ARI flows discharging to the wetland are significantly less than the unattenuated 10-year ARI flows for the entire development. Accordingly, peak 100 year ARI flows will also discharge via the 14m wide spillway with a flow depth of around 250mm.

4.2.8 *Wetland Planting/Landscaping*

Landscaping of the constructed wetland shall be undertaken in general accordance with the RITS Section 4.2.24 including Table 4-35 – Approved Plant Species.

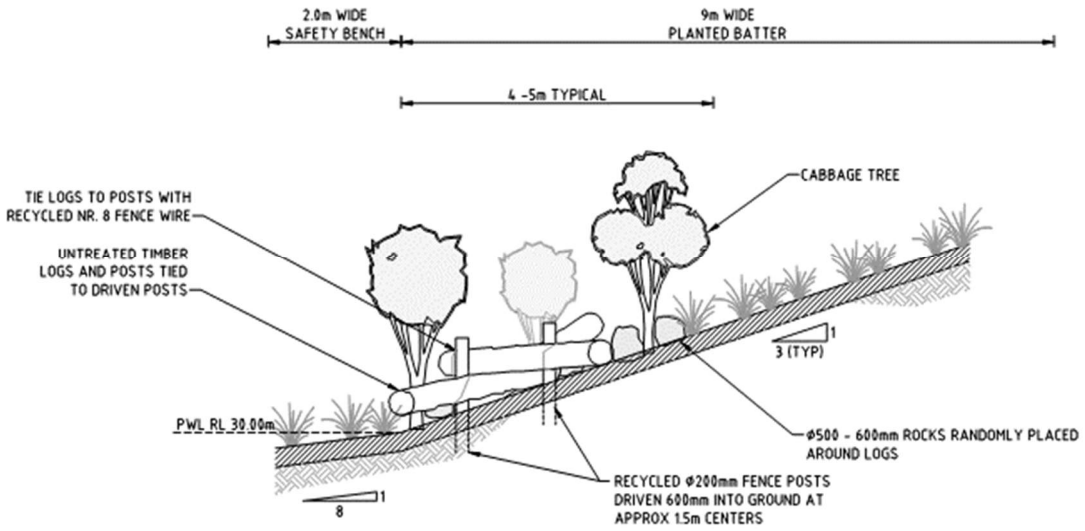
A planting plan and planting schedule will be prepared as part of the detailed design process. Planting will be undertaken below the permanent water levels of the wetland (submerged zone) to meet a target of 80% vegetative cover.

Specimen trees such as Rimu, Cabbage and Pohutukawa are proposed around the wetland to shade areas of open water, to reduce thermal warming effects and contribute to enhanced amenity around the wetland feature. Refer Figure 7 below which contains a photo of an established constructed wetland device with good vegetative cover.

Figure 7 - Glaisdale planted stormwater wetland, Hamilton City

4.2.9 *Habitat Enhancements*

Constructed stormwater wetlands provide a range of feeding, nesting, brood rearing, loafing and resting sites for native birds. Opportunities also exist to create habitat for skinks by planting species that provide optimal habitat structure i.e. dense, low growing vegetation. Skinks also appreciate a range of conditions from shady to dry and sunny. Habitat potential is proposed to be enhanced by placing logs and snugs around the perimeter of the wetland amongst vegetation and along pathways to provide skink refugia. Rock mounds are also proposed to allow for basking next to dense grass and shrubs.



4.2.10 *Wetland Operation and Maintenance*

An operation and maintenance manual will be prepared for the wetland as part of the detailed design process.

Forebay access and maintenance track will be incorporated into the wetland design in accordance with the RITS. Pedestrian and vehicle access to the remainder of the wetland will be in accordance with the RITS.

The long term operation and maintenance of the wetland will be undertaken by the Waipa District Council stormwater assets team.

4.3 Te Awamutu Country Club Treatment Swale

Treatment of the northern end of the Country Club retirement village development (approx. 4.4Ha including the dwellings and road network) is via a planted water quality treatment swale proposed along the western boundary of the site. The swale has been designed to provide Water Quality treatment to the contributing catchment as well as providing extended detention.

Refer to attached plan for the Water Quality catchment breakdown. A preliminary layout and typical section of the swale is also attached.

4.3.1 *Preliminary Swale Design*

Preliminary design of the swale has been undertaken and is summarised below.

- Swale base width = 2m
- Side batters = 1V:3H
- Max. Longitudinal Slope = 1.5%
- Manning's number. N = 0.25
- WQ Flow depth = 0.275m
- Total swale depth = 0.60m

The swale has capacity to convey the 10-year ARI flows from the catchment to the wetland.

It is intended that the swale will have a slight meandering path, mimicking a natural stream channel where possible.

Treated WQ and ED flows will be discharged via a low flow diversion pipe directly to the drain within the downstream property. Flows in excess of the ED event will be directed into the constructed wetland.

4.3.2 *Water Quality Treatment*

The primary form of water quality treatment shall be provided via vegetative filtering through dense vegetation in the base of the swale, ensuring a minimum 9-minute residence time is achieved. Water quality treatment is provided by passing stormwater flows through vegetation. Passage through vegetation and providing contact with organic matter allows physical, chemical and biological processes to occur that reduce contaminant delivery downstream.

Peak flows were calculated using the Graphical Peak/NCRS methodology based on proposed catchment surface types.

A manning's Channel formula was used to check the velocity of flows adopting the proposed swale parameters. The proposed swale parameters resulted in a residence time of approximately 25minutes, well in excess of the minimum required 9 minutes.

Refer attached WQ flow and Manning's calculations.

4.3.3 *Extended Detention*

It is proposed to include Extended Detention for the contributing catchment within the swale. Check dams will be used to provide the required volume, with low flow pipes through the dams to ensure peak flows discharge over 24 hours.

Extended detention will also improve the WQ treatment efficiency of the swale, with runoff held in the vegetated swale for extended periods.

Detailed design of the swale check dams and ED outlets will be undertaken as part of the detailed design process.

4.3.4 *Swale Planting/Landscaping*

In accordance with general best practice WSUD, it is proposed to integrate the swale into the surrounding area. It is proposed to form the swale as a semi-naturalised overland flow path optimising both the water quality treatment efficiency, ecological benefits and landscape enhancement. It is intended that the reserve area which contains the swale include a walking track adjacent providing enhanced urban amenity.

Other key considerations for the swale will include:

- A legible relationship with natural flow paths and topography
- Integration with adjacent planting schemes or natural plant communities
- Wide undulating channels as subtle overland flow paths
- Unimpeded pedestrian movement and access, including the use of pedestrian boardwalks etc. as check dams in swales.
- The use of rock weir structures or logs as check dams in naturalised swales.
- Transition between landscape spaces, land uses, and natural environments

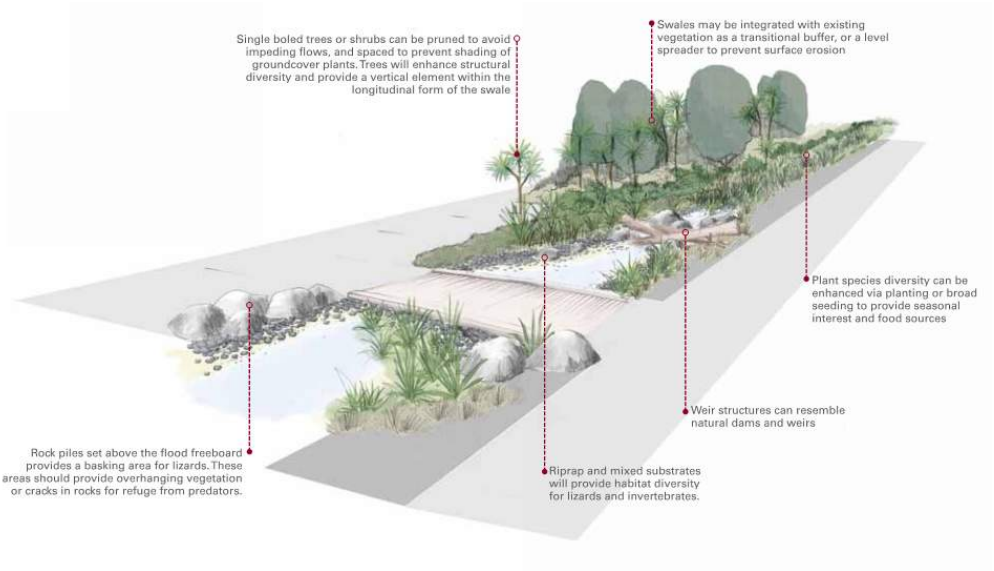


Figure 8 - Design elements to provide for a naturalised overland flow path (Source: Landscape and Ecology Values within Stormwater Management - Auckland Regional Council Technical Report TR2009/083)

Landscaping of the constructed swale shall be undertaken in general accordance with the RITS Section 4.2.24 including Table 4-35 – Approved Plant Species.

A planting plan and planting schedule will be prepared as part of the detailed design process. Planting will likely comprise planting of the swale invert with a thick swathe of typical wetland rush species such as oioi and carex species with other terrestrial species such as flaxes extending up the swale banks/batters to maximise stability and shading of the swale – refer Figure 8 below for a photo of a planted swale example.

Figure 8– Planting swale example

4.3.5 ***Swale Operation and Maintenance***

The proposed swale device will be retained in the ownership of the Te Awamutu Country Club and hence will fall within the scope of operation and maintenance associated with the overall retirement village site. In this respect, the swale maintenance will benefit from provision of a permanent maintenance team responsible for all aspects of site maintenance including landscaping, buildings and infrastructure.

The specific maintenance requirements for the swale will again be outlined within a detailed Operation and Maintenance Plan which can be referenced by site staff to ensure the stormwater treatment/detention functions of this device are maximised in the long term.

5 WRC Low Impact Design (LID) Matrix

The proposed development layout and SW management methodology has been assessed using the WRC LID scoring matrix in accordance with the requirements for the WRC Stormwater Management Guidelines 2020. Refer to the assessment below.

Based on the downstream receiving environment both Water Quality and Water quantity control are considered necessary for stormwater discharges from the site. Volume Control to protect against downstream erosion is not considered necessary. Accordingly, a Target Score of 10 is recommended for the site.

Implementation elements	Typical Components	Score	Comment
Source control maximised	Water re-use	0	
	Site disturbance reduced from a conventional development approach	0	
	Impervious surfaces reduced from a traditional approach	0	Park and SW Reserve Areas approximately 8% of the total development
	Use of building or site materials that do not contaminate	1	Non-contaminating roof materials to be used
	Existing streams and gullies located on site (including ephemeral) are protected and enhanced. The entire stream other than possible crossings shall be protected to qualify for points.	0	No existing streams, riparian corridors or bush area on the existing site.
	Riparian corridors are protected, enhanced or created	0	
	Protection and future preservation of existing native bush areas	0	
LID stormwater device/practice used	Infiltration devices to reduce runoff volume	0	
	Revegetation of open space areas as bush	0	
	Bioretention	0	
	Swales and filter strips	1	A proposed Water Quality treatment swale is proposed along the western boundary of the Country Club This has a catchment of approx.. 4.4Ha which equates to approx.. 25% of the development site. The swale provides WQ treatment, ED and conveys the 2- and 10-year ARI events to the wetland. A total of 3 points has been pro-rated to the swale catchment area
	Tree pits	0	
Traditional mitigation	Constructed wetlands	4	All stormwater to be treated by constructed stormwater wetlands. Wetlands designed for WQ, ED and flow attenuation in the 2 and 10 year ARI event.
	Wet ponds	0	
	Innovative devices	0	

	Detention ponds (normally dry)	0	
Urban design	Stormwater management is designed to be an integral and well considered part of the urban design.	2	Both the stormwater wetland and swale will provide an enhanced landscape and ecological function to the development. Wetland environments represent the intersection of aquatic and terrestrial ecologies and support a wide variety of vegetation types. The wetland and swale will be designed as a landscape feature of significant amenity, with diverse habitat types, and opportunities for passive recreation.
Tangata Whenua Values	Stormwater management has been designed considering Tangata Whenua values and demonstrates that these have been incorporated into the design	0	
Total score		**8.0**	

The proposed development receives a total score of 8.0 points out of 10 required.

6 Conclusion

Development of this SMP has included assessment of the existing site and downstream receiving environment characteristics along with the provisions of relevant Council guidelines and design standards. Subsequently, the preferred stormwater management proposal outlined in this report is considered to present a best practice and practical approach to stormwater management for the site to manage drainage within the development site while also avoiding any adverse effects within the downstream receiving environment.

The proposal will be subject to further refinement and development as part of the detailed engineering design process required to satisfy both WDC subdivision and WRC discharge consent requirements.

APPENDIX A – DEVELOPMENT LAYOUT/SCHEME PLAN

Te Awamutu Country Club

Frontier Drive, Te Awamutu

Proposed facilities

1. Care Facility
2. Club House
3. Health Spa
4. Pond
5. Bowls Lawn
6. Croquet Green
7. Campervan Parking
8. Hobby Shed
9. Golf Putting Green

98 Retirement Villas

105 Residential Lots

Te Awamutu Country Club

A 98 Villa
8.96 Hectare
Sanderson Group
Development

KOTARE PROPERTIES

KOTARE WETLANDS

A 9.26 Hectare
105 RESIDENTIAL
LOT SUBDIVISION

DRAFT

Lot 7
DP 461400

20.12

Lot 1
DP 453448

LOT 116
TE AWAMUTU COUNTRY CLUB
8.15 Ha

T1 - 20m wide

Lot 1
DP 516135

LOT 114
Road to Vest
3930 m²

LOT 115
TE AWAMUTU COUNTRY CLUB
8119 m²

Lot 3
DP 487281

LOT 112
1.0140 Ha
(SW Management)
RESERVE

SW

Sewer Pump

LOT 111
2700 m²
RESERVE

LOT 113
Road to Vest
1.7280 Ha

ROAD 2 (15m) - 100m

Lot 110 1091 m²

Walkway (6m)

Section 1
SO 466626
DRAFT

DATUM:
IRON BOLT
RL 80.45

Lot 3
DP 444190

25m x 15m Playground

ROAD 1 (20m) - 372m

ROAD 3 (18m) - 668m

FRONTIER ROAD Legal Road Sealed and In Use

Pt Allot 228
Mangapiko Psh

LOT 1
DPS 4408

AVERAGE RESIDENTIAL
LOT SIZE = 533m²

PROPERTY DETAILS:
LEGAL DESCRIPTION:
LOTS 1 & 2 DP 487281
– AREA: 18.2142 Ha
– COMPRISED IN 696840 / 696841
– WAIPA DISTRICT COUNCIL
– ZONING: RURAL

NOTES:

1. HEIGHTS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953
2. DATUM MARK IB 1 SO 466626 RL=80.45
3. CONTOUR INTERVAL 1.0m
4. AREAS AND DIMENSIONS SHOWN ARE SUBJECT TO FINAL SURVEY.

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PROJECT TITLE

SUBDIVISION CONCEPT PLAN

LOTS 1–116 BEING A SUBDIVISION
OF LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU

ALTERATION	JOB	SHEET
	4500	03
CAD CPM	ORIGINAL SCALE AT A3	REV 12
DATE 7 JULY 2020	1:2000	

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APPENDIX B – STORMWATER PRELIMINARY DESIGN PLANS

LEGEND:

- 39.0 CONTOURS (MAJOR 2.5m)
- 39.1 CONTOURS (MINOR 0.5m)
- SWD PROPOSED STORMWATER
- DEVELOPMENT BOUNDARY
- TREATMENT FLOW DIRECTION
- PERMANENT WATER LEVEL
- PROPOSED RETAINING WALL

WETLAND PLANTING ZONE AND DEPTHS

ZONE	COLOR	MINIMUM ELEVATION (m)	MAXIMUM ELEVATION (m)	2D AREA (m^2)
EPHEMERAL ZONE		0.200	0.000	500
SHALLOW MARSH ZONE		0.000	-0.200	1441
DEEP MARSH ZONE		-0.200	-0.400	1450
SUBMERGED MARSH ZONE		-0.400	-0.500	62
OPEN WATER		-0.500	-1.500	751

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No.	BY	DATE	DESCRIPTION	APPD
A	MRS	21/07/2020	ORIGINAL ISSUE	

SCALE (AT ORIGINAL SHEET SIZE) — SHEET SIZE A1

SCALE 4 2 0 4 8 12 16 20 1:400

NOTES

DESIGNED	MRS	CHECKED	
DRAWN	MRS	CHECKED	
APPROVED	HV	DATE	21/07/20

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www.wainuienvironmental.co.nz

CLIENT: Te Awamutu Country Club — KOTARE PROPERTIES

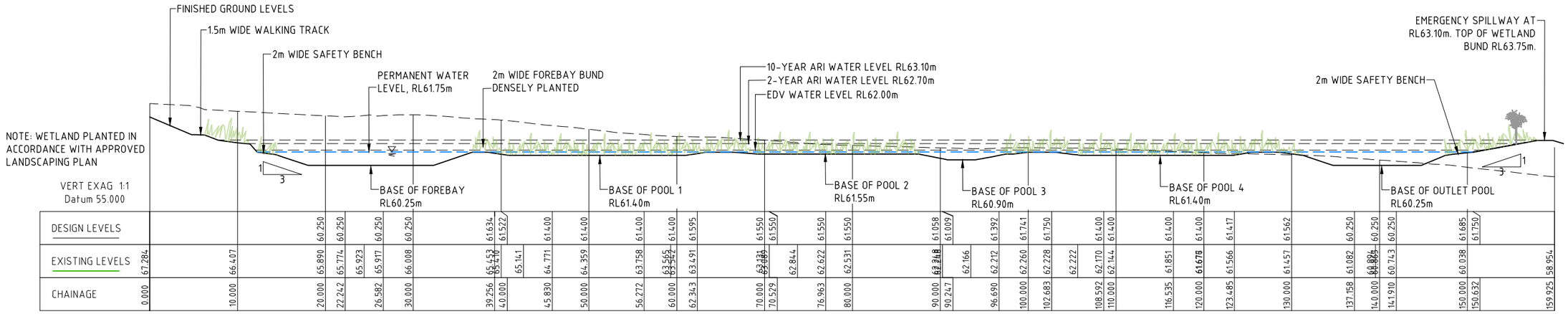
PROJECT: 52 FRONTIER ROAD TE AWAMUTU

STORMWATER WETLAND PLAN

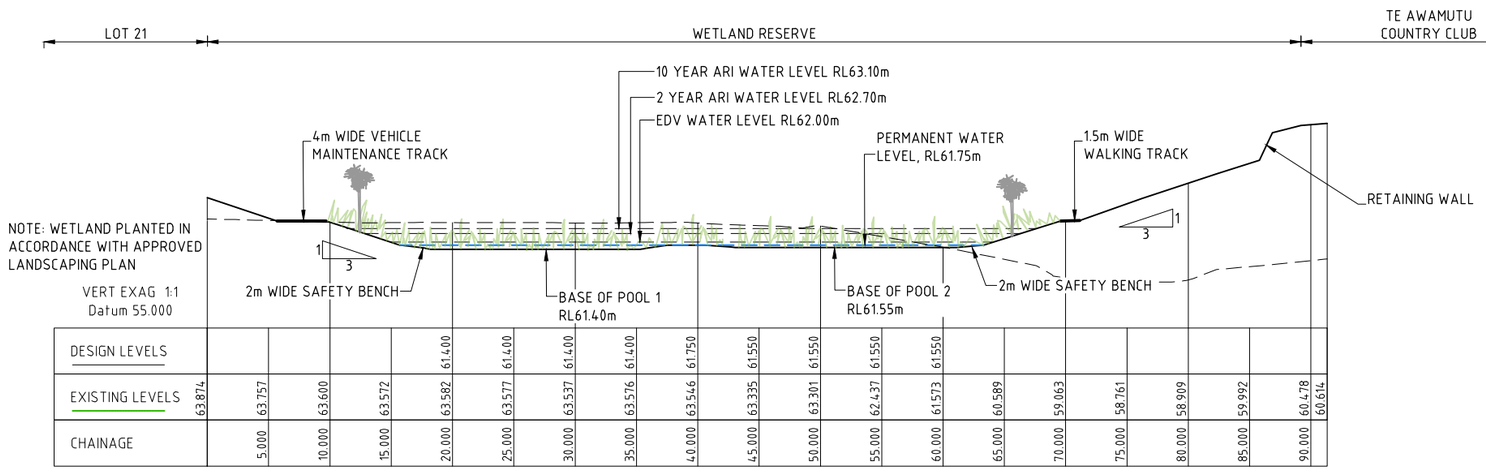
Status: PRELIMINARY

DRAWING NUMBER: WE2014- 400

Rev.: A



WETLAND LONG SECTION 1



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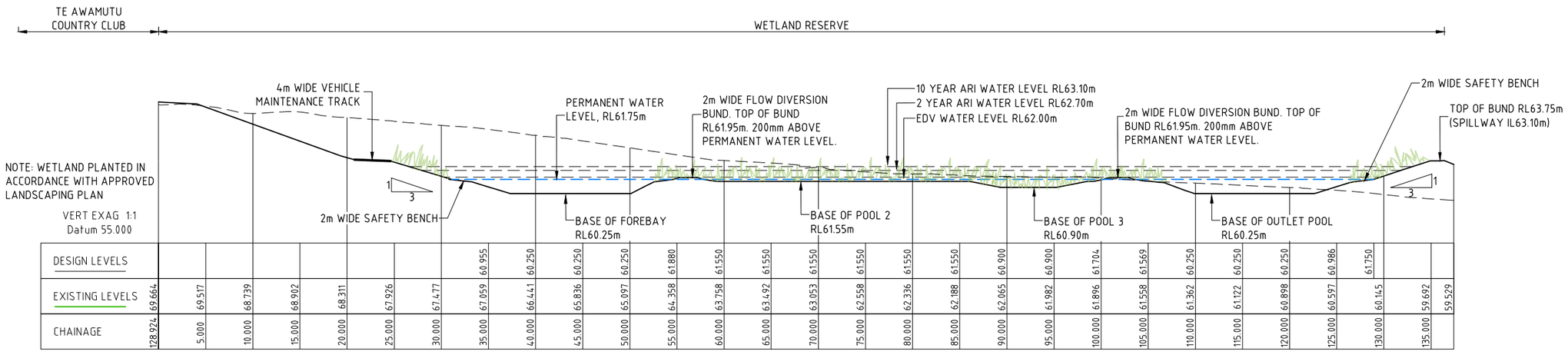

WETLAND LONG SECTION 3

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No.	BY	DATE	DESCRIPTION	APPD
A	MRS	21/07/2020	ORIGINAL ISSUE	

SCALE (AT ORIGINAL SHEET SIZE) — SHEET SIZE A1

SCALE 5 0 5 10 1:250

NOTES

DESIGNED	MRS	CHECKED	
DRAWN	MRS	CHECKED	
APPROVED	HV	DATE	21/07/20

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CLIENT: Te Awamutu Country Club; KOTARE PROPERTIES

PROJECT: 52 FRONTIER ROAD TE AWAMUTU

STORMWATER WETLAND TYPICAL SECTIONS

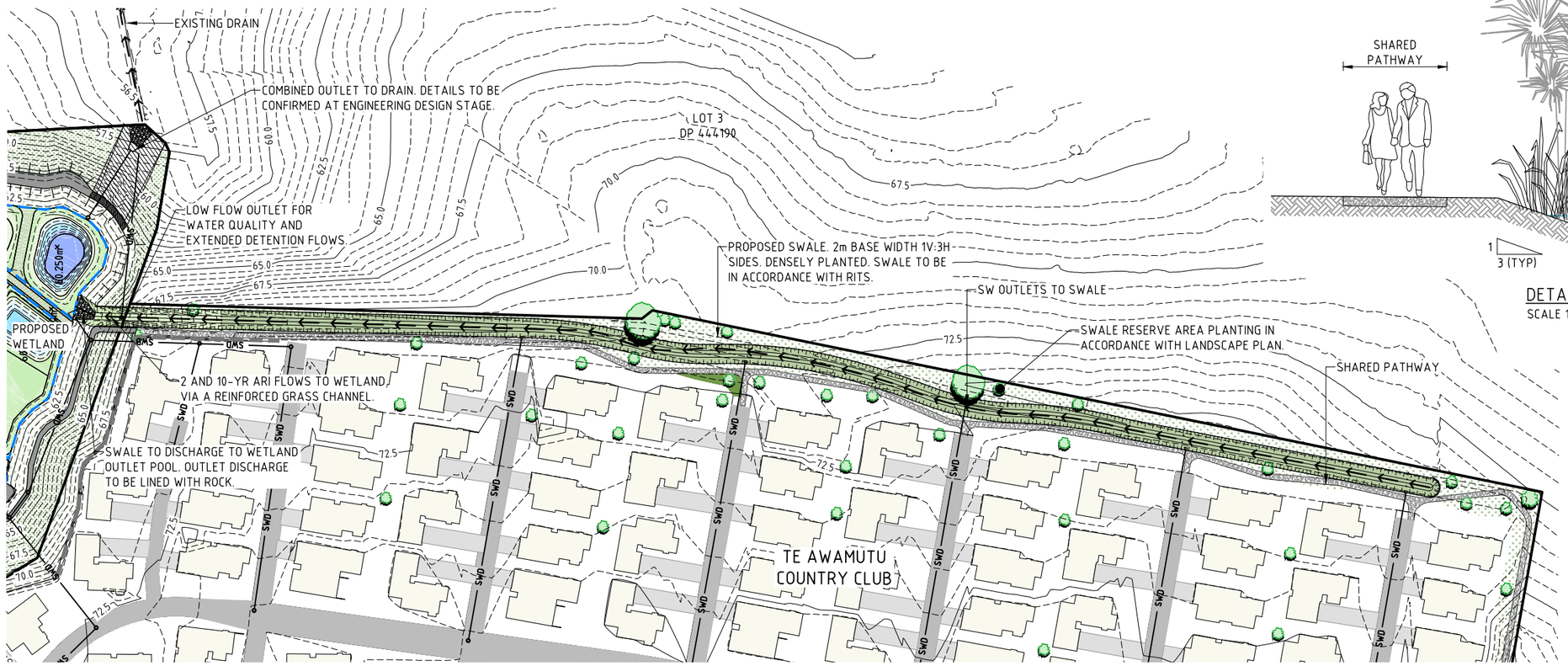
Status: PRELIMINARY

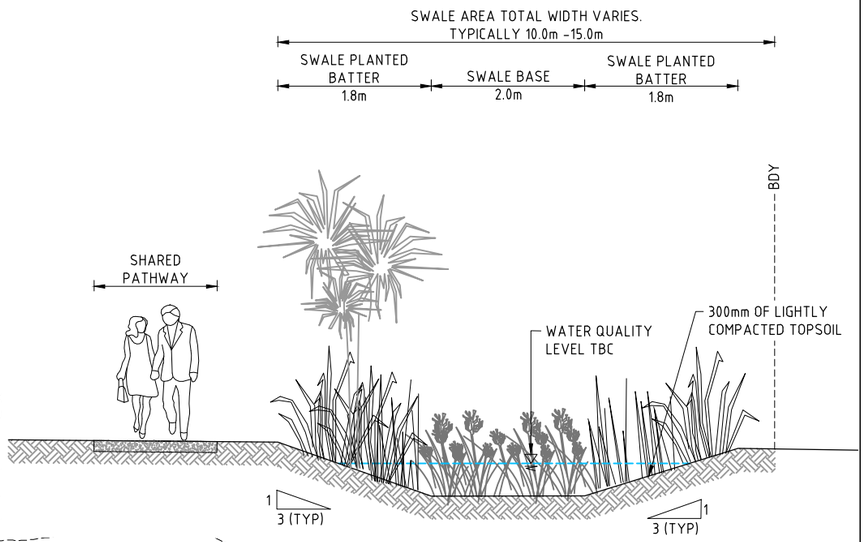
DRAWING NUMBER: WE2014- 420

Rev.: A

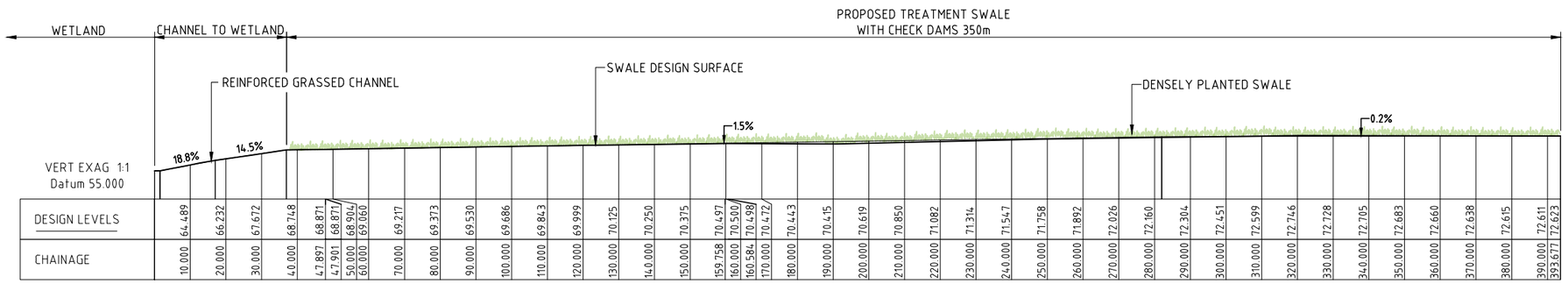
LEGEND:

- 39.0 EXISTING CONTOURS (MAJOR 5m)
- 39.1 EXISTING CONTOURS (MINOR 1m)
- SWD PROPOSED STORMWATER
- DEVELOPMENT BOUNDARY
- PROPOSED RETAINING WALL





DETAIL 1 - TYPICAL SWALE CROSS-SECTION
SCALE 1:75



SWALE LONG SECTION

This drawing is confidential and shall only be used for the purposes of this project.

No.	BY	DATE	DESCRIPTION	APPD
A	MRS	21/07/2020	ORIGINAL ISSUE	

SCALE (AT ORIGINAL SHEET SIZE) 1:750 (15 0 15 30)

SHEET SIZE A1

NOTES

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DRAWN	MRS	CHECKED	
APPROVED	HV	DATE	21/07/20

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CLIENT: Te Awamutu Country Club; KOTARE PROPERTIES

PROJECT: 52 FRONTIER ROAD TE AWAMUTU

STORMWATER SWALE
TYPICAL PLAN AND SECTIONS

Status: PRELIMINARY

DRAWING NUMBER: WE2014- 430

Rev.: A

APPENDIX C – STORMWATER DESIGN CALCULATIONS/MODELLING INFORMATION

LEGEND:

- 39.0 DESIGN CONTOURS (MAJOR 2.5)
- 39.1 DESIGN CONTOURS (MINOR 0.5)
- SWD EXISTING STORMWATER
- EXISTING HYDROLOGICAL CATCHMENTS
- PRE DEVELOPMENT CATCHMENTS
- DRAIN/FLOW LINES

EXISTING STREAM 'REACH 2'

EXISTING BASIN

EXISTING STREAM 'REACH 1'

EXISTING BASIN

ADOPTED PRE-DEVELOPED WETLAND CATCHMENT

KOTARE PROPERTIES PRE-DEVELOPED SUB-CATCHMENT AREA= 8.75Ha

FRONTIER ROAD PRE-DEVELOPED CATCHMENT AREA = 0.47Ha

TE AWAMUTU COUNTRY CLUB PRE-DEVELOPED SUB-CATCHMENT AREA= 8.55Ha

DEVELOPMENT BOUNDARY

WDC WATER RESERVOIR SUB-CATCHMENT AREA = 0.904Ha

FRONTIER ROAD

This drawing is confidential and shall only be used for the purposes of this project.

No.	BY	DATE	DESCRIPTION	APPD
A	MRS	21/07/2020	ORIGINAL ISSUE	

SCALE (AT ORIGINAL SHEET SIZE) SHEET SIZE A1

SCALE 25 0 25 50 1:1250

NOTES

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CLIENT Te Awamutu Country Club / KOTARE PROPERTIES

PROJECT 52 FRONTIER ROAD TE AWAMUTU

PRE-DEVELOPED SUB-CATCHMENT PLAN

Status PRELIMINARY

DRAWING NUMBER WE2014- 412

Rev. A

LEGEND:

- 39.0 DESIGN CONTOURS (MAJOR 2.5)
- 39.1 DESIGN CONTOURS (MINOR 0.5)
- SWD EXISTING STORMWATER
- CATCHMENT BOUNDARIES

EXISTING DRAIN 'REACH 2'

EXISTING BASIN

EXISTING DRAIN 'REACH 1'

PROPOSED WETLAND

PROPOSED SWALE

STORMWATER RESERVE SUB-CATCHMENT AREA =1.01Ha

FRONTIER ROAD SUB-CATCHMENT AREA = 0.47Ha. WQ, ED, 2 AND 2 AND 10 YEAR ARI FLOWS TO WETLAND

KOTARE PROPERTIES SUB-CATCHMENT AREA = 7.84Ha WATER QUALITY, EXTENDED DETENTION AND 2 AND 10-YR ARI FLOWS TO WETLAND

TE AWAMUTU COUNTRY CLUB SUB-CATCHMENT 'B' AREA= 4.43Ha WATER QUALITY, EXTENDED DETENTION FLOW TO SWALE. 2 AND 10-YR ARI FLOWS TO WETLAND

TE AWAMUTU COUNTRY CLUB SUB-CATCHMENT 'A' AREA = 4.92Ha WATER QUALITY, EXTENDED DETENTION AND 2 AND 10-YR ARI FLOWS TO WETLAND

WDC WATER RESERVOIR SUB-CATCHMENT AREA = 0.904Ha WATER QUALITY, EXTENDED DETENTION AND 2 AND 10-YR ARI FLOWS TO WETLAND

FRONTIER ROAD

This drawing is confidential and shall only be used for the purposes of this project.

No.	BY	DATE	DESCRIPTION	APPD
A	MRS	21/07/2020	ORIGINAL ISSUE	

SCALE (AT ORIGINAL SHEET SIZE) SHEET SIZE A1

SCALE 25 0 25 50 1:1250

NOTES

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CLIENT Te Awamutu Country Club / KOTARE PROPERTIES

PROJECT 52 FRONTIER ROAD TE AWAMUTU

POST-DEVELOPMENT CATCHMENT PLAN

Status PRELIMINARY

DRAWING NUMBER WE2014-414

Rev. A

calculation sheet

PRE-DEVELOPMENT - Hydrology

client: Sanderson Group Ltd
project: Frontier Road
job No. WE2014

computed: MRS
date: 27/07/2020
revision: 1

Notes:

SCS for Pervious is hydrologic soil group is C based on smaps information and soils observed durng site visit. Cover type is mostly pasture, grassland in good condition.

SCS Number is 74 in according to Table 2-2c from TR201802 WRC TR 2018.

CATCHMENT		KOTARE PROPERTIES PRE		TE AWAMUTU COUNTRY CLUB PRE		FRONTIER ROAD PRE		WDC WATER RESERVOIR PRE		TOTAL	
Total Area	Ha	8.7500		8.5500		0.4700		0.9040		18.6740	
	km^2	0.0875		0.0855		0.0047		0.0090		0.1730	
Fraction Impervious		0%		8%		36%		55%		3%	
		Perv	*Imperv*	*Perv*	*Imperv*	*Perv*	*Imperv*	*Perv*	*Imperv*	*Perv*	*Imperv*
Area	Ha	8.7500	0.0000	7.8863	0.6637	0.3024	0.1676	0.4080	0.4960	18.1628	0.5112
SCS Curve Number		74	98	74	98	74	98	74	98	74	98
CN (weighted)		74.0		75.9		82.6		87.2		74.7	
Initial Abstraction, Ia	mm	4.46	0.26	4.46	0.26	4.46	0.26	4.46	0.26	4.46	0.26
Weighted Initial Abstraction	mm	4.46		4.14		2.96		2.16		4.35	
Catchmemt Storage, S	mm	89.2	5.2	89.2	5.2	89.2	5.2	89.2	5.2	89.2	5.2
Channelisation Factor , C		1.0		1.0		1.0		1.0			
Catchment Length	km	0.404		0.366		0.404		0.404			
Catchment Slope, Sc	m/m	0.0530		0.0720		0.0530		0.0530			
Runoff factor (RF)		0.587		0.611		0.703		0.773			
Time of Concentration (tc)	hrs	0.25		0.21		0.23		0.21			
	min	14.94		12.49		13.53		12.85			
S (Slope)	%	5.300		7.200		5.300		5.300			
Mannings Surface roughness	n	0.030		0.030		0.030		0.030			
Length pf overland flow	m	404.000		366.000		404.000		404.000			
ToC (calculated)	min	15.573		14.178		15.573		15.573			
SCS Lag (tp)	min										
Adopted Tc	min	15.00		13.00		15.00		15.00			
SCS Lag (tp)	min	10.00		8.67		10.00		10.00			

calculation sheet

POST-DEVELOPMENT Catchment Hydrology

client: Sanderson Group Ltd
project: Frontier Road
job No. WE2014

computed: MRS
date: 27/07/2020
revision: 1

Notes:

2-YR 24-HR STORM DEPTH = 76.34 mm

		TE AWAMUTU COUNTRY CLUB						KOTARE PROPERTIES				EXTERNAL SUBCATCHMENTS				TOTAL	
		SUB-CATCHMENT A (TO WETLAND)		SUB-CATCHMENT B (WQ AND ED TO SWALE)		SUB-TOTAL		RESIDENTIAL DEVELOPMENT		STORMWATER RESERVE AREA		FRONTIER ROAD		WDC WATER RESERVOIR			
Total Area	ha	4.9200		4.4300		9.3500		7.8400		1.0310		0.4700		0.9040		19.6	
	km^2	0.0492		0.0443		0.0935		0.0784		0.0103		0.0047		0.0090		0.1960	
Site Impervious	%	75%		65%		70%		71%		40%		75%		55%		68%	
		Impervious	Pervious	Impervious	Pervious	Impervious	Pervious	Impervious	Pervious	Impervious	Pervious	Impervious	Pervious	Impervious	Pervious	Impervious	Pervious
Area	ha	3.685	1.235	2.886	1.544	6.571	2.779	5.579	2.261	0.412	0.619	0.353	0.118	0.496	0.408	13.410	6.185
	km^2	0.037	0.012	0.029	0.015	0.066	0.028	0.056	0.023	0.004	0.006	0.004	0.001	0.005	0.004	0.134	0.062
CN Weighted		93.23		91.38		92.35		92.52		86.60		93.25		87.17		92.00	
SCS Curve Number		98.0	79.0	98.0	79.0	98.0	79.0	98.0	79.0	98.0	79.0	98.0	79.0	98.0	74.0	98.0	79.0
Catchment Storage , S		5.18	67.52	5.18	67.52	5.18	67.52	5.18	67.52	5.18	67.52	5.18	67.52	5.18	89.24	5.18	67.52
Initial Abstraction, Ia		0.26	3.38	0.26	3.38	0.26	3.38	0.26	3.38	0.26	3.38	0.26	3.38	0.26	4.46	0.26	3.38
weighted Initial Abstraction, Ia		1.04		1.35		1.19		1.16		2.13		1.04		2.16		1.24	
Channelisation Factor , C		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Time of concentration, min		10		10		10		10		10		10		10		10	
SCS Lag (tp), min		6.67		6.67		6.67		6.67		6.67		6.67		6.67		6.67	
WQV STORAGE																	
1/3 24hr rainfall depth P24 mm		25.4	25.4			25.4	25.4	25.4	25.4			25.4	25.4	25.4	25.4	25.4	25.4
Runoff Depth, Q24 mm		20.890	5.438			20.890	5.438	20.890	5.438			20.890	5.438	20.890	3.995	20.890	5.438
Runoff Volume, V24 m3		769.77	67.2			1372.6	151.1	1165.4	123.0			73.6	6.4	103.6	16.3	2112.4	212.8
TOTAL WQV BY CATCHMENT		836.93				1523.73		1288.38				80.03		119.91		2325.25	
ED Provided ? (WQV *0.5)		418.46				761.86		644.19				40.01		59.96		1162.63	

Wetland

Water Quality Catchment Area (ha)	14.13	
Calculated WQV (m^3)	1162.63	
Adjusted volume to account for Planting (m^3)	1550.17	(Divide calculated WQV by 0.75 to account for planting)
Permanent Water Area (m2)	4000.44	2.830%
FOREBAY VOLUME (30% WQV) (m^3)	348.79	(30% of the adjusted WQV)

calculation sheet

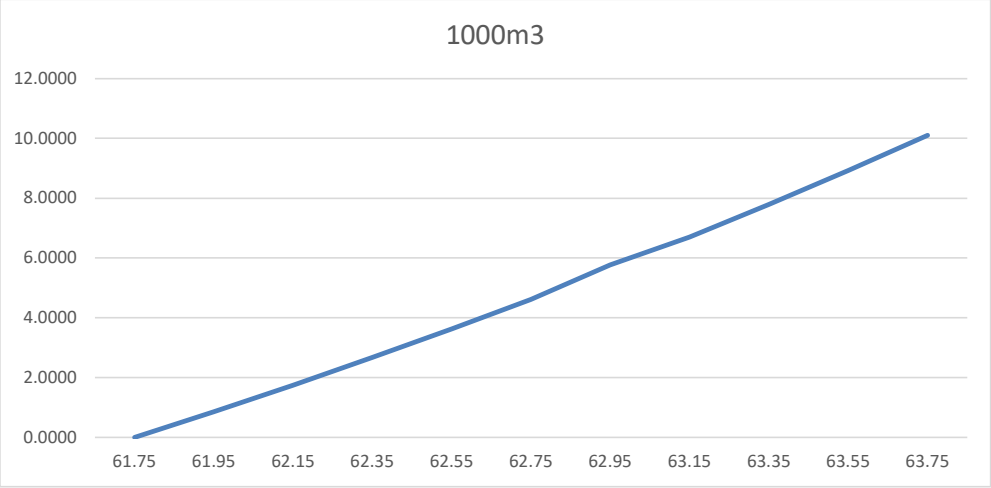
PRELIMINARY WETLAND STAGE AREA RELATIONSHIP

client: Sanderson Group Ltd
project: Frontier Road
job No. WE2014

computed: MRS
date: 27/07/2020
revision: 1

Wetland			
RL (m)	Total Volume(m^3)	Live Volume (m^3)	1000m^3
61.75	1652.00	0.00	0.0000
61.95	2508.00	856.00	0.8560
62.15	3398.36	1746.36	1.7464
62.35	4320.90	2668.90	2.6689
62.55	5276.60	3624.60	3.6246
62.75	6265.99	4613.99	4.6140
62.95	7421.45	5769.45	5.7695
63.15	8349.65	6697.65	6.6977
63.35	9445.07	7793.07	7.7931
63.55	10577.40	8925.40	8.9254
63.75	11754.79	10102.79	10.1028

Permanent Water Level Volume = 1652 m^3



calculation sheet

HEC HMS RESULTS

client:	Sanderson Group Ltd	computed:	MRS
project:	Frontier Road	date:	27/07/2020
job No.	WE2014	revision:	1

1. Pre-Developed Catchment Peak Flows

2 Yr-ARI

Project: 52 Frontier Road - For Cons Simulation Run: 01-2 Yr ARI Pre
Sink: Receiving Environment

Start of Run:	01Jan2000, 00:00	Basin Model:	Pre-Development
End of Run:	02Jan2000, 00:00	Meteorologic Model:	01- 2Yr ARI Pre-Dev
Compute Time:	DATA CHANGED, RECOMPUTE	Control Specifications:	24 hr

Volume Units: ○ MM ◉ 1000 M3

Computed Results

Peak Discharge:	1.12165 (M3/S)	Date/Time of Peak Discharge	01Jan2000, 12:16
Volume:	5.0014 (1000 M3)		

10 Yr-ARI

Project: 52 Frontier Road - For Cons Simulation Run: 02-10 yr ARI Pre
Sink: Receiving Environment

Start of Run:	01Jan2000, 00:00	Basin Model:	Pre-Development
End of Run:	02Jan2000, 00:00	Meteorologic Model:	02 -10Yr ARI Pre-Dev
Compute Time:	DATA CHANGED, RECOMPUTE	Control Specifications:	24 hr

Volume Units: ○ MM ◉ 1000 M3

Computed Results

Peak Discharge:	2.22629 (M3/S)	Date/Time of Peak Discharge	01Jan2000, 12:16
Volume:	9.4928 (1000 M3)		

calculation sheet

HEC HMS RESULTS

client: Sanderson Group Ltd
project: Frontier Road
job No. WE2014

computed: MRS
date: 27/07/2020
revision: 1

2. Pond Performance

Extended Detention

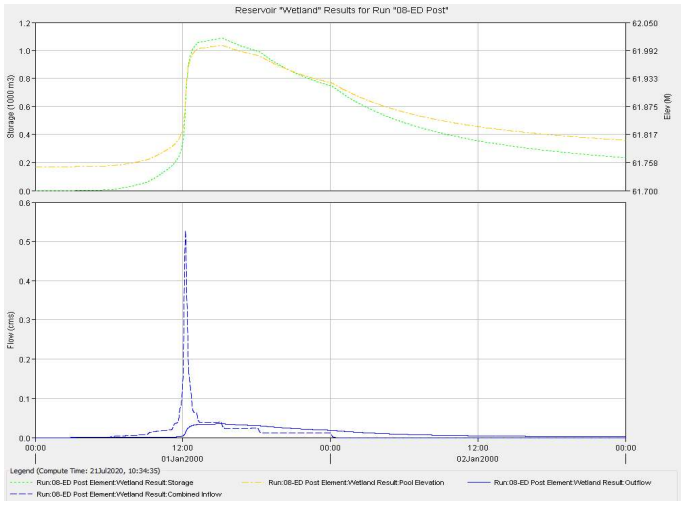
Project: 52 Frontier Road - For Cons Simulation Run: 08-ED Post
Reservoir: Wetland

Start of Run:	01Jan2000, 00:00	Basin Model:	Post-Development ED
End of Run:	03Jan2000, 00:00	Meteorologic Model:	08-ED Post
Compute Time:	21Jul2020, 10:34:35	Control Specifications:	48 hrs

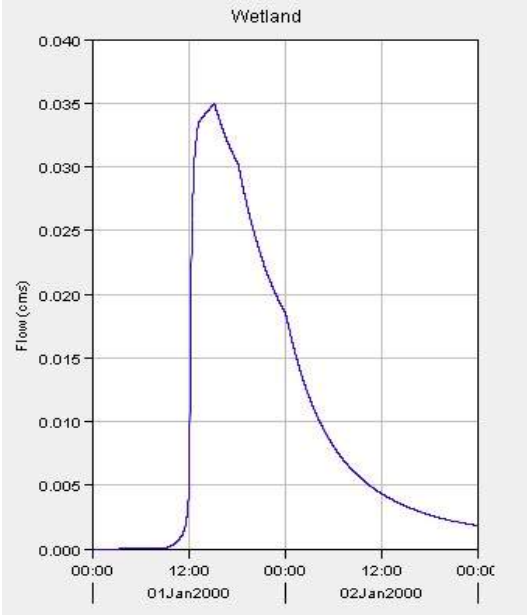
Volume Units: ○ MM ◉ 1000 M3

Computed Results

Peak Inflow:	0.52783 (M3/S)	Date/Time of Peak Inflow:	01Jan2000, 12:13
Peak Discharge:	0.03493 (M3/S)	Date/Time of Peak Discharge:	01Jan2000, 15:11
Inflow Volume:	1.9529 (1000 M3)	Peak Storage:	1.0884 (1000 M3)
Discharge Volume:	1.7178 (1000 M3)	Peak Elevation:	62.0022 (M)



Extended Detention Outlet Outflow



calculation sheet

HEC HMS RESULTS

client: Sanderson Group Ltd
project: Frontier Road
job No. WE2014

computed: MRS
date: 27/07/2020
revision: 1

2Yr-ARI

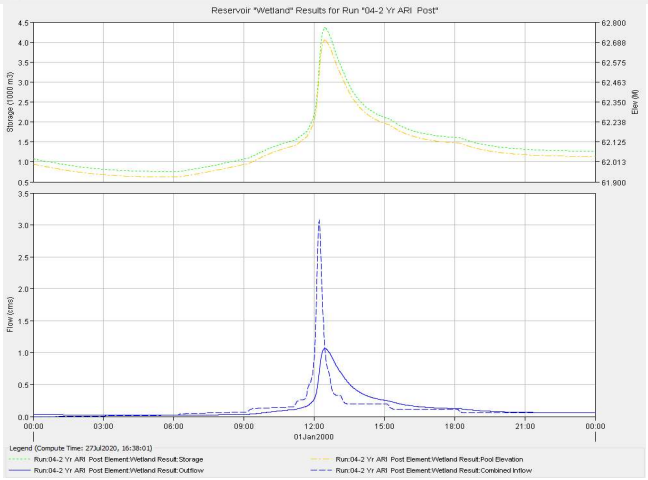
Project: 52 Frontier Road - For Cons Simulation Run: 04-2 Yr ARI Post
Reservoir: Wetland

Start of Run:	01Jan2000, 00:00	Basin Model:	Post-Development
End of Run:	02Jan2000, 00:00	Meteorologic Model:	04-2Yr ARI Post-Dev
Compute Time:	27Jul2020, 16:38:01	Control Specifications:	24 hr

Volume Units: ◯ MM ◉ 1000 M3

Computed Results

Peak Inflow:	3.06193 (M3/S)	Date/Time of Peak Inflow:	01Jan2000, 12:13
Peak Discharge:	1.06911 (M3/S)	Date/Time of Peak Discharge:	01Jan2000, 12:27
Inflow Volume:	11.3972 (1000 M3)	Peak Storage:	4.3561 (1000 M3)
Discharge Volume:	11.2084 (1000 M3)	Peak Elevation:	62.6979 (M)



10Yr-ARI

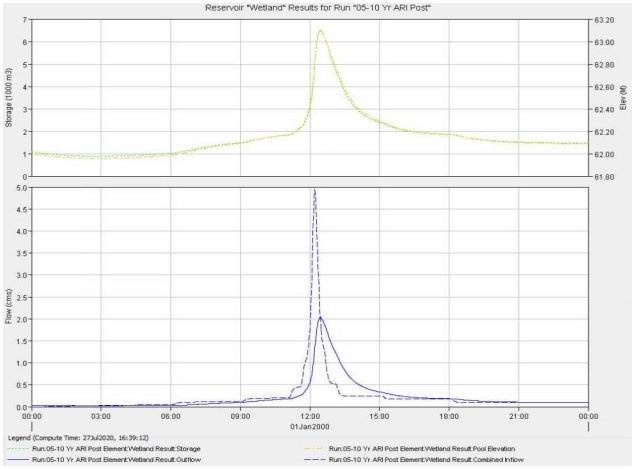
Project: 52 Frontier Road - For Cons Simulation Run: 05-10 Yr ARI Post
Reservoir: Wetland

Start of Run:	01Jan2000, 00:00	Basin Model:	Post-Development
End of Run:	02Jan2000, 00:00	Meteorologic Model:	05-10Yr ARI Post-Dev
Compute Time:	27Jul2020, 16:39:12	Control Specifications:	24 hr

Volume Units: ◯ MM ◉ 1000 M3

Computed Results

Peak Inflow:	4.93366 (M3/S)	Date/Time of Peak Inflow:	01Jan2000, 12:13
Peak Discharge:	2.03526 (M3/S)	Date/Time of Peak Discharge:	01Jan2000, 12:27
Inflow Volume:	18.8945 (1000 M3)	Peak Storage:	6.4821 (1000 M3)
Discharge Volume:	18.4931 (1000 M3)	Peak Elevation:	63.1036 (M)



calculation sheet

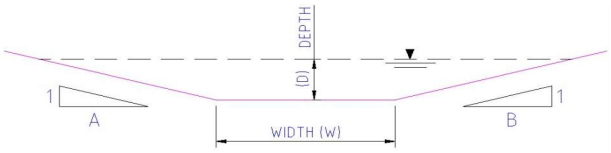
WATER QUALITY TREATMENT SWALE DESIGN

client:	Sanderson Group Ltd	computed:	MRS
project:	Frontier Road	date:	27-Jul-20
job No.	WE2014	revision:	A

TREATMENT SWALE

WQ Conveyance for treatment swale		
Catchment Area (ha)	4.430	
	IMP.	PERV.
% Impervious	75%	25%
Area (ha)	3.323	1.108
2yr-24hr Rainfall Depth (mm)	76	76
WQD Depth , P_{24} (mm)	25.45	25
Peak Rainfalll rate (mm/hr)	17.2	17.2
Weighted CN	98	79.00
Ia (mm)	0.26	3.38
Runoff Storage S (mm)	5.18	67.52
Rainfall/runoff	0.91	0.23
Peak runoff rate (m^3/s)	0.14486	0.012
Peak catchment runoff (m^3/s)	0.15693	
Peak catchment runoff damped (m^3/s)	0.1397	
Swale length (m)	315	
WQ velocity (m/s)	0.175	
Residence time (mins)	33.78	

10 year Conveyance		
Catchment Area (ha)	4.430	
	IMP.	PERV.
% Impervious	75%	25%
Area (ha)	3.323	1.108
C Runoff Coef	0.80	0.40
Weighted C Runoff Coef	0.70	
Peak rainfall rate (10yr 10min)	113	
Peak runoff rate (m^3/s)	0.976	



PARAMETERS TABLE

W	**2.00**	Channel width in metres
A	**3**	Grade of left hand channel bank.
B	**3**	Grade of right hand channel bank.
S	**1.5**	Slope of channel bed in percent.
n	**0.25**	Manning's "n" which is the channel roughness
n_{10}	**0.100**	Manning's "n" which is the channel roughness. 10 year event
d_{WQ}	**0.285**	flow Depth - WQ Event
d_{10}	**0.49**	flow Depth - 10year ARI event
L	**355**	Swale length

OPEN CHANNEL FLOW CALCULATIONS -WATER QUALITY STORM

FLOW AREA m^2	WET PERIM. m	HYDRAULIC RADIUS m	FLOW RATE m^3/s	VELOCITY m/s	D-V PRODUCT	Residence Time
0.814	**3.80**	**0.21**	**0.1425**	**0.175**	**0.050**	**33.78**

OPEN CHANNEL FLOW CALCULATIONS - 10 YEAR ARI EVENT

FLOW AREA m^2	WET PERIM. m	HYDRAULIC RADIUS m	FLOW RATE m^3/s	VELOCITY m/s	D-V PRODUCT
1.676	**5.07**	**0.33**	**0.9810**	**0.585**	**0.284**

Notes

1 This spreadsheet calculates flow in an open channel using Manning's equation.

2 Typical roughness values are:

Concrete	0.013
Bitumen	0.015
Turf	0.032
Med grass	0.035
Long grass	0.050
Heavy weeds	0.050
Dense brush	0.100

For further examples of Manning's n refer OPEN-CHANNEL HYDRAULICS by Chow

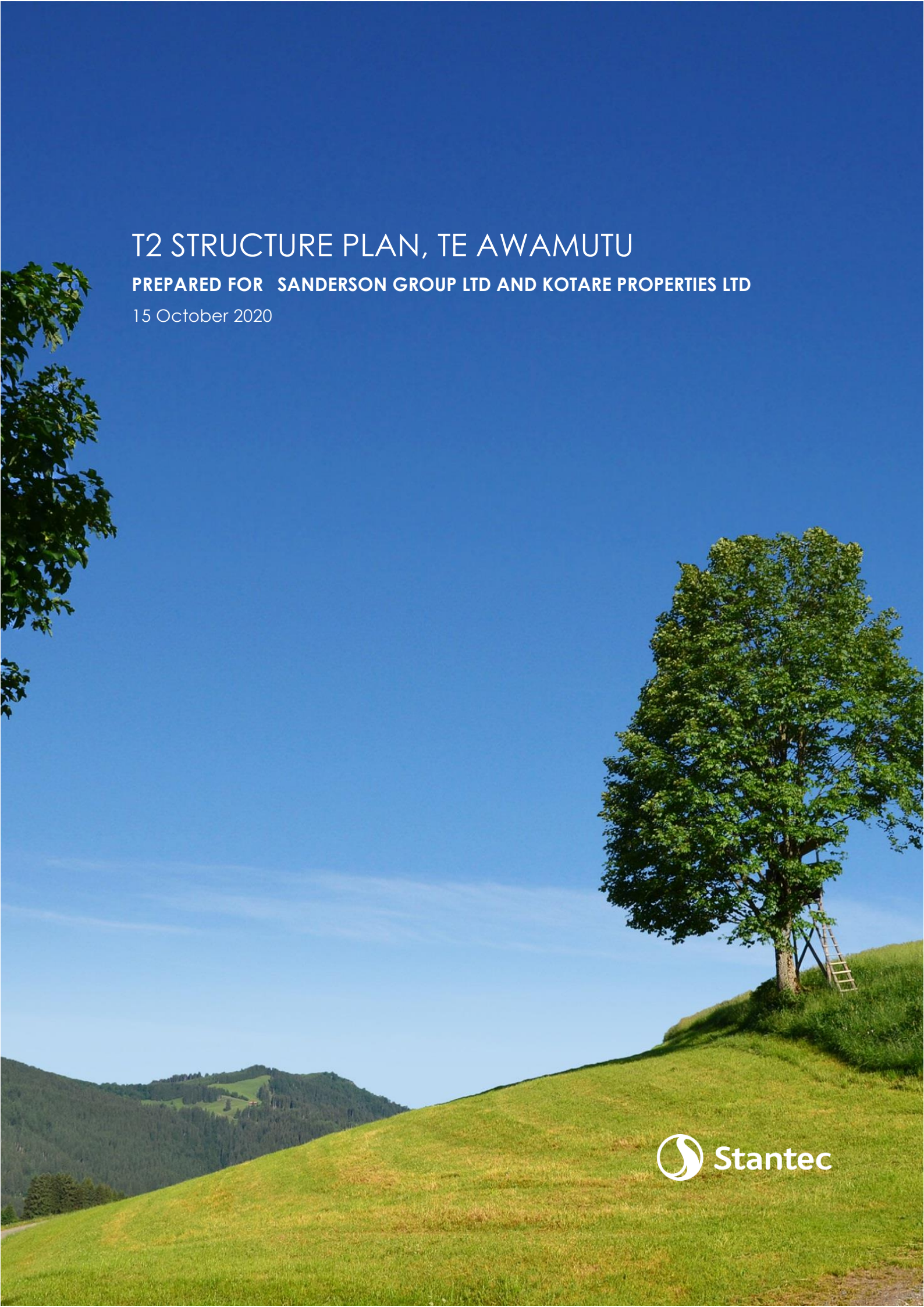
3 The table of parameters to be specified refer to the following design channel.

4 Rectangular channel can be modelled by setting "A" and "B" to equal zero.

T2 STRUCTURE PLAN, TE AWAMUTU

PREPARED FOR SANDERSON GROUP LTD AND KOTARE PROPERTIES LTD

15 October 2020



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This disclaimer shall apply notwithstanding that the report may be made available to Waipa District Council and other persons for an application for permission or approval to fulfil a legal requirement.

QUALITY STATEMENT

PROJECT MANAGER	PROJECT TECHNICAL LEAD
Mark Apeldoorn	Anna Wilkins

PREPARED BY		
Anna Wilkins and Mark Apeldoorn	.....	15/10/2020
CHECKED BY		
Mark Apeldoorn	.....	15/10/2020
REVIEWED BY		
Mark Apeldoorn	.....	15/10/2020
APPROVED FOR ISSUE BY		
Mark Apeldoorn	.....	15/10/2020

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REVISION SCHEDULE

Rev No.	Date	Description	Signature or Typed Name (documentation on file)			
			Prepared by	Checked by	Reviewed by	Approved by
1	27/7/20	Client Draft	MA/AW	MA	MA	MA
1	11/08/20	Final for Lodgement	MA/AW	MA	MA	MA
2	15/10/20	Final SP for Notification	MA/AW	MA	MA	MA

Abbreviations

AADT	Annual Average Daily Traffic
CAS	Crash Analysis System
COPTTM	Code of Practice for Temporary Traffic Management
CTMP	Construction Traffic Management Plan
DP	District Plan
HCVs	Heavy Commercial Vehicles
HGV	Heavy Goods Vehicle
ITA	Integrated Transportation Assessment
km/h	Kilometers per hour
RLTP	Regional Land Transport Plan
RPTP	Regional Public Transport Plan
RPS	Regional Policy Statement
vpd	Vehicles per day
vph	Vehicles per hour
WDC	Waipa District Council

Sanderson Group Ltd and Kotare Properties Ltd and Kotare Properties Ltd

T2 Structure Plan, Te Awamutu

CONTENTS

Abbreviations 2
1. Introduction 5
2. Site Location 5
3. Strategic Planning Context 7
3.1 Waipa 2050 District Growth Strategy 7
3.2 Future Proof Sub-Regional Growth Strategy 8
3.3 Regional Policy Statement (RPS) 8
3.4 Waikato Regional Land Transport Plan (RLTP) 8
3.5 Waikato Regional Public Transport Plan (RPTP) 8
3.6 Waipa District Council 10-year Plan 9
4. Existing Transport Environment 9
4.1 Road Hierarchy 9
4.2 Physical Road Environment 10
5. Future Transport Environment 11
6. Traffic Volumes 12
7. Road Safety 12
8. Proposed Structure Plan 13
8.1 Overview 13
8.2 Internal Road Network 14
8.3 External Road Network 15
8.4 Network Connections 17
8.5 Pedestrian and Cycle Access 18
9. Traffic Generation 18
9.1 Land Use Assumptions 18
9.2 Traffic Generation Rates 18
10. Transport Effects, Management and Design 20
10.1 Traffic Volumes 20
10.2 Intersection Operation 23
10.3 Visibility 24
10.4 Intersection Spacing 25
10.5 Road Safety Effects 25
11. District Plan 25
11.1 Rules 25
11.2 Objectives and Policies 28
11.3 Waipa Integrated Transport Strategy 33

12. Conclusions and Recommendations 34

LIST OF TABLES

Table 8-1: Local Road (18-20m) cross-section summary 14
Table 8-1: Local Road (15-16m) cross-section summary 15
Table 8-1: Frontier Road cross-section summary 16
Table 8-1: Pirongia Road cross-section summary 17
Table 9-1: Traffic Generation Assessment 19
Table 9-2: Total T2 Growth Cell Traffic Generation 20
Table 10-1: Traffic Volume Forecasts, Frontier Road 21
Table 10-2: Traffic Volume Forecasts, Pirongia Road 22
Table 10-3: Frontier Road SIDRA Analysis 2032 AM Peak Hour 23
Table 10-4: Frontier Road SIDRA Analysis 2032 PM Peak Hour 23
Table 10-5: Pirongia Road SIDRA Analysis 2032 AM Peak Hour 24
Table 10-6: Pirongia Road SIDRA Analysis 2032 PM Peak Hour 24
Table 11-1: District Plan Rule Assessment 26
Table 11-2: Objective and Policy Assessment 28
Table 11-3: WITS Objective Assessment 33

LIST OF FIGURES

Figure 2-1: Site Location 6
Figure 2-2: Structure Plan area 6
Figure 3-1: Urban Growth Plan (Waipa 2050 Figure 5) 7
Figure 4-1: Site location in context of WDC Road Hierarchy 9
Figure 4-2: T1 Structure Plan (Source: District Plan Appendix S17) 10
Figure 4-3: Frontier Road looking west towards Structure Plan area 11
Figure 4-4: Pirongia Road looking west towards Structure Plan area 11
Figure 8-1: Proposed Structure Plan Layout 13
Figure 10-1: Traffic Volume Locations on Frontier Road in relation to T1 and T2 20
Figure 10-2: Traffic Volume Locations on Pirongia Road in relation to T1 and T2 21
Figure 10-3: Forecast Traffic Volumes on Frontier Road 22

1. Introduction

Sanderson Group is a family orientated, leading provider of high-quality retirement villages in New Zealand. Established in 1987, Sanderson have been involved in a number of retirement village developments in Tauranga, Queenstown and Hamilton. They currently operate the Omokoroa Country Estate and the Tamahere Country Club is currently under construction. The Waikato population has shown a strong interest for a Sanderson Group retirement village to be established in Te Awamutu.

Kotare Properties Ltd is a residential subdivision land development business. It has a well-established track record of producing residential living environments aligned with safe, multi-modal, integrated arrangements.

The site located at 10 Frontier Road and 52 Frontier Road, at the western extent of Te Awamutu has been identified as being an ideal location for the village and residential subdivision. The site is mostly vacant and is currently operated as part of a dairy farm, however it contains an existing dwelling at the northern part of the site.

The site is within the boundaries of the Waipa District and is therefore subject to the objectives, policies and rules of the Waipa District Plan.

Sanderson Group together with Kotare Properties propose a plan change to the Waipa District Plan to rezone the Growth Cell and insert a Structure Plan, opening it up for residential development to occur now. Sanderson's have been unable to find a suitable site in the currently zoned area of Te Awamutu or in any of the open growth cells. They require a large land area of some 9ha. Therefore, the proposed retirement village will take up approximately one quarter of Growth Cell T2 providing the critical mass for extension of services from neighbouring land. The plan change will be Plan Change 12 to the Waipa District Plan.

Once the Plan Change is made operative, the Growth Cell will be zoned Residential and will therefore be subject to the objectives, policies and rules of the Residential Zone. An application will then be made for resource consent for the retirement village and also the Kotare Properties residential portion of the land with frontage to Frontier Road.

This report is the Integrated Transportation Assessment (ITA) for the Plan Change. By way of an overall summary, it is concluded that the traffic and transport elements of the plan change have been appropriately established by way of the proposed Structure Plan, ensuring future multi-modal integration of the T2 growth cell with the greater Te Awamutu urban area and appropriate alignment with the objectives and policies of the relevant Regional and District Plans.

2. Site Location

The Structure Plan area is located on Frontier Road (in the south) and Pirongia Road (in the north) on the western wide of Te Awamutu. The site location is shown on Figure 2-1.

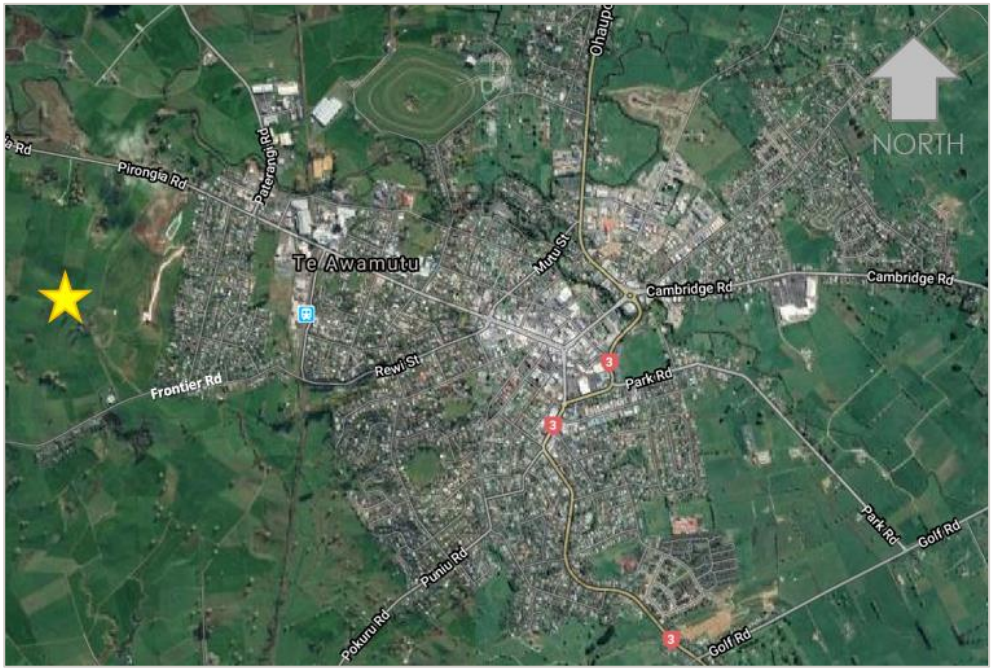

Figure 2-1: Site Location

The area is zoned Deferred Residential by the Waipa District Council District Plan. It sits adjacent to the T1 growth cell, which has an approved Structure Plan in place for residential use and is currently under construction in stages, commencing from the northern Pirongia Road end.

The area is currently used for farming, with associated rural dwellings and buildings. The local context, title boundaries and growth cell boundary are shown on Figure 2-2. The approved layout of the T1 cell is also shown.

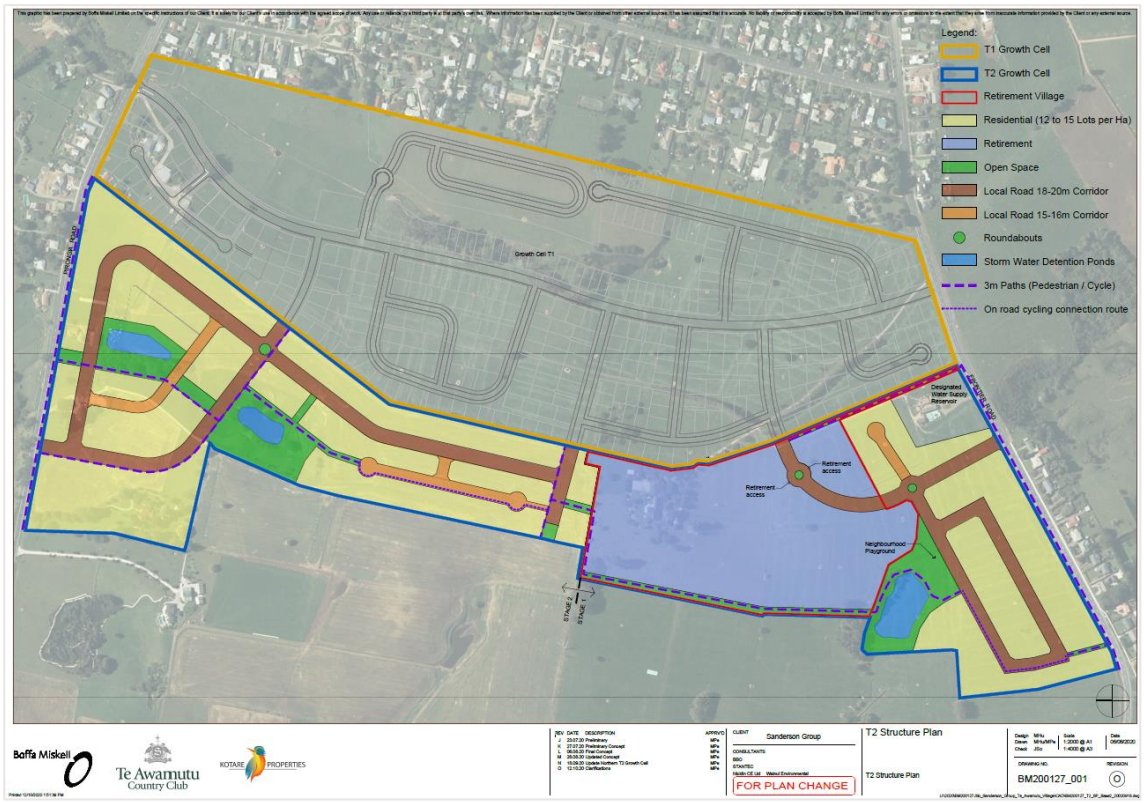

Figure 2-2: Structure Plan area

The surrounding land use is predominantly rural to the west and urban to the east. There is also a strip of residential properties on the southern side of Frontier Road opposite the site.

The Plan Change includes the following properties:

- 52 Frontier Road (Lot 1 DPS 487281), with an area of 15.6786ha; and
- 10 Frontier Road (Lot 1 DPS 487281), with an area of 2.5307ha;
- No physical address (Lot 7 DPS 461400), with an area of 9.3ha (2.8334ha of which is in T2);
- 1/51 and 65 Pirongia Road (Lot 2 DPS 534367), with an area of 11.7887ha (5.9648ha of which is in T2);
- No physical address (Lot 3 DPS 478844), with an area of 0.788ha;
- 2/51 Pirongia Road (Lot 1 DPS 534367), with an area of 0.7288 ha (0.1617 ha of which s in T2);
- 67 Pirongia Road (Lot 1 DPS 514120), with an area of 1.6389ha;
- 39 Pirongia Road (Lot 1 DPS 327266) with an area of 0.9743ha; and
- No physical address (Lot 2 DPS 457600) with an area of 4.0637ha.

3. Strategic Planning Context

3.1 Waipa 2050 District Growth Strategy

Waipa 2050 provides direction as to how and where an additional 25,000 people will be accommodated in the Waipa District (between 2017 and 2050), whilst retaining the special features of the District.

Te Awamutu and Kihikihi are expected to grow to a total of 18,400 people by 2050, an increase of 5,400 on the 2017 population. This is equivalent to annual growth of 104 households. Compact housing such as retirement villages is expected to make up 20% of the growth in Te Awamutu.

The site is within the 'T2' area of the Urban Growth Plan. This a 41ha growth cell identified for future residential development (beyond 2035. As shown on Figure 3-1 below, T2 sits on the western edge of Te Awamutu, abutting the T1 growth cell currently under construction.

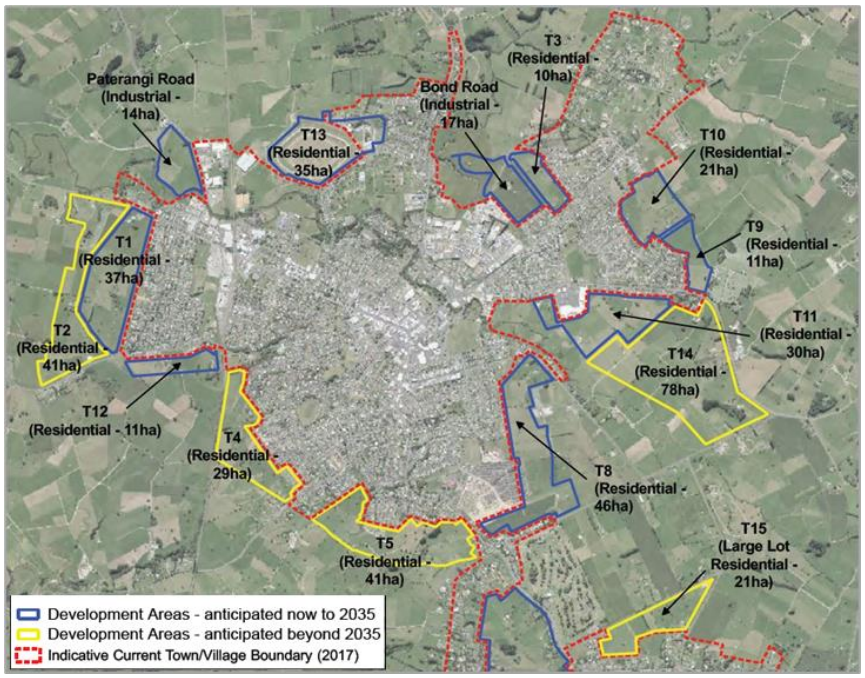

Figure 3-1: Urban Growth Plan (Waipa 2050 Figure 5)

The T1 growth cell accommodates some 37ha of residential land. It is identified for growth before 2035 and it has an approved structure plan in place.

In relation to transport, Waipa 2050 recognises "maintain, develop and enhance efficient transport networks" as a key District Challenge (Table 5). The consequential matter to consider is implementation of sustainable transport networks.

The implementation of Waipa 2050 is enabled primarily by the District Plan, as well as Structure Plans and the Council's 10-year Plan.

3.2 Future Proof Sub-Regional Growth Strategy

The Future Proof Strategy is a 30-year growth management and implementation plan specific to the Hamilton, Waipa and Waikato sub-region. Future Proof sets out how the area should develop into the future.

In relation to Te Awamutu and transport, the Strategy includes better public transport and improved opportunities for walking and cycling, and increased densities within the existing town boundaries including a range of housing choices and densities.

In relation to residential development generally, Future Proof includes the following relevant principles:

- Promote increased densities in new residential development and more intensive redevelopment of existing urban areas.
- Ensure development is planned to support safe and efficient transport infrastructure, including public transport provision and reduced dependence on motor vehicles.
- Recognise the need for stronger links between land-use and transport in respect of the settlement pattern and ensure capacity is matched with development potential.

3.3 Regional Policy Statement (RPS)

The purpose of the RPS is to provide an overview of the how the Waikato Region will manage its natural and physical resources. It describes the issues, policies and methods to achieve integrated management. The RPS must be given effect to by the Waipa District Council District Plan.

The RPS (Policy 6.1) recognises the importance of planned and co-ordinated subdivisions and integrating land use development with transport infrastructure. A key aspect of information required to support new urban development is the demonstration of multi-modal transport connections with the subdivision, to neighbouring areas and to existing transport infrastructure.

3.4 Waikato Regional Land Transport Plan (RLTP)

The Regional Land Transport Plan (RLTP) sets the strategic direction for land transport in the Region. It was most recently updated in 2018. It describes what the region is aiming to achieve for the land transport system and how this will contribute to an effective, efficient and safe land transport system, as required under the Land Transport Management Act 2003 (LTMA).

The RLTP includes two projects of relevance to Te Awamutu. The Hamilton to Te Awamutu and Te Awamutu to Kihikihi sections of SH3 are both identified for safer corridor works. Implementation is indicated in the 2020/21 year.

3.5 Waikato Regional Public Transport Plan (RPTP)

The Waikato Regional Public Transport Plan (RPTP) sets the objectives and policies for public transport in the Waikato region. It outlines a future plan for the public transport network and development plans for the next 10 years (2018-2028).

In relation to Te Awamutu it includes a vision to implement mass transit start up projects including frequent public transport service between Te Awamutu and Hamilton, in the next 10 years.

3.6 Waipa District Council 10-year Plan

The 10-year Plan sets Council's direction over the ten-year period 2018-2028. It explains what Council's activities will be and how they will be funded.

The Plan does not contain any specific transport projects in the vicinity of the site. As expected, the Plan does not include any works to support the T2 growth cell, as it identified in Council's planning as being beyond a 35-year horizon.

4. Existing Transport Environment

4.1 Road Hierarchy

Frontier Road is classified as a Local Road, adjacent to the site, in the District Plan Road Hierarchy (Appendix T5). Approximately 300m east of the site it changes into Rewi Street which is classified as a Collector Road.

Pirongia Road is classified as a Collector for its full length from Te Awamutu to Pirongia. At its eastern end it changes into Alexandra Street which is a Minor Arterial.

State Highway 3 (SH3) forms the north-south Major Arterial route through Te Awamutu. It is supported by Park Road and Cambridge Road, which provide east-west connections. The site location in the context of the road hierarchy is shown on Figure 4-1 below.

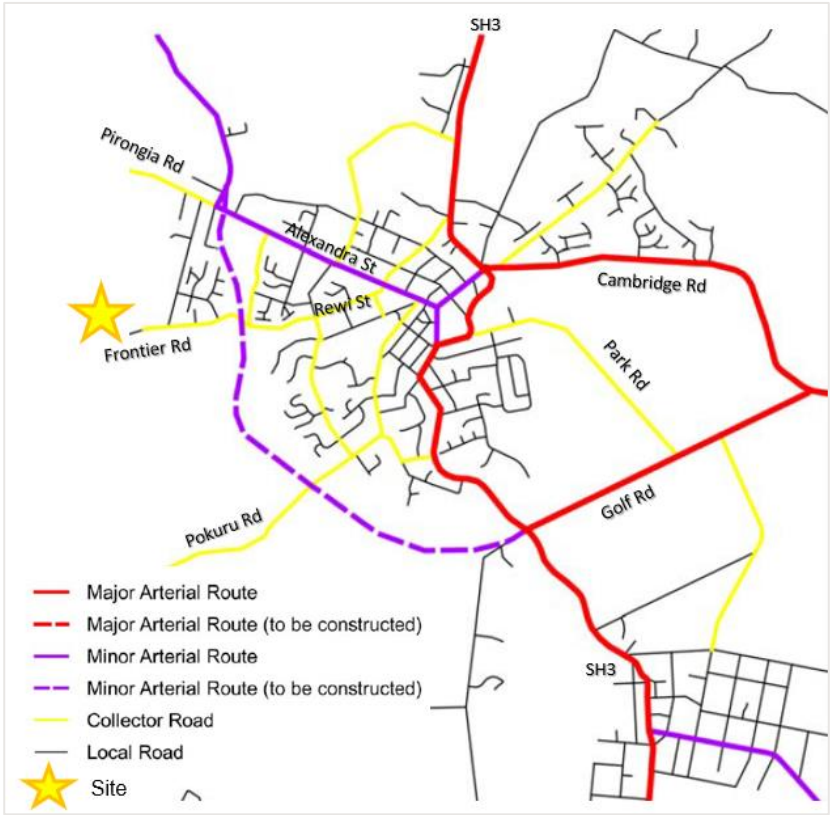

Figure 4-1: Site location in context of WDC Road Hierarchy

The proposed minor arterial route (shown with a dashed purple line) is the Western Arterial Designation (DN154). A corridor is designated to connect Paterangi Road in the north to Kihikihi Road in the south.

The road hierarchy for the adjacent T1 growth cell has a central 'spine road' connecting between Frontier Road and Pirongia Road. The approved Structure Plan is illustrated on Figure 4-2.

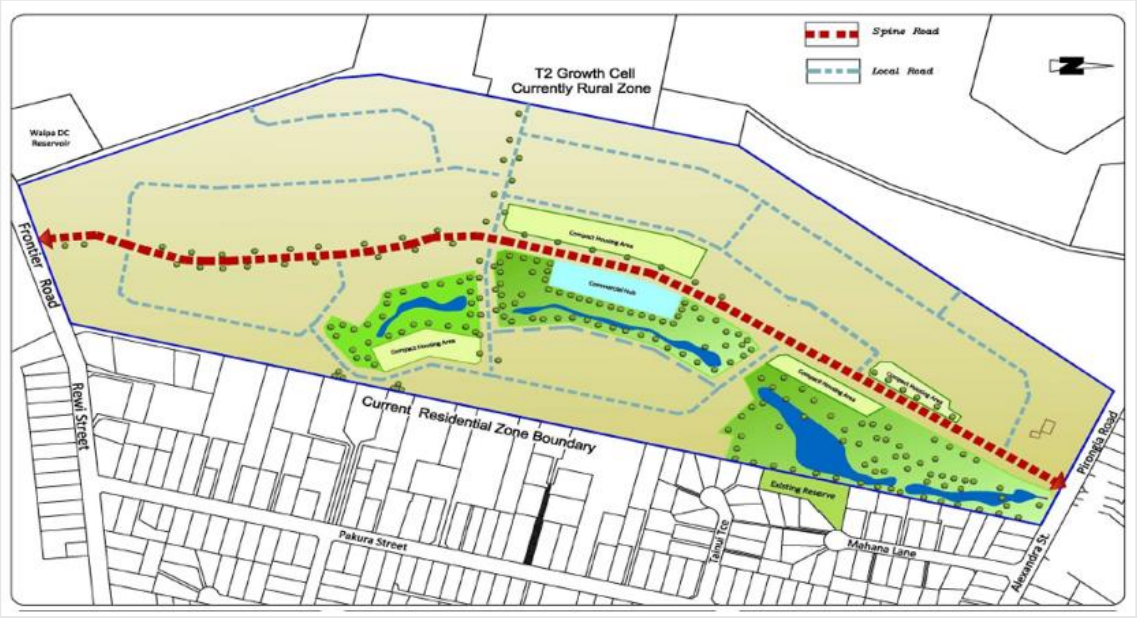

Figure 4-2: T1 Structure Plan (Source: District Plan Appendix S17)

Provision has been made in the approved T1 Structure Plan for three local road connections into the T2 growth cell.

4.2 Physical Road Environment

4.2.1 Frontier Road

Frontier Road has a 20m legal width. The posted speed limit along the Structure Plan area frontage is 60km/h. This changes to 50km/h east of the site as Frontier Road enters the urban area of Te Awamutu. To the west of the Structure Plan area, and beyond the existing residential properties on Frontier Road, it increases to 80km/h.

The connection point to the Structure Plan area is located approximately 80m west of the existing reservoir access. In this area, Frontier Road provides two 3.5m wide traffic lanes. It has sealed shoulders typically 1.2m on the southern side and 0.6m on the northern side. There is a 1.2m wide concrete footpath on the southern side of the road. This changes to asphalt surfacing to the east. The form of Frontier Road in this area is shown below in Figure 4-3.

Figure 4-3: Frontier Road looking west towards Structure Plan area

4.2.2 Pirongia Road

Pirongia Road has a 20m legal width and a typically 7.6m wide carriageway along the frontage of the Structure Plan area. At the eastern end of the Structure Plan area the posted speed limit is 50km/h. This changes to 100km/h (in the form of a speed derestriction sign) just to the east of 51 Pirongia Road.

The connection point to the Structure Plan area is located to the west of the existing access to 51 Pirongia Road. In this area, Pirongia Road provides one traffic lane in each direction with minimal sealed shoulders. Figure 4-3 shows the form of Pirongia Road approaching the Structure Plan area.

Figure 4-4: Pirongia Road looking west towards Structure Plan area

4.2.3 Walking/Cycling Facilities

There is a footpath on the southern side of Frontier Road, with a mixture of concrete and asphalt surfacing. There is a concrete footpath on the northern side of Pirongia Road, starting opposite the Structure Plan area at the existing extent of the urban area.

Cyclists currently share the road carriageway with general traffic on both Frontier Road and Pirongia Road.

4.2.4 Public Transport Services

There are no public transport services in the vicinity of the site. Te Awamutu is serviced by a regional service connection to Hamilton. This stops in the town centre, around 3km from the site.

5. Future Transport Environment

The Waipa Integrated Transport Strategy identifies future projects for Te Awamutu. Near the site, these projects are:

- The Proposed Te Awamutu Western Arterial;
- Minor safety improvements at the Alexandra Street/Tawhaio Street intersection; and
- Mutu Street roundabout redesign.

Frontier Road and Pirongia Road are both identified as future rural cycle routes (racing and training) along the frontage of the T1 and T2 growth cells. In these environments, and for these cycle demands, cycling will typically be planned for and accommodated within the wider carriageway space.

The adjacent T1 growth Cell is understood to be establishing a 3.0m shared path for walking and recreational cycling across both the Pirongia Road and Frontier Road frontages. Development of the transport aspects of the Structure Plan will appropriately have regard for integration with these planned facilities.

6. Traffic Volumes

Frontier Road was most recently counted by Council in February 2020. It had an average daily volume of 1,654 vehicles per day (vpd) (two-way). Heavy commercial vehicles (HCVs) made up 8% of the total. Frontier Road was previously counted in 2017 and had a volume of 1,484 vpd. This indicates an annual linear growth rate of 3.8% between 2017 and 2020.

Pirongia Road was most recently counted in September 2017. It had an average daily volume of 2,271 and 10.5% HCV.

Traffic demands at these levels on the respective carriageways are readily within the operating capacity of the two road corridors and are aligned with the road hierarchy definitions in the District Plan.

7. Road Safety

The current form of the local road safety environment expected to be impacted by the proposal has been assessed. A search has been made of the NZTA Crash Analysis System (CAS) database to determine the characteristics of the most recent five years (2015 to 2019, and any available data form 2020) of crash records over a wide area.

The area included Frontier Road (including a section of Rewi Street) and Pirongia Road for the full length of the T2 Structure Plan area frontages, plus 250m in either direction. This gives a total search length of approximately 1km along each road.

The search revealed no crashes on this section of Pirongia Road. There were three crashes reported on Frontier Road. One crash resulted in a minor injury and two resulted in no injury. The specific details of the crashes were:

- An eastbound cyclist on Rewi Street failed to give way to a westbound car, approximately 50m west of the Rewi Street/Pakura Street intersection. No injuries resulted.
- Approximately 150m west of Pakura Street, a westbound driver failed to give way to another westbound vehicle when manouevuring. No injuries results.
- Two people sustained minor injuries when a westbound driver approached the 70km/h to 50km/h transition (160m west of Pakura Street). The driver attempted to brake, lost control, collided with parked vehicles and came to rest inside a private property.

Overall there is little commonality in the crash types and contributing factors. They do however share a broad geographic location, all occuring in the vicinity of the urban/rural speed transition where there is currently a crest curve and change in the road's horizontal alignment. The development of the T1 cell and the proposed development of the T2 cell should have regard for the potential to move the urban speed limit further west, which could be beneficial to the safety performance of this area.

8. Proposed Structure Plan

8.1 Overview

The Structure Plan includes residential areas in the north and south, with a retirement community in the middle. The layout of the proposed transport network is shown as Figure 8-1.

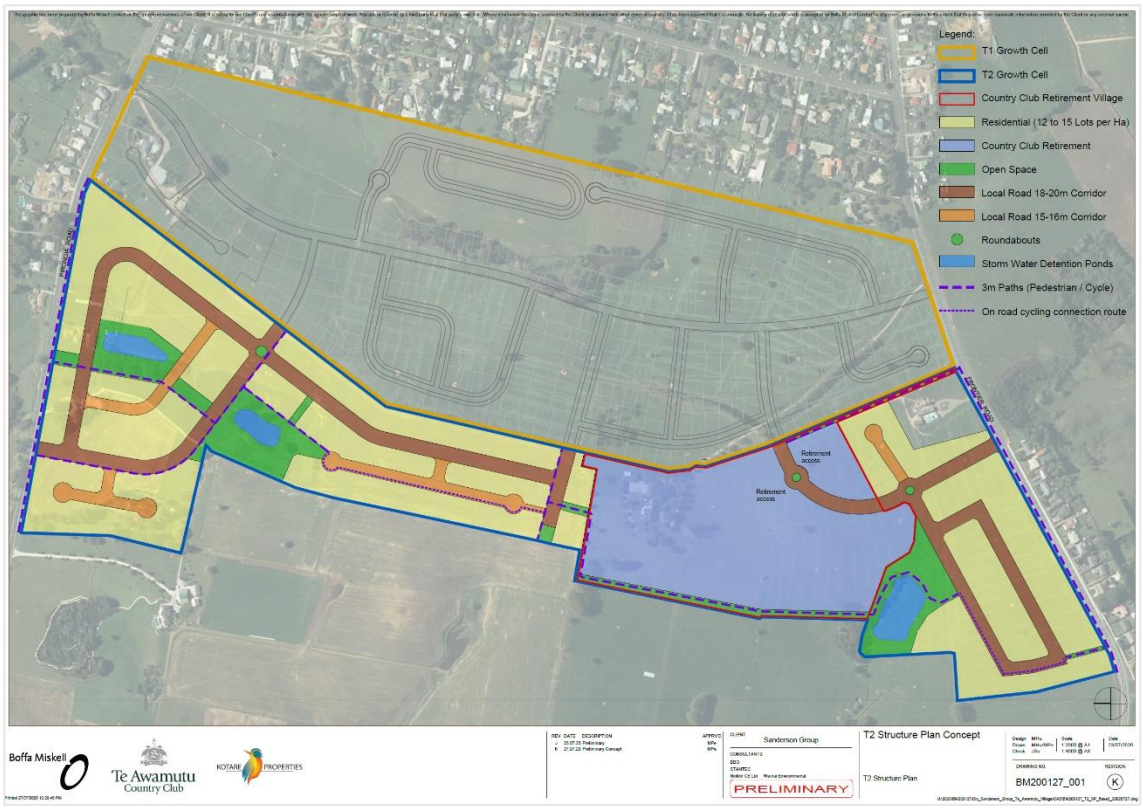

Figure 8-1: Proposed Structure Plan Layout

The features of the proposed transport network are:

- One new intersection on Pirongia Road;
- One new intersection on Frontier Road;
- Three local road connections into the adjacent (planned and provided for) T1 Growth Cell;
- A supporting network of local roads, cul-de-sacs and private ROWs providing property access;
- 3m wide shared paths on the southern side of Pirongia Road and the northern side of Frontier Road; and
- A supporting network of on and off-road paths throughout the Structure Plan area connecting to both road frontages and the T1 Growth Cell at multiple points.

The planned retirement village is proposed to be gated overnight, either side of the local road transport corridor that passes through it. Continuity of public traffic movement is maintained by way of a proposed local road. Provision has also been made for continuity of the shared path network by running the 3m path around the periphery of the retirement village. Walking and cycling access is also proposed via a strip

of land running along the eastern side of the reservoir. Collectively, these features provide for a connected community with continuous access to a range of local walking and cycling circuits.

8.2 Internal Road Network

The Structure Plan uses a road hierarchy of public roads comprising:

- Local Road (18-20m)
- Local Road (15-16m)

Roads within the retirement village area are expected to be private. Their layout and design will be the subject of a future resource consent application process.

The proposed cross-section for each road is summarised below with a comparison against District Plan requirements and the recommendations of NZS4404.

8.2.1.1 Local Road (18-20m)

The intended form of the 18-20m wide local roads is summarised below. This is an indicative cross-section that would be subject to further design and approval by WDC.

Table 8-1: Local Road (18-20m) cross-section summary

Road Element	WDC Requirements	NZS4404 Standards	Proposed
Road reserve width	21m	15m	18-20m
Carriageway width	11m	11m max	5.7m
Lane width	2 @ 3.0m	5.5m – 5.7m total width	5.7m total width in the 18m corridor. 9m inclusive of a 1.5-2.0m central planted median on the 20m corridor linking Frontier Rd to T1. Carriageway cross sections in the northern part of the Structure Plan area are as yet undefined, however the corridor width provisions enable implementation of the standard WDC cross sections or alternate specific design outcomes aligned with resource consent applications for development of those areas.
Cycleway width	Shared environment	Shared environment	Shared environment plus off-carriageway paths
Street parking width	2.5m, 1 park per lot	Shared parking in the movement lane up to 100 dwellings	2.2m indented bays
Front berm	Both sides	-	1.0 both sides
Footpath width	2 @ 1.5m	1.5m each side > 20 dwellings	2 @ 1.5m
Utilities corridor	2.1m minimum both sides	-	Minimum 2.55m both sides

The principal road corridor in the south linking Frontier Road with the T1 Growth cell is planned with a 20m width. It is proposed this be established with a central planted median, contributing to an enhanced amenity environment and also towards achieving a safer speed outcome.

The local access road to the west of this is planned as an 18m cross-section with recessed parking bays, these to be detailed as part of the residential development resource consent intended to follow. The proposed carriageway width in these areas are planned as 5.7m, consistent with the recommendations of NZS4404:2010 and intended to manage speeds to levels commensurate with the local residential access environment.

Aligned with this safer speed environment, and to achieve safe management of turning movements at cross-road intersections, local road roundabouts are proposed at two locations. These are at the cross-road intersections within the residential areas at the southern and northern areas of the Structure Plan. A roundabout is also proposed to control, manage and define the point of access for the planned retirement area.

There is sufficient width in the corridor to provide for parking, footpaths, berms and utilities. It is expected that the details of these elements would be confirmed in consultation with WDC associated with corresponding resource consent applications.

8.2.1.2 Local Road (15-16m)

The intended form of the 15-16m wide local roads is summarised below. This is an indicative cross-section that would be subject to further design and approval by WDC.

Table 8-2: Local Road (15-16m) cross-section summary

Road Element	WDC Requirements	NZS4404 Standards	Proposed
Road reserve width	21m	15m	15-16m
Carriageway width	11m	11m max	5.7m
Lane width	2 @ 3.0m	5.5m – 5.7m total width	5.7m total width
Cycleway width	Shared environment	Shared environment	Shared environment
Street parking width	2.5m, 1 park per lot	Shared parking in the movement lane up to 100 dwellings	2.2m indented bays
Front berm	Both sides	-	-
Footpath width	2 @ 1.5m	1.5m each side > 20 dwellings	2 @ 1.5m
Utilities corridor	2.1m minimum both sides	-	Minimum 2.55m both sides

It is assessed that there is sufficient width in the planned corridors to provide for parking, footpaths, berms and utilities that are aligned with the traffic demand expectations on these shorter and lower-use environments. It is expected that the details of these elements would be confirmed in consultation with WDC and aligned with resource consent processes.

8.3 External Road Network

Key features of the external road network are summarised as follows.

8.3.1 Frontier Road

Frontier Road is proposed to be upgraded along the frontage of the Structure Plan area. The 50km/h speed zone is proposed to be extended further west to encompass the full length of the T2 frontage, and the existing residential properties on the southern side of the road.

The proposed cross-section has been developed in consultation with WDC officers and would be subject to further design approvals. The proposed cross-section features are summarised as follows.

Table 8-3: Frontier Road cross-section summary

Road Element	WDC Requirements	NZS4404 Standards	Proposed
Road reserve width	25m	20m	20m (existing)
Carriageway width	15m	13m	10.8m
Lane width	2 @ 3.5m	2 @ 4.2m	2 @ 3.2m
Cycleway width	1.5 both sides	Separate provision where Council defined cycle route	3.0m shared path north side
Street parking width	2.5m wide, 1 park per lot	2.4m both sides	2.2m recessed on northern side and within the standard road shoulder on the southern side
Front berm	Both sides	-	1.0m north side, no change to the southern side
Footpath width	2 @ 1.5m	2.0m both sides	3.0m shared path north side and existing southern side
Utilities corridor	2.1m minimum both sides	-	

The existing corridor width of 20m is to be retained. The proposed cross-section creates a new shared path on the north side and retains the existing arrangements on the southern side. The existing traffic lane widths are generally maintained.

The design intent is to create a clear transition between the rural and urban areas. To support this, a gateway treatment is proposed with landscaped kerb build outs and speed signs on both sides of the road. The placement of this would be subject to approval by WDC, but it is expected to be located to the west of 67 Frontier Road where approaching traffic eastbound on Frontier Road will have clear forward visibility of the transition from the rural to urban road environments.

8.3.2 Pirongia Road

Pirongia Road is proposed to be upgraded along the frontage of the Structure Plan area. The current 50km/h speed zone position is proposed to be retained, with a new 60km/h speed zone established from the western boundary area of the site to encompass the full length of the T2 frontage. Consultation with Waipa District Council has indicated that with no property access directly to Pirongia Road a lower speed limit will be difficult to achieve, although a further reduction at some future point to 50km/h could be implemented subject to how the environment develops.

The proposed cross-section has been developed in consultation with WDC officers and would be subject to further design approvals. The proposed cross-section features are summarised as follows.

Table 8-4: Pirongia Road cross-section summary

Road Element	WDC Requirements	NZS4404 Standards	Proposed
Road reserve width	25m (20m existing)	20m	20m (no change from existing)
Carriageway width	15m	13m	10m (2 lanes of traffic with 1.5m sealed shoulder each side)
Lane width	2 @ 3.5m	2 @ 4.2m	2 @ 3.5m
Cycleway width	1.5 both sides	Separate provision where Council defined cycle route	3.0m shared path south side linking the T2 intersection east to the T1 boundary
Street parking width	2.5m wide, 1 park per lot	2.4m both sides	Nil
Front berm	Both sides	-	-
Footpath width	2 @ 1.5m	2.0m both sides	3.0m shared path southern side linking the T2 intersection east to the T1 boundary
Utilities corridor	2.1m minimum both sides	-	2.0m both sides

The existing corridor width of 20m is to be retained. The proposed cross-section creates a new shared path on the south side and retains the existing arrangements on the northern side. The existing traffic lane widths of about 3.5m are generally maintained.

Consideration has been given to the merits of establishing a right turn bay at the T2 intersection with Pirongia Road. From a warrant perspective, the expected volume of traffic turning right into the T2 neighbourhood from the west on Pirongia Road is assessed to be below the typical 15 movements per hour threshold. Establishment of 60km/h speed limit at the site's western boundary introduces a reduced speed advisory at that point. The proposed intersection is shown to be located about 100m to the east of the speed transition point establishing a buffer zone between the speed limit and intersection access point.

In the absence of a painted right turn bay facility, additional shoulder widening would be recommended each side of the carriageway to accommodate turning vehicles. This is typically more suited to a low volume rural environment. In this case, the T2 area is to represent the long-term extent of the Te Awamutu urban area and therefore it is recommended it be established to effectively communicate the changed environment and expectations that result from that.

The design intent recommended is to create a clear transition between the rural and urban areas. To support this, a gateway treatment is proposed with landscaped kerb build outs and speed signs on both sides of the road. The placement of this would be subject to approval by WDC, at or about the western boundary of the T2 growth cell. Aligned with this, it is recommended that a painted right turn bay be established at the T2 intersection. This will further support communication of the reduced speed environment along with the changing nature of the local road environment and increased awareness of drivers to turning demands associated with the T2 intersection.

8.4 Network Connections

There are five new vehicular points of connection to the existing road network. The connections between the T1 and T2 growth cells are continuations of planned subdivision roads (i.e. they are not intersections).

The connections to Pirongia Road and Frontier Road are proposed to be priority-controlled T-intersections with single lane approaches on all legs. Raised table treatments are proposed to take the new shared user paths across the new local road intersections and to safely manage traffic speeds at these locations.

8.5 Pedestrian and Cycle Access

Pedestrians and cyclists will have access from two points on Pirongia Road, one through the new local road and one through the green space network.

Three pedestrian and cycle connections are proposed on Frontier Road. These are via the new local road, through the green space and through a connection east of the reservoir. The latter will form part of the retirement village but will be accessible by the general public.

A 3m wide shared path network runs throughout the Structure Plan and is supported by various on-road connections and standard footpaths. Two shared path connections and one local road connection provide access to the adjacent T1 Growth Cell.

The pedestrian and cycle network in the southern area is designed to enable movement around the perimeter of the retirement village. This enables a balance between public and private access, whilst supporting a permeable network through the site and to adjacent areas and facilities. Overall, is expected to create a sustainable and attractive network for pedestrians and cyclists.

9. Traffic Generation

9.1 Land Use Assumptions

The traffic generation potential of the Structure Plan area has been assessed by considering the Structure Plan in three parts:

- A northern residential area of 16.2 ha with potential for 197-246 lots;
- A retirement village of 9.45 ha including 98 villas, 30 care beds and integrated cafe; and
- A southern residential area of 8.76 ha with a proposed subdivision layout including 113 lots.

The retirement village and southern residential areas can be assessed with some certainty as planning for these areas is underway. Initial layout plans are available, and technical assessments have been undertaken to inform the capacity of each area.

Development of the northern area is not imminent and therefore a range of densities (12-15 dwellings per hectare) has been applied.

9.2 Traffic Generation Rates

9.2.1 Residential

Residential dwellings have been assessed on the basis of the RR453 'outer suburban' rates which are:

- Daily vehicle trips: 8.2 per dwelling; and
- Weekday road network peak hour vehicle trips: 0.9 per dwelling.

The northern residential area could generate 1,616 to 2,020 vehicle movements per day (vpd) (IN+OUT), including 177-222 vehicle movements per hour (vph) during the peak hour of the day.

The southern residential area could generate about 927 vpd and 102 vph.

9.2.2 Retirement Village

Retirement Village trip generation expectations are generally well understood, published and consistently represented in practice in New Zealand and Australia.

Australian industry-based trip rates for retirement villages can be sourced from the Roads and Maritime Services (RMS) of New South Wales' "Guide to Traffic Generating Developments" and related Technical Directions. Rates from these sources indicate trip generating demands in the order of:

- Daily vehicle trips 1 - 2 per dwelling; and
- Weekday road network peak hour vehicle trips: 0.1 - 0.2 per dwelling.

The NZTA Research Report 453 "Trips and Parking Related to Land Use" (RR453) contains more recently developed NZ trip generation rates for a range of activities including retirement accommodation. It indicates that retirement units are expected to generate 2.4 to 2.6 veh/d per unit and 0.3 to 0.4 veh/h per unit at the 85th percentile level.

The generation rates are slightly different depending on the extent to which a unit is an independent living unit or an assisted living unit. These variations are integrated into the following assessment. The more recent and higher trip generation data of RR453 has been adopted as the basis for calculating the expected level of trip generation for the proposed development.

The café has been assessed on the basis that it could have up to 25 seats and occupy up to 150m^2 of the clubhouse. The café will be open to the public but most of its use is expected to come from residents and their visitors and on-site staff.

A reduction factor of 50% has been applied to the RR453 rates for the cafe. This recognises a high proportion of internal use but also retains an allowance for external customers and visitors who may join a resident at the café. The adjusted RR453 rates adopted for the café are:

- Daily vehicle trips 6.1 per seat, reduced to 3.05 per seat; and
- Weekday road network peak hour vehicle trips: 0.5 per seat, reduced to 0.25 per seat.

On the basis of the RR453 trip generation rates the daily and peak hour trip generation for the proposal are as follows.

Table 9-1: Traffic Generation Assessment

Facility	Number	Unit Type	Daily		Hourly	
			Rate	vpd	Rate	vph
Villas	98	Units	2.6	255	0.3	29
Care facility	20	Beds	2.4	48	0.4	8
Dementia unit	10	Beds	2.4	24	0.4	4
Cafe	25	Seats	3.05	76	0.25	6
TOTAL	**-**	**-**	**-**	**403**	**-**	**48**

On these bases, the potential for trip generation arising from the proposed retirement development is assessed as being up to approximately 403 vpd in total (two-way), and up to approximately 48 trips in the peak hour (two-way total).

9.2.3 Total

The combined total traffic generation of the Structure Plan area is summarised in Table 9.2.

Table 9-2: Total T2 Growth Cell Traffic Generation

Area	Daily	Peak Hour
Northern Residential (Pirongia Road)	1,616 – 2,020	177 - 220
Retirement Village	403	48
Southern Residential (Frontier Road)	927	102
TOTAL	**2,946 – 3,350**	**327 - 371**

In total, the Structure Plan area could generate up to 3,350vpd (IN+OUT) including up to 371 vph during the morning and evening peak hours.

10. Transport Effects, Management and Design

10.1 Traffic Volumes

Traffic volumes have been assessed over a ten-year period from an assumed starting year of 2022. Volumes have been estimated on Frontier Road and Pirongia Road at points east, west and in between the T1 and T2 growth cells. Figure 10-1 and Figure 10-2 show the assessed locations along Frontier Road and Pirongia Road, respectively.

Figure 10-1: Traffic Volume Locations on Frontier Road in relation to T1 and T2

Figure 10-2: Traffic Volume Locations on Pirongia Road in relation to T1 and T2

Allowance has been made for three sources of traffic growth. These are:

- The consented T1 Growth Cell;
- The proposed T2 Growth Cell; and
- Other background traffic growth.

The ITA prepared for the T1 Growth Cell[1] assessed it as generating 3,641 vpd, including 400 vph during the peak hours of the day. This total traffic volume was distributed across Frontier Road and Pirongia Road and split between travel to/from the east and to/from the west. Most of the traffic was expected to travel to and from Te Awamutu, to the east.

As described in Section 6, Council's data suggests an annual growth rate of 3.8% per annum on Frontier Road. This rate has been applied to the existing traffic volume on Frontier Road and Pirongia Road.

Table 10-1 and Figure 10-3 present the analysis for Frontier Road.

Table 10-1: Traffic Volume Forecasts, Frontier Road

Scenario	Forecast Daily Volume (vpd, two-way)		
	Site 1	Site 2	Site 3
Existing 2020[2]	1,533	1,654	1,654
Seasonally adjusted existing 2020	1,472	1,588	1,588
Forecast 2022	1,584	1,709	1,709
Other growth at 3.8% pa to 2032	602	649	649
Forecast 2032	2,186	2,358	2,358
Expected generation of T1	524	524	932
Forecast 2032 + T1	2,710	2,882	3,290
Expected generation of T2 (residential)	250	584	584
Forecast 2032 + T2 (residential)	2,960	3,466	3,874
Expected generation of T2 (retirement)	109	254	254
Forecast 2032 + T1 + T2	**3,069**	**3,720**	**4,128**

[1] Frontier Developments Ltd, T1 Growth Cell Te Awamutu, Integrated Transport Assessment, TDG now Stantec (19 November 2018)

[2] Site 1 is located west of the existing residential properties, so an adjustment has been made to remove these movements from the count

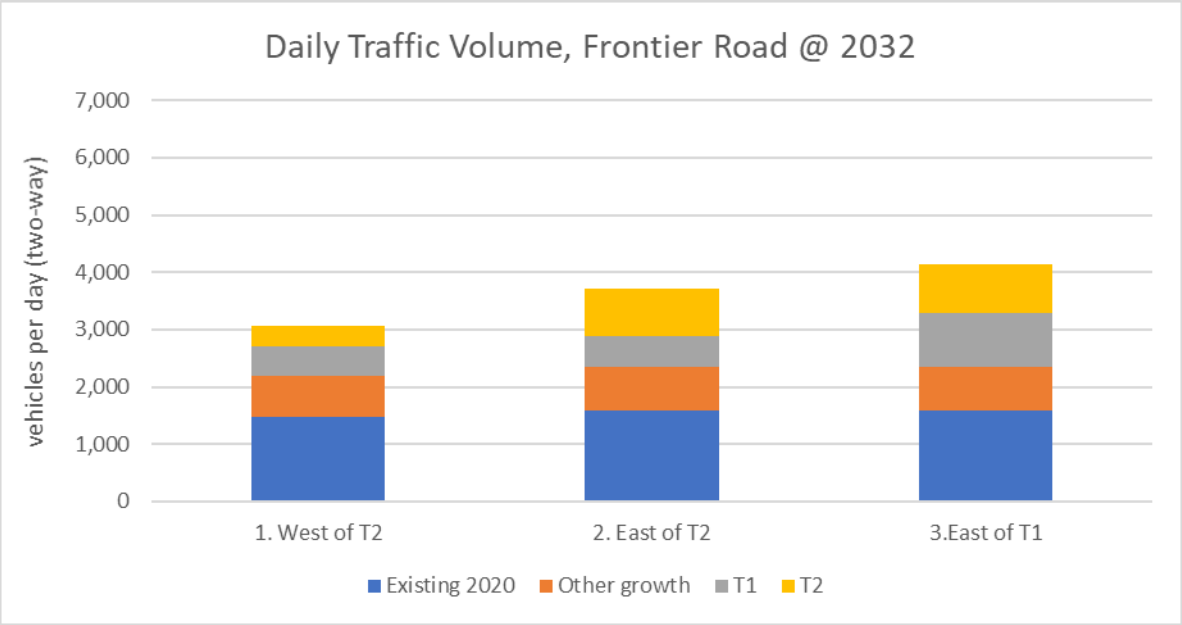

Figure 10-3: Forecast Traffic Volumes on Frontier Road

The analysis shows that with both the T1 and T2 growth cells in place, volumes on Frontier Road are expected to grow from the existing 1,500-1,600 vpd range to 3,000 – 4,200 vpd.

A daily volume of 3,000-4,200 vpd is well within the expected and acceptable range for a Collector Road. This volume can be suitably accommodated by the proposed cross-section which was described earlier in Section 8.3.1.

The corresponding assessment for Pirongia Road is as follows:

Table 10-2: Traffic Volume Forecasts, Pirongia Road

Scenario	Forecast Daily Volume (vpd, two-way)		
	Site 4	Site 5	Site 6
Existing 2020[3]	2,663	2,663	2,663
Seasonally adjusted existing 2020[4]	2,663	2,663	2,663
Forecast 2022	2,865	2,865	2,865
Other growth at 3.8% pa to 2032	1,089	1,089	1,089
Forecast 2032	3,954	3,954	3,954
Expected generation of T1	874	874	1,311
Forecast 2032 + T1	4,828	4,828	5,265
Expected generation of T2	549	1,281	1,281
Forecast 2032 + T1 + T2	**5,377**	**6,109**	**6,546**

The analysis shows that with both the T1 and T2 growth cells in place, volumes on Pirongia Road are expected to grow from an existing 2,660 vpd to 5,300 – 6,550 vpd.

A daily volume of 5,300 – 6,550 vpd is again, well within the expected and acceptable range for a Collector Road. This volume can be suitably accommodated by the proposed cross-section which was described earlier in Section 8.3.2

[3] The 2020 volume has been estimated from the 2017 count plus growth at 3.8% per annum.
[4] No seasonal adjustment applied

10.2 Intersection Operation

10.2.1 Frontier Road

The new intersection on Frontier Road has been modelled in SIDRA for the 2032 horizon year. The test volumes include all the sources of traffic growth in the previous section. The results are summarised in Table 10-3 and Table 10-4.

Table 10-3: Frontier Road SIDRA Analysis 2032 AM Peak Hour

Approach & Movement		Volume (vph)	Delay (s/veh)	LOS	95% Queue (m)	Degree of Saturation
Frontier Road (East)	T	103	0.2	A	1.5	0.079
	R	30	6.0	A	1.5	0.079
Local Road	L	61	5.9	A	1.4	0.052
	R	29	5.8	A	1.4	0.052
Frontier Road (West)	L	14	5.5	A	0	0.078
	T	124	0.0	A	0	0.078
Intersection		**362**	**2.2**	**-**	**-**	**0.079**

Table 10-4: Frontier Road SIDRA Analysis 2032 PM Peak Hour

Approach & Movement		Volume (vph)	Delay (s/veh)	LOS	95% Queue (m)	Degree of Saturation
Frontier Road (East)	T	166	0.2	A	3.1	0.136
	R	61	6.0	A	3.1	0.136
Local Road	L	30	5.9	A	0.7	0.025
	R	14	5.8	A	0.7	0.025
Frontier Road (West)	L	29	5.6	A	0.0	0.084
	T	118	0.0	A	0.0	0.084
Intersection		**419**	**2.0**	**-**	**-**	**0.136**

The tables show that the intersection operates well within its capacity during the morning and evening peak hours at 2032. The overall degree of saturation is no more than 0.136 (13.6%).

10.2.2 Pirongia Road

The new intersection on Pirongia Road has also been modelled in SIDRA for the 2032 horizon year. The test volumes include all the sources of traffic growth in the previous section. The results are summarised in the following Tables.

Table 10-5: Pirongia Road SIDRA Analysis 2032 AM Peak Hour

Approach & Movement		Volume (vph)	Delay (s/veh)	LOS	95% Queue (m)	Degree of Saturation
Local Road (South)	L	40	6.1	A	2.0	0.087
	R	94	6.1	A	2.0	0.087
Pirongia Road (East)	L	46	5.6	A	0	0.136
	T	189	0.0	A	0	0.136
Pirongia Road (West)	T	228	0.1	A	1.3	0.147
	R	20	6.4	A	1.3	0.147
Intersection		**633**	**2.0**		**-**	**0.147**

Table 10-6: Pirongia Road SIDRA Analysis 2032 PM Peak Hour

Approach & Movement		Volume (vph)	Delay (s/veh)	LOS	95% Queue (m)	Degree of Saturation
Local Road (South)	L	20	6.2	A	1.0	0.044
	R	46	6.1	A	1.0	0.044
Pirongia Road (East)	L	94	5.6	A	0	0.194
	T	243	0.0	A	0	0.194
Pirongia Road (West)	T	191	0.4	A	2.8	0.144
	R	40	7.0	A	2.8	0.144
Intersection		**617**	**2.0**	**-**	**-**	**0.194**

The tables show that the intersection operates well within its capacity during the morning and evening peak hours at 2032. The overall degree of saturation is no more than 0.194 (19.4%).

Overall, a high degree of efficiency and minimal delay outcomes are expected with the proposed intersection forms.

10.3 Visibility

Sight distance has been assessed based on the requirements of Austroads (Part 4A, Table 3.2), for the new intersections on Pirongia Road and Frontier Road. The proposed speed environment on both roads is 50km/h. In the absence of operating speed data, the posted speed limit plus 15% (57.5 km/h) is typically adopted for sight distance assessments. A conservative speed of 60km/h has been adopted in this case.

Based on a reaction time of 1.5 to 2 seconds, the required sight distance is:

- 114m to 123m in a 60km/hr environment.

The proposed Structure Plan access points to Frontier Road and Pirongia Road both have in excess of 123m available in both directions. This is more than adequate for an operating speed of up to 60km/h.

A similar assessment has been made with respect to the potential western-most residential property with access to Frontier Road. The full sight distance requirement both west and east of the access has been assessed as being able to be accommodated wholly within the road corridor. Visibility to the west from the access will require some vegetation removal along the boundary fence line as it exists at present. This is expected to occur as part of the development of the subdivision in any event.

Therefore individual property access on Frontier Road is also expected to meet the minimum safe sight distance criteria.

10.4 Intersection Spacing

The *"Waikato Regional Infrastructure Technical Specifications - RITS"* document includes recommended minimum spacing between intersections on different types of roads.

On Pirongia Road, which is classified as a Collector Road, intersections should be 90m apart where they are on the same side of the road, and 45m apart where they are on the opposite side of the road.

The proposed access into the Structure Plan is located more than 500m from the nearest intersection, which is the proposed new intersection serving the T1 cell.

On Frontier Road, which is classified as a local road, intersections should be 60m apart where they are on the same side of the road (90m for a Collector Road), and 30m apart where they are on the opposite side (45m for a Collector Road.

The proposed eastern access is 250m from the nearest intersection, which is the proposed new access to the T1 growth cell.

Intersections within the Structure Plan have also been placed to comply with these minimums.

10.5 Road Safety Effects

The existing road safety record on both Pirongia Road and Frontier Road in the vicinity of the Structure Plan area has identified only three crashes occurring within the past five years. No underlying issues were identified that could be exacerbated by the proposed Structure Plan.

Both Frontier Road and Pirongia Road are proposed to be upgraded to urban cross-sections when land within the Structure Plan is developed. Speed limits are also proposed to be reduced to reflect a move from rural to urban land use.

New access points have been designed and located with appropriate visibility and spacing. These are also to include rural/urban threshold features and in the case of Pirongia Road, establishment of a painted right turn bay at the T2 intersection. Road cross-sections and a network of shared use paths have been planned and designed to provide for safe and efficient movement of people and vehicles.

Overall, it is concluded that the planned transport networks, and proposed upgrades to existing networks, are appropriate to accommodate the activity generated by the growth cell.

11. District Plan

11.1 Rules

The following table assesses the proposed Structure Plan area against the relevant transport rules of the District Plan.

Table 11-1: District Plan Rule Assessment

Rule	Assessment
Road Hierarchy	
16.4.2.1 All structure plans, plan changes, developments, and subdivisions must be consistent with the road hierarchy, as contained in Appendix T5.	Complies The proposed road layout is consistent with the existing hierarchy and provides appropriate level roads to connect with the existing road hierarchy.
16.4.2.2 To maintain the effectiveness of the road hierarchy, a road network must be designed so that a road connects to a road at the same level in the hierarchy, or directly above or below its place in the hierarchy.	Complies Local roads are proposed to connect to both Frontier Road (a local Road) and Pirongia Road (a collector road).
16.4.2.3 To maintain the effectiveness of the road hierarchy, when a site has two road frontages, vehicle access and egress must be from the lesser road type.	Technically non-compliant. The Structure Plan area has two road frontages and access is proposed to both rather than the one with a higher classification. This rule is more applicable to single site applications and accordingly is assessed as an irrelevant consideration in this regard.
Vehicular access to sites in all zones	
16.4.2.4 Every site shall be provided with vehicle access to a formed road that is constructed to a permanent standard. The vehicle access shall be designed to accommodate the demands of all traffic from the activity on that site, taking into account the form and function of the road.	Complies The proposed local roads provide access to formed roads (Pirongia Road and Frontier Road). It is demonstrated that these formed roads can accommodate the expected traffic from the Structure Plan. Compliance expected Roads within the development are expected to be constructed to permanent standards. Driveways for each individual lots are not yet designed, however all lots have frontage to a formed road and it is expected that driveways or these lots will be provided to the formed roads.
Vehicle entrance separation from intersections and other vehicle entrances	
16.4.2.5 The minimum distance of a vehicle entrance (accessway) from an intersection or other entrance shall be as follows: (posted speed limit of 50km/h or 60km/h): 30m from the intersection (on the major road), and 20m from the intersection (on the minor road). Accesses should be less than 4m apart or greater than 11m apart.	Does not comply – mitigation recommended at subdivision consent stage. It is recommended that the residential lots numbered Lot 83 and Lot 105 either side of the proposed T2 intersection to Frontier Road be established with access on the new minor road. Notwithstanding this, these corner lots and potentially each adjacent lot will need to be established with access marginally within the minimum separations of this rule. The new side road intersection is proposed to be established as a raised table contributing to a safe and reduced speed environment for movement to and from the new side road. On the Frontier Road frontage, formed recessed parking areas are proposed to be established, enhancing the driveway sightline viewing position. With these measures in place, an appropriately safe property access environment is assessed to be achievable.
Parking, loading and manoeuvring areas	
16.4.2.13 All activities that involve the erection, construction or substantial reconstruction, alteration or addition to a building on any site, or changes the use of any land or building, shall provide parking and	Compliance expected The residential lots within Structure Plan are expected to be able to comply with these requirements.

Rule	Assessment
loading / unloading for vehicles on the site at the rates specified in Appendix T1.	Parking requirements associated with the retirement village will be addressed in the Resource Consent application for that development. There is nothing in the proposed Structure Plan layout that would preclude compliance with these rules.
16.4.2.14 Where assessment of the number of parking spaces required results in a fractional space being calculated, any fraction less than one-half shall be disregarded, and any fraction greater than or equal to one- half shall be counted as one space.	Compliance expected
16.4.2.15 Vehicle parking, loading / unloading, and manoeuvring areas shall: (a) Not encroach on any yard setback, outdoor living area, vehicle or bicycle parking spaces; or other loading / unloading areas; and (b) Be designed, formed, and constructed in accordance with Appendix T2 and ensure that the surface of the required area provides a dust free environment; and (c) Provide for the safe and efficient disposal of surface stormwater clear of any adjoining access or road surface in a way that does not result in ponding or scouring; and (d) Be constructed to accommodate the anticipated use of the area by all traffic likely to access the site in the zone in which it is located, including construction traffic taking into account pavement, surfacing, demarcation of spaces, aisles and circulation roads; and (e) Be provided on the site on which the building, activity or proposal is located.	Compliance expected Parking and loading requirements associated with the retirement village will be addressed in the Resource Consent application for that development. There is nothing in the proposed Structure Plan layout that would preclude compliance with these rules.
16.4.2.16 The design and layout of sites shall ensure that access to each required vehicle parking, loading and unloading space is directly from the required access or manoeuvring area.	Compliance expected Parking and loading arrangements for the individual lots have not yet been determined, however there nothing in the proposed Structure Plan layout that would preclude compliance with these rules Parking and loading requirements associated with the retirement village will be addressed in the Resource Consent application for that development.
16.4.2.17 Vehicle manoeuvring space, including those spaces located in a garage, and loading and unloading spaces, shall be provided on a site, of a standard adequate to accommodate a 90-percentile car, or a 99-percentile truck, as described in Appendix T2, in order to ensure that all vehicles have the ability to access the adjoining road in a forward direction after no more than a three-point turning manoeuvre on the site.	Compliance expected Driveways and parking for the individual lots have not yet been determined, however there nothing in the proposed Structure Plan layout that would preclude compliance with these rules Parking and loading requirements associated with the retirement village will be addressed in the Resource Consent application for that development.
16.4.2.18 All required carparks shall be marked or delineated on site, except in the Residential Zone.	The site is located within the residential zone. However, the matter of parking space marking and delineation will be addressed in the

Rule	Assessment
	Resource Consent for the retirement village, in relation to non-residential parking areas.
Carpark landscaping and lighting	
16.4.2.21 All carparks must: Provide at least one tree planted for every 5 car parking spaces at a grade of no less than PB95. For the avoidance of doubt, PB95 is equivalent to a tree that is at least 1.5m tall at the time of planting; and Ensure lighting is designed to avoid shading areas or isolating areas of public use.	Compliance expected This will be addressed in a Resource Consent application specific to the retirement village.
Provision of bicycle parking facilities	
16.4.2.22 In areas other than the Rural Zone and Pedestrian Frontages, activities employing more than ten people must provide bicycle parking facilities at a rate of one bicycle park for every ten people employed.	Compliance expected This will be addressed in the resource consent for the retirement village, if applicable.
Provision of an integrated transportation assessment	
16.4.2.23 A Simple or Broad Integrated Transport Assessment (ITA) shall be prepared for activities as required by this rule.	Complies As the expected daily trip generation is more than 1,500vpd Broad ITA's have/will be prepared for the Structure Plan and the retirement village resource consent.

11.2 Objectives and Policies

The following table presents a summary of how the proposed Structure Plan supports the relevant Objectives and Policies from Section 16.3 of the District Plan.

Table 11-2: Objective and Policy Assessment

Objective/Policy	Assessment
Objective - Ensuring sustainable, integrated, safe, efficient and affordable multi-modal land transport system.	
16.3.1 - All new development, subdivision and transport infrastructure shall be designed and developed to contribute to a sustainable, safe integrated, efficient (including energy efficient network design) and affordable multi-modal land transport system.	Supports The roading network within the Structure Plan provides good connectivity to the existing transportation network. In particular it considers connection to existing and planned walking and cycling networks and provides good levels of permeability for these modes. The structure plan transportation networks integrate with the connections already planned between the T1 and T2 Growth Cells, maximising integration and efficiency of access between the two areas.
Policy – Design elements	

Objective/Policy	Assessment
16.3.1.1 – Development, subdivision and transport infrastructure shall be designed and located to:	
(a) Minimise energy consumption in construction, maintenance and operation of the network;	**Supports** The Structure Plan connects to the existing roading network at five points and has three connections into the T1 cell. This provides a range of direct connections for different origins and destinations.
(b) Accommodate and encourage alternative modes of transport;	**Supports** The layout of the Structure Plan includes shared paths, local roads, and reserves through which people will be able to walk and cycle. All roads are proposed to have a local road design basis, which encourages walking and cycling.
(c) Give effective road hierarchy; and	**Supports** The Structure Plan road network appropriately connects with the existing hierarchy and provides a clear hierarchy within the northern and southern areas.
(d) Contribute to: (i) Integrated transport and land use planning and a safe road system approach; (ii) Reducing deaths and serious injuries on roads; (iii) An effective and efficient road network; and (iv) Efficient movement of freight.	**Supports** The Structure Plan provides connections to the commercial hub within T1 which supports the residential land use, reducing the need for people to travel further afield to access everyday goods and services. The local road nature of the network reflects the residential environment, supporting low vehicle speeds and promoting a safe road system approach. The Structure Plan connects to the existing roading network at three points and has three connections to T1, therefore maximising the operational potential of the network.
Policy – Ensuring future connections	
16.3.1.2 - Development, subdivision and transport infrastructure shall be designed and located to: (a) Link to existing transportation networks, including roads, walking, cycling and passenger transport; and	**Supports** The layout of the Structure Plan connects to existing and planned vehicular, cycle and pedestrian networks.
(b) Accommodate future transport network connections and walking, cycling and passenger transport options to Deferred Zones and future growth areas.	**Supports** The Structure Plan accommodates walking and cycle facilities and connects these with the T1 cell and both frontage roads.
Policy – The timing and availability of planned funding for transport infrastructure	
16.3.1.3 – The provision of transport infrastructure for any development or subdivision shall be managed in such a way that it takes into account the timing and availability of planned funding for transport infrastructure.	**Supports** Currently there are no public transport infrastructure planned for the Structure Plan however the local roads could accommodate future use by buses connecting through T1.
Objective – Integrated land use and transport: ensuring a pattern of land uses and a land transport system which is safe, effective and compatible	
16.3.2 – land use and transport system successfully interface with each other through attention to design, safety and amenity	**Supports** The Structure Plan encourages walking and cycling by providing shared paths through the northern area, a path around the perimeter of the southern area, as well as a local road network that supports walking and cycling.

Objective/Policy	Assessment
Policy – Integrated land use and transport	
16.3.2.1 – Development, subdivision and transport infrastructure shall be located, designed and managed to:	-
(a) Minimise conflict on and across arterial routes and provide appropriate access;	**Supports** The Structure Plan is not on an arterial route but an appropriate access is provided its local and collector frontages.
(b) Include access that is safe and appropriate for all road users, including those with restricted mobility	**Supports** Access to the Structure Plan connects to existing networks and provides safe and appropriate access for all road users through existing and planned walking and cycling networks.
(c) Minimise the need for travel and transport where practicable; and	**Supports** Structure Plan supports access to the commercial hub in the adjacent T1 cell, which minimises the need to travel for everyday goods and services. The proximity of the whole site to the rest of Te Awamutu township also promotes this. Other aspects of self-sufficiency with the retirement village will be addressed in the resource consent for that development.
(d) Facilitate travel demand management opportunities where practicable.	**Supports** Walking and cycling are promoted within the Structure Plan and the location of the site provides good opportunities to access a wide range of goods and services within Te Awamutu reducing the need to travel elsewhere.
Policy – Enhance pedestrian safety	
16.3.2.2 – To improve pedestrian safety in proximity to schools and other community facilities, and commercial areas including pedestrian frontage areas; the standard of pedestrian networks shall be enhanced to accommodate and encourage greater use.	**Supports** The Structure Plan layout recognises the need to facilitate pedestrians in the residential development and the retirement community. The Structure Plan supports pedestrian safety throughout the development with low speed cross-sections and other measures that will be detailed in the resource consent.
Policy – Safe roads	
16.3.2.3 – development and subdivision design and construction shall contribute to a safe road environment by:	
(a) Providing safe and appropriate locations for vehicle entrances, driveways, pedestrian and cycle routes; and	**Supports** Multimodal accesses to the Structure Plan connect to the existing networks in locations that are considered to be appropriate. The low speed environment within the Structure Plan promotes safe vehicle access and a safe cycle and pedestrian environment.

Objective/Policy	Assessment
(b) Designing and locating transport network, lighting, street furniture and landscaping to minimise conflict, maintain visibility, and provide for maintenance activities.	**Supports** The roads within the Structure Plan can accommodate amenities that can promote safety within the development.
Policy – Managing effects on character and amenity	
16.3.2.4 – Development, subdivision and transport infrastructure shall be located, designed and managed to:	
(a) Avoid, remedy, or mitigate adverse effects of transport on character and amenity;	**Supports** Appropriately suitable transport infrastructure design amenity has been described
(b) Facilitate opportunities to enhance character and amenity; and	**Supports** The roads promote the residential character within the T2 Growth Cell through low speed environment and network of cycle and pedestrian facilities.
(c) Ensure that the outcomes sought in the Waipa 2050 Growth Strategy, Town Concept Plan 2010 Plans, and the character Precinct statements in Section 6 – Commercial Zone of this Plan are achieved.	**Supports** T2 growth cell contributes to the growth of Te Awamutu and is part of the future town boundary under the Town Concept Plan 2010. It is likely that the development will retain the uncongested nature of Te Awamutu.
Objective – Maintaining transport network efficiency	
16.3.3 – To maintain the ability of the network to distribute people and goods safely, efficiently and effectively.	**Supports** The Structure Plan connects to the existing roading network at three points and takes advantage of the connections previously planned for the T1 cell. Therefore, it maximises the operational potential of the network.
Policy – Effects of development or subdivision on the transport network	-
16.3.3.1 – Avoid, remedy or mitigate the adverse effects of development or subdivision on the operation and maintenance of the transport network, including from:	-
(a) Traffic generation, load type, or vehicle characteristics;	**Supports** The Structure Plan road network will be appropriately designed to accommodate the predominantly light vehicle traffic associated with residential use. This traffic is also not expected to cause adverse effects on the existing road network. Other vehicles such as ambulances will be specifically considered in the resource consent for the retirement village.
(b) The collection and disposal of stormwater; and	N/A
(c) Reverse sensitivity effects where development or subdivision adjoins existing and planned roads.	**Supports** The Structure Plan network has been planned to appropriately connect to existing and planned roads. An integrated land use and transport approach has

Objective/Policy	Assessment
	been applied and no reverse sensitivity issues are expected.
Policy – Location of network facilities	
16.3.3.2 – When significant alterations to existing utilities occur in the road reserve, or new network utilities locate in the road reserve, the network utilities must avoid, remedy, or mitigate impacts on:	-
(a) The operation, renewal and development of the transportation network; and	**Support expected** The roading corridors within the Structure Plan have the potential to accommodate amenities and utilities with minimum disruption on the transportation network.
(b) Existing and planned landscaping, tree planting, footpath, lighting, bus bays, intended carparks, and any other amenity enhancements.	As above.
Objective – Provision of vehicle entrance, parking, loading and manoeuvring areas	
16.3.4 – The provision of adequate and well located vehicle entrances and parking, loading and manoeuvring areas that contribute to both the efficient functioning of the site and the adjacent transport network.	**Supports** The Structure Plan connects to the existing roading network at three points and provides connections to the T1 cell, therefore maximising the operational potential of the network. A network of local roads allows vehicle access, manoeuvring and parking to be achieved efficiently within the northern and southern areas.
Policy – Location of vehicle entrances	
16.3.4.1 – To maintain the safe and efficient functioning of adjoining roads and railways, vehicle entrances to all activities shall be located and formed to achieve safe sight lines and entry and egress from the site. In some locations, adjoining rail lines, State Highways, and the District's Commercial Zones; vehicle entrances will be limited and will require assessment due to the complexity of the roading environment, or the importance of provision of pedestrians.	**Supports** Safe sight lines from the Structure Plan area to the existing road network are achievable. A low speed environment within the Structure Plan allows safe sight line where visibility between vehicle, cycle and pedestrian can be maintained.
Policies - Ensuring adequate parking, loading and manoeuvring areas on site	
16.3.4.2 - To maintain the efficient functioning of adjoining roads, all activities shall provide sufficient area on site to accommodate the parking, loading and manoeuvring area requirements of the activity.	**Supports** Residential lots have not be designed as yet but are expected to be able to accommodate their own parking and loading needs. The parking and loading needs of the retirement community will be addressed in detail in the resource consent application. All parking, loading and manoeuvring needs are expected to be accommodated on site, with no reliance on adjoining roads.
16.3.4.3 - Activities that operate at different times and have adjoining sites may be able to share the use of the same parking spaces.	**Supports** This will be considered in the resource consent application for the retirement village.
16.3.4.4 - Certain activities may be able to demonstrate through the provision of a travel plan, that staff or occupants of the activity can access the activity through alternative means of	This will be addressed in the resource consent process, as applicable.

Objective/Policy	Assessment
travel, thus reducing the requirements for carparks.	
Policy - Cash in lieu of parking in the Commercial Zones	
16.3.4.5 - When a development is unable to meet the car parking requirements of the Plan, due to insufficient site area, or being located where it is undesirable to interrupt a road frontage with vehicle entrances; mitigation of the non-provision of car parking could be achieved through a cash contribution in lieu.	**Support expected** Parking is likely to be provided in the Structure Plan area, however this alternative mechanism is available should it be needed in future.
Policy - Encouraging the adaptive re-use of heritage items	
16.3.4.6 - To achieve the adaptive re-use of heritage items, as listed in Appendix N1, a reduction in the requirement for vehicle entrances, and on-site parking, loading and manoeuvring areas can be considered where these cannot practicably be incorporated on-site due to the location of the heritage item on the site and the size of the site.	**Supports** The T2 Growth Cell does not affect any heritage items listed in Appendix N1.
Objective - Minimising adverse effects of the transport network	
16.3.5 - The transport network can have effects on the adjacent environment that must be mitigated through design.	**Supports** The Structure Plan network has been designed to minimise changes to the natural landscape and protect amenity values, such as public access to the rural interface on the western side of the Structure Plan.
Policy – Natural environment	
16.3.5.1 - Transport infrastructure, including its layout within a development and subdivision, shall be designed and located to avoid, remedy or mitigate adverse effects on the adjacent environment, having regard to stormwater collection, treatment and disposal, earthworks, noise and the landscape areas identified within this Plan and on the Planning Maps.	**Supports** The road layout generally follows the natural topography of the site. The reserve areas have been designed to provide stormwater retention and will also have a transportation and amenity function through the inclusion of walking and cycling networks. Stormwater design has been separately assessed by others.
Policy - Noise and vibration	
16.3.5.2 - Noise sensitive activities, adjacent to strategic roads, including State Highways, collector roads in the Rural Zone and Large Lot Residential Zones, and railway lines; will require acoustic attenuation to ensure the continuation of the ability to achieve acoustic privacy.	**Supports** The uncongested nature of the adjacent roads means noise is unlikely to affect the Structure Plan area.

11.3 Waipa Integrated Transport Strategy

Table 11-3 presents an assessment of the Structure Plan against the objectives of the Waipa Integrated Transport Strategy (WITS).

Table 11-3: WITS Objective Assessment

Objective	Assessment
1. Integrated Land Use Planning To integrate transport and land use planning in a sustainable and co-ordinated manner.	**Supports** Consideration has been given to integrating current and future vehicular, cycle and pedestrian infrastructure to the development,

Objective	Assessment
	particularly in relation to T1 and connections to existing networks.
2. Road Safety To adopt a safe road system approach and reduce deaths and serious injuries on Waipa's roads.	**Supports** The connections to the existing roading network have been designed to provide a safe and suitable environment. On site, the residential nature of area and the retirement village contributes to creating a safe, slow speed environment.
3. Network Management To ensure an effective and efficient road network in Waipa District.	**Supports** Pirongia Road and Frontier Road are able to accommodate the increase in traffic volumes without adverse effects on traffic conditions on each road, ensuring the efficiency of Pirongia Road and Frontier Road are maintained.
4. Freight Transport To support and improve the efficient movement of freight to, through and within Waipa district.	**N/A** The primary use of the development roads is to provide access to residential lots and retirement housing within the Structure Plan.
5. Influencing Travel Choices To provide and promote travel choices (where appropriate) to manage travel demand in the district.	**Supports** The proposed structure plan network has been designed to support active transport choices.
6. Passenger Transport To improve passenger transport so that it becomes a viable option for travel between main centres in the district and the region.	**Supports** There are currently no bus services operating in this area, however the Structure Plan can accommodate buses in the future if there are changes to the public transport network.
7. Walking and Cycling To encourage cycling and walking in the Waipa District as safe and convenient modes of transport.	**Supports** The Structure Plan includes walking facilities and cycling facilities and connects to existing networks, to provide an attractive option for residents and the broader community.

Overall, it can be seen there is a sound alignment of the proposed Structure Plan with the relevant traffic and transport objectives, policies and rules.

12. Conclusions and Recommendations

The proposed Structure Plan facilitates a combination of residential and retirement community development. At full development the Structure Plan is expected to accommodate in the order of 310 to 360 standard residential dwellings and a retirement village with 98 villas and supporting care facilities.

The combined total traffic generation is estimated as up to 2,950 to 3,350 vehicle movements, distributed across Frontier Road, Pirongia Road and supporting local residential roads.

A multi-modal transport network has been designed to support the Structure Plan with a low-speed, permeable network of roads and shared user paths.

Future connection points have been modelled in SIDRA and show to have more than adequate capacity to operate as single-lane priority-controlled intersections. Raised table treatments are recommended to support priority of new shared user paths on Pirongia Road and Frontier Road.

Cross-road intersections within the Structure Plan area are recommended to be safely managed by way of small urban roundabouts.

The following external infrastructure upgrades are recommended to support the Structure Plan:

- Upgrading of Frontier Road and Pirongia Road to an urban cross-section along the Structure Plan frontage;

- Including of formed recessed parking on the northern side of the Frontier Road upgrade;
- Extension of the 50km/h (Frontier Road) and establishment of a 60km/h (Pirongia Road) speed zone west of the Structure Plan site boundary areas, supported by installation of a speed change gateway treatment with kerb build-outs, supporting landscaping and signage; and
- Formation of a 3.0m wide shared path on the site side of both Frontier Road and Pirongia Road.

End of report.

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Ecological Impact Assessment

Frontier Road, Te Awamutu

Prepared for Sanderson Group Ltd
6 August 2020

Report Number 20039.1-001 V2

ECOLOGY
NEW ZEALAND

Document Sign Off

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Contents

1. Introduction 5
1.1. Purpose 5
1.2. Site Location, Description and Ecological Context 5
2. Methodology 7
2.1. Terrestrial 7
2.2. Aquatic 7
3. Assessment of Effects Methodology 8
3.1.1. EIANZ Assessment 8
3.1.2. Values Assessment 8
3.1.3. Magnitude of Effects Assessment 8
3.1.4. Overall Level of Effects Assessment 8
4. Ecological Assessment outcomes 8
4.1. Terrestrial 8
4.1.1. Terrestrial Vegetation 8
4.1.2. Terrestrial Fauna 9
4.2. Aquatic 12
4.2.1. Freshwater (waterways, wetlands, and fish) 12
4.3. Terrestrial Values Assessment 12
4.4. Aquatic Values Assessment 13
5. Assessment of Effects 13
5.1. Terrestrial Effects 13
5.1.1. Vegetation Clearance 13
5.1.2. Birds 13
5.1.3. Lizards 13
5.1.4. Bats 14
5.2. Aquatic Effects 14
6. Magnitude and Level of Unmitigated Effects 14
6.1. Terrestrial 14
6.2. Aquatic 15
7. Management of Effects 15
7.1. Terrestrial 16
7.1.1. Vegetation Clearance 16
7.1.2. Bat management 16

7.1.3. Birds 17
7.1.4. Lizards 17
7.2. Aquatic 17
8. Post-Mitigation Magnitude of Effects 17
8.1. Terrestrial & Freshwater 17
9. Conclusion 18
APPENDIX A 19
Report Limitations 19

List of Figures

Figure 1 Map of site at Pirongia and Frontier Roads, Te Awamutu (Boffa Miskell 2020) 6

List of Tables

Table 1: Avifauna seen/heard on-site. 10
Table 2: Reptile species potentially utilising the Plan Change 12 site. 11
Table 3: Terrestrial values at Te Awamutu Plan Change 12 site 12
Table 4: Freshwater values at Te Awamutu Plan Change 12 site 13
Table 5: Summary of the magnitude of unmitigated effects and the associated level of effect on terrestrial values. 14
Table 6: Summary of the magnitude of unmitigated effects and the associated level of effect on aquatic values. 15
Table 7: Bat management options 16
Table 8: Mitigated level of effects of proposal on terrestrial and freshwater values. 18

Appendices

Appendix A Report Limitations

1. INTRODUCTION

This report[1], prepared by Ecology New Zealand Limited ('ENZL') for Sanderson Group Ltd (the 'client'), presents an Ecological Impact Assessment (EcIA) for the proposed Plan Change 12 at Frontier and Pirongia Roads, Te Awamutu (the 'site'). Specifically, this report provides an assessment of the site's ecological features, context and values relevant to the proposed Plan Change and future land use. This report identifies the terrestrial and aquatic ecological values present and the potential, actual, direct or indirect impacts associated with the proposed Plan Change. Recommended methods to avoid, remedy or mitigate these impacts are also detailed.

1.1. Purpose

The purpose of this report is to assess the overall suitability of the site for urban development from an ecological perspective. It is intended that specific and detailed ecological management requirements will be addressed through subsequent resource consents associated with the development of the site.

1.2. Site Location, Description and Ecological Context

The site is located between Pirongia and Frontier Roads, Te Awamutu, and is situated within the Waipa Ecological District of the Waikato Region. The land cover is predominantly rye grass pasture, with two minor watercourses at the north and south of the site and four established residential dwellings and another in the process of being built.

Two watercourses are present on the property. The northern watercourse flows north to Frontier Road. The headwaters arise in a bunded farm pond, with mallard and pukeko on and around the open water area. The outfall from this pond was intermittent and then permanent stream to the boundary of the site. The edge of the pond was electric fenced from farm stock and the downstream course was unfenced. There was scattered mahoe (*Melicytus ramiflorus*), karamu (*Coprosma robusta*), cabbage trees (*Cordyline australis*) and Chinese privet (*Ligustrum sinense*) shrubs along the stream banks.

The watercourse in the south is a bunded seepage area with ephemeral overland flows into the bunded area. The seepage area was dry, after a period of prolonged rainfall and does not appear to be part of a stream or a permanent or semi-permanent wetland. The downstream reach was on the adjacent property outside of the Plan Change 12 area.

Within the wider landscape context, the site lies on the edge of the urban residential area. The majority of neighbouring sites consisted of residential dwellings and vacant sites in the process of being developed.

[1] This report is subject to the Report Limitations provided in Appendix A.

This plan has been prepared by Boffa Miskell Limited on the specific instructions of our Client. It is solely for our Client's use in accordance with the agreed scope of work. Any use or reliance by a third party is at that party's own risk. Where information has been supplied by the Client or obtained from other external sources, it has been assumed that it is accurate. No liability or responsibility is accepted by Boffa Miskell Limited for any errors or omissions to the extent that they arise from inaccurate information provided by the Client or any external source.

ABM 10
μ = 0.1

ABM 11
μ = 0

ABM 12
μ = 0.05

ABM 9
μ = 0.05

ABM 8
μ = 0

ABM 7
μ = 0.05

ABM 6
μ = 0.05

ABM 5
μ = 0

ABM 4
μ = 0

ABM 3
μ = 0

ABM 2
μ = 0

ABM 1
μ = 0.85

Pirongia Road
Mahana Lane
Tainui Terrace
Alawaya Rise
Pakura Street
Rewi Street
Frontier Road

Mean Number of Bat Passes Per Night (μ)
≤0.000000
≤0.050000
≤0.100000
≤0.850000
T2 Boundary

Boffa Miskell
www.boffamiskell.co.nz

0 200 m
1:4,500 A3

Data Sources: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Projection: NZGD 2000 New Zealand Transverse Mercator

BM200127 SANDERSON GROUP TE AWAMUTU VILLAGE

Bat Monitoring Results - May 2020

Date: 12 June 2020 | Revision: 0

Plan prepared for Sanderson Group by Boffa Miskell Limited

Project Manager: Jo.Soanes boffamiskell.co.nz | Drawn: JWa | Checked: ABI

2. METHODOLOGY

Preliminary site assessments for the project were undertaken by Boffa Miskell in early 2020[2]. To ground truth the findings of this initial assessment, ENZL undertook a secondary site walk over on 30th July 2020. During this walk over, terrestrial and aquatic features were identified, and their associated structure, composition, quality and value were documented. Both terrestrial and aquatic ecological values were then assessed in order to evaluate the potential, actual, direct or indirect impacts associated with the proposed development.

In conjunction with site assessments, a desktop review was undertaken to ascertain information relating to the site's ecological characteristics.

Existing information reviewed included:

- DOC Bio-web Herpetofauna database;
- DOC Bat database;
- iNaturalist New Zealand; and
- New Zealand Freshwater Fish Database.

2.1. Terrestrial

On-site investigation of indigenous fauna communities included opportunistic observations of species encountered, general habitat evaluations, bird species presence and manual habitat searches for native lizards in suitable habitat. In addition to faunal assessments, on-site vegetation communities were identified and visually assessed for their botanical and biodiversity values.

Potential bat roost trees were risk rated during ENZL's site investigation (30 July 2020) in accordance with industry best practice methodologies[3]. Risk rating was undertaken by Simon Chapman, Principal Ecologist, who is listed on the Department of Conservations database of competent bat ecologists as a Level E (Trainer) bat ecologist.

2.2. Aquatic

A high-level assessment was carried out across the site's watercourses by ENZL, to validate the findings of the Boffa Miskell reporting. This primarily included the classification of aquatic features as ephemeral , intermittent or permanent, the documentation of overall aquatic quality, and the likely presence of native fish based on available habitat.

[2] Boffa Miskell, Automatic acoustic long-tailed bat survey and potential ecological Constraints, June 2020

[3] Lindberg, S., Davies, F., & Eccles, G. (2017). Effects of land transport activities on New Zealand's endemic bat populations: reviews of ecological and regulatory literature October 2017.

3. ASSESSMENT OF EFFECTS METHODOLOGY

3.1.1. EIANZ Assessment

The assessment of effects on both terrestrial and aquatic values was undertaken against the Ecological Impact Assessment (EcIA) guidelines (second edition, May 2018, EIANZ). The guidelines provide a transparent stepwise approach to evaluate the level of ecological effect, providing insight into the feasibility and the management of effects through avoidance, mitigation and biodiversity offsetting. These guidelines have been adopted to allow for expert judgement and the consideration of implications under New Zealand's Wildlife Act 1953.

3.1.2. Values Assessment

Four matters were used to determine the value of the ecological features present on-site, these being 'Representativeness, Rarity/distinctiveness, Diversity and Pattern, and Ecological Context'. To assign value under each of these four matters, an explanation on each matter and a series of attributes are provided for consideration in Table 4 of the EIANZ guidelines. A scoring system provided in Table 6 of the guidelines requires the combination of these assessment values to provide an overall assignment of ecological value to each feature.

3.1.3. Magnitude of Effects Assessment

An assessment of the magnitude of effects was evaluated with the consideration of impacts on identified ecological values. Impacts were considered in the context of the project footprint. Impacts are considered against several factors including:

- The scale of impacts (i.e. the real extent of the Project footprint)
- The extent or proportion of habitat loss versus local availability (e.g. the proportion of habitat loss relative to the contiguous habitat that remains)
- The duration of impacts (e.g. permanent versus temporary)
- The intensity of the unmitigated effect (i.e. the extent to which habitat loss within the Project footprint was complete or partial)

3.1.4. Overall Level of Effects Assessment

An overall level of effects assessment was undertaken using a matrix which weights the assessed ecological values against the magnitude of effects. A level of effect was determined for both unmitigated (i.e. in lieu of any avoidance, mitigation or offsetting measures being implemented) and mitigated. This assessment framework allowed for effects to be ranked on a gradient from 'Negligible' to 'Very High' and provided justification for avoidance, mitigation and offsetting requirements as appropriate.

4. ECOLOGICAL ASSESSMENT OUTCOMES

4.1. Terrestrial

4.1.1. Terrestrial Vegetation

Vegetation across the site was of low ecological quality and very low diversity with low pest plant impacts. Vegetation within the Plan Change 12 footprint was dominated by rye grass pasture with scattered exotics in the pasture. The vegetation along the watercourses included

poplar (*Populus* sp), crack willow (Salix fragilis), and occasional pine (*Pinus* sp) and *Acacia* species. Native sub-canopy vegetation consisted of karamu, mapou (*Myrsine australis*), and hangehange (*Geniostoma ligustrifolium*). Native ground cover was limited on-site to pasture grasses, blackberry (*Rubus fruticosus* agg.) and pastural weeds, such as thistle dominating.

Pest plant[4] presence was low throughout the site. Documented species were limited to occasional woolly nightshade (*Solanum mauritianum*), and blackberry.

The quality of the on-site vegetation was considered low overall. The vegetation was dominated by ryegrass pasture and exotic plant species along fence lines and areas where farm stock had been excluded. There was a low abundance and diversity of native plant species. There were no At-Risk or Threatened plant species observed at the site.

4.1.2. Terrestrial Fauna

4.1.2.1 Chiropfauna (Bats)

The long-tailed bat is classified as "Threatened – Nationally Critical" (O'Donnell et al., 2018) due to predation, habitat degradation and/or habitat loss. Native bats are 'absolutely protected' under the Wildlife Act (1953). No notable bat habitat was identified on the site.

Boffa Miskell undertook an acoustic bat survey in early May 2020[5]. A total of 23 bat passes were recorded across all survey locations during the entire survey period. Bat activity was recorded at six out of the 12 survey locations, ranging from 0.05 ± 0.05 to 0.85 ± 0.60 average bat passes per night (± standard error of the mean [SEM]; Appendix 1 and 3).

Bat activity was detected by the seepage area and ephemeral drain within the southern extent of the project site featuring large oak, poplar and acacia trees (Automated Bat Monitor - ABM 1); by the pond towards the northern range of the site featuring large oak and poplar trees; and along the gully wetland vegetation, the driveway avenue and within the garden in the northern extent of the site featuring mature swamp cypress, willow, oak and other exotic trees (north of ABM 6) (Appendix 1)[5]. The highest level of bat activity (0.85 ± 0.60 average bat passes per night) was recorded by the seepage area within the southern extent of the site (ABM 1: (Appendix 1 and 3)[5]. ABMs that recorded at least one call, detected activity between one (5%) and two (10%) survey nights (Appendix 3)[5].

One potential feeding buzz call was recorded at ABM 10 by the northern border of the site (Figure 2)[5]. No social calls were recorded during this survey, and no bat activity was detected within one hour of sunset or one hour of sunrise (this could indicate no roosting nearby) at any of the monitored locations during this survey[5].

Temporal distribution of detected bat activity throughout the night for each survey location are provided in Appendix 4 of the Boffa Report[5]. During the survey period, low levels of bat activity were detected. Long-tailed bats appear to be using the ephemeral farm pond on the southern watercourse for infrequent hawking for insects around the farm pond and rare detections along the northern watercourse. During this survey period, no activity was detected

[4] Waikato Regional Pest Management Plan, 2014-2024

[5] Boffa Miskell, Automatic acoustic long-tailed bat survey and potential ecological Constraints, June 2020

that would indicate roosting on-site, and no clear evidence of intensive foraging within the site.

Lower levels of bat activity are to be expected for surveys conducted during colder weather conditions outside the optimal bat monitoring season (November to April). Therefore, these survey results do not allow any conclusions about the level of bat activity and how habitat features throughout the site would be utilised by bats during warmer months.

ENZL undertook a potential bat roost tree survey on 30th July 2020. As part of this survey all trees on-site were risk rated for their potential to provide suitable bat roosts. The timing of the survey aligned with the time of the year where deciduous exotic trees on-site had shed their leaves, enabling a clearer assessment of possible roosting features. No potential bat roost trees were recorded.

4.1.2.2 Avifauna (birds)

The current land-use within the project site is predominantly pasture for grazing cattle with a few areas of tall, mature vegetation dominated by exotic trees, several residential gardens, a pond, and two areas of wetlands/waterways. A lack of vegetation diversity likely limits year-round food sources and a lack of habitat limits the diversity and abundance of indigenous bird species. The bird species assemblage using the Plan Change 12 area comprised of a typical mix of common native and exotic species. No At Risk or Threatened bird species were observed during the site walk-over by Ecology New Zealand or Boffa Miskell and it is unlikely that any of these species would be more than transient visitors to the site.

Table 1: Avifauna seen/heard on-site.

Common Name	Latin Name	Threat status
Australian magpie	*Gymnorhina tibicen*	Introduced & Naturalised
European goldfinch	*Carduelis carduelis*	Introduced & Naturalised
Grey warbler	*Gerygone igata*	Indigenous & Not Threatened
House Sparrow	*Passer domesticus*	Introduced & Naturalised
Mallard	*Anas platyrhynchos*	Introduced & Naturalised
Myna	*Acridotheres tristis*	Introduced & Naturalised
North Island fantail	*Rhipidura fuliginosa placabilis*	Indigenous & Not Threatened
Pukeko	*Porphyrio melanotus*	Indigenous & Not Threatened
Ring-necked pheasant	*Phasianus colchicus*	Introduced & Naturalised
Song Thrush	*Turdus philomelos*	Introduced & Naturalised

Common Name	Latin Name	Threat status
Spur-winged plover	*Vanellus miles*	Indigenous & Not Threatened
Tūī	*Prosthemadera novaeseelandiae*	Indigenous & Not Threatened
Welcome swallow	*Hirundo neoxena*	Indigenous & Not Threatened

4.1.2.3 Herpetofauna (lizards)

The habitat quality for lizards throughout the site is generally poor due to historical vegetation removal and high modification of the area. Nonetheless, habitat suitable for the native copper skink (*Oligosoma aeneum*) (Not threatened) is present at some localities on the site[6]. This native species is known to live in farmland and residential environments utilising habitats such as weedy areas, artificial and natural debris, rank grass, compost piles, and residential gardens[7]. While this species is 'Not Threatened' (Hitchmough et al., 2016), all native lizard species are 'absolutely protected' under the Wildlife Act (1953) and any lizard habitat is protected by the Resource Management Act (1991). Likewise, plague skink (*Lampropholis delicata*), which is an exotic unwanted organism, are likely present within the project site.

The table below outlines the species likely to occur on-site and their corresponding conservation status.

Table 2: Reptile species potentially utilising the Plan Change 12 site.

Common Name	Scientific Name	Conservation Status
Copper Skink	*Oligosoma aeneum*	Not Threatened
Plague Skink	*Lampropholis delicata*	Introduced and Naturalised

Habitats suitable for copper skink are as follows (ABM locations have been used as reference points and are mapped in Figure 1).

- ephemeral drain / seepage – complex dense vegetation, woody debris and rank grass surrounding ABM 1;
- residential gardens – debris, complex ground covers, compost piles and dense vegetation – locations near ABM 3 and 12; and
- pond and wetland/stream – debris, rank grass, complex vegetation – ABM 6 to 9.

[6] Hitchmough, R.; Barr, B.; Lettink,M.; Monks, J.; Reardon, J.; Tocher, M.; van Winkel, D.; Rolfe, J. 2016: Conservation status of New Zealand reptiles, 2015. New Zealand Threat Classification Series 17. Department of Conservation, Wellington. 14 p

[7] Van Winkel, D., Baling, M., & Hitchmough, R. (2020). Reptiles and Amphibians of New Zealand. Bloomsbury Publishing.

4.2. Aquatic

4.2.1. Freshwater (waterways, wetlands, and fish)

Freshwater ecosystem south

In the southern portion of the site near ABM 1 there is an ephemeral seep and drain that may periodically hold water for short periods of time throughout the year (Figure 1). However, this watercourse was dry when observed during heavy rain on 5th May (Boffa Miskell 2020) and July 30th (ENZL).

Freshwater ecosystem north

In the northern portion of the site near ABM 6 there was a large pond and downstream of this was an ephemeral or intermittent waterway, with associated riparian wetland, flowing towards the Mangapiko stream (Figure 1).

Native fish species that may be present in these habitats include longfin eel (At Risk – Declining), shortfin eel (Not Threatened), and black mudfish (At Risk - Declining)[8].

4.3. Terrestrial Values Assessment

In assigning ecological value to identified terrestrial features across the subject site, the ecological matters of Representativeness, Rarity/Distinctiveness, Diversity and Pattern, and Ecological Context have been considered, based on the EIANZ 2018 guidelines.

The table below outlines the ecological values assigned to the identified ecological features of terrestrial vegetation, chiropfauna (bats), avifauna (birds), and herptofauna (lizards).The overall values assigned consider the ecological matters at an ecosystem/vegetation type, species and fauna habitat level as summarised in Table 3 below.

Table 3: Terrestrial values at Te Awamutu Plan Change 12 site

Feature	Representativeness, Rarity/distinctiveness, Diversity and Pattern, Ecological Context:	Value
Terrestrial Vegetation	Low diversity of native vegetation presence. Most of the site was covered in exotic pasture grasses.	Low
Bats	Long tailed bats (Nationally Threatened – Critical) recorded on site. Less than one bat pass per night recorded at one ABM, with most ABMs recording no bat activity. No suitable roosting or nesting habitat for long-tailed bats noted.	Very High
Avifauna	There were no threatened avifauna recorded at the site, and only low numbers and diversity of native species recorded. There was minimal indigenous bird feeding, roosting or nesting habitat.	Low

[8] Dunn, N.R.; Allibone, R.M.; Closs, G.P.; Crow, S.K.; David, B.O.; Goodman, J.M.; Griffiths, M.; Jack, D.C.; Ling, N.; Waters, J.M.; Rolfe, J.R. 2018: Conservation status of New Zealand freshwater fishes, 2017. New Zealand Threat Classification Series 24. Department of Conservation, Wellington. 11 p

Lizards	Suitable habitat is sparse on-site for ground-dwelling lizard species. Species on-site are likely limited to copper skinks.	Low

4.4. Aquatic Values Assessment

Likewise to section 4.3, in assigning of ecological value to identified aquatic features across the subject site, the following matters were considered: Representativeness, Rarity/Distinctiveness, Diversity and Pattern, and Ecological Context, based on the EIANZ 2018 guidelines. The table below outlines the ecological values assigned to the identified aquatic ecological features being Freshwater ecosystem north, Freshwater ecosystem south, and indigenous fish.

Table 4: Freshwater values at Te Awamutu Plan Change 12 site

Feature	Representativeness, Rarity/distinctiveness, Diversity and Pattern, Ecological Context:	Value
Freshwater ecosystem - North	Farm pond and ephemeral or intermittent stream grazed along most of its length, peripheral wetland areas and is a headwater reach of the Mangapiko Stream.	Moderate
Freshwater ecosystem - South	Ephemeral farm pond. Dry during winter 2020. Upper reach of overland flow path on adjacent property.	Low
Indigenous fish	A detailed survey of indigenous fish species presence was deemed outside the scope of this assessment. Potential habitat available for indigenous fish.	Moderate

5. ASSESSMENT OF EFFECTS

5.1. Terrestrial Effects

5.1.1. Vegetation Clearance

The proposed plan change provides for the removal of exotic and pest plant dominated vegetation, as well as a small number of low ecological value natives to facilitate development of urban settlement on rural land. Development of the site will not impact vegetation of high botanical significance.

5.1.2. Birds

Future earthworks and vegetation clearance on-site will result in a loss of low value habitat and resources for indigenous avifauna utilising the site. The impacted vegetation is noted to only support common native and exotic species. Vegetation clearance may cause impacts on nesting birds and their eggs during the breeding season.

5.1.3. Lizards

Future earthworks and vegetation clearance on-site will result in loss of potential habitat and resources for resident lizards which may be utilising the site. In addition, vegetation/habitat clearance has the potential to result in lizard mortality.

5.1.4. Bats

No bat roost habitat has been identified across the project footprint. As such, any associated vegetation clearance is unlikely to have a direct impact on bats (i.e. injury or mortality associated with felling an occupied roost).

On a conservative basis, the proposed change in land-use within the project site may potentially have indirect impacts on long- tailed bats. This being associated with loss or degradation of commuting and/or potential foraging across the site; and ongoing disturbance from artificial light that may result in bats avoiding illuminated areas. These potential effects may lead to decreased bat activity; a change in how the project site is utilised by bats; or the complete avoidance of the project site by bats.

5.2. Aquatic Effects

Aquatic impacts which may occur across the project site include the loss of aquatic habitat for indigenous fish, potential mortality of native fish during stream works, and the loss of wetland habitat.

6. MAGNITUDE AND LEVEL OF UNMITIGATED EFFECTS

6.1. Terrestrial

The proposed Plan Change providing for urban subdivision has a low to very low risk of mortality of one or more fauna species and permanent or temporary loss of vegetation and fauna habitat. The magnitude of unmitigated effects and associated level of effect on terrestrial values is summarised below. Due to their threat status, impacts on bats have been broken in habitat impacts and injury/death impacts associated with vegetation clearance.

Table 5: Summary of the magnitude of unmitigated effects and the associated level of effect on terrestrial values.

Feature and associated impact	Ecological Value	Magnitude of Effect (un-mitigated)	Level of Effect	Comment
Terrestrial Vegetation	Low	Low	Very Low	Minor and minimal shift from baseline conditions.
Birds	Low	Low	Very Low	Minor and minimal shift from baseline conditions
Lizards	Low	Low	Very Low	Minor and minimal shift from baseline conditions.
Bats – habitat loss	Very High	Moderate	High	Major alteration of key elements/features of existing baseline condition

Bats - potential injury/death	Very High	Negligible	Low	Very slight change from existing baseline condition.

6.2. Aquatic

The proposed Plan Change providing for urban subdivision has a low to very low risk of mortality of one or more fauna species and permanent or temporary loss of fauna habitat. The magnitude of unmitigated effects and associated level of effect on aquatic values are summarised below.

Table 6: Summary of the magnitude of unmitigated effects and the associated level of effect on aquatic values.

Feature and associated impact	**Ecological Value**	**Magnitude of Effect (un-mitigated)**	**Level of Effect**	**Comment**
Freshwater ecosystem south	Low	Low	Very Low	Minor and minimal shift from baseline conditions.
Freshwater ecosystem north	Moderate	Moderate	Moderate	loss or alteration to one or more features of the existing baseline conditions.
Indigenous Fish – Potential death/injury	Moderate	Moderate	Moderate	loss or alteration to one or more features of the existing baseline conditions.

7. MANAGEMENT OF EFFECTS

The overall level of effect under EIANZ is to be used as a "*guide to the extent and nature of the ecological management response required (including the need for biodiversity offsetting)*". Where Regional or District Plans do not provide specific guidance for the management of effects a suggested guide is:

- For Very High levels of effect:
  - "*…unlikely to be acceptable on ecological grounds alone (even with compensation proposals). Activities having very high adverse effects should be avoided.*"
- For High or Moderate levels of effect:
  - *Such an effect could be managed through avoidance, design, or extensive offset or compensation actions. Wherever adverse effects cannot be avoided, no net loss of biodiversity values would be appropriate*.
- For Low or Very Low levels of effect:
  - "*…should not normally be of concern, although normal design, construction and operational care should be exercised to minimise adverse effects*."

The need for management of effects also takes into consideration the protection of native fauna under the Wildlife Act 1953.

Whilst the majority of effects on terrestrial values are below the level of effect which would cause concern under the EIANZ guidelines, one effect will require mitigation measures. Due to the likely occurrence of native Bats within the site, which are protected under the Wildlife Act (1953), mitigation measures are required.

Impacts associated with aquatic features are below those requiring mitigation for the freshwater ecosystem to the south of the site. Impacts which do require management are largely associated with those of the higher quality areas found within the northern freshwater ecosystem and those associated with impacts on indigenous fish.

Recommendations to avoid and mitigate the effects from the proposed Plan Change are outlined in Section 7.1 and 7.2 below.

7.1. Terrestrial

7.1.1. Vegetation Clearance

Vegetation clearance will not require specific mitigation measures due to the low-quality vegetation communities present across the site.

7.1.2. Bat management

No potential bat roost trees were recorded within the site. Consequently, implementation of specific vegetation removal protocols for the management of bats is not required prior to vegetation clearance. However, development of the site has the potential to displace or disturb potential bat utilisation of the site. Therefore, Table 7 below summarises the need for further survey work to assess potential impacts on long-tailed bats, and potential options for the management of these impacts.

Table 7: Bat management options

Management options	Comments
Completion of further automated bat surveys (Nov-April).	These should be undertaken to provides more certainty on the use of the site by long-tailed bats. At current, bat utilisation is very low.
Stormwater pond design to provide better feeding habitat.	Open water areas with robust planting around them can increase invertebrates in these areas which bats feed on. Open areas of still water can be used by bats for nightly drinking.
Incorporation of low lumen, directional lighting design for external lights. Street lighting to be avoided/minimal where required.	Reduces the level of disturbance on bat commuting and foraging across the site; and specifically, near aquatic features that bats may utilise.

7.1.3. Birds

While bird management is not required under the EIANZ guidelines, all native birds are protected under the Wildlife Act (1953). Consequently, vegetation removal should be undertaken outside the bird breeding season (October – April). Where this cannot be undertaken, all woody vegetation to be removed should be inspected by an experienced ecologist to ensure they are free of active nests. Where active nests are found, these should be retained until chicks have fledged.

Landscaping and planting around stormwater detention ponds and along water courses is likely to provide positive effects for native and introduced birds on the site and it may attract additional species.

7.1.4. Lizards

Native lizards have not been confirmed to occur on-site; however, habitat is available throughout the site for ground-dwelling lizards. Therefore, a targeted survey for lizard species should be undertaken. Should they be detected, a Lizard Management Plan should be prepared by an appropriately qualified and experienced ecologist, outlining lizard management to be undertaken before and during vegetation removal. Any native lizards encountered could be relocated into habitat of equal or greater quality on-site.

7.2. Aquatic

Indigenous fish have not been confirmed to occur on-site; however, habitat is potentially available, particularly within the feature identified as freshwater ecosystem north. Targeted fish surveys should be undertaken within suitable months to determine species presence and densities. Subsequent to the findings of these surveys, a Fish Management Plan may need to be prepared by an appropriately qualified and experienced ecologist, outlining fish management to be undertaken before and during earthworks. Any indigenous fish encountered could be relocated into suitable habitat within the same watercourse, outside the proposed development site.

8. POST-MITIGATION MAGNITUDE OF EFFECTS

8.1. Terrestrial & Freshwater

The post-mitigation level of effects is outlined in **Error! Reference source not found.** 8 below. As a result of the management options outlined above, the levels of effect are expected to decrease to very low or low for all ecological features identified, under EIANZ guidelines. As such, no further management of residual effects is required. It shall be noted that, these mitigation options will be addressed in more detail and incorporated as necessary as part of subsequent resource consent applications.

Table 8: Mitigated level of effects of proposal on terrestrial and freshwater values.

Impact	Ecological Value	Suggested Management	Magnitude of (mitigated) Effect	Level of Residual Effect
Vegetation clearance	Low	Stormwater and landscape planting including enhancement and infill planting	Low	Very Low
Avifauna	Low	Vegetation clearance protocols and avoid nesting season	Low	Very Low
Lizards	Low	Develop and implement Lizard Management Plan prior to vegetation clearance	Low	Very Low
Bats	Very High	See Table 7	Negligible	Low
Freshwater	Moderate	Develop and implement Fish Management Plan prior to earthworks	Low	Low

9. CONCLUSION

This report provides an ecological impact assessment associated with the proposed Plan Change 12 between Pirongia and Frontier Roads, Te Awamutu. Overall, the value of terrestrial ecological features on the site are considered very high to low. This effects assessment is based on the limited amount of vegetation clearance required and the presence of exotic plant dominated ecosystems within the site, the absence of threatened native bird and lizard species and the absence of potential long-tailed bat roosting habitat. The ecological effects on terrestrial and aquatic values attributable to the proposed plan change and subsequent consented development, after the implementation of recommended mitigation and management actions, are considered to be low to very low in accordance with the EIANZ impact assessment methodology. With the implementation of appropriate ecological management, it is expected that any negative effects associated with the proposed plan change and subsequent development can be adequately managed.

APPENDIX A

Report Limitations

This Report/Document has been provided by Ecology New Zealand Limited (ENZL) subject to the following limitations:

i) This Report/Document has been prepared for the particular purpose outlined in ENZL's proposal and no responsibility is accepted for the use of this Report/Document, in whole or in part, in other contexts or for any other purpose.

ii) The scope and the period of ENZL's services are as described in ENZL's proposal and are subject to restrictions and limitations. ENZL did not perform a complete assessment of all possible conditions or circumstances that may exist at the site referenced in the Report/Document. If a service is not expressly indicated, do not assume it has been provided. If a matter is not addressed, do not assume that any determination has been made by ENZL in regard to it.

iii) Conditions may exist which were undetectable given the limited nature of the enquiry ENZL was retained to undertake with respect to the site. Variations in conditions may occur between investigatory locations, and there may be special conditions pertaining to the site which have not been revealed by the investigation and which have not therefore been taken into account in the Report/Document. Accordingly, if information in addition to that contained in this report is sought, additional studies and actions may be required.

iv) The passage of time affects the information and assessment provided in this Report/Document. ENZL's opinions are based upon information that existed at the time of the production of the Report/Document. The Services provided allowed ENZL to form no more than an opinion of the actual conditions of the site at the time the site was visited and cannot be used to assess the effect of any subsequent changes in the quality of the site, or its surroundings, or any laws or regulations.

v) Any assessments, designs and advice made in this Report/Document are based on the conditions indicated from published sources and the investigation described. No warranty is included, either express or implied, that the actual conditions will conform exactly to the assessments contained in this Report/Document.

vi) Where data supplied by the client or other external sources, including previous site investigation data, have been used, it has been assumed that the information is correct unless otherwise stated. No responsibility is accepted by ENZL for incomplete or inaccurate data supplied by others.

vii) The Client acknowledges that ENZL may have retained sub-consultants affiliated with ENZL to provide Services for the benefit of ENZL. ENZL will be fully responsible to the Client for the Services and work done by all of its sub-consultants and subcontractors. The Client agrees that it will only assert claims against and seek to recover losses, damages or other liabilities from ENZL and not ENZL's affiliated companies. To the maximum extent allowed by law, the Client acknowledges and agrees it will not have any legal recourse, and waives any expense, loss, claim, demand, or cause of action, against ENZL's affiliated companies, and their employees, officers and directors.

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ix) Where lengths or other measurements have not been provided by a surveyor, ENZL has used basic GIS mapping and measurement systems to estimate these numbers. These should not be taken as surveyor-level accuracy for the purposes of decision making.

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Lots 1 & 2 DP 487281, Frontier Road: Assessment of Archaeological Values and Effects

By Warren Gumbley **3 June 2020**

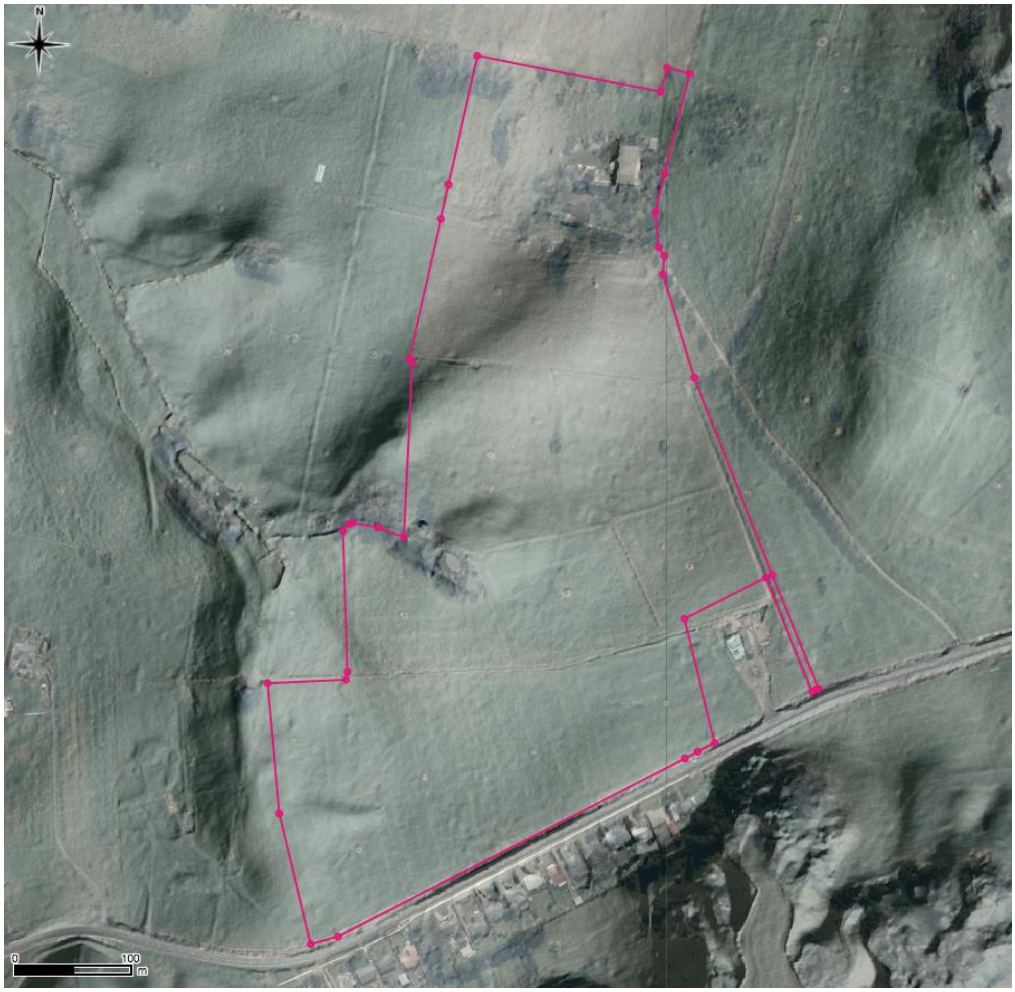

Figure 1: Project area outlined in red with Frontier Road to the bottom of the map.

Preamble

Sanderson Group propose to developed a residential retirement village on Lots 1 and 2 DP 487281 located on Frontier Road, Te Awamutu. The proposed development will encompass approximately 18 hectares.

An archival search of the NZ Archaeological Association site recording scheme via its on-line portal (Archsite) was carried out and historic maps and aerial photography was also reviewed.

Archsite

No archaeological sites have been recorded on or adjacent to the proposed development area. However, it should be noted that the area and its surrounds has not been subject to systematic archaeological survey and all of the archaeological sites recorded locally have been recorded on an ad hoc basis. The only systematic archaeological survey locally was carried out by Leahy and Walsh in 1980 and this was focused on the Puniu River.

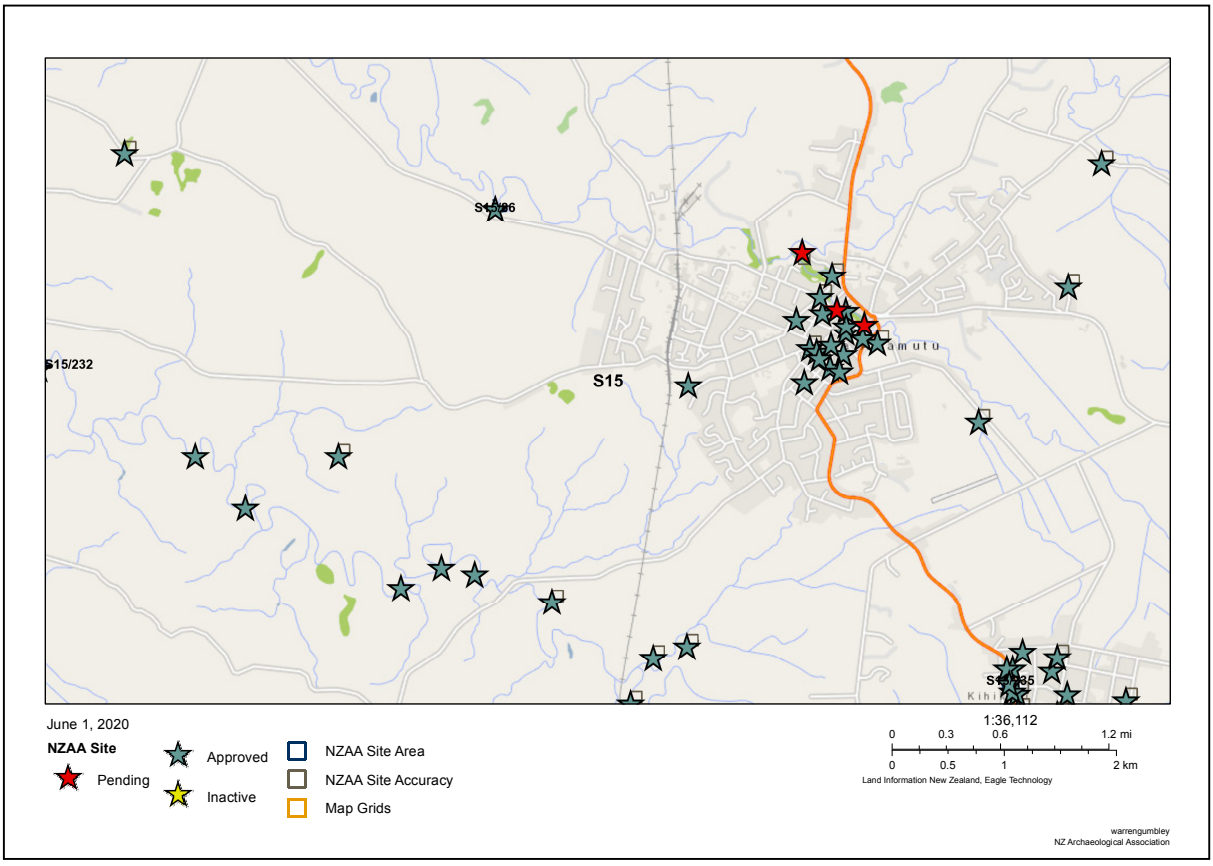

Figure 2: Map showing the locations of recorded archaeological sites in the Te Awamutu district.

However, despite the absence of systematic archaeological site surveying and recording in the district that identified archaeological sites appear to follow generally distinctive patterns. Archaeological sites relating to Māori settlement of the locality are strongly clustered to the Puniu River and the Mangapiko Stream and their navigable tributaries. This applies particularly to the distribution of pā, but with one notable exception; Ōtawhao Pā is located approximately 1.3 kilometres east of the proposed development site and was a significant pā occupied in the early 19th Century until the 1940s.

Early European settlement began with the establishment of a Church Mission Society (CMS mission station first at Ōtawhao Pā but which soon relocated to the Te Awamutu mission site a couple of years later. This mission operated until immediately prior to the British invasion of the Waikato in 1863. From 1864 Te Awamutu was used the principal forward base for the British and Colonial expeditionary force and was, together with Kihikihi one of the foci for the establishment of the military settler scheme. Te Awamutu itself remained a minor centre compared to Kihikihi, Alexandra (Pirongia) and Cambridge until the construction of the railway line from Hamilton in the 1880, after which Te Awamutu quickly overcame Kihikihi and Alexandra.

Historic Maps

Altogether, eleven historic 19th Century maps and plans were examined but none of them contained any annotations referencing the proposed development area.

List of maps consulted:

SO 487, SO156-1, SO156-2, SO960, SO2401, SO1394-C1, SO1394-C2, SO2112, SO4109, SO3908, DP275-1

Historic Aerial Photographs

Historic aerial photographs were searched and viewed through the on-line portal Retrolens.nz.

The earliest historic aerial photograph covering the proposed development area is SN266/840/48, flown on 21 March 1944. This image shows this area as pasture with a farm house and out-buildings located in the same area as the current house. However, it is clear that all of buildings shown in this photograph have been demolished to make way for the current house and grounds. The age of the earlier buildings is unknown. Otherwise the image shows no evidence of earthworks or other marks that may indicate the presence of an archaeological site.

Further earlier surveys were flown in 1957 (SN1039/2621/17) and 1958 (SN1051/2687/35), 1961 (SN1039/2622/17), 1966 (SN1812/F/1), 1967 (SN1889/5058/11) 1971 (SN3470/4517/7), 1974 (SN3730/K/15), 1979 (SN5479/L/22), 1995 (SN9401/C/4). None of the images show any significant changes within the proposed development area, except for the installation of a milking shed on Frontier Road prior to the 1957 photograph, until the

1995 photograph which shows that the earlier farm house and outbuildings had been replaced by the existing house and curtilage.

Site inspection

A pedestrian site inspection was carried out on 2 June 2020. No evidence for the presence of archaeology was noted.

Archaeological Values

No actual or potential archaeological values were identified.

References

Leahy, A.L., Walsh, W.D. 1980. *Lower Puniu River Survey, Te Awamutu*. Unpublished report to NZ Historic Places Trust.

Historic maps

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SO156-1,
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Aerial photographs

SN1039/2621/17
SN1051/2687/35
SN1039/2622/17
SN1812/F/1
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SN5479/L/22
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Lots 1 & 2 DP 487281, Frontier Road: Assessment of Archaeological Values and Effects

By Warren Gumbley **3 June 2020**

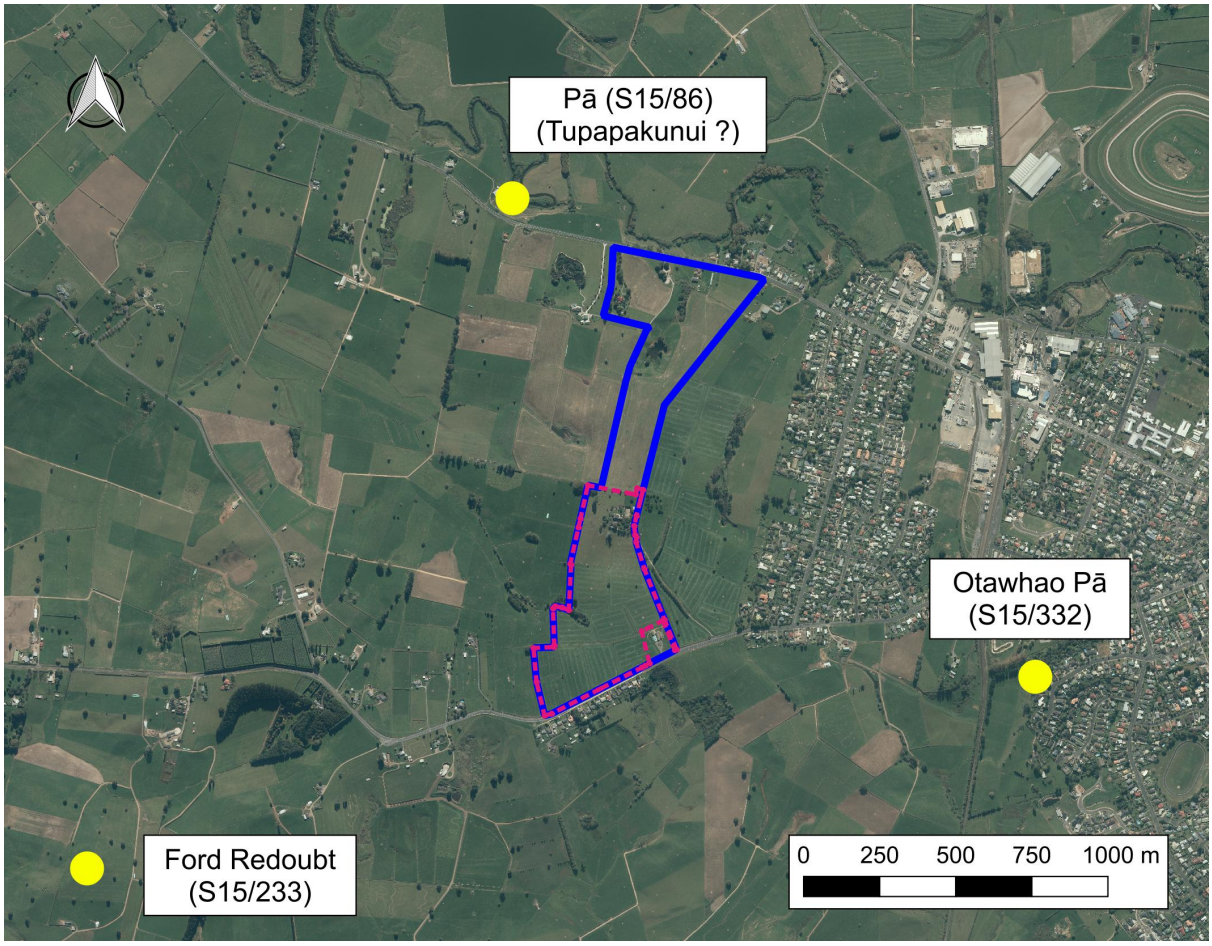


Figure 1: T2 growth cell outlined in blue with Frontier Road showing the closest recorded archaeological sites. The area bounded by a red dashed line was subject to a pedestrian survey.

Preamble

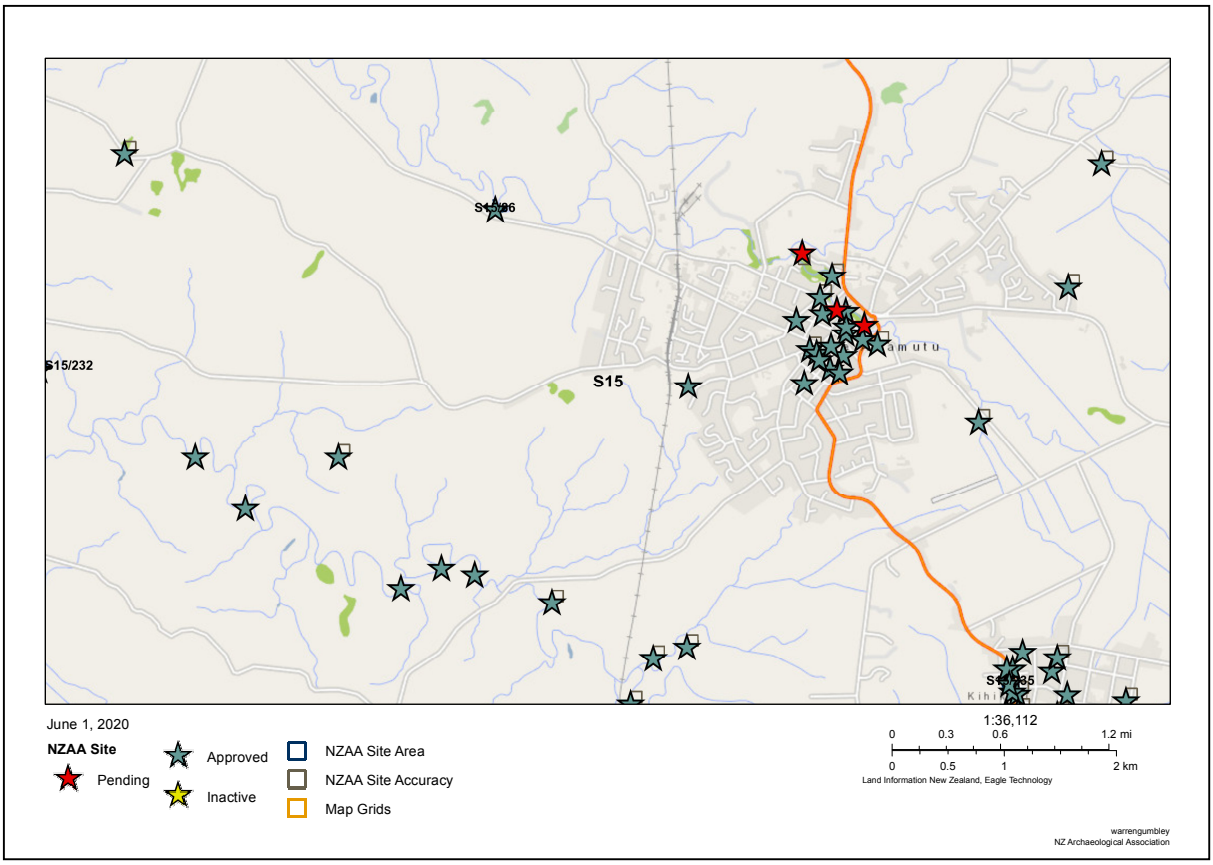
The T2 growth cell is located to the west of Te Awamutu and stretches between FRontier Road in the south and the Mangapiko Road in the north. Sanderson Group propose to

developed a residential retirement village on Lots 1 and 2 DP 487281 located with T2 fronting onto Frontier Road. The landform is comprised of a rolling hill-scape with clay loams.

An archival search of the NZ Archaeological Association site recording scheme via its on-line portal (Archsite) was carried out and historic maps and aerial photography was also reviewed.

Archsite

No archaeological sites have been recorded on or adjacent to the proposed development area. However, it should be noted that the area and its surrounds has not been subject to systematic archaeological survey and all of the archaeological sites recorded locally have been recorded on an ad hoc basis. The only systematic archaeological survey locally was carried out by Leahy and Walsh in 1980 and this was focused on the Puniu River.



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approximately 1.3 kilometres east of the proposed development site and was a significant pā occupied in the early 19th Century until the 1940s.

Early European settlement began with the establishment of a Church Mission Society (CMS mission station first at Ōtawhao Pā but which soon relocated to the Te Awamutu mission site a couple of years later. This mission operated until immediately prior to the British invasion of the Waikato in 1863. From 1864 Te Awamutu was used the principal forward base for the British and Colonial expeditionary force and was, together with Kihikihi one of the foci for the establishment of the military settler scheme. Te Awamutu itself remained a minor centre compared to Kihikihi, Alexandra (Pirongia) and Cambridge until the construction of the railway line from Hamilton in the 1880, after which Te Awamutu quickly overcame Kihikihi and Alexandra.

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Site inspection

A pedestrian site inspection of Lots 1 and 2 DP 487281located at the southern end of the T2 cell was carried out on 2 June 2020. No evidence for the presence of archaeology was noted.

Access to the northern half of T2 Growth Cell was not available and no pedestrian survey was carried out there.

Archaeological Values

No actual or potential archaeological values were identified. In general the potential for archaeological sites within this area is considered low there is a slightly increased potential for archaeological remains with proximity to the Mangapiko Stream and the pa recorded as S15/86. This may take the form of the remains of activities peripheral to the pā (e.g. agriculture) or the remains of early colonial settlement following the invasion of 1863-1864.

References

Leahy, A.L., Walsh, W.D. 1980. *Lower Puniu River Survey, Te Awamutu*. Unpublished report to NZ Historic Places Trust.

Historic maps

SO 487,
SO156-1,
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SN1812/F/1
SN1889/5058/11
SN3470/4517/7
SN3730/K/15
SN5479/L/22
SN9401/C/4).

29 July 2020

T2 GROWTH CELL PROPOSED PRIVATE PLAN CHANGE

GEOTECHNICAL DESKTOP REPORT

Sanderson Group Limited

and

Kotare Properties Limited

Ref: HAM2020-0016AD/0043ABRev 0

Table of Contents

1. INTRODUCTION 1
2. Information Sources 1
3. The Site 1
3.1. Location 1
3.2. Site Description 2
4. Site Geology 3
4.1. Published information 3
4.2. Previous Investigations 3
5. Previous Land Use 4
6. Landform Features 5
6.1. Surface water 5
6.2. Groundwater 5
6.3. Geomorphology 6
6.3.1. Southern Zone. 6
6.3.2. Northern Zone 7
7. Geotechnical Hazards 7
7.1. Liquefaction and Lateral Spread 8
7.1.1. Geological Age Considerations 8
7.1.2. Soil fabric and Consistency/density considerations 8
7.1.3. Cyclic Softening 9
7.1.4. Lateral Spread 9
7.2. Slope Stability 9
7.3. Uncontrolled Fill 9
7.4. Soft Soils / Settlement 9
7.5. Expansive Soils 10
7.6. Sensitive Soils 11
8. Further Work 11
9. Conclusion 11
10. LIMITATION 12
11. CLOSURE 12

Drawings

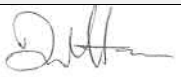
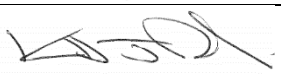
Drawing 01 – Geomorphological Plan Northern Area

Drawing 02 – Geomorphological Plan Southern Area

Appendices

Appendix A – Maunsell Limited Site Investigation Records 14
Appendix B – HD Geotechnical Site Investigation Records 15
Appendix C – CMW Site Investigation Records 16
Appendix D – Historic Aerial Images 17
Appendix E – CMW Natural Hazards Risk Assessment 18
Appendix F – Boffa Miskell T2 Structure Plan Concept 18

HAM2020-0016AD/0043AB		
Date	**Revision**	**Comments**
10 June 2020	A	Draft for Internal Review
29 July 2020	0	Issue to Client

	Name	**Signature**	**Position**
Prepared by	Jack Whattam		Engineering Geologist
Reviewed by	Kori Lentfer		Associate Engineering Geologist
Authorised by	Ken Read		Principal Geotechnical Engineer

1. INTRODUCTION

CMW Geosciences (CMW) has been engaged by the Sanderson Group Ltd to undertake a geotechnical desk top assessment in relation to the development suitability of the T2 Growth Cell for residential development. The work is to support a submission to the Waipa District Plan seeking rezoning of the land from 'Deferred Residential' to 'Residential'.

Our work has been carried out in accordance with Variation No. 1 (ref. HAM2020-0016AB Rev 0, dated 9 April 2020), to the CMW fee proposal referenced HAM2020-0016AA Rev.0.

The purpose of this report is to present the findings of our review of available geotechnical data, and available local desktop and investigation reports. The object of this work being to identify potential geotechnical hazards affecting the site and comment on the suitability of the land for the proposed plan change.

Since the initial commission of this report Kotare Properties and Sanderson Group have agreed that this report be prepared on their joint behalf.

2. INFORMATION SOURCES

The conceptual layout of the T2 Growth Cell is depicted on the Boffa Miskell T2 Structure Plan Concept presented in ***Appendix F***.

In preparing this report we have reviewed the following existing reports and information which have been prepared as a part of local developments in the vicinity of the T2 Growth Cell:

- Factual and interpretive information for the CMW Geosciences geotechnical investigation report (GIR) for the Te Awamutu Country Club / Kotare Wetlands Development, to be issued
- HD Geotechnical report entitled "T1 Residential Growth Cell, Te Awamutu – Suitability Assessment" ref. HD057, dated 5 October 2015;
- Maunsell Limited, letter report entitled "Rochdale Subdivision Site, Off Frontier Road, Te Awamutu: Stormwater Management, Wastewater Disposal, and Water Supply Assessment, ref. 600 427 95/Rochdale01, dated 29 July 2008; and
- Maunsell Limited, letter report entitled "Rochdale Subdivision Site, Off Frontier Road, Te Awamutu: Geotechnical Assessment, ref. 600 427 95/Rochdale02, dated 24 July 2008.

We have also examined the following

- The published geological map of the area,
- Historic aerial photographs available on the Retrolens website,
- Past and recent satellite imagery from Google Earth Pro,
- Past published maps of the area, and
- Contour maps available on the Waikato Regional Council website

3. THE SITE

3.1. Location

The T2 growth cell is located approximately 2.5km west of Te Awamutu town centre, as shown on Figure 1 below, and has an area of approximately 41ha.

The growth cell is bounded by Frontier Road to the south, Pirongia Road to the north, and by farmland to the west.

Along the eastern site boundary is the T1 Growth Cell, which is currently undergoing earthworks for residential subdivision.

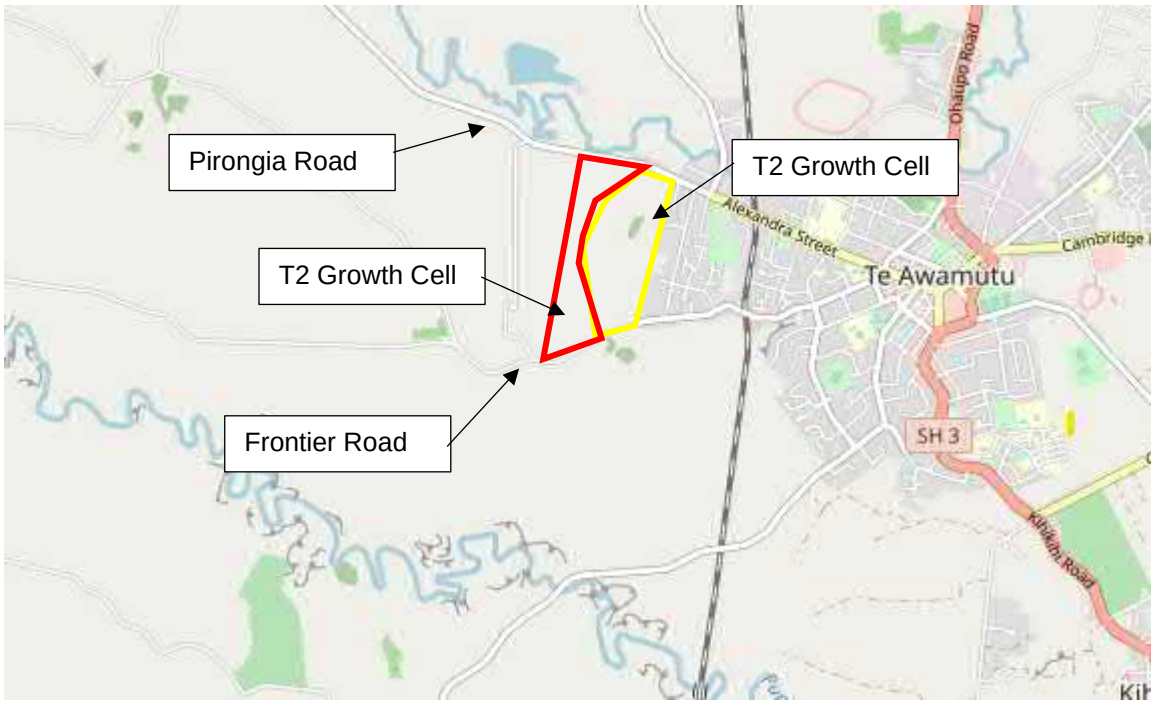


Figure 1: Site location (OpenStreetMap).

3.2. Site Description

The current site land use is pastureland for dairy farming.

Three residential dwellings, a dairy shed, and associated sheds/farm buildings are located near the northern edge of the growth cell off Pirongia Road.

Another dwelling is accessed of Frontier Road in the southern portion.

There is a farm shed adjacent to Frontier Road at the southern boundary of the growth cell.

A large water reservoir tank is located in the south-eastern corner of the growth cell, adjacent to Frontier Road.

The site topography consists of rolling hills with moderate to steep slope angles (up to 1V:2.5H), and incised gullies. The rolling hills are the dominant feature of the site, covering approximately 85% of the area, with elevations from approximately RL 65m to RL 84m.

Two gully areas are present within the site boundaries, one in the north and one in the south-west.

The northern gully drains to the northeast and is steeply incised at its southern end, giving way to moderate to gentle gully sides towards the north and draining out to a relatively flat plain at RL 44m to RL 47m.

The south-western gully is moderately incised, drains to the north west, but only the head of the gully system lies within the site boundary.

Elevations presented are to Moturiki Vertical Datum 1953.

4. SITE GEOLOGY

4.1. Published information

The published geological map[1] of the area (Figure 2) shows the site to be predominantly underlain by primary and reworked, non-welded ignimbrites of the early to middle Pleistocene Walton Subgroup.

There are comparatively minor areas of lacustrine mud, silt gravel and peat of the late Pleistocene Piako Subgroup shown in in the south-west corner of the site.

Cross-bedded pumice sand, silt and gravel with interbedded peat of the late Pleistocene aged Hinuera Formation deposits are mapped just to the north of the growth cell boundary.

4.2. Previous Investigations

Previous investigations conducted by Maunsell Limited and HD Geotechnical in the adjacent T1 growth cell, and by CMW in the southern portion of the T2 growth cell found that the site geology is generally consistent with the published information with the addition of soils of the Hamilton Ash.

Walton Subgroup soils were found to be overlain by of up to 4.7m of stiff to hard silt/clay of the Hamilton Ash Formation.

This was underlain by very stiff to hard sandy silt / clayey silt, sensitive silt, and dense to very dense sand of the Puketoka Formation, part of the Walton Subgroup.

Piako Subgroup soils comprising locally derived alluvial clay, silt, and sand mixtures, were encountered during the CMW site investigation and appear constrained to within the southwestern gully.

Factual investigation records from the reports referred to above are presented in ***Appendix A*** (Maunsell Limited), ***Appendix B*** (HD Geotechnical), and ***Appendix C*** (CMW Geosciences).

[1] GNS Geological Map 1:250,000 scale Geological Map No 4 ‘Waikato’. S.W Edbrooke et al.

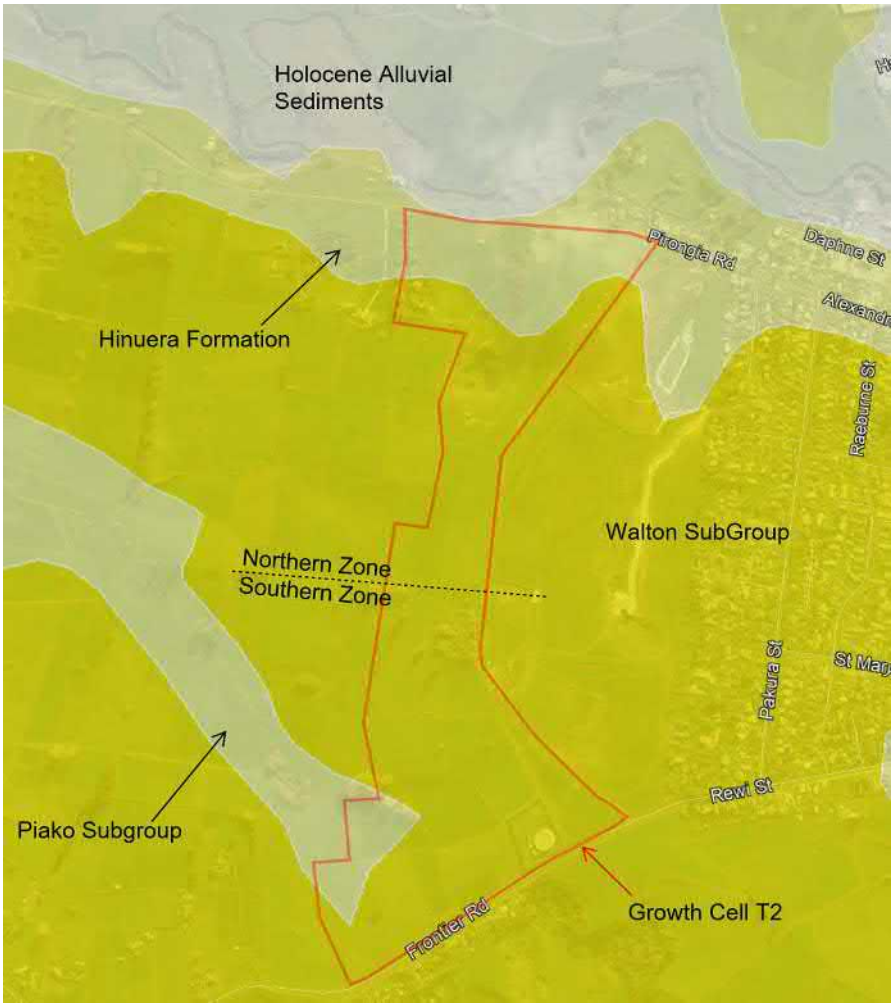


Figure 2: Local Geology (GNS 1:250K geological map).

5. PREVIOUS LAND USE

As part of this work we have examined historic aerial photographs dating back to 1944. Copies of these are provided in ***Appendix D.***

The study area has always been in pasture over the period assessed.

The only area where significant changes can be seen is the north-east trending gully in the northern portion of the site.

Between 1957 and 1961 it appears that two farm dams / access tracks were constructed across the gully approximately 80m and 280m from Pirongia Road.

Between 1966 and 1971, a number of trees were removed from the north-east trending gully in the area adjacent to Pirongia Road. Further tree removal occurred in the head of the north-east trending gully between 1979 and 1995.

Since 1944 there is no particular evidence observed on the aerial photographs of major slips, but it appears that slope sides in the north-east trending gully have receded, while slopes angles have reduced slightly.

Google Earth aerial images show a constructed pond within the upper region of the northeast trending gully in 2006 but this has been filled in by 2008.

Between 2006 and 2019 (the extent of historic Google imagery) the slope sides of the north-east trending gully have undergone some recession. Slumping and small surface movements have been

occurring at least since 2006 as indicated by hummocky areas and terracette's on gully side slope sides. Older aerial imagery does not have the resolution to see these features, although they are likely to have been present.

6. LANDFORM FEATURES

6.1. Surface water

A number of springs and saturated depressions were observed during the site walkovers carried out by HD Geotechnical in the adjacent T1 area. These are understood to have been confined to low lying areas and gully inverts.

Approximate locations of springs and surface water are shown on the appended HD Geotechnical Site Plan (***Appendix B)***.

No springs or surface water were noted within growth cell T2 during CMW's investigation in late summer (March 2020). However, it is considered likely that springs and surface water will be present in low lying regions of the T2 growth cell during winter months.

6.2. Groundwater

Previous site investigations in growth cells T1 and T2 recorded late summer (April) to late-winter (September) groundwater levels ranging from approximately RL 41.5m in the low-lying areas to RL 56.5m in the high elevation areas.

In the low-lying areas around gullies and the drainage plains of growth cell T1, groundwater levels were noted to be 0.3m to 1.6m below ground level, equating to approximately RL 41.5m to RL 45m. The investigations noting these levels were conducted in July and September.

In mid-elevation areas (approximately RL 53m to 55m) of growth cell T1, groundwater levels were noted to be approximately 2.7m below ground level in hand auger boreholes, equating to approximately RL 51m to RL 53m. The investigations noting these levels were conducted in July and September. Groundwater was not encountered in any of the machine boreholes conducted by Maunsell Limited during their investigation.

During the CMW investigation, which was undertaken in March, groundwater was not encountered within the CPT probe holes, test pits, hand augers, or during installation of the piezometers. When the piezometers were dipped on 17 April 2020, CPT07 was dry to the base at 8m below ground level, and CPT01 had groundwater at 7.5m below ground level, (RL 56.5m).

Later test pit and hand auger investigations in the south-western gully encountered groundwater at between RL 52.3m to 53.8m.

The groundwater levels recorded in all the previous site investigations show a hydraulic gradient, trending north to north-east. This is toward the nearby major stream courses shown on **Figure 3** below.

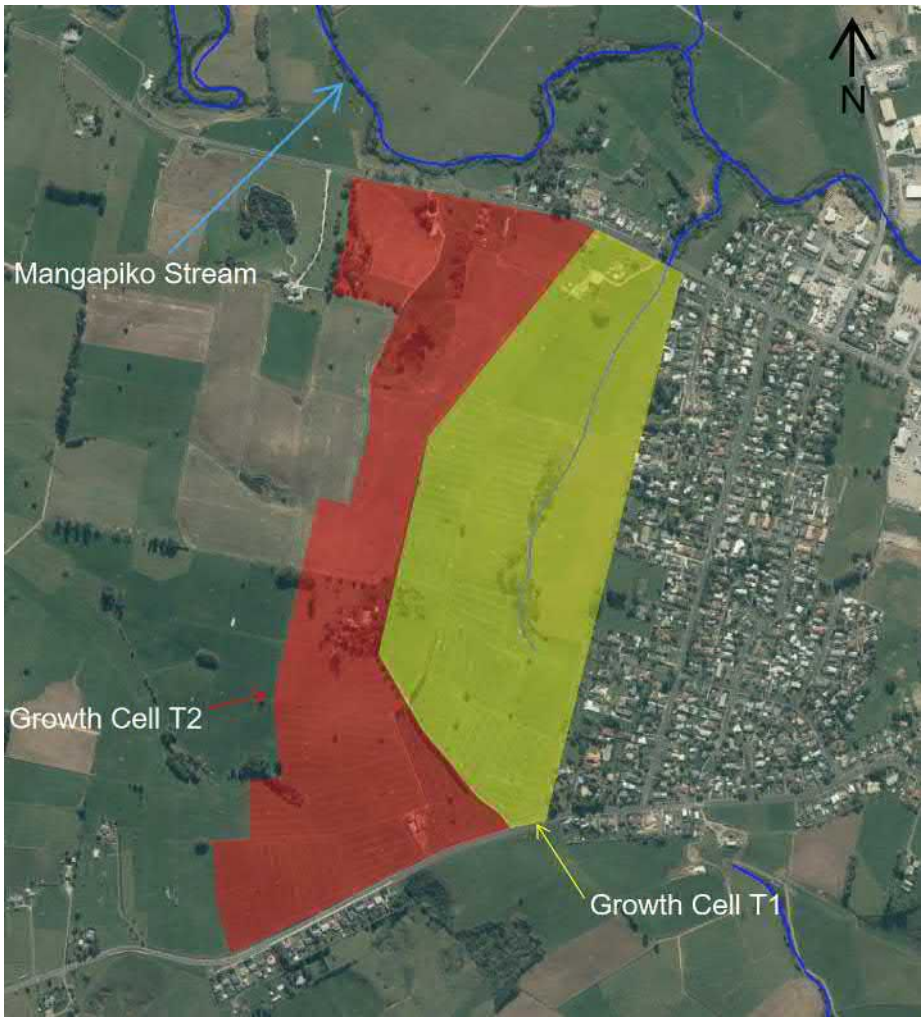


Figure 3: Major stream courses (Waikato Regional Council maps)

We conservatively estimate that ground water levels noted during investigations carried out in summer months may rise by up to 2m in some areas in winter.

6.3. Geomorphology

We have divided the T2 growth cell into a southern and northern zone for the geomorphological assessment below. CMW have undertaken a detailed site investigation and walkover of the southern zone for the Geotechnical Investigation Report, yet to be issued.

Our assessment of geomorphology in the northern zone has relied on available aerial and satellite imagery, and contour plans.

The geomorphic features identified in both zones are shown on the appended Geomorphological Plans (***Drawing 01 and 02***).

6.3.1. **Southern Zone.**

The dominant regional landform comprises rolling hills. The site is a local high point with hillsides sloping away from the site in all directions.

A main ridge runs in a north-northwest to south-southeast orientation along the eastern boundary of the site, at elevations of RL 81m to 84m. A secondary ridge branches off the main ridge and runs

along the southern site boundary in a northeast to southwest direction, at elevations of RL 81m to 70m.

The low point of the site is located centrally on the western site boundary at RL 58m. Two incised gullies have been eroded into the hills and converge at the central western boundary. The northern gully runs in a north-east to south-west direction, the other, (more steeply incised) central gully, runs in a generally east to west direction. Another gully is present beyond the south-western site boundary and runs in a south to north direction. All three gullies merge and continue towards the north-west.

An ephemeral pond is located at the base of the central gully, at RL 60m. The pond was dry at the time of our site investigation; however, a review of historic aerial photographs shows that it fills during winter months. A drainage channel for an intermittent stream begins at the pond and continues west, off site, running along the base of the gully.

The northern and western gullies have no drainage channels, but it is expected that springs may develop here during winter months.

A major scarp associated with a historic landslide is present at the head of the central gully, with eroded material deposited in the base of the gully as colluvium.

A generally even graded area, between elevations of between RL 59m to 65m, is located near the central western site boundary at the base of a steepened slope. This feature has been flagged as a possible debris lobe associated with a relic, deep seated rotational landslide.

A recent shallow translational slip is located on the eastern bank of the western gully.

Evidence of soil creep in the form of terracette's is visible along a steep bank surrounding the pond.

6.3.2. **Northern Zone**

The dominant regional landforms in the northern zone are rolling hills and a steeply incised, north-east trending gully. This zone is also a local high point with hillsides sloping away from the site in all directions.

The eastern boundary of the site bisects a south-west / north-east orientated ridgeline, with the high point of RL 83m located on this ridgeline, approximately at the mid-point of the southern and northern zones.

The low point of RL 44m is located roughly halfway along the northern site boundary on a relatively flat drainage plain. This drainage plain is part of the Mangapiko Stream course that drains the surrounding hills and joins the Waipa River to the west.

A steep sided gully, with maximum slope gradients of approximately 1V:2.5H, has been incised into the rolling hills north of the high point. The gully slope falls from RL 70m, to RL 53m at the base of the gully. The gully is orientated south-west to north-east and drains onto the low-lying drainage plain noted above.

Slope crest recession over the last 75 years, as indicated by changes in the slope crest observed in historic aerial images, hummocky ground, and small terrecettes around this gully indicate that small to medium slopes failures (i.e. soil creep and/or minor slumping) are or have been active here.

7. GEOTECHNICAL HAZARDS

An assessment of hazards and associated risk ratings for the T2 development site is provided in ***Appendix E***.

The flooding hazard in the low-lying area adjacent to Pirongia Road is considered to be low based on the available Waipa District Council flood hazard mapping.

Natural hazards of tsunami, wind, drought, and fire are not covered by the assessment.

In the sections below we cover only those geotechnical hazards that were assessed as medium to very high risk under current conditions (i.e. with no geotechnical mitigation).

7.1. Liquefaction and Lateral Spread

Soil liquefaction is a process where typically saturated, granular soils develop excess pore water pressures during cyclic (earthquake) loading that exceed the effective stress of the soil. In loose soils, some dilation can occur during this process, which can lead to individual soil grains moving into suspension. Following the onset of liquefaction, the shear strength and stiffness of the liquefied soil is effectively lost causing excessive differential settlement of the ground surface, bearing capacity failure and collapse of structures and low-angle lateral spreading of slopes in liquefiable soils.

In accordance with NZGS guidance[2] the liquefaction susceptibility of the soils at this site has been considered with respect to geological age and soil fabric.

7.1.1. Geological Age Considerations

The vast majority of case history data compiled in empirical charts for liquefaction evaluation come from Holocene deposits or man-made fills (Seed and Idriss, 1971). Table 1 of Idriss and Boulanger (extracted from Youd and Perkins (1978)), presents the susceptibility of soil deposits to liquefaction based on geological age, which states that Pleistocene aged alluvium (>12,000 years) has a very low to low risk of liquefaction.

Within the study area the soils below groundwater levels are generally understood to be clays, silts, and sands of the early to mid-Pleistocene aged Walton Subgroup, (ca. 1.26Ma to 2.18Ma), with a comparatively minor presence of late Pleistocene aged Piako Subgroup soils (, ca. 22ka to 17ka). Piako Subgroup soils are typically high plasticity clays.

The geological age of Walton Subgroup soils is older than what the case history data would suggest as being susceptible to liquefaction.

The soils of the Piako Subgroup, and Hinuera Formation are of late Pleistocene age and may be considered as of low risk of liquefaction based on age.

7.1.2. Soil fabric and Consistency/density considerations

Recent case histories suggest that soils comprised of sands, non-plastic silts, gravels, and their mixtures are susceptible to liquefaction.

The clay soils of the Walton and Piako Subgroup are therefore not considered to be at risk of liquefaction.

Furthermore, although silts and sands are present across the site, previous investigations generally show these to be firm to hard (silt) and dense to very dense (sands) and are therefore considered unlikely to liquefy.

Beneath the southern part of the site potentially liquefiable soils are generally at depths greater than 5m. We consider that the depth to liquefiable soils is likely to be similar in the northern portion of the site, with the exception of potential Hinuera Formation soils discussed below.

With the above conclusions regarding geological age, soil fabric, and depth to liquefiable soils, we consider the risk of surface manifestation of liquefaction to be low, and the risk of potentially damaging liquefaction induced ground deformation or liquefaction induced lateral spread to be low across the majority of the site.

[2] Earthquake Geotechnical Engineering Practice, Module 3: Identification, assessment and mitigation of liquefaction hazards", (May 2016)

If Hinuera Formation soils extend into the northern low-lying part of the site, we considered the risk of surface manifestation and potentially damaging liquefaction induced ground deformation to be moderate to high in this area of the site.

7.1.3. Cyclic Softening

Although not considered liquefiable, the high plasticity silt and clay soil such as those of the Hamilton Ash formation encountered across the elevated hills of the site may still be susceptible to some strength loss, referred to as cyclic softening, during the ULS seismic event. However, these soils were very stiff to hard, and are considered to have a low risk of cyclic softening due to their strength.

7.1.4. Lateral Spread

Following the onset of liquefaction, the liquefied soils behave as a very weak undrained material, which can give rise to lateral spreading where a free face is present within the vicinity of the site or where cut and fill batters are proposed over or within liquefiable soils.

In its current state, the site is considered to have a low risk of surface manifestation of lateral spread as potentially liquefiable soils within the elevated portions of the site were found to be overlain by at least 5m of non-liquefiable soils. However, careful consideration should be given to the design and placement of cut batters to ensure that the deeper liquefiable soils are not left exposed in a free face.

7.2. Slope Stability

Previous site investigations and site walkovers in growth cells T1 and T2 indicated currently active small-scale, and ancient medium-scale slope instability.

No large-scale slope failures were noted in any previous geotechnical study of either cell.

Similarly, we observed no large-scale on-going slope instability during our examination of the available aerial and satellite imagery.

Surficial soil creep, accelerated by farming practices and the removal of vegetation, appears to be occurring on many of the rolling hill slopes and gully side slopes across the site.

The primary area of concern for medium-scale slope instability is the steeply incised portion of the north-east trending gully, where historic aerial imagery indicates moderate recession of the slope crest.

Generally, slope instability and its effects can be mitigated by removing any colluvium, reducing slopes angles, constructing shear keys, buttressing slopes by backfilling gullies, retaining walls, and/or defining building setback restrictions from slope crests.

7.3. Uncontrolled Fill

Our examination of available aerial and satellite imagery indicates the presence of at least two areas of uncontrolled fill in the northern gully of the study area.

It is important to quantify the depth and extent of this uncontrolled fill, and to either remove/improve it during earthworks, or define the areas where it is present as “no build” or “specific design” zones.

7.4. Soft Soils / Settlement

In general the risk of significant settlement in the higher elevation portions of the study area under the expected building loads (i.e. lightweight timber residential buildings) is considered to be low. Some building-load induced settlement could occur, but we expect this would be within NZ building Code limits.

In the gullies and other low-lying areas of the site, lower strength soils are considered likely to be present. Significant settlement under earth-fill and/or building loads is considered a moderate to high risk in these areas.

Typical mitigation measures for areas likely to undergo significant settlement are undercutting and removal of these soils or preloading with appropriate survey monitoring of settlement magnitudes.

Preloading does not require excavation and disposal of soft and compressible soils from the site but can be time consuming and expensive process.

If soft / compressible soils are shallow, then undercutting and disposing off-site can be time and cost effective.

7.5. Expansive Soils

Seasonal shrinking and swelling of expansive soils can result in ground movements that are large enough to damage structures. Case histories of damage include significant cracking of concrete floors and foundations poured in summer months on desiccated subgrades comprising expansive soils, which have subsequently heaved (moved upwards) as rainfall has increased the moisture content of the soil. In some cases extensive repairs or re-building were required. Damage can also result if settlement occurs because of expansive soils drying out.

This hazard is addressed by a combination of suitable foundation design and site preparation.

NZS 3604:20113 excludes from the definition of 'good ground', soils with a liquid limit of more than 50% and a linear shrinkage of more than 15% due to their potential to shrink and swell as a result of seasonal fluctuations in water content. For soils exceeding these limits, NZS 3604 has historically referenced AS 2870. for foundation design advice. However, the November 2019 update of Acceptable Solution B1/AS14 provides amendments to NZS 3604 that define a method for testing and classifying the soils and provides foundation designs for specific, simple house configurations across the range of expansive soil conditions.

Nevertheless, there is evidence in the NZ geotechnical community indicating that the use of the B1/AS1 method of assessment of expansiveness and therefore its design recommendations are likely to be erroneous. Accordingly, our assessments herein have been made in line with our experience and the AS2870 references.

The AS2870 site classification system was established for assessment of expansive soil class primarily for Australian soils. This standard has been adopted in New Zealand and has been further assessed to encompass the Auckland/Northland soils (BRANZ Report, 2008). These documents are relevant where swelling clays are present with mineralogy being predominantly of Smectite / Montmorillonite clays.

With reference to published literature (Lowe & Percival, 1993, Lowe et al.,2014) the Waikato region clay soils of the Hamilton and Kauroa Ashes (the dominant surficial soil type at this locality) are dominated by Halloysite, Kaolinite and some Allophane clay mineralogy's. Upon exposure to air during periods of dry weather, these clay minerals can undergo non-recoverable shrinkage i.e. the volume of the soil is permanently decreased. In this case significant surface cracking can occur. This behaviour is unique to Halloysite dominant clays and therefore differs from Smectite / Montmorillonite (swelling/shrinking) dominated clays, on which AS2870 and the BRANZ report are based.

Whilst strict application of current standards typically classes these soils as expansive soil class M to E, based on published research and visual - tactile identification of soils in accordance with AS2870, adopting stiffened raft foundation systems or NZ3604 type foundations to comply with expansive soil

[3] Standards New Zealand (2011) Timber-framed buildings, NZS 3604:2011, NZ Standard

[4] Ministry of Business, Innovation and Employment (2019) *Acceptable Solutions and Verification Methods for NZ Building Code Clause B1 Structure,* B1/AS1, Amendment 19

class M is often recommended. These recommendations should be confirmed as a part of Resource Consent application and post earthworks geotechnical reporting.

7.6. Sensitive Soils

The near surface clays of the Hamilton Ash are not considered sensitive however, the silty soils of the Piako Subgroup, Hinuera Formation and Puketoka Formation are often highly sensitive, losing shear strength on remoulding.

The sensitive nature of these soils may make them difficult to deal with during site earthworks, and care must be taken to limit disturbance and carefully control moisture levels. Alternatively, where these soils are encountered, they can be blended with less sensitive soils.

Undercutting and replacement with engineered fill such as imported clay / well graded sand, or site won clay from the Hamilton Ash Formation and some soils of the Walton Subgroup may also be considered.

Although their use as fill is not generally recommended, if excavated sensitive silts are to be placed as engineered fill we recommended that field compaction trials are undertaken to test the soil sensitivity under normal compaction conditions and to verify treatment requirements.

8. FURTHER WORK

This desktop report has been carried out to support a zoning change from deferred residential to residential, and has been conducted without civil engineering design drawings, cut/fill earthworks plans, or confirmed building layout plans.

If the site is to be developed, further geotechnical investigation and assessment should be undertaken to provide a full understanding of the geotechnical hazards and risks across the northern portion of the site.

We recommend that the following is considered as a minimum:

- Sampling and testing of near surface soils that may be used as engineered fill to confirm compaction properties.
- Routine investigation of near surface soils for foundation bearing capacity assessment.
- If Hinuera Formation soils are found in the above investigations of near surface soils, then given their moderate to high liquefaction hazard, additional CPT investigation and assessment are required in conjunction with geotechnical design to appropriately mitigate or manage the liquefaction risk.
- Steeper slopes across the site (i.e. around gully heads) require detailed geotechnical investigation and assessment to clarify the presence and scale of any slope instability. Specific slope stability analyses should be conducted for all slopes where currently active or historic instabilities are noted.
- The areas of uncontrolled fill require investigation to confirm their nature, depth, and extent.
- Where soft and compressible soils may be present, further geotechnical investigation including test pits or boreholes and Cone Penetration Tests (CPT's) would be expected as part of a detailed site investigation to enable assessment of expected settlement magnitudes.

9. CONCLUSION

It is our opinion that the study area of growth cell T2 is suitable for the proposed re-zoning for residential use.

As noted above, further geotechnical work including ground investigation and geotechnical analyses will be required to confirm the observations made to date and to aid in the development of a workable and economic development plan.

10. LIMITATION

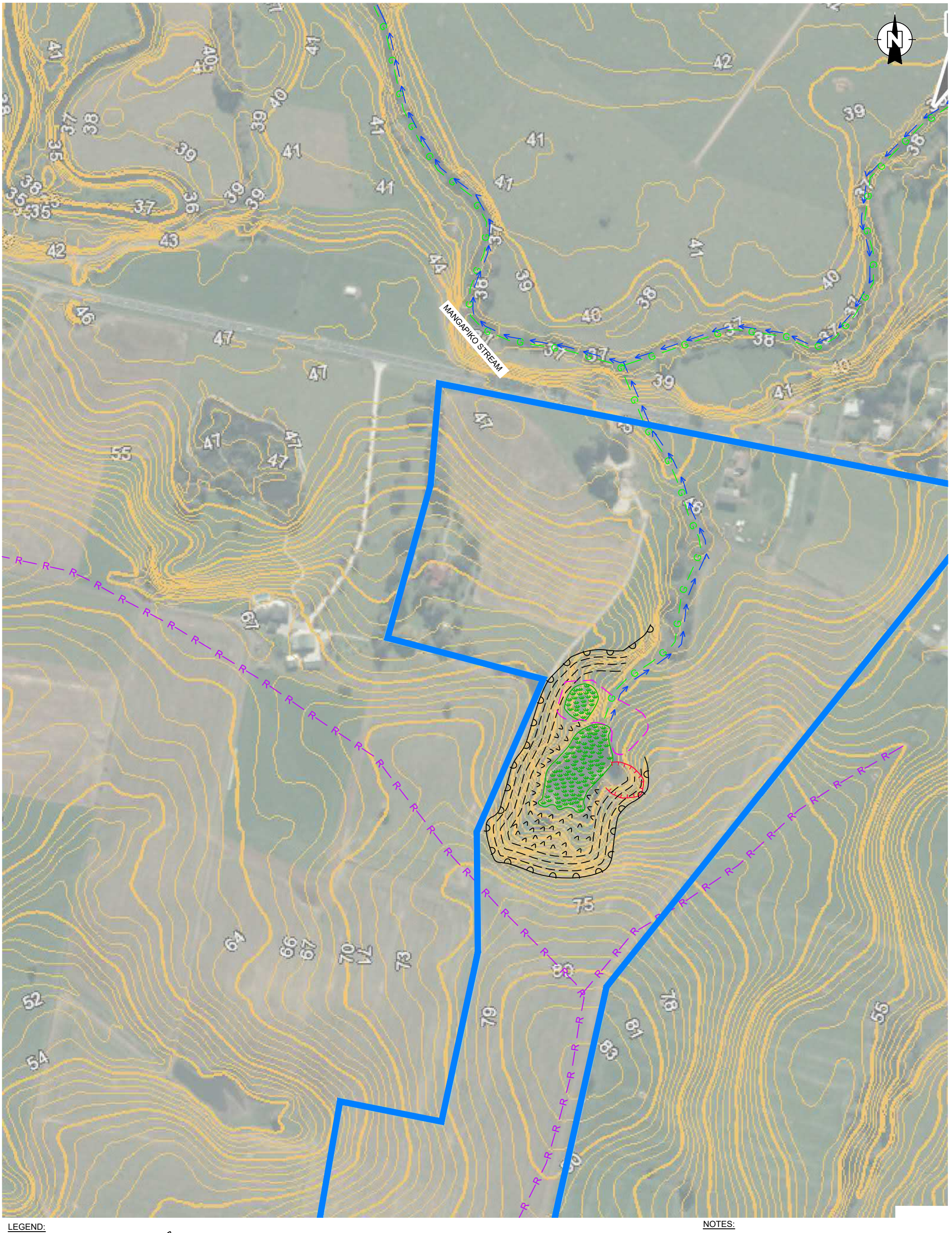
This report has been prepared for the use by our client Sanderson Group Limited, their consultants and the Waipa District Council. Liability for its use is limited to these parties and to the scope of work for which it was prepared as it may not contain sufficient information for other parties or for other purposes. No other warranty, expressed or implied, is made as to the professional advice included in this report.

It should be noted that data for this report has been obtained from discrete test locations and desktop study. No invasive investigations were completed in the southern zone of the site and as such this report should be seen as a working overview of the site that is to be added to and updated to include additional testing to form an understanding of the geotechnical nature of the entire site.

11. CLOSURE

Should you require any further information or clarification regarding the information provided in this report, please do not hesitate to contact the undersigned.

Drawings



LEGEND:

- SOIL CREEP
- HUMMOCKY GROUND
- RIDGE
- GULLY
- T2 GROWTH CELL BOUNDARY
- POSSIBLE UNCONTROLLED FILL
- POND/SWAMP
- MINOR SCARP: SIDE/FLOW (TEETH POINTING DOWNSLOPE)
- CONVEX SLOPE BREAK
- OPEN DRAIN/STREAM (ARROW IN DIRECTION OF FLOW)

NOTES:

1. BASE PLAN ADAPTED FROM WAIKATO COUNCIL GIS.

1:3000 0 30 60 90 120 150 m

CMW Geosciences

CLIENT: SANDERSON GROUP		DRAWN: WPJ	PROJECT No: HAM2020-0016
PROJECT: TE AWAMUTU COUNTRY CLUB, FRONTIER ROAD, TE AWAMUTU		CHECKED: JW	DRAWING: 01
		REVISION: 0	SCALE: 1:3000
TITLE: GEOMORPHOLOGICAL PLAN NORTHERN ZONE		DATE: 22/05/2020	SHEET: A3

LEGEND:

- SOIL CREEP
- RIDGE
- GULLY
- SITE BOUNDARY
- POSSIBLE DEBRIS LOBE
- BUILDING
- MINOR SCARP: SIDE/FLOW (TEETH POINTING DOWNSLOPE)
- MAJOR SCARP: SIDE/FLOW (TEETH POINTING DOWNSLOPE)
- SHOW DIRECTION OF MOVEMENT BEYOND SCARP
- CONVEX SLOPE BREAK
- OPEN DRAIN/STREAM (ARROW IN DIRECTION OF FLOW)
- T2 GROWTH CELL BOUNDARY
- POSSIBLE MAJOR SCARP: SIDE/FLOW (TEETH POINTING DOWNSLOPE)
- POND/SWAMP

NOTES:

1. BASE PLAN ADAPTED FROM WAIKATO COUNCIL GIS.

1:3000 — 0 30 60 90 120 150 m

CMW Geosciences

CLIENT: SANDERSON GROUP		DRAWN: WPJ	PROJECT No: HAM2020-0016
PROJECT: TE AWAMUTU COUNTRY CLUB, FRONTIER ROAD, TE AWAMUTU		CHECKED: JW	DRAWING: 02
		REVISION: 0	SCALE: 1:3000
TITLE: GEOMORPHOLOGICAL PLAN SOUTHERN ZONE		DATE: 22/05/2020	SHEET: A3

Appendix A – Maunsell Limited Site Investigation Records

CONCEPT PLAN

F2212 C2

APPLICANT Rochdale Holdings Ltd

COMPRISED IN CT: SA1479/81 & 309635

LOCAL BODY Waipa District

LAND DISTRICT South Auckland

SCALE: 1:4000 DATE: March 2008

(A3 ORIGINAL)

TOTAL AREA: 35.3643ha

- Proposed Residential Zone
- Proposed Commercial Zone
- Ponds & Stream
- Roading
- REC Proposed Recreational Reserve

Geotech Testing Key

- ⊙ Machine Auger (generally to 5m bgl)
- ⊙ Hand Auger (1.8m to 3m bgl)
- ⊙ Perc Test (generally to 2m bgl)

DRAWN: W.H. Bouter

NOTE: Areas and dimensions on this application plan are subject to change on field survey.

This plan has been prepared only for the purpose of illustrating an application for a resourse consent. It should not be used for any other purpose.

PROPOSED ZONING OF Part Allotment 242 & Lot 2 DP 17703

Frontier Road

CKL Surveying and Planning
Setting New Boundaries
Land & Engineering Surveyors
Resource Management Planners
Land Development Consultants
Members of the Consulting Surveyors of N.Z.
105 Market Street PO Box 126 Te Awamutu Ph 07 871 6114 Fax 07 871 6181 Email office@ckl.co.nz
TE AWAMUTU HAMILTON AUCKLAND WANAKA

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PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Machine Auger 1

PROJECT No. : 600 427 95
DATE : 5 June 2008

MAUNSELL | AECOM

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, friable, moist, firm. (TOPSOIL)			
0.20m	Brownish Orange SIT with minor CLAY, moist, firm.		-	
			-	
			-	
	- Light Brown at 0.90m.		-	
1.0			-	
1.3m	Brown CLAYEY SILT, moist, firm.		-	
			-	
2.0	Light Brownish Orange SILTY CLAY, moist, firm.		-	
			-	
			-	
3.0			-	
			-	
			-	
4.0			-	
			-	
			-	
5.0	End of log at 5.0m.		-	
			-	
			-	
6.0			-	
			-	
7.0			-	

COMMENTS: Shear Vane: DR 1870
Correction factor: Reading x 1.85 -1.99
These values are corrected
UTP* represents Unable to Penetrate.

LOGGED BY: Rowan Buckley

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Machine Auger 2

PROJECT No. : 600 427 95
DATE : 5 June 2008

MAUNSELL | AECOM

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, friable, moist, firm. (TOPSOIL)			
0.20m	Brownish Orange CLAYEY SILT, moist, firm.		-	
		0.5m 153 kPa	-	
			-	
	- Light Brownish Orange at 0.80m.	1.0m		
1.0		146 kPa	-	
		1.5m	-	
1.6m	Brown SILTY CLAY,moist, firm.	UTP	-	
		2.0m	-	
2.0		UTP	-	
		2.5m	-	
2.6m	Light Brown SILTY CLAY, moist to wet.	UTP	-	
		3.0m	-	
3.0		UTP	-	
		3.5m	-	
		220 kPa	-	
4.0			-	
			-	
			-	
5.0	End of log at 5.0m.		-	
			-	
			-	
			-	
6.0			-	
			-	
			-	
7.0			-	

COMMENTS: Shear Vane: DR 1870
Correction factor: Reading x 1.85 -1.99
These values are corrected
UTP* represents Unable to Penetrate.

LOGGED BY: Rowan Buckley

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Machine Auger 3

PROJECT No. : 600 427 95
DATE : 5 June 2008

MAUNSELL | AECOM

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, friable, moist, firm. (TOPSOIL)		-	
0.30m	Brownish Orange SILTY CLAY, moist, firm.	0.5m 135 kPa	-	
	- Brown at 0.60m.		-	
1.0		1.0m 135 kPa	-	
	- Light Brown at 1.4m.	1.5m UTP	-	
		2.0m UTP	-	
2.0			-	
		2.5m UTP	-	
		3.0m UTP	-	
3.0			-	
		3.5m 202 kPa	-	
3.7m	Mottled Orange SILTY CLAY, moist to wet.		-	
4.0			-	
			-	
			-	
			-	
5.0	End of log at 5.0m.		-	
			-	
			-	
			-	
6.0			-	
			-	
			-	
7.0			-	

COMMENTS: Shear Vane: DR 1870
Correction factor: Reading x 1.85 -1.99
These values are corrected
UTP* represents Unable to Penetrate.

LOGGED BY: Rowan Buckley

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Machine Auger 4

PROJECT No. : 600 427 95
DATE : 5 June 2008

MAUNSELL | AECOM

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, friable, moist, firm. (TOPSOIL)		-	
0.30m	Brownish Orange SILTY CLAY, moist, firm.	0.5m UTP	-	
	- Light Brown at 0.80m.		-	
1.0		1.0m 209 kPa	-	
		1.5m 220 kPa	-	
2.0		2.0m UTP	-	
		2.5m UTP	-	
		3.0m UTP	-	
3.0	Light Brownish Orange SILTy CLAY, moist to wet.		-	
		3.5m UTP	-	
4.0			-	
			-	
			-	
5.0	End of log at 5.0m.		-	
			-	
			-	
6.0			-	
			-	
7.0			-	

COMMENTS: Shear Vane: DR 1870
Correction factor: Reading x 1.85 -1.99
These values are corrected
UTP* represents Unable to Penetrate.

LOGGED BY: Rowan Buckley

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Machine Auger 5

PROJECT No. : 600 427 95
DATE : 5 June 2008

MAUNSELL | AECOM

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, friable, moist, firm. (TOPSOIL)			
0.25m	Brownish Orange CLAYEY SILT, moist, firm.	0.5m 146 kPa		
0.80m	Dark Brownish Orange SILTY CLAY, moist, firm to stiff.	1.0m 165 kPa		
1.0				
1.4m	Brown SILTY CLAY, moist, stiff.	1.5m UTP		
2.0		2.0m UTP		
		2.5m UTP		
3.0	- Brownish Yellow from 3.0m.	3.0m UTP		
		3.5m UTP	-	
4.0			-	
			-	
			-	
5.0	End of log at 5.0m.		-	
			-	
			-	
			-	
6.0			-	
			-	
			-	
			-	
7.0			-	

COMMENTS: Shear Vane: DR 1870
Correction factor: Reading x 1.85 -1.99
These values are corrected
UTP* represents Unable to Penetrate.

LOGGED BY: Rowan Buckley

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Machine Auger 6

PROJECT No. : 600 427 95
DATE : 5 June 2008

MAUNSELL | AECOM

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)		-	
0.3m	Light Brownish Orange SILTY CLAY, slightly friable, moist, firm.	0.5m 144 kPa	-	
			-	
1.0	- Brownish Yellow from 1.0m.	1.0m 141 kPa	-	
		1.5m 157 kPa	-	
2.0		2.0m 181 kPa	-	
		2.5m 132+kPa	-	
3.0		3.0m UTP*	-	
		3.5m UTP	-	
4.0	- Light Greyish Brown from 4.0m.		-	
	- mottled Brownish Yellow from 4.5m.		-	
5.0	End of Log at 5.0m.		-	
6.0			-	
7.0			-	

COMMENTS: Shear Vane: DR 2257
Correction factor: Reading x 1.60 - 3.34
These values are corrected
UTP represents Unable to Penetrate.

LOGGED BY: Geoff Painter

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Machine Auger 7

PROJECT No. : 600 427 95
DATE : 5 June 2008

MAUNSELL | AECOM

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)		-	
0.3m	Brownish Orange SILTY CLAY, slightly friable, moist, firm.	0.5m 146 kPa	-	
	- Light Brown from 0.8m.	1.0m 146 kPa	-	
1.0		1.5m UTP	-	
	- Brown from 1.5m.	2.0m UTP	-	
2.0		2.5m UTP	-	
		3.0m kPa	-	
3.0		3.5m UTP	-	
	- Brownish Yellow, moderately plastic from 3.6m.		-	
4.0			-	
			-	
			-	
5.0	End of Log at 5.0m.		-	
			-	
			-	
			-	
6.0			-	
			-	
			-	
7.0			-	

COMMENTS: Shear Vane: DR 2257
Correction factor: Reading x 1.60 - 3.34
These values are corrected
UTP represents Unable to Penetrate.

LOGGED BY: Geoff Painter

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Machine Auger 8

PROJECT No. : 600 427 95
DATE : 5 June 2008

MAUNSELL | AECOM

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)		-	
0.3m	Brownish Orange SILTY CLAY, slightly friable, moist, firm.	0.5m 136 kPa	-	
	- Brown from 0.8m.		-	
1.0		1.0m 179 kPa	-	
		1.5m UTP*	-	
2.0		2.0m UTP*	-	
		2.5m 136 kPa	-	
3.0	- Light Brownish Orange from 3.0m.	3.0m 131 kPa	-	
		3.5m UTP	-	
4.0			-	
5.0	End of Log at 5.0m.		-	
6.0			-	
7.0			-	

COMMENTS: Shear Vane: DR 2257
Correction factor: Reading x 1.55 - 3.82
These values are corrected
UTP* represents Unable to Penetrate.

LOGGED BY: Geoff Painter

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Machine Auger 9

PROJECT No. : 600 427 95
DATE : 5 June 2008

MAUNSELL | AECOM

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)		-	
0.3m	Light Brownish Orange SILTY CLAY, moist, firm.	0.5m 142 kPa	-	
			-	
1.0		1.0m UTP	-	
			-	
		1.5m 142 kPa	-	
	- Brownish Yellow from 1.8m.		-	
2.0		2.0m 157 kPa	-	
			-	
		2.5m 148 kPa	-	
			-	
3.0		3.0m 151 kPa	-	
		3.5m 162 kPa	-	
			-	
4.0			-	
			-	
			-	
5.0	End of Log at 5.0m.		-	
			-	
			-	
			-	
6.0			-	
			-	
			-	
			-	
7.0			-	

COMMENTS: Shear Vane: DR 2257
Correction factor: Reading x 1.55 - 3.82
These values are corrected
UTP* represents Unable to Penetrate.

LOGGED BY: Geoff Painter

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Machine Auger 10

PROJECT No. : 600 427 95
DATE : 5 June 2008

MAUNSELL | AECOM

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)		-	
0.3m	Brownish Yellow SILTY CLAY, slightly friable, moist, firm.	0.5m 167 kPa	-	
			-	
1.0		1.0m 151 kPa	-	
			-	
	- Brown from 1.5m.	1.5m UTP*	-	
2.0		2.0m 201+kPa	-	
	- Light Brown from 2.2m.		-	
		2.5m UTP	-	
			-	
3.0		3.0m 176 kPa	-	
			-	
	- Light Brownish Orange from 3.5m.	3.5m 173 kPa	-	
			-	
4.0			-	
	- moderately plastic from 4.5m.		-	
			-	
5.0	End of Log at 5.0m.		-	
			-	
			-	
			-	
6.0			-	
			-	
			-	
			-	
7.0			-	

COMMENTS: Shear Vane: DR 2257
Correction factor: Reading x 1.55 - 3.82
These values are corrected
UTP* represents Unable to Penetrate.

LOGGED BY: Geoff Painter

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Machine Auger 11

PROJECT No. : 600 427 95
DATE : 5 June 2008

MAUNSELL | AECOM

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)		-	
0.3m	Brown SILTY CLAY, slightly friable, moist, firm.	0.5m 120 kPa	-	
			-	
		1.0m 136 kPa	-	
1.0			-	
		1.5m UTP*	-	
		2.0m 201+kPa	-	
2.0	- Light Brownish Yellow from 2.0m.		-	
		2.5m 182 kPa	-	
			-	
		3.0m 201+kPa	-	
3.0			-	
		3.5m 201+kPa	-	
			-	
4.0	- Light Brown from 4.0m.		-	
			-	
			-	
			-	
5.0	End of Log at 5.0m.		-	
			-	
			-	
			-	
6.0			-	
			-	
			-	
			-	
7.0			-	

COMMENTS: Shear Vane: DR 2257
Correction factor: Reading x 1.55 - 3.82
These values are corrected
UTP* represents Unable to Penetrate.

LOGGED BY: Geoff Painter

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Machine Auger 12

PROJECT No. : 600 427 95
DATE : 5 June 2008

MAUNSELL | AECOM

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)		-	
0.3m	Brown SILTY CLAY, moderately friable, moist, firm.	0.5m 176 kPa	-	
	- Brownish Yellow from 0.7m.		-	
1.0		1.0m 151 kPa	-	
		1.5m 182 kPa	-	
	- Brown and moderately plastic from 1.7m.		-	
2.0		2.0m UTP*	-	
		2.5m UTP*	-	
			-	
3.0		3.0m 164 kPa	-	
		3.5m 198 kPa	-	
4.0			-	
			-	
			-	
5.0	End of Log at 5.0m.		-	
			-	
			-	
6.0			-	
			-	
7.0			-	

COMMENTS: Shear Vane: DR 2257
Correction factor: Reading x 1.55 - 3.82
These values are corrected
UTP* represents Unable to Penetrate.

LOGGED BY: Geoff Painter

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Machine Auger 13

PROJECT No. : 600 427 95
DATE : 5 June 2008

MAUNSELL | AECOM

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)		-	
0.3m	Brownish Orange SILTY CLAY, moderately friable, moist, firm.	0.5m 164 kPa	-	
			-	
		1.0m 182 kPa	-	
1.0	- Brown and moderately plastic from 1.0m.		-	
		1.5m UTP*	-	
		2.0m 201+kPa	-	
2.0			-	
		2.5m 182 kPa	-	
		3.0m 182 kPa	-	
3.0			-	
		3.5m 201+kPa	-	
	- Brownish Yellow from 3.5m.		-	
4.0			-	
			-	
			-	
5.0	End of Log at 5.0m.		-	
			-	
			-	
			-	
6.0			-	
			-	
			-	
7.0			-	

COMMENTS: Shear Vane: DR 2257
Correction factor: Reading x 1.55 - 3.82
These values are corrected
UTP* represents Unable to Penetrate.

LOGGED BY: Geoff Painter

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Machine Auger 14

PROJECT No. : 600 427 95
DATE : 5 June 2008

MAUNSELL | AECOM

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)		6	
0.3m	Brownish Orange SILTY CLAY, highly friable, moist, soft to firm.	0.5m 61 kPa	4	
	- soft from 0.6m.		3	
0.8m	Light Grey CLAYEY SILT, moderately plastic, moist, soft.	1.0m 120 kPa	3	
1.0	- firm from 1.2m.		8	
		1.5m 114 kPa	5	
			8	
2.0	Light Grey mottled Light Yellow SILTY fine SAND, moist, medium dense.		14	
2.5m	Light Grey pumiceous fine SAND, moist, medium dense.		9	
			11	
3.0	- moist to wet with trace SILT from 3.0m.		14	
	- wet from 3.2m.		14	
			-	
4.0			-	
			-	
			-	
			-	
5.0	End of Log at 5.0m.		-	
			-	
			-	
			-	
6.0			-	
			-	
			-	
			-	
7.0			-	

COMMENTS: Shear Vane: DR 2257
Correction factor: Reading x 1.55 - 3.82
These values are corrected

LOGGED BY: Geoff Painter

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Machine Auger 15

PROJECT No. : 600 427 95
DATE : 5 June 2008

MAUNSELL | AECOM

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)		-	
0.3m	Brownish Orange SILTY CLAY, moderately friable, moist, firm.	0.5m 136 kPa	-	
			-	
1.0	- Brown and slightly plastic from 1.0m.	1.0m 167 kPa	-	
		1.5m UTP*	-	
2.0		2.0m UTP*	-	
			-	
	- Light Brownish Orange from 2.5m.	2.5m UTP*	-	
			-	
3.0	- Brownish Yellow and moderately plastic from 3.0m.	3.0m UTP*	-	
		3.5m UTP*	-	
			-	
4.0			-	
			-	
			-	
5.0	End of Log at 5.0m.		-	
			-	
			-	
			-	
6.0			-	
			-	
			-	
			-	
7.0			-	

COMMENTS: Shear Vane: DR 2257
Correction factor: Reading x 1.55 - 3.82
These values are corrected
UTP* represents Unable to Penetrate.

LOGGED BY: Geoff Painter

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Machine Auger 16

PROJECT No. : 600 427 95
DATE : 5 June 2008

MAUNSELL | AECOM

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)		-	
0.3m	Brownish Orange SILTY CLAY, moderately plastic, moist, firm.	0.5m 201+kPa	-	
			-	
1.0		1.0m 201+kPa	-	
	- Brown from 1.2m.		-	
		1.5m UTP	-	
2.0		2.0m 136 kPa	-	
			-	
		2.5m 160 kPa	-	
			-	
3.0	- Brownish Yellow from 3.0m.	3.0m 136 kPa	-	
		3.5m 160 kPa	-	
	- Reddish Orange mottled Light Grey & Brownish Yellow from 3.5m.		-	
4.0	- mottled Pinkish Orange from 4.0m.		-	
			-	
			-	
			-	
5.0	End of Log at 5.0m.		-	
			-	
			-	
			-	
6.0			-	
			-	
			-	
7.0			-	

COMMENTS: Shear Vane: DR 2257
Correction factor: Reading x 1.55 - 3.82
These values are corrected
UTP* represents Unable to Penetrate.

LOGGED BY: Geoff Painter

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Rochdale Subdivision, Frontier Rd, Te Awamutu
Auger No. : Auger 17

PROJECT No. : 600 427 95
DATE : 7 July 2008

DEPTH	MATERIAL DESCRIPTION	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)	6	
0.3m.	Light Brown CLAYEY SILT, moist, firm.	3	
		3	
	- moderately plastic from 0.8m.		
1.0		13	
		11	
	- streaked Dark Brown from 1.6m.	18	
	End of log at 1.8m.	15	
2.0		-	
		-	
		-	
3.0		-	

COMMENTS: DCP NUMBERS represent number of blows per 300mm.

LOGGED BY: Nicky Ries

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Roachdale Holdings Ltd
LOCATION : Frontier Road, Te Awamutu
AUGER No. : Auger 18

PROJECT No. : 600 427 95
DATE : 7 July 2008

DEPTH	MATERIAL DESCRIPTION	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)	5	
0.2m	Light Brownish Grey streaked Light Orange SILT, moist, firm.	8	
	-intermixed Dark Brown organic SILT with trace rootlets from 0.55m.	5	
0.9m	Dark Brown organic SILT, trace rootlets, slight organic odour, moist to wet, firm.	11	
1.0	Light Brownish Grey fine to medium SILTY SAND, moist to wet, medium dense.		
1.2m	Brownish Grey organic SILT, organic odour, trace rootlets, moist to wet, firm.	6	
	-wet from 1.6m. (Water Table)	6	
2.0	-hard to obtain sample from 2.0m.	6	
2.1m	Light Grey streaked Light Orange SILT, wet, soft.	8	
		11	
2.6m	Brownish Orange SILT with trace fine SAND, wet, firm.	9	
3.0	End of Log at 3.0m.	-	

COMMENTS: DCP numbers represent the number of blows per 300mm

LOGGED BY: Gareth Brownlie

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Roachdale Holdings Ltd
LOCATION : Frontier Road, Te Awamutu
AUGER No. : Auger 19

PROJECT No. : 600 427 95
DATE : 7 July 2008

DEPTH	MATERIAL DESCRIPTION	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)	3	
0.3m	Light Brownish Grey SILT with minor fine SAND, moist to wet, firm.	8	
		11	
0.75m	Light Greyish Brown Organic SILT, moist, firm to stiff.		
	-slight organic odour and wet from 0.9m.		
1.0	-Water Table.	10	
		5	
	-Dark Brown, organic odour, trace rootlets and moist from 1.4m.		
	-hard to obtain sample from 1.5m.	4	
1.8m	Light Bluish Grey fine SANDY SILT, wet, medium dense.	5	
2.0	End of Log at 2.0m. Unable to obtain sample.	6	
		8	
		8	
3.0		-	

COMMENTS: DCP NUMBERS represent number of blows per 300mm.

LOGGED BY: Gareth Brownlie

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Roachdale Holdings Ltd
LOCATION : Frontier Road, Te Awamutu
AUGER No. : Auger 20

PROJECT No: 600 427 95
DATE : 7 July 2008

DEPTH	MATERIAL DESCRIPTION	DCP (Scala) Penetrometer	Water Level
0.0	Light Brown SILT, moist, firm. (Topsoil)	5	
0.4m	Light Brown mottled Orange SILT, moist, firm. -Light Grey mottled Orange from 0.45m.	3	
	-trace fine SAND from 0.6m.	3	
1.0		2	
	-Greyish White and minor fine SAND from 1.35m.	4	
1.5m.	SILTY fine SAND, wet (Water Table)	4	
		6	
2.0	-hole collapsing to 2.0m.	8	
		8	
		7	
3.0	End of Log at 3.0m.	7	

COMMENTS: DCP numbers represent number of blows per 300mm

LOGGED BY: Nicky Ries

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Frontier Road, Te Awamutu
AUGER No. : Auger 21

PROJECT No. : 600 427 95
DATE : 7 July 2008

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)		7	
0.3m	Light Brown SILT with trace fine SAND, moist, firm.	0.3m 112 kPa	5	
		0.6m 138 kPa	6	
		0.9m 135 kPa	10	
1.0	- minor CLAY from 1.2m.	1.2m 118 kPa	14	
	- slightly plastic from 1.5m.	1.5m 140 kPa	17	
1.8m	End of log at 1.8m.		16	
2.0			-	
			-	
			-	
3.0			-	

COMMENTS: Shear Vane: DR 2944
Correction factor: Reading x 1.86 - 17.99
These values are corrected
UTP represents Unable to Penetrate

LOGGED BY: Nicky Ries

MAUNSELL | AECOM

PROJECT : Soils Investigations
CLIENT : Rochadale Holdings Ltd
LOCATION : Frontier Road, Te Awamutu
AUGER No. : Auger 22

PROJECT No. : 600 427 95
DATE : 7 July 2008

DEPTH	MATERIAL DESCRIPTION	Shear Strength	Water Level
0.0	Dark Brown SILT, moist, firm.		
0.25m	Light Brown CLAYEY SILT, moist, firm.	0.3m 131 kPa	
1.6m	Light Brown mottled Dark Brown SILTY CLAY, moist, firm.	0.6m 105 kPa	
1.0		0.9m 105 kPa	
		1.2m 103 kPa	
		1.5m 94 kPa	
1.8m	End of lot at 1.8m.	1.8m 233 kPa	
2.0			
3.0			

COMMENTS: Shear Vane: DR 2944
Correction factor: Reading x 1.86 - 17.99
These values are corrected
UTP represents Unable to Penetrate

LOGGED BY: Nicky Ries

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Roachdale Holdings Ltd
LOCATION : Frontier Road, Te Awamutu
AUGER No. : Auger 23

PROJECT No. : 600 427 95
DATE : 7 July 2008

DEPTH	MATERIAL DESCRIPTION	Shear Strength	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)		
		0.3m 94 kPa	
0.35m	Brownish Yellow SILT with some CLAY, moist, firm.		
		0.6m 108 kPa	
0.8m	Brownish Yellow SILTY CLAY, moist, firm.		
		0.9m 56 kPa	
1.0			
		1.2m 127 kPa	
	-trace fine SAND from 1.25m.		
		1.5m 157 kPa	
		1.8m UTP	
	-minor fine GRAVEL from 1.9m.		
2.0			
		2.1m 172 kPa	
	-minor fine SILTSTONE SAND from 2.35m.	2.4m 131 kPa	
	-water table from 2.7m.	2.7m 127 kPa	
3.0	End of Log at 3.0m.	3.0m 131 kPa	

COMMENTS: Shear Vane: DR 2944
Correction factor: Reading x 1.86 - 17.99
These values are corrected
UTP represents Unable to Penetrate

LOGGED BY: Gareth Brownlie

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Roachdale Holdings Ltd
LOCATION : Frontier Road, Te Awamutu
AUGER No. : Auger 24

PROJECT No. : 600 427 95
DATE : 7 July 2008

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)	0.3m	6	
0.3m	Light Brownish Orange SILTY fine SAND, moist, medium dense.	224 kPa	5	
		0.6m		
	-Light Grey from 0.6m.	164 kPa	6	
0.8m	Dark Brownish Orange SILTY CLAY, moist to wet, firm.	0.9m		
		149 kPa	7	
1.0		1.2m		
		112 kPa	5	
		1.5m		
		257+ kPa	7	
	-Light Brownish Grey from 1.65m.	1.8m		
		164 kPa	10	
2.0	-Whitish Grey streaked Light Orange from 2.05m.	2.1m		
		90 kPa	10	
		2.4m		
		79 kPa	11	
		2.7m		
	-wet from 2.7m. (Water Table)	131 kPa	8	
		3.0m		
3.0	End of Log at 3.0m.	133 kPa	9	

COMMENTS: Shear Vane: DR 2944
Correction factor: Reading x 1.86 - 17.99
These values are corrected
UTP represents Unable to Penetrate

LOGGED BY: Kurt Silver

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Frontier & Pirongia Roads, Te Awamutu
Auger No. : Perc 1

PROJECT No. : 600 427 95
DATE : 12 April 2008

DEPTH	MATERIAL DESCRIPTION	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)	-	
0.3m	Brownish Orange CLAYEY SILT, moist, firm.	-	
		-	
1.0		-	
		-	
		-	
		-	
2.0	End of Log at 2.0m.	-	
		-	
		-	
		-	
3.0		-	

COMMENTS:

LOGGED BY: Gareth Brownlie

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Frontier & Pirongia Roads, Te Awamutu
Auger No. : Perc 2

PROJECT No. : 600 427 95
DATE : 12 April 2008

DEPTH	MATERIAL DESCRIPTION	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)	-	
0.3m	Brownish Yellow CLAYEY SILT, moist, firm.	-	
		-	
	-Dark Brownish Orange from 0.8m.	-	
1.0		-	
		-	
		-	
		-	
2.0	End of Log at 2.0m.	-	
		-	
		-	
		-	
3.0		-	

COMMENTS:

LOGGED BY: Gareth Brownlie

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Frontier & Pirongia Roads, Te Awamutu
Auger No. : Perc 3

PROJECT No. : 600 427 95
DATE : 12 April 2008

DEPTH	MATERIAL DESCRIPTION	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)	-	
0.3m	Brownish Yellow CLAYEY SILT, moist, firm.	-	
		-	
1.0		-	
		-	
	-Light Greyish Yellow and some fine pumiceous fine SAND from 1.55m	-	
1.8m	Dark Brown SILTY CLAY, moist to wet, firm.	-	
2.0	End of Log at 2.0m.	-	
		-	
		-	
3.0		-	

COMMENTS:

LOGGED BY: Gareth Brownlie

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Frontier & Pirongia Roads, Te Awamutu
Auger No. : Perc 4

PROJECT No. 600 427 95
DATE : 22 April 2008

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)			
0.3m	Brownish Orange SILT, moderately friable, moist, firm.			
0.7m	Brownish Yellow CLAYEY SILT, with trace fine SAND, moist, firm.			
1.0				
1.4m	Brown SILTY CLAY, slightly friable, moist, firm.			
2.0	End of log at 2m.			
3.0				
4.0				
5.0				
6.0				
7.0				

COMMENTS:

LOGGED BY: Geoff Painter

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Frontier & Pirongia Roads, Te Awamutu
Auger No. : Perc 5

PROJECT No. 600 427 95
DATE : 22 April 2008

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)			
0.3m	Brownish Yellow CLAYEY SILT, slightly friable, moist, firm.			
1.0				
1.2m	Brown SILTY CLAY, moist, firm to stiff.			
	End of log at 1.3m. (UTP)			
2.0				
3.0				
4.0				
5.0				
6.0				
7.0				

COMMENTS:

LOGGED BY: Geoff Painter

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Frontier & Pirongia Roads, Te Awamutu
Auger No. : Perc 6

PROJECT No. 600 427 95
DATE : 22 April 2008

DEPTH	MATERIAL DESCRIPTION	Shear Strength	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)			
0.25m	Brownish Orange SILT with trace CLAY, moist, firm.			
	- minor CLAY from 0.5m.			
0.85m	Brownish Orange CLAYEY SILT, moist to firm.			
1.0				
	- Brownish Yellow from 1.8m			
2.0	End of log at 2m.			
3.0				
4.0				
5.0				
6.0				
7.0				

COMMENTS:

LOGGED BY: Geoff Painter

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Frontier & Pirongia Roads, Te Awamutu
Auger No. : Perc 7

PROJECT No. : 600 427 95
DATE : 12 April 2008

DEPTH	MATERIAL DESCRIPTION	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)	-	
0.3m	Dark Brownish Yellow CLAYEY SILT, moist, firm.	-	
		-	
0.95m	Dark Brown SILTY CLAY, moist, firm.	-	
1.0		-	
		-	
		-	
2.0	End of Log at 2.0m.	-	
		-	
		-	
3.0		-	

COMMENTS:

LOGGED BY: Gareth Brownlie

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Frontier & Pirongia Roads, Te Awamutu
Auger No. : Perc 8

PROJECT No. : 60042795
DATE : 29 April 2008

DEPTH	MATERIAL DESCRIPTION	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)	-	
0.2m	Brownish Orange CLAYEY SILT, moist, firm.	-	
0.6m	Light Brownish Yellow SILTY CLAY, moist, firm.	-	
1.0		-	
		-	
	-Yellowish Brown and stiff from 1.6m.	-	
	-Brown from 1.7m.	-	
2.0	End of Log at 2.0m.	-	
		-	
		-	
		-	
3.0		-	

COMMENTS: DCP NUMBERS represent number of blows per 300mm.

LOGGED BY: Gareth Brownlie

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Frontier & Pirongia Roads, Te Awamutu
Auger No. : Perc 9

PROJECT No. : 60042795
DATE : 29 April 2008

DEPTH	MATERIAL DESCRIPTION	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)	-	
0.4m	Light Brownish Grey SILT, moist, firm.	-	
	-100mm thick layer of Light Whitish Grey SILTY fine SAND, moist, medium dense.	-	
1.0	-wet from 1.4m (Water Table)	-	
1.5m	Dark Brown Organic SILT with minor fragments of decomposing wood, wet, soft to firm.	-	
1.6m	End of Log at 1.6m.	-	
2.0		-	
		-	
		-	
3.0		-	

COMMENTS: DCP NUMBERS represent number of blows per 300mm.

LOGGED BY: Gareth Brownlie

MAUNSELL | AECOM

PROJECT : Soils Investigation
CLIENT : Rochdale Holdings Ltd
LOCATION : Frontier & Pirongia Roads, Te Awamutu
Auger No. : Perc 10

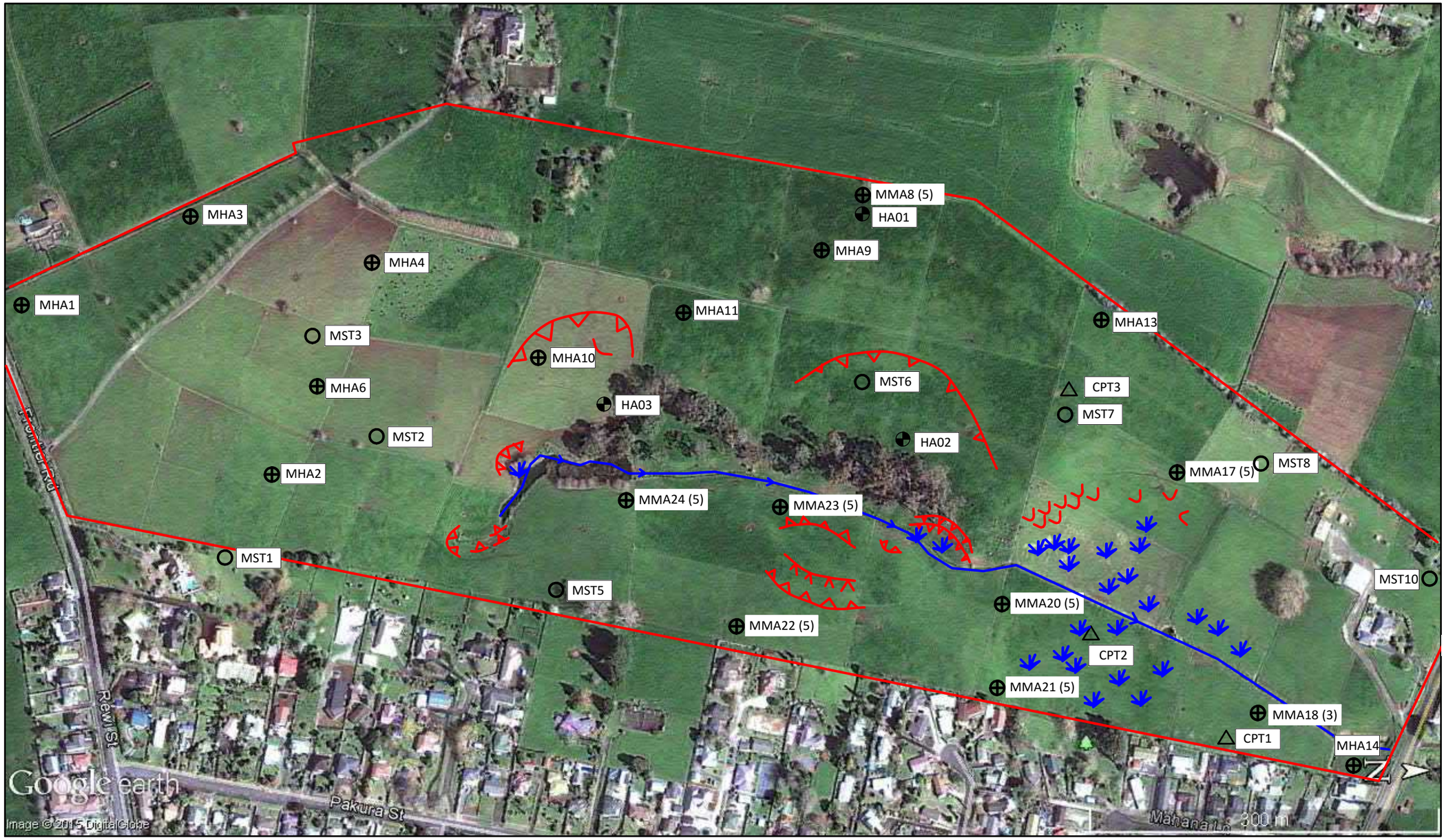
PROJECT No. : 60042795
DATE : 29 April 2008

DEPTH	MATERIAL DESCRIPTION	DCP (Scala) Penetrometer	Water Level
0.0	Dark Brown SILT, moist, firm. (Topsoil)	-	
0.25m	Brownish Yellow CLAYEY SILT, moist, firm.	-	
		-	
		-	
1.0		-	
		-	
1.5m	Dark Brown SILTY CLAY, moist, firm.	-	
		-	
2.0	End of Log at 2.0m.	-	
		-	
		-	
		-	
3.0		-	

COMMENTS: DCP NUMBERS represent number of blows per 300mm.

LOGGED BY: Geoff Painter

Appendix B – HD Geotechnical Site Investigation Records



N

HD geotechnical

LEGEND

- HD Geotechnical Hand auger location (HA1)
- Maunsell hand auger location (MHA1)
- Maunsell machine auger location (MMA15) and depth (5)
- Maunsell soakage test location (MST7)
- CPT location
- Surface creep
- Springs and surface water
- Convex slope break
- Stream / open drain
- Concave slope break

PROJECT:
T1 Growth Cell
Te Awamutu

CLIENT:
Rochdale Holdings Ltd

TITLE:
Site Plan

Drawing No:
HD057/1

Drawing by:
EC

Revision No:

0	Issued to client.	5.10.15	AH

Test record

Date: 09.09.15
Project: HD057
Test Number: HA01
Location: Western margin of site at the top of hill

Test type: Hand Auger

Depth	Geology	Test Results: DCP (blows/100mm)	Test Results: Shear Vane (kPa)	Material Description	Detailed Description
0	Topsoil			Topsoil	SILT, dark brown. Moist.
0.1					
0.2	Hamilton Ash			Undifferentiated airfall tephra	0.2m: Clayey SILT, with trace fine sand, brown. Stiff becoming very stiff, dry to moist, moderately to highly plastic.
0.3			55/20		
0.4					
0.5					
0.6			121/29		
0.7					0.7m: light brown.
0.8					
0.9					
1			101/32		
1.1					1.1m: brown.
1.2					
1.3			173/26		
1.4					
1.5			202/43		
1.6					
1.7					1.7m: brownish orange.
1.8			202+		
1.9					
2					2m: increased clay.
2.1					
2.2			202+		
2.3					2.3m: End of borehole - target depth.
2.4					
2.5					
2.6					
2.7					
2.8					
2.9					
3					
3.1					

Comments:	**Groundwater observations:**
Shear Vane: SV 1746	No groundwater at time of testing.

Test record

Date: 09.09.15
Project: HD057
Test Number: HA02
Location: Lobe of large bowl

Test type: Hand Auger

Test Results

Depth	Geology	DCP (blows/ 100mm)	Shear Vane (kPa)	Material Description	Detailed Description
0	Topsoil			Topsoil	SILT, dark brown. Moist.
0.1	Colluvium			Reworked ash material	0.1m: SILT, with some clay, brownish orange. Stiff, dry to moist.
0.2					
0.3			72/17		
0.4					
0.5					
0.6			43/9		
0.7					
0.8					
0.9	Hamilton Ash		159/25	Undifferentiated airfall tephra	0.9m: Clayey SILT, brown. Very stiff, moist, highly plastic.
1					
1.1					
1.2			127/26		1.2m: trace fine sand.
1.3					
1.4					1.4m: SILT, with minor fine sand, some clay, light brown. Very stiff, moist, highlly plastic.
1.5			176/32		
1.6					1.5m: Clayey SILT, with some sand and trace gravel, brown. Very stiff, moist, highly plastic.
1.7					
1.8			202+		
1.9					
2					2m: increasing clay.
2.1			195/46		
2.2					
2.3					
2.4					
2.5			202+		2.5m: End of borehole - target depth.
2.6					
2.7					
2.8					
2.9					
3					
3.1					

Comments:

Shear Vane:
SV 1746

Groundwater observations:
No groundwater at time of testing.

Test record

Date: 09.09.15
Project: HD057
Test Number: HA03
Location: Western side of pond

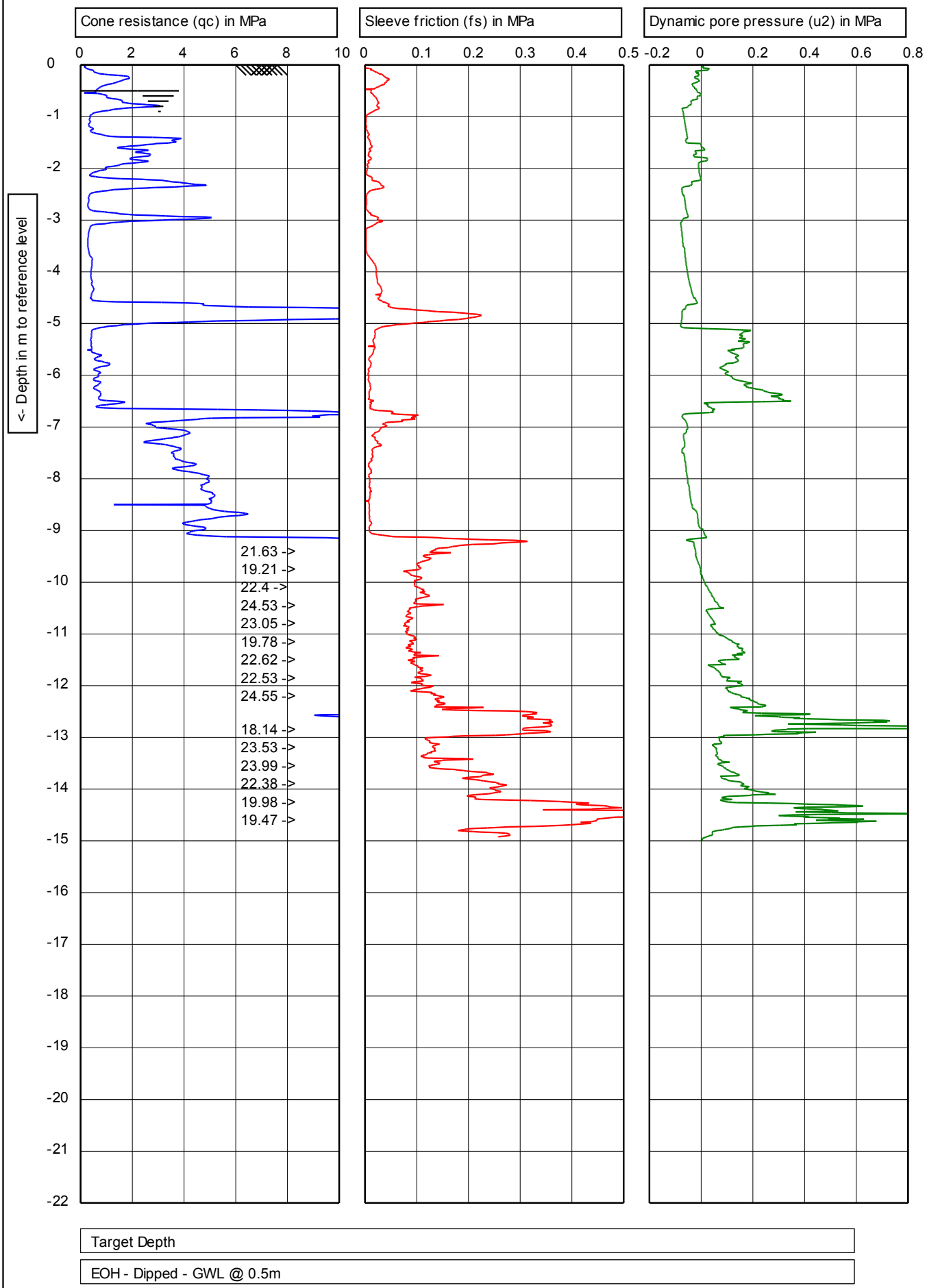
Test type: Hand Auger

Depth	Geology	Test Results: DCP (blows/ 100mm)	Test Results: Shear Vane (kPa)	Material Description	Detailed Description
0	Topsoil			Topsoil	SILT, dark brown. Moist; trace rootlets and charcoal at base.
0.1					
0.2					
0.3	Hamilton Ash			Undifferentiated airfall tephra	0.3m: SILT, with some clay, brown. Stiff to very stiff, dry to moist, moderately plastic.
0.4					
0.5			156/30		
0.6					
0.7					
0.8					0.8m: Clayey SILT, brown. Stiff to very stiff, moist, highly plastic; trace fine sand.
0.9			95/33		
1					
1.1					
1.2			118/33		
1.3					
1.4					1.4m: trace manganese nodules.
1.5			76/32		1.5m: Moist to wet.
1.6					
1.7					1.7m: minor manganese staining.
1.8			108/32		1.8m: Sandy clayey SILT, brown. Very stiff, moist, moderately plastic; sand, fine to coarse, quarts, pumice, lithics.
1.9					
2					2m: brownish orange.
2.1					
2.2					2.2m: brown.
2.3			113/29		2.3-2.35m: heavily manganese stained.
2.4					
2.5					2.5m: End of borehole - target depth.
2.6					
2.7					
2.8					
2.9					
3					
3.1					

Comments:

Shear Vane:
SV 1746

Groundwater observations:
No groundwater at time of testing.



OPUS

Graphs on this page are not IANZ accredited

u2
150 cm²
10 cm²

Test according ASTM D5778-12 & ISO 22476-1:2012

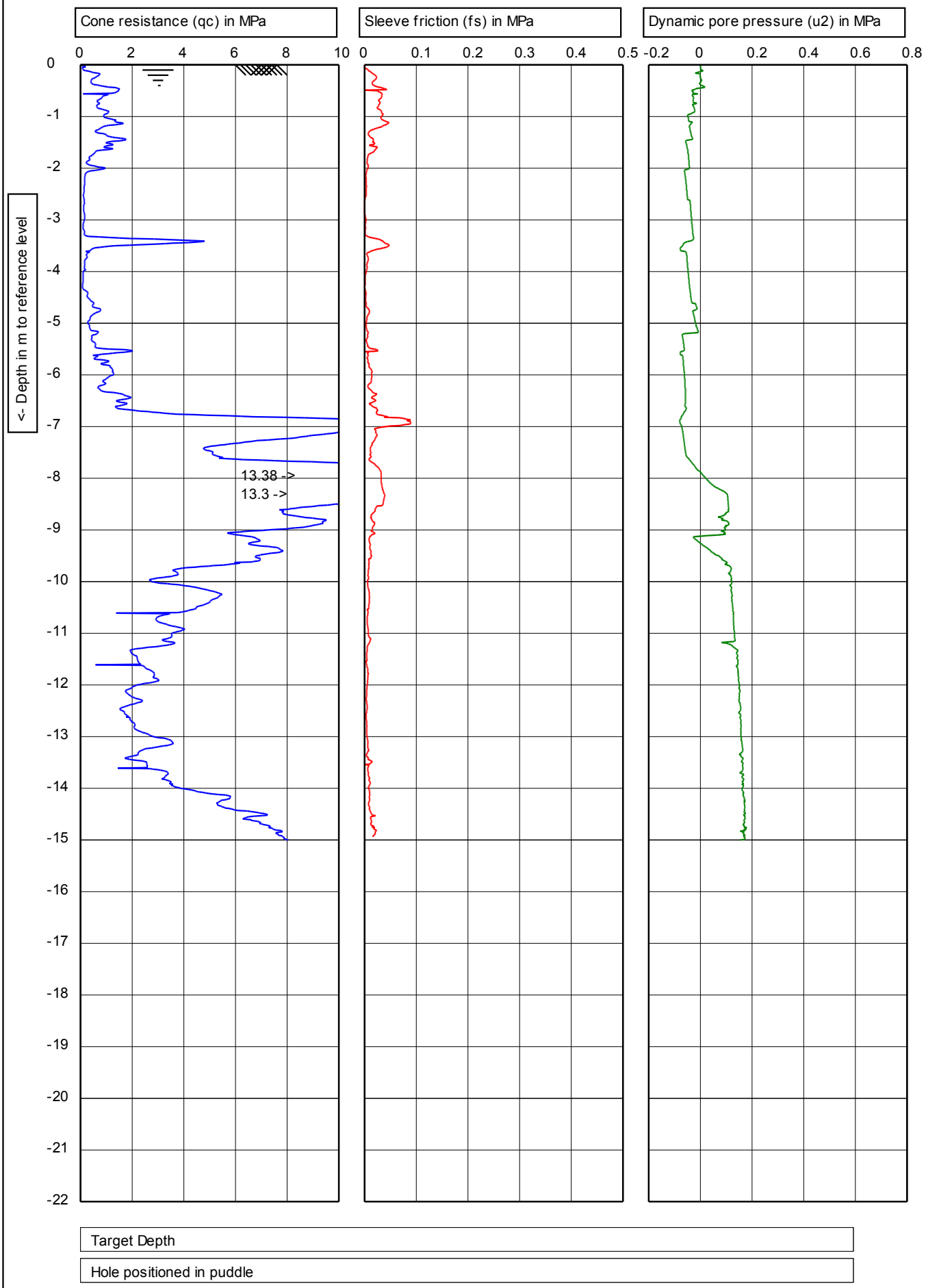
G.L.: **0.00 m MSL** | W.L.: **-0.50 m**

Project: **Te Awamutu T1**

Location: **5 Pirongia Rd - Te Awamutu**

Position: **1802153, 5791310 NZTM**

Predrill:	**0.00 m Predrilled**
Date:	**25/08/2015**
Cone no.:	**C10CFIIP.C14122**
Project no.:	**268242.15_015**
CPT no.:	**01**

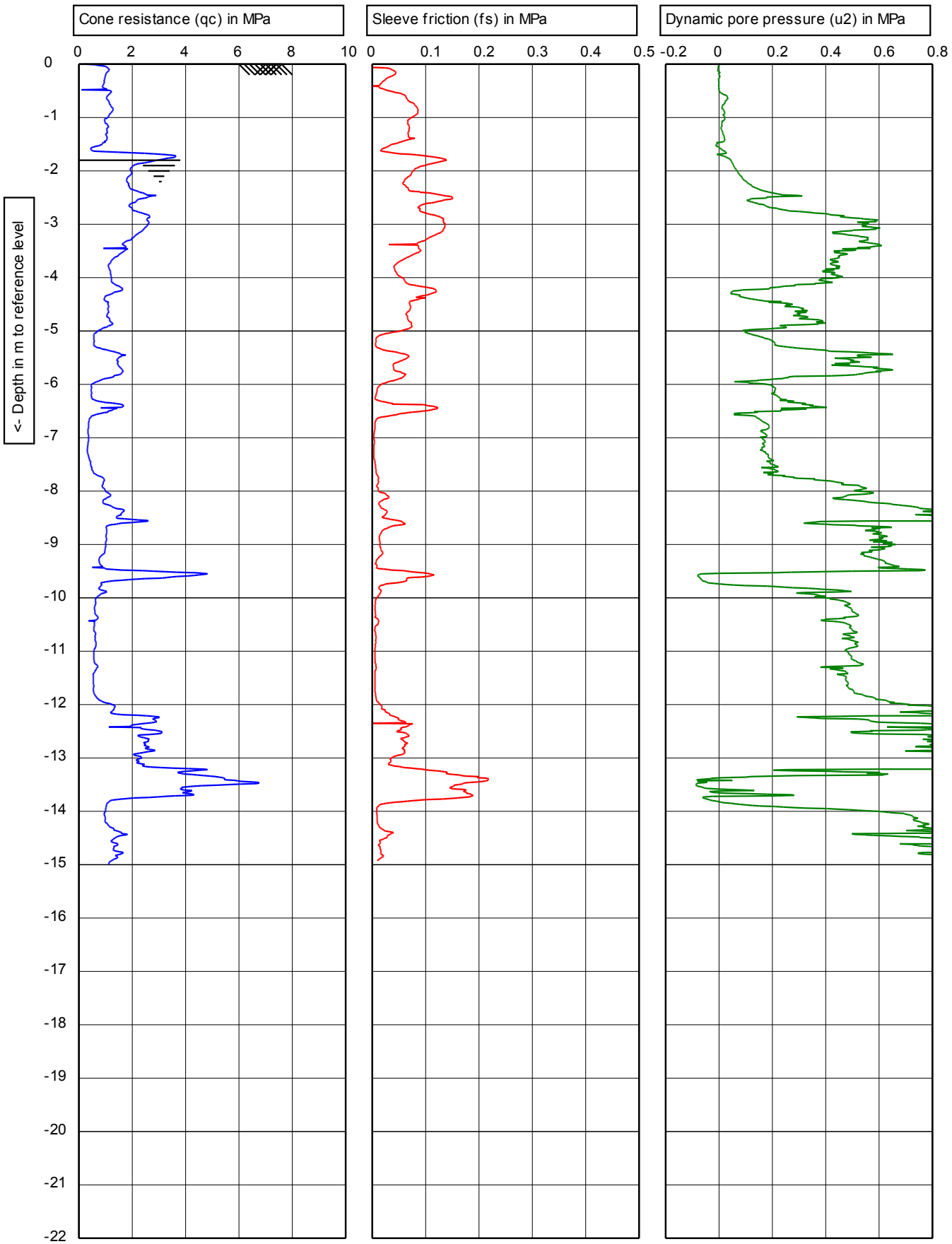


OPUS

Graphs on this page are not IANZ accredited

Test according ASTM D5778-12 & ISO 22476-1:2012		Predrill:	**0.00 m Predrilled**
G.L.: **0.00 m MSL**	W.L.: **0.00 m**	Date:	**25/08/2015**
Project: **Te Awamutu T1**		Cone no.:	**C10CFIIP.C14122**
Location: **5 Pirongia Rd - Te Awamutu**		Project no.:	**268242.15_015**
Position: **1802071, 5791213 NZTM**		CPT no.:	**02** **1/6**

1.44



Target Depth

EOH - Dipped - GWL @ 1.8m

OPUS

Graphs on this page are not IANZ accredited

u2 150 cm² 10 cm²

Test according ASTM D5778-12 & ISO 22476-1:2012

G.L.: **0.00 m MSL** W.L.: **-1.80 m**

Project: **Te Awamutu T1**

Location: **5 Pirongia Rd - Te Awamutu**

Position: **1801858, 5791159 NZTM**

Predrill:	**0.00 m Predrilled**
Date:	**25/08/2015**
Cone no.:	**C10CFIIP.C14122**
Project no.:	**268242.15_015**
CPT no.:	**03**

1.44

Appendix C – CMW Site Investigation Records

NOTES:

1. BASE PLAN ADAPTED FROM WAIKATO COUNCIL GIS.

LEGEND:

SITE BOUNDARY

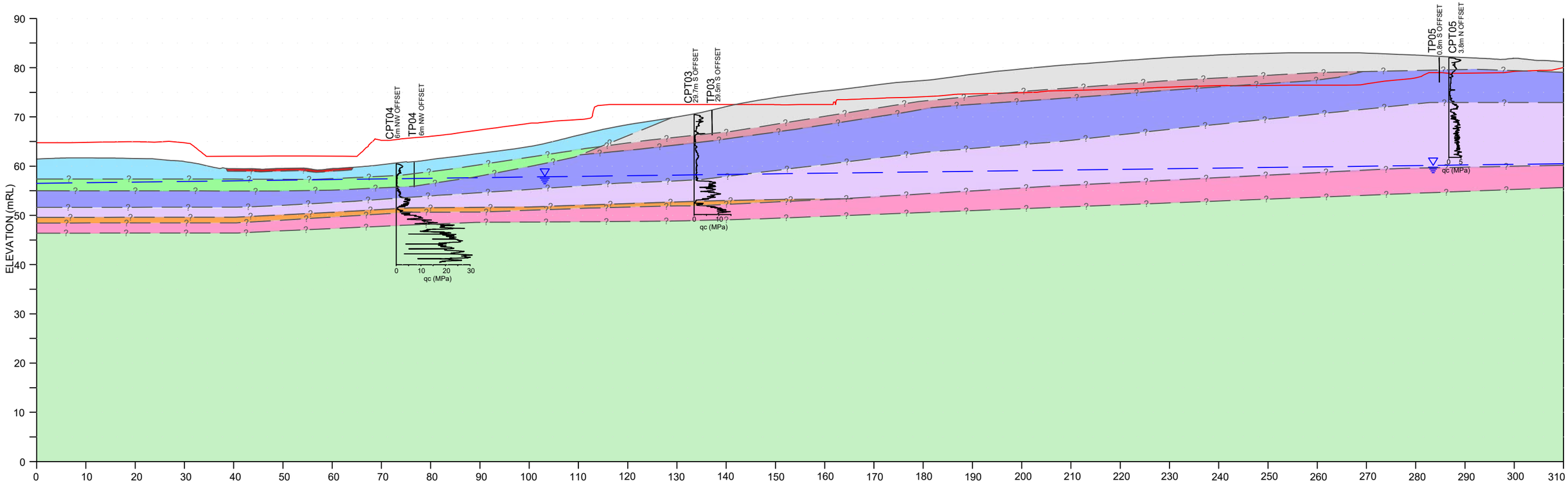
1:2500 0 25 50 75 100 125 m

CMW Geosciences

CLIENT: SANDERSON GROUP		DRAWN: WPJ	PROJECT No: HAM2020-0016
PROJECT: FRONTIER ROAD DEVELOPMENT FRONTIER ROAD, TE AWAMUTU		CHECKED: AS	DRAWING: 01
		REVISION: B	SCALE: 1:2500
TITLE: GEOTECHNICAL INVESTIGATION PLAN		DATE: 07/04/2020	SHEET: A3

SOUTH-WEST

NORTH-EAST



SECTION A

LEGEND:

- ASSUMED WINTER WATER TABLE
- EXISTING GROUND PROFILE
- EXISTING GROUND PROFILE
- PRELIMINARY EARTHWORKS PROFILE
- STIFF SILTY CLAY/CLAYEY SILT (COLLUVIUM COMPRISING DISPLACED VOLCANIC ASHES)
- SOFT TO FIRM SILTY CLAY/CLAYEY SILT (COLLUVIUM COMPRISING DISPLACED PUKETOKA FORMATION)
- FIRM SENSITIVE SILT (PUKETOKA FORMATION)
- ORGANIC SILT (ALLUVIUM)
- STIFF TO HARD SILT/CLAY (VOLCANIC ASH)
- FIRM TO STIFF SILT (WALTON SUBGROUP)
- VERY STIFF TO HARD SANDY SILT/CLAYEY SILT (PUKETOKA FORMATION)
- SENSITIVE SILT (PUKETOKA FORMATION)
- VERY STIFF TO HARD SANDY SILT/SILTY SAND (PUKETOKA FORMATION)
- DENSE TO VERY DENSE SAND (PUKETOKA FORMATION)

1:800 0 8 16 24 32 40 m

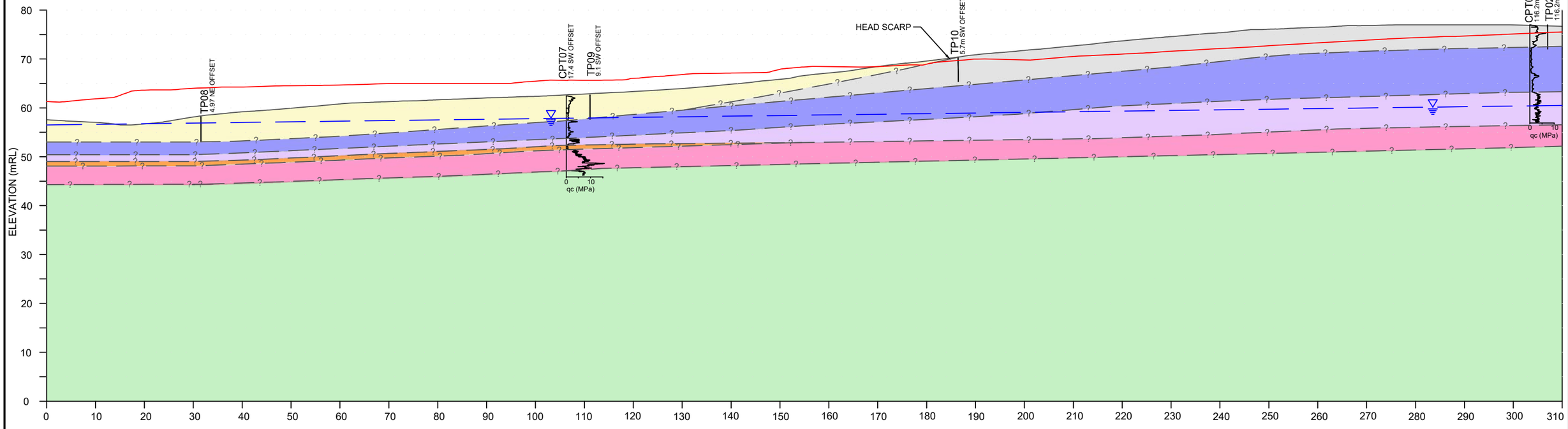
CMW Geosciences

CLIENT: SANDERSON GROUP		DRAWN: WPJ	PROJECT No: HAM2020-0016
PROJECT: TE AWAMUTU COUNTRY CLUB, FRONTIER ROAD, TE AWAMUTU		CHECKED: AS	DRAWING: 02
		REVISION: D	SCALE: 1:800
TITLE: SECTION A		DATE: 22/04/2020	SHEET: A3

C:\USERS\WINNIEPJ\CMW GEOSCIENCES PTY LTD\CMW CONNECT - HAM\2020\HAM2020-0016 FRONTEIR ROAD DEVELOPMENT\DRAWINGS\HAM2020-0016 GI PLAN REVA.DWG

NORTH-WEST

SOUTH-EAST



SECTION B

LEGEND:

- ASSUMED WINTER WATER TABLE
- EXISTING GROUND PROFILE
- EXISTING GROUND PROFILE
- PRELIMINARY EARTHWORKS PROFILE
- STIFF TO HARD SILT/CLAY (VOLCANIC ASH)
- FIRM TO HARD SILTY CLAY/CLAYEY SILT (COLLUVIUM)
- FIRM TO STIFF SILT (WALTON SUBGROUP)
- VERY STIFF TO HARD SANDY SILT/CLAYEY SILT (PUKETOKA FORMATION)
- SENSITIVE SILT (PUKETOKA FORMATION)
- VERY STIFF TO HARD SANDY SILT/SILTY SAND (PUKETOKA FORMATION)
- DENSE TO VERY DENSE SAND (PUKETOKA FORMATION)

1:800 0 8 16 24 32 40 m

CMW Geosciences

CLIENT: SANDERSON GROUP		DRAWN: WPJ	PROJECT No: HAM2020-0016
PROJECT: TE AWAMUTU COUNTRY CLUB, FRONTIER ROAD, TE AWAMUTU		CHECKED: AS	DRAWING: 03
		REVISION: D	SCALE: 1:800
TITLE: SECTION B		DATE: 22/04/2020	SHEET: A3

C:\USERS\WINNIEPJ\CMW GEOSCIENCES PTY LTD\CMW CONNECT - HAM\2020\HAM2020-0016 FRONTEIR ROAD DEVELOPMENT\DRAWINGS\HAM2020-0016 GI PLAN REVA.DWG

HAND AUGER BOREHOLE LOG - HA01

Client: Sanderson Group
Project: Frontier Road Development
Site Location: Frontier Road, Te Awamutu
Project No.: HAM2020-0016
Date: 19/03/2020
Borehole Location: Logged by: AS Checked by: EE Scale: 1:25 Sheet 1 of 1

Position: 446706.1mE; 674071.9mN Projection: Mount Eden
Elevation: 75.00m Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description (Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit))	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
			75.0			OL: Organic SILT: dark brown. Non plastic. (Topsoil)			
	0.3	Peak = 159kPa Residual = 14kPa	74.7			ML: SILT with minor sand: yellowish brown. Low plasticity, sensitive; sand, fine. (Walton Subgroup)			
	0.6	Peak = UTP							
	0.9	Peak = UTP		1			D	VSt to H	
	1.2	Peak = UTP							
	1.5	Peak = 147kPa Residual = 37kPa							
	1.8	Peak = UTP	73.2			CH: Silty CLAY: brown. Low plasticity, moderately sensitive. (Walton Subgroup)			
	2.1	Peak = UTP		2					
	2.4	Peak = UTP					M	H	
	2.8	Peak = UTP							
	3.0	Peak = UTP		3		Borehole terminated at 3.0 m			
				4					
				5					

Termination Reason: Target Depth Reached
Shear Vane No: 1785 DCP No:
Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

HAND AUGER BOREHOLE LOG - HA02

Client: Sanderson Group
Project: Frontier Road Development
Site Location: Frontier Road, Te Awamutu
Project No.: HAM2020-0016
Date: 19/03/2020
Borehole Location: Logged by: AS Checked by: EE Scale: 1:25 Sheet 1 of 1

Position: 446757.8mE; 674323.5mN Projection: Mount Eden
Elevation: 65.00m Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description (Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit))	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)
			65.0			OL: Organic SILT: dark brown. Non plastic. (Topsoil)			
	0.3	Peak = 58kPa Residual = 14kPa	64.7			ML: SILT: yellowish brown. Low plasticity, sensitive to extra sensitive. (Walton Subgroup)	D	St	
	0.6	Peak = 144kPa Residual = 17kPa							
	0.9	Peak = UTP		1					
	1.2	Peak = >200kPa Residual = 35kPa							
	1.5	Peak = UTP							
	1.8	Peak = UTP					M	VSt to H	
	2.1	Peak = UTP	62.9	2		CH: Silty CLAY: brown. High plasticity, sensitive. (Walton Subgroup)			
	2.5	Peak = 173kPa Residual = 29kPa							
	2.8	Peak = UTP							
	3.0	Peak = UTP		3		Borehole terminated at 3.0 m			
				4					
				5					

Termination Reason: Target Depth Reached
Shear Vane No: 1785 DCP No:
Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT LOG - TP01

Client: Sanderson Group
Project: Frontier Road Development
Site Location: Frontier Road, Te Awamutu
Project No.: HAM2020-0016
Date: 22/03/2020
Test Pit Location: Logged by: AS Checked by: EE Scale: 1:25 Sheet 1 of 1

Position: 446435.7mE; 673978.7mN Projection: Mount Eden Pit Dimensions: m by m
Elevation:Elevation: 64.00m Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm) 5 10 15 20	Structure & Other Observations
			64.0			OL: Organic SILT: dark brown. Non plastic. (Topsoil)				
			63.7			ML: SILT: yellowish brown. Low plasticity, extra sensitive. (Walton Subgroup)				
						... at 0.90m, becoming brown.				
	1.0	Peak = 176kPa Residual = 17kPa		1			D	H		
	2.0	Peak = UTP		2						
			61.4			CH: Silty CLAY: yellowish brown. High plasticity, sensitive. (Walton Subgroup)				
	3.0	Peak = 155kPa Residual = 26kPa		3			M	VSt		
			60.2			ML: SILT: light yellowish brown. Low plasticity, moderately sensitive. (Walton Subgroup)				
	4.0	Peak = 55kPa Residual = 26kPa		4			M to W	F		
			59.5			ML: SILT with trace sand: yellowish brown. Low plasticity, moderately sensitive; sand, fine to medium. (Walton Subgroup)	M			
	5.0	Peak = 86kPa Residual = 26kPa		5		Test pit terminated at 5.00 m				

Termination Reason: Target Depth Reached
Shear Vane No: 1785 DCP No:

Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT LOG - TP02

Client: Sanderson Group
Project: Frontier Road Development
Site Location: Frontier Road, Te Awamutu
Project No.: HAM2020-0016
Date: 22/03/2020
Test Pit Location: Logged by: AS Checked by: EE Scale: 1:25 Sheet 1 of 1

Position: 446706.1mE; 674071.9mN Projection: Mount Eden Pit Dimensions: m by m
Elevation:Elevation: 75.00m Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations
			75.0			OL: SILT: dark brown. Non plastic. (Topsoil)			5 10 15 20	Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
			74.7			ML: SILT: yellowish brown. Low plasticity. (Walton Subgroup)				
	0.5	Peak = UTP								
	1.0	Peak = UTP		1			D to M			
	1.5	Peak = UTP								
	2.0	Peak = UTP	73.0	2		MH: Silty CLAY: brown. High plasticity. (Walton Subgroup)		H		
						... at 2.60m, becoming light brown.				
	3.0	Peak = UTP		3						
	3.5	Peak = UTP					M			
	4.0	Peak = UTP		4						
	5.0	Peak = UTP		5		Test pit terminated at 5.00 m				

Termination Reason: Target Depth Reached
Shear Vane No: 1785 DCP No:

Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT LOG - TP03

Client: Sanderson Group
Project: Frontier Road Development
Site Location: Frontier Road, Te Awamutu
Project No.: HAM2020-0016
Date: 22/03/2020
Test Pit Location: Logged by: AS Checked by: EE Scale: 1:25 Sheet 1 of 1

Position: 446630.9mE; 674242.7mN Projection: Mount Eden Pit Dimensions: m by m
Elevation:Elevation: 72.00m Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations
			72.0			OL: Organic SILT: dark brown. Non plastic. (Topsoil)				
			71.7			ML: SILT: yellowish brown. Low plasticity. (Walton Subgroup)				
	0.5	Peak = UTP					D	H		
	1.0	Peak = 130kPa Residual = 26kPa	71.0	1		ML: Clayey SILT: brown. Low plasticity, sensitive to moderately sensitive. (Walton Subgroup)				
	2.0	Peak = 133kPa Residual = 29kPa		2			D to M	VSt		
	3.0	Peak = 107kPa Residual = 40kPa		3						
			68.8			CH: Silty CLAY with trace sand: light greyish brown. High plasticity, moderately sensitive; sand, fine. (Walton Subgroup)		St		
	3.5	Peak = 89kPa Residual = 35kPa								
			68.4			CH: Silty CLAY: light brown. High plasticity, moderately sensitive. (Walton Subgroup)				
	4.0	Peak = 49kPa Residual = 20kPa		4			M to W	F		
	4.5	Peak = 40kPa Residual = 17kPa								
	5.0	Peak = 35kPa Residual = 20kPa		5		Test pit terminated at 5.00 m				

Termination Reason: Target Depth Reached
Shear Vane No: 1785 DCP No:

Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT LOG - TP04

Client: Sanderson Group
Project: Frontier Road Development
Site Location: Frontier Road, Te Awamutu
Project No.: HAM2020-0016
Date: 22/03/2020
Test Pit Location: Logged by: AS Checked by: EE Scale: 1:25 Sheet 1 of 1

Position: 446561.6mE; 674253.6mN Projection: Mount Eden Pit Dimensions: m by m
Elevation:Elevation: 62.00m Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations
			62.0			OL: Organic SILT: dark brown. Non plastic. (Topsoil)	D			
			61.7			ML: Clayey SILT: yellowish brown. Low plasticity, moderately sensitive. (Colluvium)				
	1.0	Peak = 72kPa Residual = 26kPa		1			M	St		
	1.5	Peak = 89kPa Residual = 29kPa								
	2.0	Peak = 20kPa Residual = 12kPa	60.0	2		ML: SILT: grey, mottled orange. Low plasticity. (Colluvium)	M to W	S		
			59.7			OL: Organic SILT with minor wood fragments: dark brown to black. Non plastic. (Colluvium)				
			59.5			ML: SILT: grey, mottled orange. Low plasticity, moderately sensitive. (Colluvium)				
	3.0	Peak = 20kPa Residual = 12kPa		3			W	S to F		
	4.0	Peak = 29kPa Residual = 12kPa		4						
	4.5	Peak = 32kPa Residual = 14kPa								
	5.0	Peak = 23kPa Residual = 12kPa		5		Test pit terminated at 5.00 m				

Dynamic Cone Penetrometer (Blows/100mm): 5 10 15 20

Structure & Other Observations: Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks

Termination Reason: Target Depth Reached
Shear Vane No: 1785 DCP No:

Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT LOG - TP05

Client: Sanderson Group
Project: Frontier Road Development
Site Location: Frontier Road, Te Awamutu
Project No.: HAM2020-0016
Date: 22/03/2020
Test Pit Location: Logged by: AS Checked by: EE Scale: 1:25 Sheet 1 of 1

Position: 446757.8mE; 674323.5mN Projection: Mount Eden Pit Dimensions: m by m
Elevation:Elevation: 82.00m Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations
			82.0			OL: SILT: dark brown. Non plastic. (Topsoil)			5 10 15 20	Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
			81.7			ML: SILT: light yellowish brown. Low plasticity, extra sensitive. (Walton Subgroup)		VSt		
	1.0	Peak = 101kPa Residual = 6kPa		1						
			80.7			CH: Silty CLAY: brown. High plasticity. (Walton Subgroup)	D to M			
	1.5	Peak = UTP								
	2.0	Peak = UTP		2				H		
	2.8	Peak = 86kPa Residual = 14kPa	79.2			CH: Silty CLAY: light yellowish brown. High plasticity, moderately sensitive to sensitive. (Walton Subgroup)				
	3.0	Peak = 104kPa Residual = 17kPa		3						
	3.5	Peak = 86kPa Residual = 29kPa					M	St to VSt		
	4.0	Peak = 89kPa Residual = 40kPa		4						
	4.5	Peak = 69kPa Residual = 32kPa								
	5.0	Peak = 84kPa Residual = 26kPa		5		Test pit terminated at 5.00 m				

Termination Reason: Target Depth Reached
Shear Vane No: 1785 DCP No:

Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT LOG - TP06

Client: Sanderson Group
Project: Frontier Road Development
Site Location: Frontier Road, Te Awamutu
Project No.: HAM2020-0016
Date: 22/03/2020
Test Pit Location: Logged by: AS Checked by: EE Scale: 1:25 Sheet 1 of 1

Position: 446534.0mE; 674368.0mN Projection: Mount Eden Pit Dimensions: m by m
Elevation:Elevation: 65.00m Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations
			65.0			OL: SILT: dark brown. Non plastic. (Topsoil)			5 10 15 20	Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
			64.7			ML: SILT: light yellowish brown. Low plasticity, sensitive. (Walton Subgroup)				
	1.0	Peak = 130kPa Residual = 12kPa		1			D to M	VSt		
	2.0	Peak = UTP		2						
			62.9			CH: Silty CLAY: light brown. High plasticity, sensitive. (Walton Subgroup)				
	2.5	Peak = UTP								
	3.0	Peak = 187kPa Residual = 26kPa		3			M	VSt to H		
	4.0	Peak = 141kPa Residual = 23kPa		4						
			60.3			ML: SILT: grey. Low plasticity, moderately sensitive. (Walton Subgroup)				
	4.8	Peak = 69kPa Residual = 23kPa					M to W	St		
	5.0	Peak = 58kPa Residual = 23kPa		5		Test pit terminated at 5.00 m				

Termination Reason: Target Depth Reached
Shear Vane No: 1785 DCP No:

Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT LOG - TP07

Client: Sanderson Group
Project: Frontier Road Development
Site Location: Frontier Road, Te Awamutu
Project No.: HAM2020-0016
Date: 22/03/2020
Test Pit Location: Logged by: AS Checked by: EE Scale: 1:25 Sheet 1 of 1

Position: 446651.0mE; 674636.6mN Projection: Mount Eden Pit Dimensions: m by m
Elevation:Elevation: 80.00m Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm) 5 10 15 20	Structure & Other Observations
			80.0			OL: SILT: dark brown. Non plastic. (Topsoil)	D			
			79.7			ML: SILT: light yellowish brown. Low plasticity. (Walton Subgroup)				
	0.5	Peak = UTP						H		
	1.0	Peak = 173kPa Residual = 26kPa	79.0	1		ML: SILT with some clay: brown. Low plasticity, sensitive. (Walton Subgroup)	D to M			
	2.0	Peak = UTP		2				VSt to H		
	3.0	Peak = UTP	77.0	3		CH: Silty CLAY: yellowish brown. High plasticity, sensitive to moderately sensitive. (Walton Subgroup)				
	4.0	Peak = 104kPa Residual = 23kPa		4			M	VSt		
	5.0	Peak = 144kPa Residual = 55kPa		5		Test pit terminated at 5.00 m				

Termination Reason: Target Depth Reached
Shear Vane No: 1785 DCP No:

Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT LOG - TP08

Client: Sanderson Group
Project: Frontier Road Development
Site Location: Frontier Road, Te Awamutu
Project No.: HAM2020-0016
Date: 22/03/2020
Test Pit Location: Logged by: AS Checked by: EE Scale: 1:25 Sheet 1 of 1

Position: 446469.6mE; 674249.3mN Projection: Mount Eden Pit Dimensions: m by m
Elevation:Elevation: 58.50m Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations
			58.5			OL: SILT: dark brown. Non plastic. (Topsoil)			5 10 15 20	Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
			58.2			ML: SILT: yellowish brown. Low plasticity, sensitive. (Colluvium)				
	0.5	Peak = UTP								
						... at 0.90m, becoming light yellowish brown.	D			
	1.0	Peak = 187kPa Residual = 32kPa		1				H		
			56.7			ML: SILT: grey. Low plasticity. (Colluvium)				
	2.0	Peak = 75kPa Residual = 12kPa	56.5	2		CH: Silty CLAY: white, mottled brown and orange. High plasticity, blocky, sensitive. (Colluvium)		St		
			56.1			ML: SILT: grey. Low plasticity, extra sensitive. (Colluvium)	M			
	2.5	Peak = 147kPa Residual = 14kPa						VSt		
	3.0	Peak = 144kPa Residual = 20kPa	55.5	3		CH: CLAY: yellow. High plasticity, insensitive to sensitive. (Colluvium)				
	4.0	Peak = 32kPa Residual = 26kPa		4			M to W	F to St		
	4.5	Peak = 112kPa Residual = 43kPa								
			53.7			ML: Clayey SILT with minor sand: light blue. Low plasticity, moderately sensitive; sand, medium to coarse. (Walton Subgroup)	W	St		
	5.0	Peak = 75kPa Residual = 29kPa		5		Test pit terminated at 5.00 m				

Termination Reason: Target Depth Reached
Shear Vane No: 1785 DCP No:

Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT LOG - TP09

Client: Sanderson Group
Project: Frontier Road Development
Site Location: Frontier Road, Te Awamutu
Project No.: HAM2020-0016
Date: 22/03/2020
Test Pit Location: Logged by: AS Checked by: EE Scale: 1:25 Sheet 1 of 1

CMW Geosciences

Position: Projection: Mount Eden Pit Dimensions: m by m
Elevation:Elevation: 63.00m Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations
			63.0			OL: SILT: dark brown. Non plastic. (Topsoil)				
			62.7			ML: SILT: yellowish brown. Low plasticity, sensitive. (Colluvium)				
	0.5	Peak = UTP					D	H		
	1.0	Peak = 147kPa Residual = 16kPa		1						
			61.6			ML: SILT with some clay: brown. Low plasticity, sensitive. (Colluvium)				
	1.5	Peak = 130kPa Residual = 26kPa								
	2.0	Peak = 118kPa Residual = 17kPa		2						
			60.6			ML: SILT with some clay and trace sand: grey, mottled orange. Low plasticity, moderately sensitive. (Colluvium)		VSt		
	2.5	Peak = 147kPa Residual = 49kPa					M			
	3.0	Peak = 112kPa Residual = 40kPa		3						
	4.0	Peak = 135kPa Residual = 26kPa	59.0	4		ML: SILT: light yellow. Low plasticity, sensitive. (Colluvium)	M to W			
			58.2			CH: Silty CLAY: reddish brown. High plasticity, moderately sensitive. (Walton Subgroup)				
	5.0	Peak = 110kPa Residual = 29kPa		5		Test pit terminated at 5.00 m				

Termination Reason: Target Depth Reached
Shear Vane No: 1785 DCP No:

Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

TEST PIT LOG - TP10

Client: Sanderson Group
Project: Frontier Road Development
Site Location: Frontier Road, Te Awamutu
Project No.: HAM2020-0016
Date: 22/03/2020
Test Pit Location: Logged by: AS Checked by: EE Scale: 1:25 Sheet 1 of 1

Position: 446539.3mE; 674110.5mN Projection: Mount Eden Pit Dimensions: m by m
Elevation:Elevation: 70.50m Datum: Survey Source: Site Plan

Groundwater	Samples & Insitu Tests: Depth	Samples & Insitu Tests: Type & Results	RL (m)	Depth (m)	Graphic Log	Material Description	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations
			70.5			OL: Organic SILT: dark brown. Non plastic. (Topsoil)			5 10 15 20	Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
			70.2			ML: SILT: yellowish brown. Low plasticity. Extra sensitive. (Walton Subgroup)				
	0.5	Peak = UTP								
	1.0	Peak = 176kPa Residual = 20kPa		1		... at 1.00m, becoming brown.	D	VSt to H		
	1.5	Peak = UTP								
	2.0	Peak = UTP		2						
			68.3			CH: Silty CLAY: yellowish brown. High plasticity, insensitive to moderately sensitive. (Walton Subgroup)		H		
	3.0	Peak = UTP		3			M	VSt		
	4.0	Peak = 104kPa Residual = 35kPa		4						
	4.8	Peak = 46kPa Residual = 26kPa						F		
	5.0	Peak = 43kPa Residual = 23kPa		5		Test pit terminated at 5.00 m				

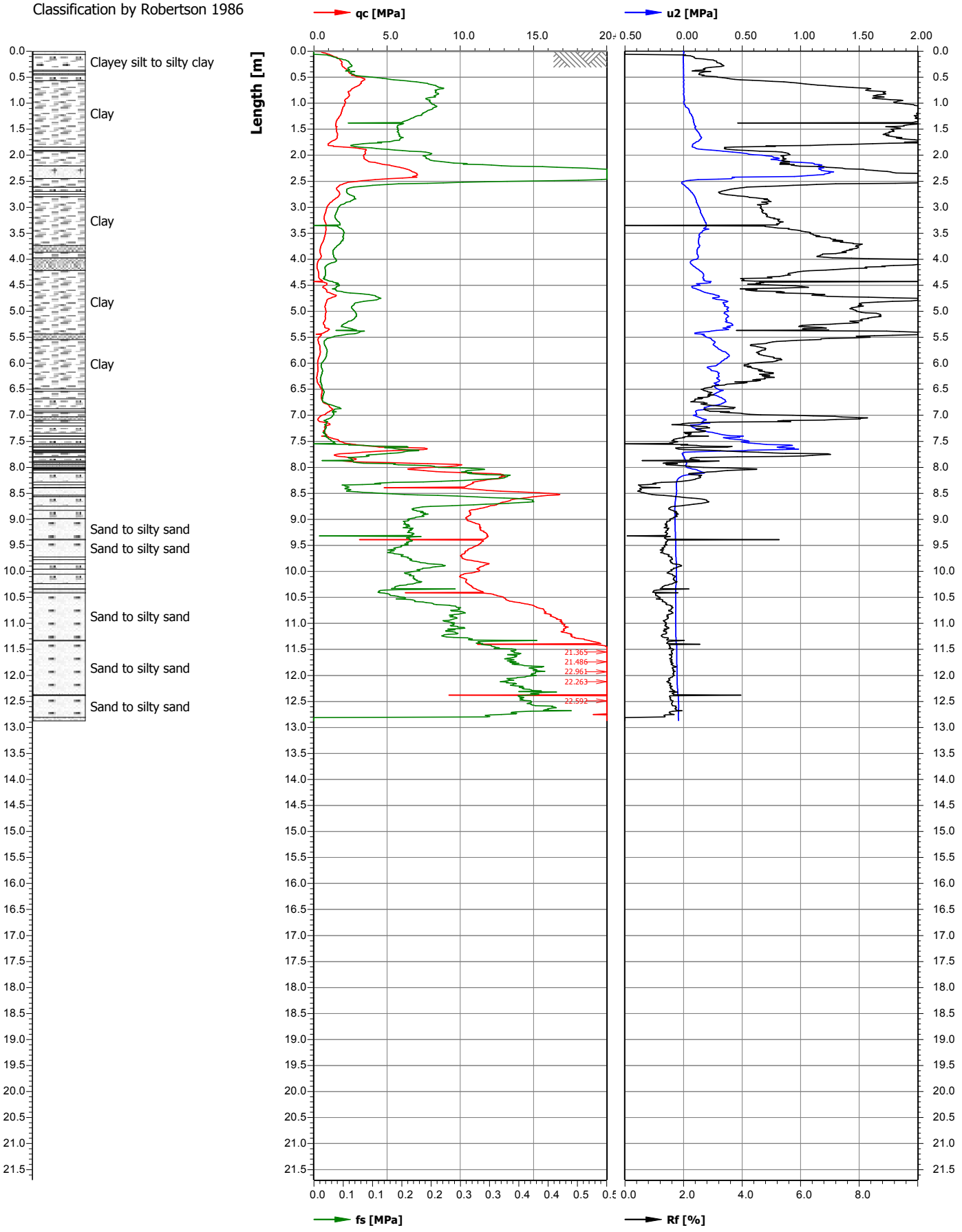
Termination Reason: Target Depth Reached
Shear Vane No: 1785 DCP No:

Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

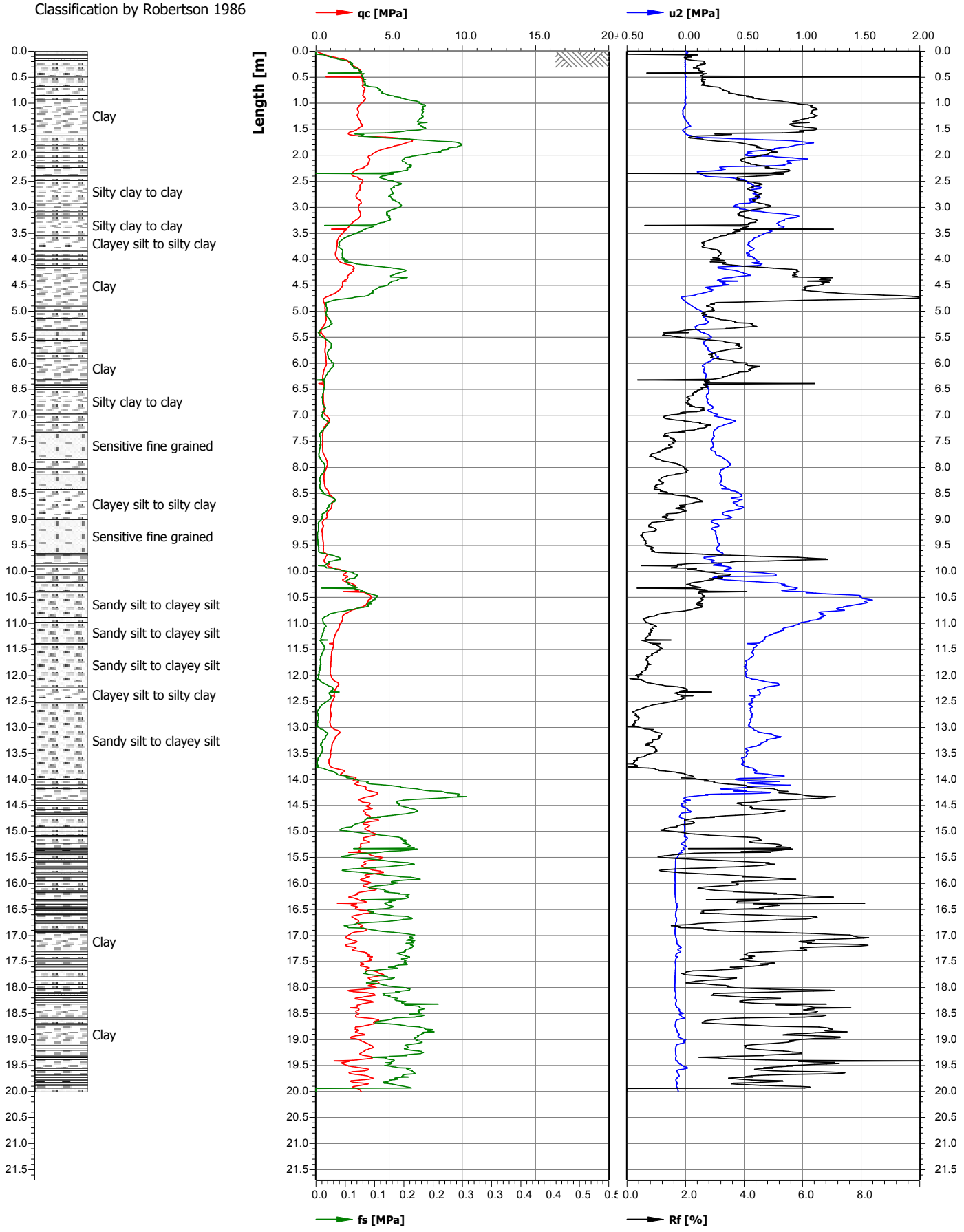
PRO-DRILL	Project name: CMW52FrontierRoad	Date investigation: 19/03/2020	
	Test name: CPT01	Cone name: S10CFIIP.1734	
Test location name	Client: CMW	Net surface area quotient of ...: 0.850/0.000	Nominal surface area of cone...: 10.0/150.0
X coordinate [m]/Y coordinat...: 0.00/0.00	Project contractors	Fig. no.:	
Z value [m]: 0.00	Project engineer	Scale: 1:100	Page: 1/1
Remarks1			

Classification by Robertson 1986



PRO-DRILL	Project name: CMW52FrontierRoad	Date investigation: 19/03/2020	
	Test name: CPT02	Cone name: S10CFIIP.1734	
Test location name	Client: CMW	Net surface area quotient of ...: 0.850/0.000	Nominal surface area of cone...: 10.0/150.0
X coordinate [m]/Y coordinat...: 0.00/0.00	Project contractors	Fig. no.:	
Z value [m]: 0.00	Project engineer	Scale: 1:100	Page: 1/1
Remarks1			

Classification by Robertson 1986



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	Test name: CPT03	Cone name: S10CFIIP.1734	
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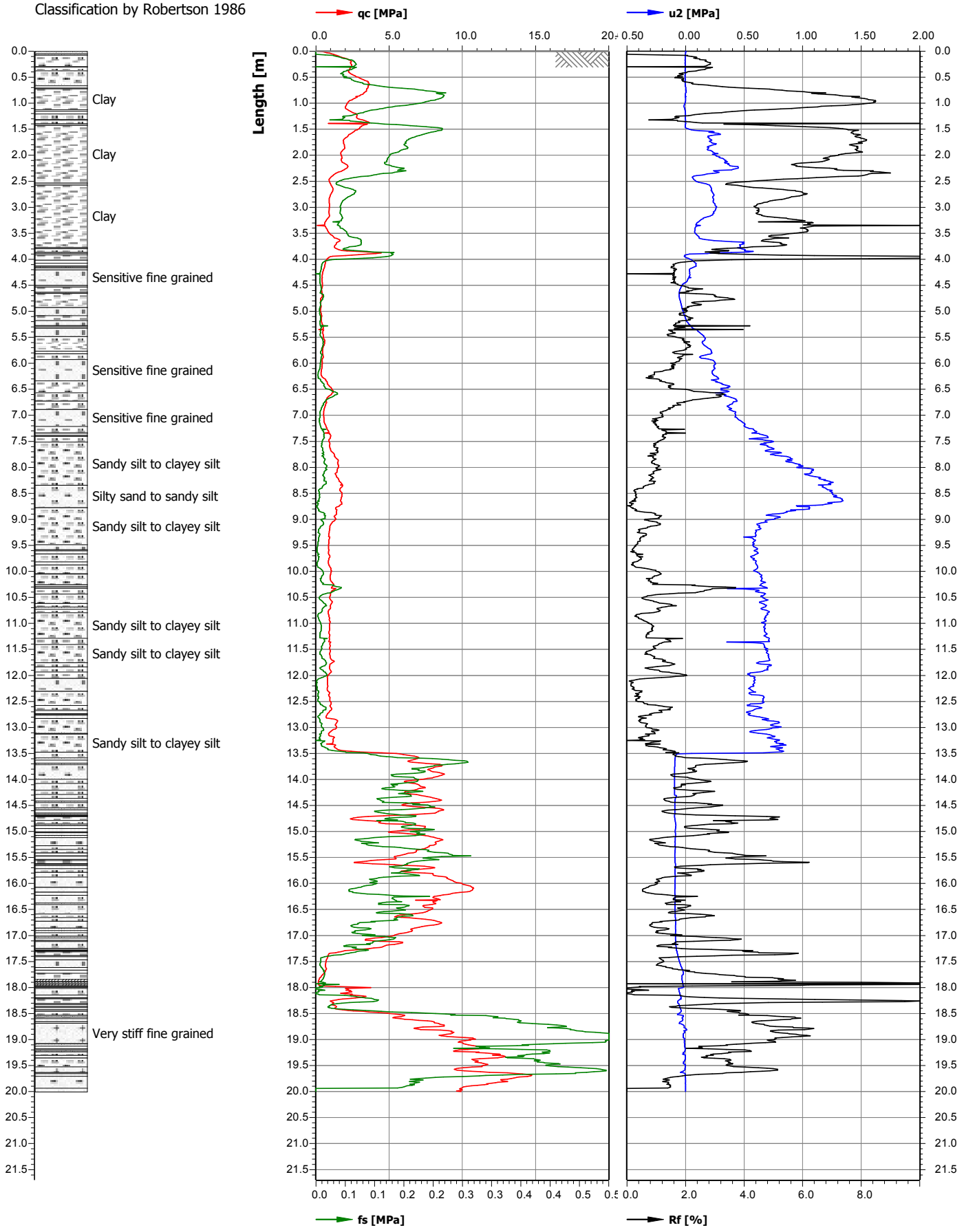
Z value [m]: 0.00	Project engineer	Scale: 1:100	Page: 1/1
Remarks1			

Classification by Robertson 1986



PRO-DRILL	Project name: CMW52FrontierRoad	Date investigation: 19/03/2020	
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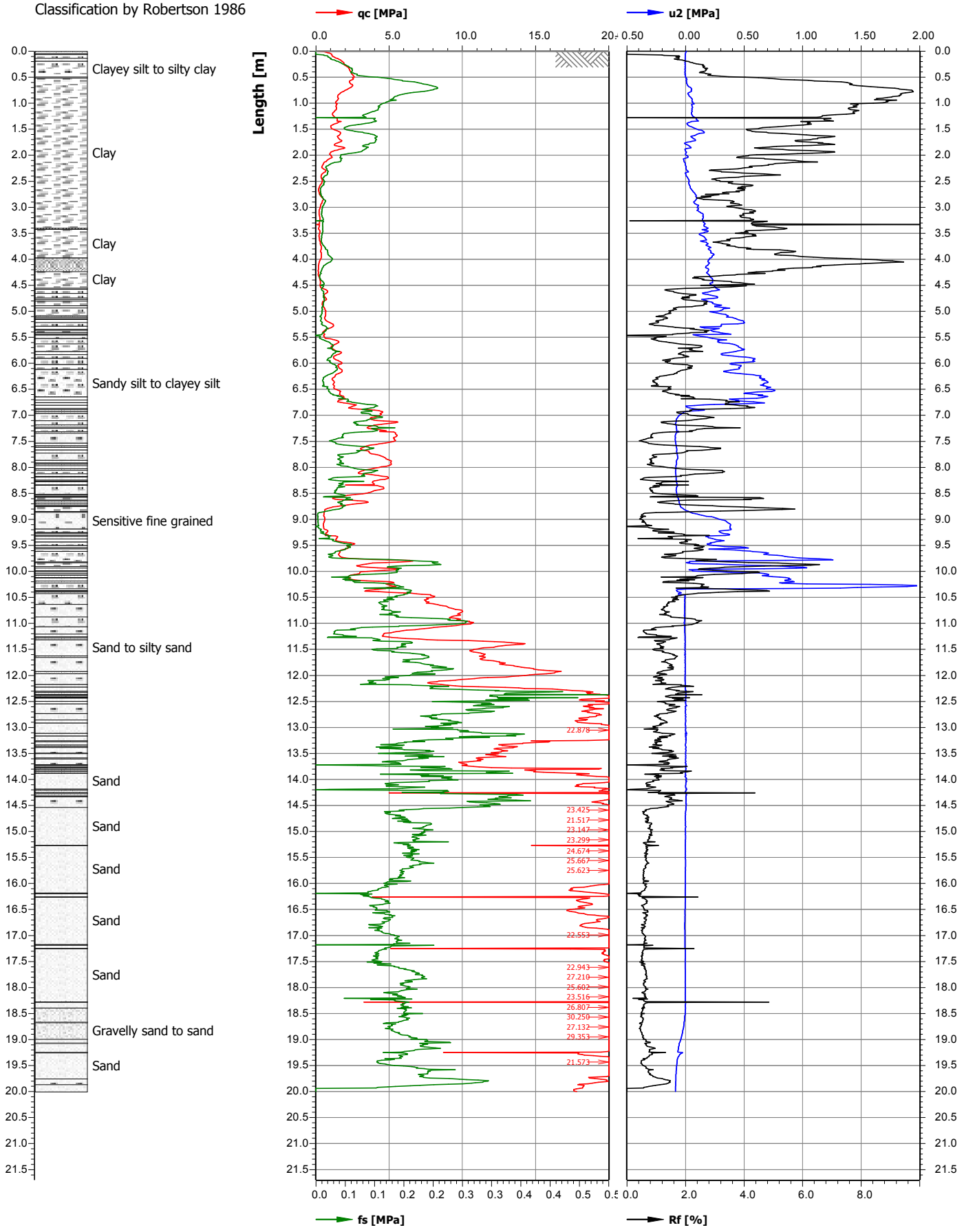
Test location name	Client: CMW	Net surface area quotient of ...: 0.850/0.000	Nominal surface area of cone...: 10.0/150.0
X coordinate [m]/Y coordinat...: 0.00/0.00	Project contractors	Fig. no.:	
Z value [m]: 0.00	Project engineer	Scale: 1:100	Page: 1/1
Remarks1			

Classification by Robertson 1986



PRO-DRILL	Project name: CMW52FrontierRoad	Date investigation: 19/03/2020	
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Test location name	Client: CMW	Net surface area quotient of ...: 0.850/0.000	Nominal surface area of cone...: 10.0/150.0
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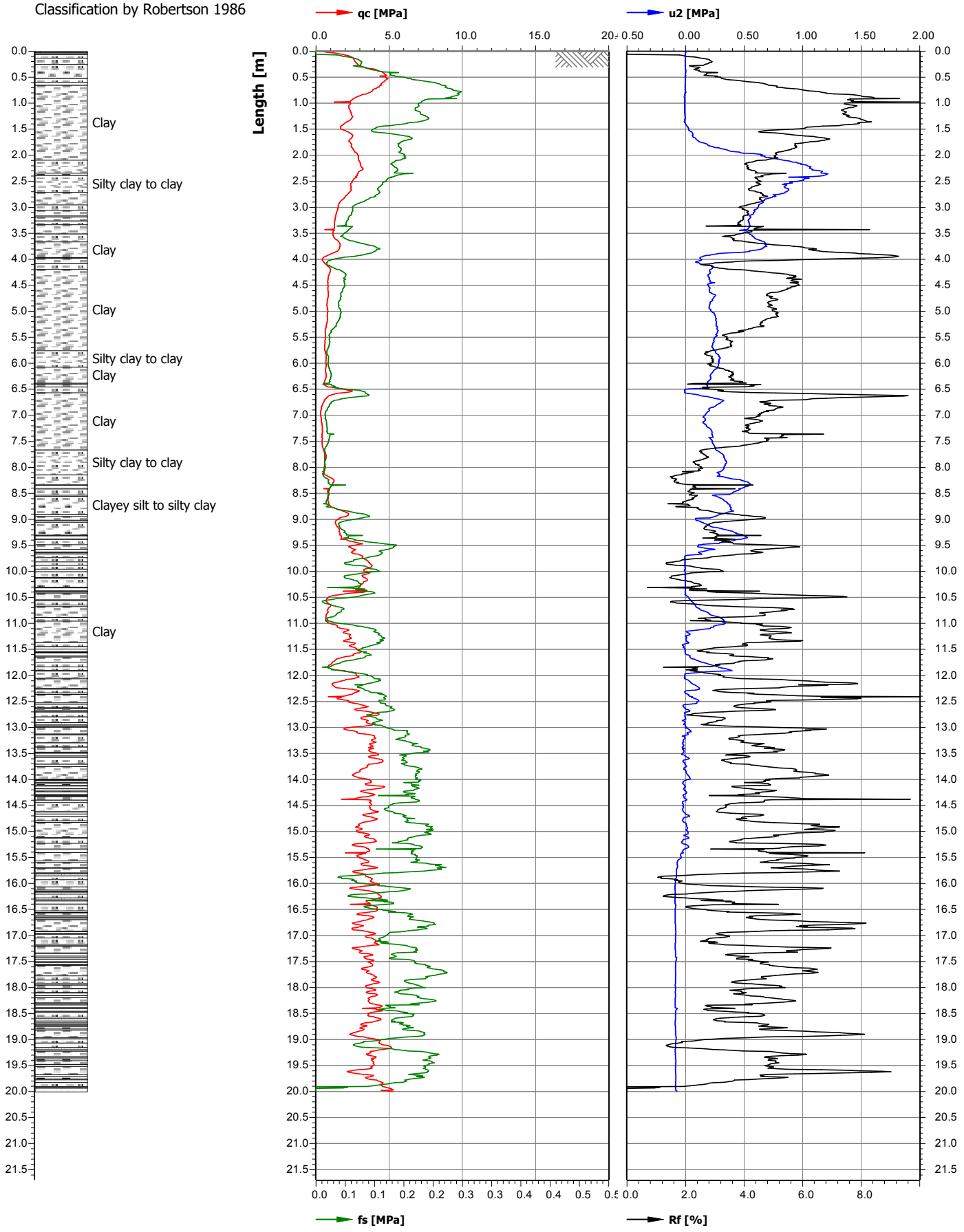
Z value [m]: 0.00	Project engineer	Scale: 1:100	Page: 1/1
Remarks1			

Classification by Robertson 1986



PRO-DRILL	Project name: CMW52FrontierRoad	Date investigation: 19/03/2020	
	Test name: CPT06	Cone name: S10CFIIP.1734	
Test location name	Client: CMW	Net surface area quotient of ...: 0.850/0.000	Nominal surface area of cone...: 10.0/150.0
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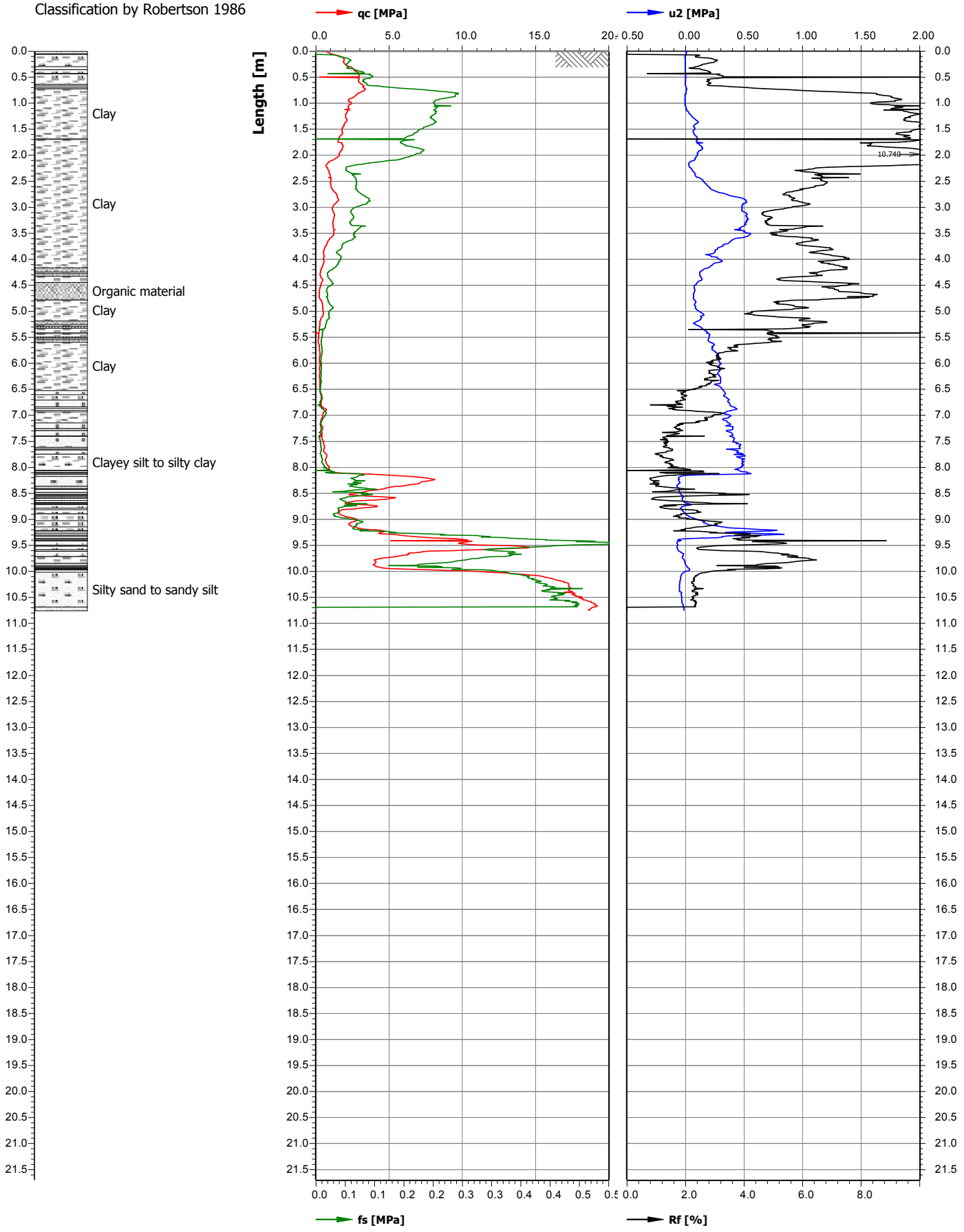
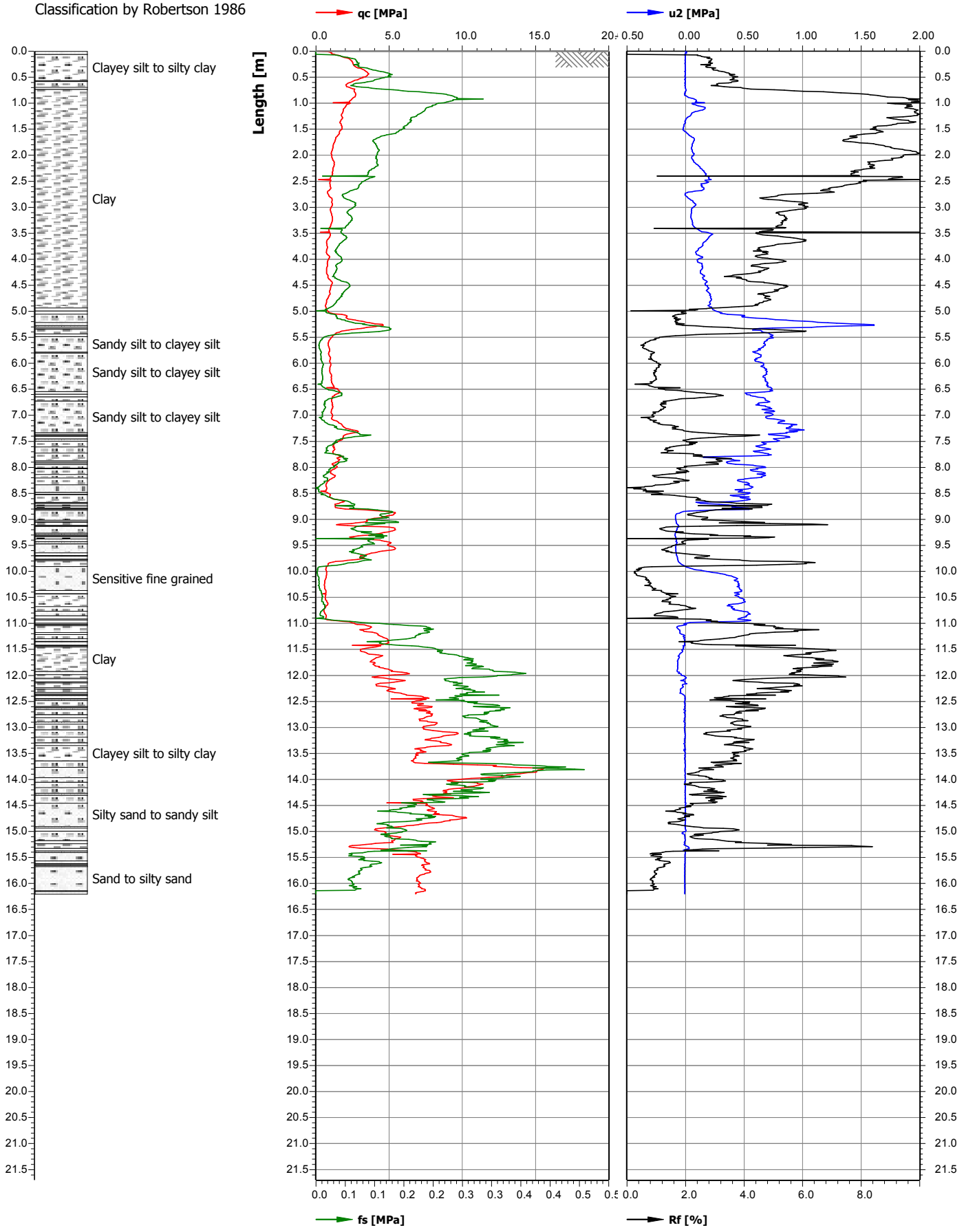
Z value [m]: 0.00	Project engineer	Scale: 1:100	Page: 1/1
Remarks1			

Classification by Robertson 1986



PRO-DRILL	Project name: CMW52FrontierRoad	Date investigation: 19/03/2020	
	Test name: CPT07	Cone name: S10CFIIP.1734	
Test location name	Client: CMW	Net surface area quotient of ...: 0.850/0.000	Nominal surface area of cone...: 10.0/150.0
X coordinate [m]/Y coordinat...: 0.00/0.00	Project contractors	Fig. no.:	
Z value [m]: 0.00	Project engineer	Scale: 1:100	Page: 1/1
Remarks1			

Classification by Robertson 1986



Appendix D – Historic Aerial Images

Appendix E – CMW Natural Hazards Risk Assessment

NATURAL HAZARDS RISK ASSESSMENT FOR LAND SUBDIVISION
52 FRONTIER ROAD, TE AWAMUTU, WAIKATO

A. CONTEXT

Section 106 of the Resource Management Act (RMA) requires an assessment of the risk from natural hazards to be carried out when considering the granting of a subdivision consent. S106 RMA specifically states that the assessment must consider the combined effect of the natural hazard likelihood and material damage to land, other land or structures (consequence).

Section 2 of the RMA defines natural hazards as any atmospheric or earth or water related occurrence (including earthquake, tsunami, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire or flooding) the action of which adversely affects or may adversely affect human life, property, or other aspects of the environment.

This appendix to CMW report reference HAM2020-0016AB Rev0 sets out the criteria for and presents the results of an assessment of the geotechnical-related natural hazards associated with this proposed subdivision development. The remaining hazards, i.e. tsunami, wind, drought, fire and flooding hazards are not covered by this assessment.

B. BASIS OF ASSESSMENT

B1. Risk Classification

The occurrence of natural hazards and their potential impacts on the proposed subdivision development is assessed in terms of risk significance, which is based on likelihood and consequence factors. A risk table is used to help assess the likelihood and consequence factors, the form of which used by CMW for this project is presented in Table B1.

Table B1: Natural Hazard Risk Classification

		Consequence				
		Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Likelihood	Almost Certain 5	Medium 5	High 10	Very high 15	Extreme 20	Extreme 25
	Likely 4	Low 4	Medium 8	High 12	Very high 16	Extreme 20
	Moderate 3	Low 3	Medium 6	Medium 9	High 12	Very high 15
	Unlikely 2	Very low 2	Low 4	Medium 6	Medium 8	High 10
	Rare 1	Very low 1	Very low 2	Low 3	Low 4	Medium 5

B2. Likelihood

With respect to assessing the likelihood or chance of the risk occurring, the qualitative definitions used by CMW for this project are provided in Table B2 for each likelihood classification.

Table B2: Qualitative Natural Hazard Likelihood Definitions		
1	Rare	The natural hazard is not expected to occur during the design life of the project
2	Unlikely	The natural hazard is unlikely, but may occur during the design life
3	Moderate	The natural hazard will probably occur at some time during the life of the project
4	Likely	The natural hazard is expected to occur during the design life of the project
5	Almost Certain	The natural hazard will almost definitely occur during the design life of the project

B3. Consequence

In terms of determining the consequence or severity of the natural hazard occurring, the qualitative definitions used by CMW for this project are provided in Table B3 for each consequence classification.

Table B3: Qualitative Natural Hazard Consequence Definitions		
1	Insignificant	Very minor to no damage, not requiring any repair, no people at risk, no economic effect to landowners.
2	Minor	Minor damage to land only, any repairs can be considered normal property maintenance no people at risk, very minor economic effect.
3	Moderate	Some damage to land requiring repair to reinstate within few months, minor cosmetic damage to buildings being within relevant code tolerances, does not require immediate repair, no people at risk, minor economic effect.
4	Major	Significant damage to land requiring immediate repair, damage to buildings beyond serviceable limits requiring repair, no collapse of structures, perceptible effect to people, no risk to life, considerable economic effect.
5	Catastrophic	Major damage to land and buildings, possible structure collapse requiring replacement, risk to life, major economic effect or possible site abandonment.

B4. Risk Acceptance

It is recognised that the natural hazard risk assessment provided herein is qualitative and, due to the wide range of possible geohazards that could occur, is somewhat subjective. Other methods are available to quantitatively assess an acceptable level of geotechnical related natural hazard risk, such as defining an acceptable factor of safety with respect to slope stability or acceptable differential ground settlements with respect to recommended building code limits.

Therefore, to give this qualitative natural hazard risk assessment some relevance to more commonly adopted numerical or quantitative geotechnical assessment techniques, a residual risk rating of very low to medium (risk value = 1 to 9 inclusive) is considered an acceptable result for the proposed subdivision development.

A risk rating of high to extreme (risk value ≥ 10) is considered an unacceptable result for the proposed subdivision development.

C. RISK ASSESSMENT

The natural hazards relevant to this proposed subdivision development and adjacent, potentially affected land have been assessed with respect to the criteria outlined above.

Assessment is based on proposed post development ground conditions with and without any geotechnical controls. The latent risk was first assessed with the site in its proposed developed state to consider the risks to the development and surrounding land, including assessment of land modifications from the pre-existing natural state, without any implemented geotechnical controls. The specific geotechnical mitigation measures and engineering design solutions outlined in the table below and CMW report, where relevant, were then considered to determine the natural hazard residual risk remaining after the proposed controls have been implemented.

Results of this assessment are presented in Table C1 below.

Table C1: Natural Hazard Risk Assessment Results

RMA S2 Hazard	Description	Proposed Site Latent Risk of Damage to Land / Structures			Comments and Geotechnical Control	Proposed Site Residual Risk of Damage to Land / Structures OR Acceleration/ Worsening of Hazard with Geotechnical Controls Implemented		
		Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Risk Rating
Earthquake	Fault Rupture	1	4	Low 4	Proximity to active faults	1	4	Low 4
	Liquefaction	2	4	Medium 8	Predominately clay soils based on investigation data	1	4	Low 4
	Lateral Spread	2	4	Medium 8	Predominately clay soils based on investigation data	1	4	Low 4

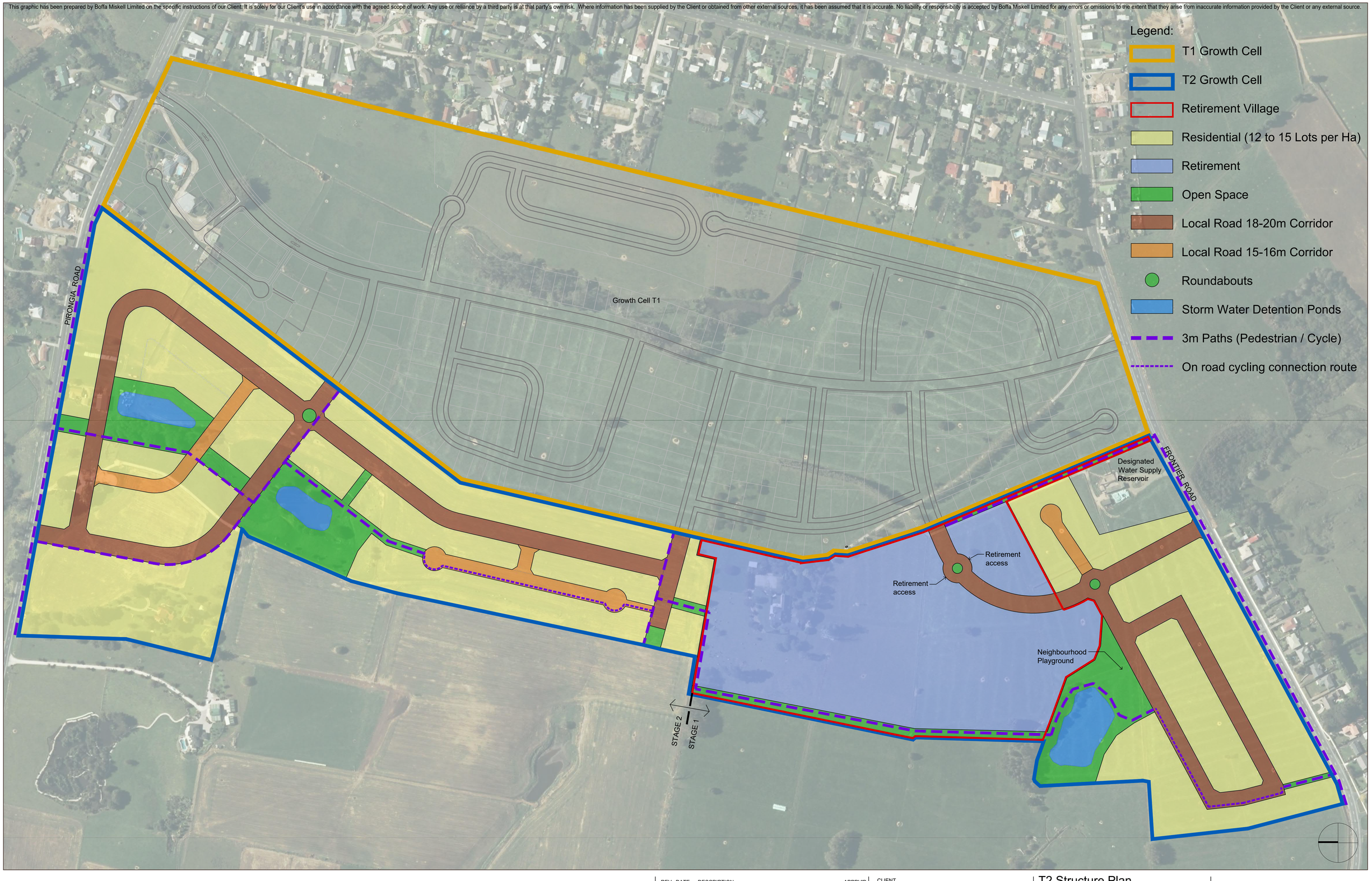
Landslip	Global Slope Instability	3	4	High 12	Overall decrease in slope gradients after earthworks	1	4	Low 4
	Soil Creep	4	3	High 12	Overall decrease in slope gradients across site after completed earthworks	1	4	Low 4
	Bearing Capacity Failure	2	4	Medium 8	Undercut and replace, not expected to encounter soft soils at surface	1	4	Low 4
Subsidence	Expansive Soils	1	4	Low 4	Laboratory testing and appropriate foundation design	1	4	Low 4
	Soft Soils	4	4	Very High 16	Undercut and remove / preload/ foundation design	2	4	Medium 8
	Sensitive Soils	3	2	Medium 6	Compaction control, contractor awareness, removal if necessary	2	2	Low 4
Sedimentation	Rockfall, Debris Inundation	1	3	Low 4	All structures located above slopes and streams flood levels	1	3	Low 4

Notes:

- Assessments include the impact of the proposed subdivision works on adjacent properties.
- The following reference(s) contain information on the hazards contained in this assessment and the non-geotechnical hazards that have not been included:
    - **Waikato** https://waikatoregion.maps.arcgis.com/apps/MapSeries/index.html?appid=f2b48398f93146e8a5cf0aa3fddce92c

Appendix F – Boffa Miskell T2 Structure Plan Concept

This graphic has been prepared by Boffa Miskell Limited on the specific instructions of our Client. It is solely for our Client's use in accordance with the agreed scope of work. Any use or reliance by a third party is at that party's own risk. Where information has been supplied by the Client or obtained from other external sources, it has been assumed that it is accurate. No liability or responsibility is accepted by Boffa Miskell Limited for any errors or omissions to the extent that they arise from inaccurate information provided by the Client or any external source.



Boffa Miskell

Te Awamutu Country Club

KOTARE PROPERTIES

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REV	DATE	DESCRIPTION	APPRV'D
J	23.07.20	Preliminary	MPe
K	27.07.20	Preliminary Concept	MPe
L	06.08.20	Final Concept	MPe
M	28.08.20	Updated Concept	MPe
N	18.09.20	Update Northern T2 Growth Cell	MPe
O	12.10.20	Clarifications	MPe

CLIENT
Sanderson Group

CONSULTANTS
BBO
STANTEC
Nicklin CE Ltd Wainui Environmental

FOR PLAN CHANGE

T2 Structure Plan

T2 Structure Plan

Design	MHu	Scale	Date
Drawn	MHu/MPe	1:2000 @ A1	06/08/2020
Check	JSo	1:4000 @ A3	

DRAWING NO. BM200127_001

REVISION O

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HAIL Environmental
THE CONTAMINATED SITE CONSULTANCY

IDENTIFY | CLASSIFY | RECTIFY

Your Report

Preliminary site investigation and Detailed site investigation

Te Awamutu Country Club

Te Awamutu

Sanderson Group Limited

THE CONTAMINATED SITE CONSULTANCY

Record of review

Roles	***Person responsible***	***Position***	***Relevant experience***	***Signature***
Report preparation	Brendon Love	Contaminated Site Specialist	30 years	
Report review	William Lines	Contaminated Site Specialist	26 years	

Report checklist

Summary contaminated sites report checklist					
Report contained in this document	☑	☑	☐	☐	☐
Report sections and information to be presented	**PSI**	**SIR**	RAP	SVR	MMP
Executive summary	**R**☑	**R**☑	R☐	R☐	R☐
Scope of work	**R**☑	**R**☑	R☐	R☐	R☐
Site identification	**R**☑	**R**☑	R☐	R☐	R☐
Site history	**R**☑	**S**	S	S	S
Site condition and surrounding environment	**R**☑	**S**	S	S	S
Geology and hydrology	**A**	**R**☑	S	S	S
Sampling and analysis plan and sampling methodology	**A**	**R**☑	X	R☐	R☐
Field quality assurance and quality control (QA/QC)	**N**	**R**☑	X	R☐	S
Laboratory QA/QC	**N**	**R**☑	X	R☐	X
QA/QC data evaluation	**N**	**R**☑	X	R☐	X
Basis for guideline values	**R**☑	**R**☑	R☐	R☐	R☐
Results	**A**	**R**☑	R☐	R☐	S
Site characterisation	**R**☑	**R**☑	R☐	R☐	R☐
Remedial actions	**X**	**X**	R☐	S	S
Validation	**X**	**X**	X	R☐	S
Site management plan	**X**	**X**	R☐	S	S
Ongoing site monitoring	**X**	**X**	X	N	R☐
Conclusions and recommendations	**R**☑	**R**☑	R☐	R☐	R☐

Key:

R - the corresponding heading and details are required

A - readily available information should be included

S - a summary of this section's details will be adequate if detailed information has been included in an available referenced report

N - include only if no further site investigation is to be undertaken

X - not applicable and may be omitted.

Ref: MfE2

Contents

Record of review **2**
Report checklist **3**
Summary **7**
1. Introduction **8**
1.1 Purpose 8
1.2 Scope of work 8
2. Site Identification **9**
2.1 Site details 9
2.2 Proposed development 9
2.3 Site layout 9
2.3.1 10 Frontier Road (Lot 2 DP 487281) 9
2.3.2 52 Frontier Road (Lot 1 DP 487281) 10
2.4 Anecdotal information 13
2.4.1 Site contact 13
2.4.2 Internet search 13
2.5 Surrounding areas 14
2.6 Local geology and hydrology 14
2.6.1 Soils 14
2.6.2 Geology 14
2.6.3 Hydrogeology 15
2.6.4 Hydrology 15
3. Site History **16**
3.1 Historic image review 16
3.2 Waipa District Council 17
3.3 Waikato Regional Council 17
3.3.1 Contaminated sites enquiry 17
4. Initial Conceptual Site Model **18**
4.1 Sources of contamination 18
4.2 Transport and exposure pathways 18
4.3 Potentially sensitive receptors 18
4.4 Initial conceptual site model 19
5. Soil sampling and analysis **20**
5.1 Sampling plan 20
5.2 Sampling methodology 20

5.3 Field observations 21
5.4 Basis for guideline values 22
5.5 Results 22
5.6 Quality assurance and quality control 23
6. Site characterisation 25
6.1 Revised conceptual site model 25
7. Conclusions 25
8. Limitations 26
9. References 27

Figures

Figure 1: Site Location, Te Awamutu Country Club, Te Awamutu. 11
Figure 2: Site Layout Plan, Te Awamutu Country Club, Te Awamutu. 12
Figure 3: Site Sampling Plan, Te Awamutu Country Club, Te Awamutu..... 21

Tables

Table 1: Site details 9
Table 2: Summary of chemical analyses – surface soils 24

Appendices

Appendix A: Proposed Scheme Plan 28
Appendix B: Site Photographs 29
Appendix C: Aerial Photographs 32
Appendix D: Certificates of Title 33
Appendix E: Contaminated Sites Enquiry 34
Appendix F: Chain of Custody 35
Appendix G: Laboratory Certificates and Block Data 36

Summary

Sanderson Group Limited proposes to develop an 18-hectare retirement village / residential subdivision adjoining Frontier Road, Te Awamutu, Waikato. The site is to be known as the Te Awamutu Country Club and currently encompasses roughly 18 ha of rural land located to the north of 10 Frontier Road, Te Awamutu ("the site").

The site comprises two properties. Since at least 1944 the northern property has been used as a rural residential dwelling and associated buildings while the southern property adjoining Frontier Road has been used for pastoral grazing purposes. The site is not listed on the Waikato Regional Council's selected land use registry of hazardous activity and industry list (MfE 1).

HAIL Environmental Limited (HAIL Environmental) was commissioned by Sanderson Group Limited (proposal dated 12 March 2020) to complete a combined preliminary and detailed site investigation (PSI-DSI) for the properties. The purpose of the investigation was to:

- Confirm whether the land has been used for activities or industries that have the potential to result in contamination.
- Determine whether soil disturbance and change of use associated with the redevelopment could result in a risk to human health and/or the environment.
- Identify potential consenting requirements under the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011, regional and district plans.

Based on information reviewed, field observations, soil sampling and analysis, mean concentrations of heavy elements in surface soils are at concentrations below applicable standards across both properties. Asbestos fibres are not present, in surface soils within the northern portion of the site. Accordingly, during and following development, no complete source-pathway-receptor contaminant linkages will be present.

Based on the revised conceptual site model, soil contaminants at the proposed Te Awamutu Country Club development does not require any specific management or remediation to mitigate risks to human health.

Anecdotal information indicates that offal pits may be present near the former diary milking shed which adjoined the south eastern boundary. While organic wastes within these pits is likely to have biodegraded potential co-disposal of non-organic wastes may pose a hazard if present.

Elevated lead and zinc are present within the northern property. Samples collected within this portion of the site targeted the locations of former sheds and structures however the presence of buried demolition wastes with higher heavy element concentrations cannot be ruled out.

Due to the potential for waste disposal pits to be encountered during bulk earthworks it is recommended that contingency measures are adopted into earthworks management plans to manage any risks associated with these wastes if encountered.

The development will require a controlled activity consent from Waipa District Council under the NES-CS.

1. Introduction

1.1 Purpose

Sanderson Group Limited proposes to develop 18-hectare retirement village/ residential subdivision adjoining Frontier Road, Te Awamutu, Waikato. The site is to be known as the Te Awamutu Country Club. The site currently encompasses roughly 18 ha of rural land located to the north of Frontier Road, Te Awamutu ("the site").

The site comprises two properties. Since at least 1944 the northern property has been used as a rural residential dwelling and associated buildings while the southern property adjoining Frontier Road has been used for pastoral grazing purposes. The site is not listed on the Waikato Regional Council's selected land use registry of hazardous activity and industry list (MfE 1).

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- Identify potential consenting requirements under the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011, regional and district plans.

1.2 Scope of work

The scope of work comprised:

- Review of the Waipa District Council (WDC) property files for the site.
- Review of Waikato Regional Council (WRC) supplied contamination enquiry information.
- Review of available historic aerial photographs.
- Review of historic certificates of title.
- Review of geological and hydrogeological information.
- Site walkover inspection and interviews with landowners.
- Conducting sampling and analysis in potential areas of concern based on the site history information.

This report has been prepared in general accordance with *Reporting on Contaminated Sites in New Zealand* (Ref: MfE2), *Site Investigation and Analysis of Soils* (Ref: MfE3) and the NES:CS. In accordance with the requirements of Regulation 3 of the NES:CS, this PSI-DSI is prepared and certified by suitably qualified and experienced practitioners (see the record of review above).

2. Site Identification

2.1 Site details

Table 1: Site details

Site name:	Te Awamutu Country Club
Address:	10 & 52 Frontier Road Te Awamutu, Waikato 3876
Relevant authorities	Waipa District Council Waikato Regional Council
Legal description and area	Lot 1 DP 487281 - 15.683 ha, 52 Frontier Road Lot 2 DP 487281 – 2.530 ha, 10 Frontier Road
Zoning	Rural - Waipa District Council
Elevation	Approximately 80 m above mean sea level (amsl) on the eastern site boundary falling to 50 m amsl on the western boundary
General description	Irregular shaped, 18 ha site sloping west and located approximately 3 km west of Te Awamutu. Northern parts of the site have long been occupied by a residential dwelling, while the southern part (>80%) have had pastoral grazing use.

The location and layout of the site is depicted in Figures 1 and 2 respectively. The proposed redevelopment is provided in Appendix A.

2.2 Proposed development

According to scheme plans supplied by the Sanderson Group the proposed development will consist of:

- 98 retirement units
- Care facility, club house, health spa, pond bowls lawn, croquet green, camper van parking, hobby shed, golf putting green
- 105 residential lots ranging from 500 – 700 m^2

A copy of the proposed scheme plan for development is provided in Appendix A.

2.3 Site layout

A site walkover was completed by HAIL Environmental on 30 April 2020. The layout was generally consistent with Figure 2. The following observations were noted during the inspection. Site photographs are provided in Appendix B.

2.3.1 10 Frontier Road (Lot 2 DP 487281)

- This site is accessed off Frontier Road via a long gravel driveway (approximately 300 m). A residential dwelling is located near the southern boundary of this property. The dwelling is surrounded by ornamental gardens and mature trees.

- The remainder of this property comprises pastoral grazing, with some mature macrocarpa and oak trees.
- Some old bricks were noted to the west of the residential dwelling in the location of the former residential dwelling evident in historical aerials, circa 1940-70. Several hand excavated test pits were advanced in this area. No ACM or other anthropogenic waste was observed with the exception of ash and charcoal.
- Several depressions were noted in the topography where former sheds were located circa 1940-1980. Several hand excavated test pits were advanced in these areas. No ACM or other anthropogenic waste was observed with the exception of ash and charcoal. A small mound of sub angular fine to medium gravel was located near the northern boundary of the property.
- With the exception of a mound of gravel located near the northern boundary the test pits advanced on the property revealed a dark brown silty loam with some charcoal fragments extending to around 0.3 m below ground level.
- The topography slopes slightly to the north away from the residential dwelling.

2.3.2 52 Frontier Road (Lot 1 DP 487281)

- This site is accessed off Frontier Road via a gravel driveway which leads to a stock loading yard and iron shed. The stockyard is concrete lined. The shed is a modern three bay colour steel shed. The shed was locked.
- A disused 500 L above ground fuel storage tank (AST) was located near the northern side of the shed. The tank was lying on the ground. Further inspection revealed the AST was empty. No spilled fuel, staining or odour was noted around the tank or the shed.
- Several logs of native timber were noted near the northern end of the shed. Sawdust was noted near the logs and to the south of the shed indicating that some firewood was processed recently. No spills or stained ground was observed near the shed or the stockyard.
- A recently harvested maize crop was evident in the paddock to the west of the stockyard adjoining Frontier Road.
- The remainder of this property comprised pastoral grazing paddocks and farm vehicle and stock access tracks.
- The topography had a moderate slope towards a pond located in the centre of the property bordering the western boundary. The pond was almost dry and surrounded by mature trees.

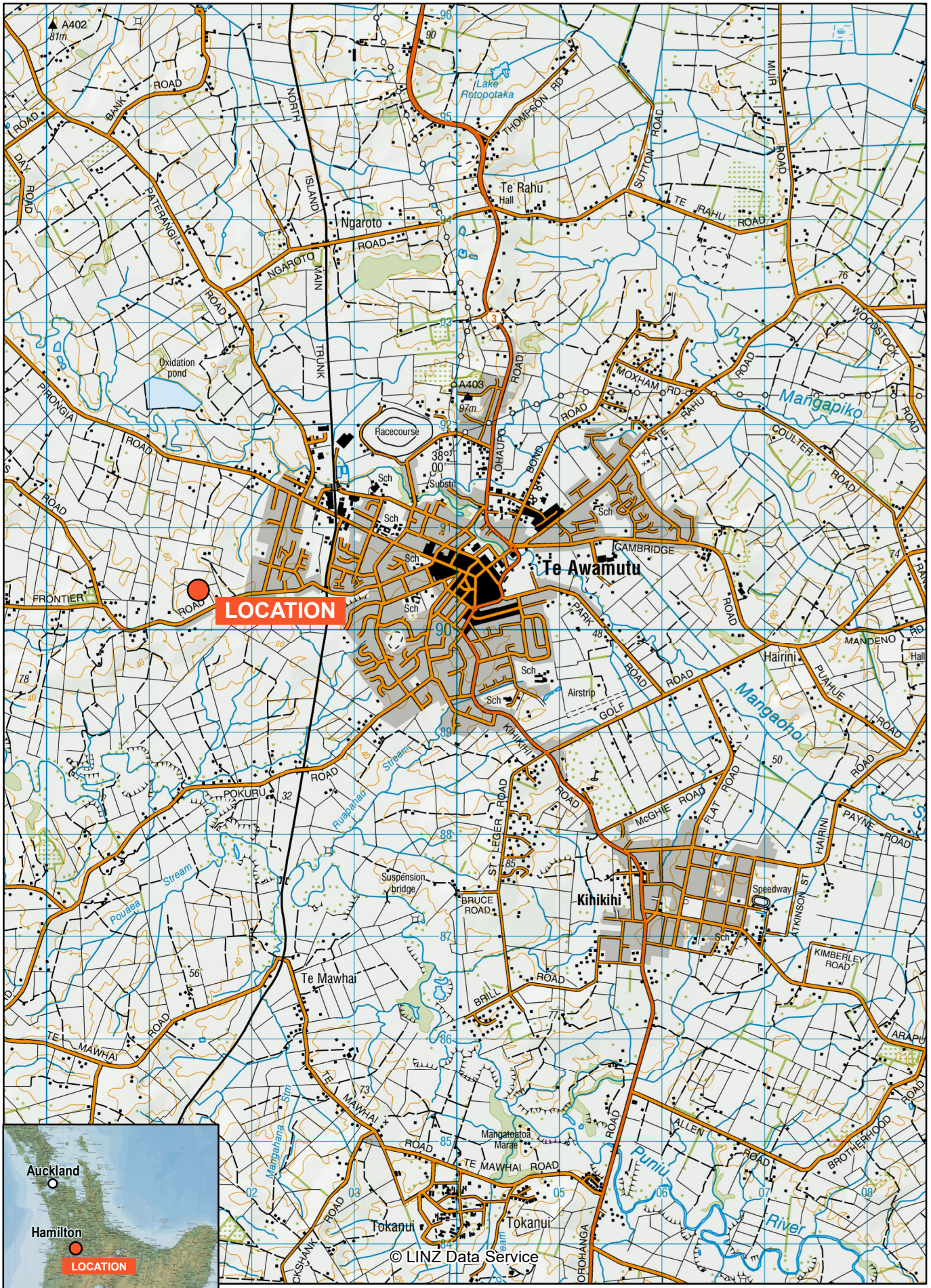

Figure 1 - Site Location Plan

56 Frontier Road, Te Awamutu

Scale = 1:50000 (A4)

0 1 2 3

Kilometres

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Figure 2 - Site Layout Plan

56 Frontier Road, Te Awamutu

Scale = 1:4000 (A4)

0 100 200

Metres

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2.4 Anecdotal information

2.4.1 Site contact

During the site inspection on 30 April anecdotal information was obtained from discussions with the current site owner, Rodney Spiers. Rodney provided the following information:

- Rodney purchased the property in the late 1980s.
- Part of the site including the former cow milking shed and farm implement shed was sub-divided off the property around 2015 and sold to the Waipa District Council (WDC) for construction of the current water storage reservoir.
- When questioned about former buildings and sheds that may have asbestos containing materials Rodney stated that he thought that the old milking shed may have had some ACM, and WDC had to manage it during construction of the reservoir.
- When questioned about possible sheep dips, he stated that the farm had never been used for sheep and was always dairy cows and dry stock to his knowledge. He stated that there may have been some offal pits near the former cowshed.
- When asked about the disused AST located near the shed he indicated that it was formerly located near the cowshed but he had some fuel thefts in the past and when the cowshed was subdivided and sold from the farm they decided not to use it again.
- When asked about fertiliser application rates he was not sure but stated that a portion of the original farm which adjoined the eastern boundary and was now being developed into a residential subdivision was tested and contained high cadmium levels. He said that prior to being developed they had stopped applying superphosphate and had applied lime to the land.
- When asked about agrichemical use on the maize crops he wasn't aware of what sprays and fertilisers might have been used. He said that any agrichemicals would have been stored in the former implement shed which was located off-site near the former cowshed. He said that maize had been grown in the southern portion of the site for around 5 years.

2.4.2 Internet search

An internet search using Google® associated with the address Frontier Road, Te Awamutu resulted in a Harcourts Real Estate listing for a consented 300 residential lot subdivision at 8 Frontier Road being identified as being sold in May 2016. This property adjoins the eastern boundary of the site.

2.5 Surrounding areas

Land uses adjacent to the site predominantly comprise:

North The site is bounded by rural grazing land.

East The site is largely bounded by former pastoral grazing land currently undergoing land use change into a residential subdivision. A water storage reservoir and pump station are located adjacent to the south eastern boundary of the site near Frontier Road.

South The southern boundary adjoins Frontier Road beyond which lies residential land use.

West The site is largely bounded by pastoral grazing land.

2.6 Local geology and hydrology

2.6.1 Soils

Site soils are mapped as Mairoa (high confidence) over most of the site, and Porchester (medium confidence) in the gully near the western site boundary. Mairoa soils are classified as orthic allophanic soils; deep, well drained, tephric, with high topsoil phosphate retention. Porchester soils are classified as mottled orthic brown soils; deep, imperfectly drained, stoneless, with medium topsoil phosphate retention (Ref: Landcare1).

2.6.2 Geology

The site is mapped as underlain by Walton Subgroup which are part of the Tauranga Group deposits containing pumiceous silt, sand and gravel with interbedded peat and rhyolitic pumice, including non-welded ignimbrite, tephra and alluvium pumice deposits. (Ref: GNS1).

WRC online mapping shows several cold-water wells near the site with geological logs:

- **72_9783**, shown in the north east of the site very close to the site boundary, is recorded as silt from 0-7.94 m bgl, gravels 7.94-11.24 m, silt 11.24-11.74 m, gravels 11.74-21.74 m, followed by layers of silt, gravel, pumice and sand to a depth of 145 m. The well is screened from 129 m.
- **72_9765**, shown to be located on 28 Frontier Road adjoining the south eastern site boundary, is recorded as 150 m deep; with clay from 0-12 m bgl, silt 12-30 m, gravels 30-42 m, sands 42-81 m, silts 81-100. The well is screened from 100 m.
- There are several other wells on 28 Frontier Road that were all installed in 2015 by Barham United Well Drillers presumably to establish the WDC municipal water supply. This includes well 72_8208, 72_8871, and 72_9767. Of these wells 72_8871 appears to be the deepest well at 191 m bgl, with ignimbrite being the predominant geological unit between 34-191 m.

2.6.3 Hydrogeology

The Waikato Regional Plan assigns the site to the Waipa Catchment management zone. Groundwater resource investigations commissioned by Waikato Regional Council show the site in the Waipa Zone of the Healthy River Project (GNS2).

The Walton Subgroup, which underlies the site is considered the most important groundwater resource of the Tauranga Group sediments for groundwater resources. The Walton Subgroup typically provides large volumes of good quality water with bores in this group yielding greater than 28 L/s. Many bores are shown on WRC online mapping, including at least 4 within 500 m of the site; where well depth or screen level is shown, this is typically 100-190 m bgl, suggesting that the high-yield aquifer is deep.

In this aquifer zone, nitrate-nitrogen from agriculture commonly exceed community drinking-water standards. Iron and manganese are also greater than drinking water maximum acceptable values in some wells (Ref: GNS2). Perhaps for this reason, the casing depth for onsite well 72_8871 is recorded as 100 m bgl indicating that it is installed in a deep aquifer. This aquifer may be semi-confined, given the log shows a 30 m thickness of clay above the casing depth. This well is currently listed as a consented groundwater take (consent authority ID: 136401.01.02) and named the Frontier Road, Te Awamutu Supplementary Water Supply.

Regionally, groundwater flow is north toward the Waikato River (GNS2).

2.6.4 Hydrology

The site drains west through several gullies to a pond located near the western site boundary. WRC online mapping shows the site is approximately 1 km east of a minor unnamed tributary of the Puniu River which is part of the upper catchment of the Waikato River. The site is not listed as being within a Waikato Regional council land drainage scheme. The Waikato Regional Plan assigns the site to the Waipa Catchment management zone.

3. Site History

3.1 Historic image review

Available aerial photographs and satellite imagery were reviewed to help determine past and current site layout and usage, as well as changes in surrounding properties. Selected aerial photographs are contained in Appendix C. The current and historic certificates of land title are included in Appendix D.

Review of the images revealed that:

1944 – The site is pastoral farmland. There is what appears to be a residential dwelling on the northern end of the site. Another structure is visible within trees to the west of the residential dwelling. The dwelling is accessed from Frontier Road by a track located on property to the east. A small shed or structure is visible midway along the northern border and an unknown object or structure is evident in the north eastern corner.

Frontier Road is in its present-day alignment. Several buildings are located on the property adjoining the south-western site boundary. Otherwise the site is surrounded by pastoral farmland.

- **1958** – The site remains pastoral farmland and largely unchanged from the 1944 image. The unknown object or structure in the north eastern corner is no longer evident.

  The surrounding land use is pastoral farmland. Two residential dwellings have been constructed on the southern side of Frontier Road. It appears that a milking shed with milk tanker truck turn-circle has been constructed on property to the south-east of the site bounding Frontier Road.

  1961 – The site and surrounding land use remain pastoral farmland. An additional shed has been constructed to the north of the residential dwelling on the northern site boundary. An unknown object or structure is visible to the west of the residence.

  The surrounding land still appears to be farmland. Several new residential dwellings are visible on the southern side of Frontier Road.

- **1966** – The site and surrounding land use remain pastoral farmland and largely unchanged from the 1961 image with exception of several new residential dwellings being constructed on the southern side of Frontier Road. An additional small shed or structure is evident in the north eastern corner of the site.

- **1971** – The site and surrounding land use remain pastoral farmland and largely unchanged from the 1966 image. Two small buildings are now present to the north east of the residential dwelling onsite. The sheds that were present on property adjoining the south-western boundary have been removed. Property located on the southern side of the site adjoining Frontier Road is now dominated by residential dwellings.

- **1995** – The residential dwelling onsite appears to be located further west and may have had an extension added or possibly be a new building. Some of the mature trees that were present around the residential dwelling have now been removed. The small shed located midway along the northern boundary is no longer evident. Additional buildings are now evident immediately to the north and north east of the residence.

  The surrounding land use appears the same.

- **2012** –Trees have been removed around the residential dwelling and stock are grazing on land directly west of the dwelling. The pastoral grazing portion of the site and property adjoining the eastern boundary appears to have been recently had recent fertiliser application.

  The property adjoining the south-eastern boundary has an additional shed located on it.

- **2019** – The northern portion of the site is largely unchanged since 2012. A stockyard and shed are now located on the southern site boundary.

  The property adjoining the eastern boundary appears to have some earthworks being carried out on it. The cowshed and sheds visible on property to the south-east in 2012 have been removed and a large tank is now located on-site.

3.2 Waipa District Council

WDC property files for the two properties within the site were reviewed. Only two documents were supplied which are summarised below.

- 1988 – Applications for building a swimming pool with removable roof at 10 Frontier Road made by Mr R. J. Spiers.
- 2019 – Transfer of ownership related to 52 Frontier Road. This records a change of trustee for the Rochdale Trust.

3.3 Waikato Regional Council

3.3.1 Contaminated sites enquiry

Available site contamination information was requested from WRC.

The WRC site contamination files do not include any information in relation to the contamination status of the sites.

The response does include reference to common sources of contamination on rural properties such as sheep dipping, chemical storage, bulk petroleum storage, farm implement workshops, historical asbestos building materials or lead-based paint use on buildings, and long term, frequent use of superphosphate fertilisers as having the potential to impact soil quality on sites.

A copy of the response is included in Appendix E.

4. Initial Conceptual Site Model

4.1 Sources of contamination

Aerial photography, Council files, and anecdotal information agree that the northern part of the site has had a rural residential land use since the late 1940s. Anecdotal information indicates that a new dwelling was constructed during the 1990's slightly east of the original farm homestead. Other sheds located in this part of the site were associated with hay storage.

Chromium, copper and arsenic from treated timber, lead from paints, zinc from galvanised iron and steel, and asbestos containing material (ACM) are all probable contaminants associated with older building materials.

Across the remainder of the site, low to moderate levels of common persistent agricultural contaminants are possible. These are likely to include cadmium, a trace impurity in superphosphate fertiliser, and possibly organonitrogen or organophosphate pesticides (ONOPs) in maize cropping areas in the south of the site – although anecdotal evidence and historical aerial photographs suggests that the period of maize cropping occurred well after the period of potential ONOP usage.

4.2 Transport and exposure pathways

Most of the potential contaminants above have limited mobility in the subsurface and are hazardous to human health principally on direct contact, ingestion of soil and dust, and vegetable uptake. They are hazardous to the environment due to their toxicity to soil organisms, and when sediment and entrained contaminants are carried into surface water by overland flow and stormwater drainage.

Exceptions include:

- Comminuted or fibrous asbestos, which is hazardous solely by inhalation,
- Some heavy elements, notably zinc, are sparingly soluble and can leach into groundwater; they may be phytotoxic at higher concentrations.

Surface runoff from the site is shown as passing through a stormwater pond. This pond is to be retained in the proposed development plan.

Regionally, groundwater abstraction is from very deep aquifers with regional flow to the northwest toward the Waikato River.

4.3 Potentially sensitive receptors

In the context of the proposed retirement village / residential subdivision development (refer Section 2.2), key receptors on site are:

- Development workers in ground contact.
- Future residents.
- Gardening and maintenance staff.
- Management and advanced care staff.
- Groundwater, albeit potentially already impacted by nitrate and/or faecal coliforms from surrounding agriculture.

Potentially sensitive offsite receptors may include:

- Residents of adjacent properties to the south, or east following completion of residential development.

4.4 Initial conceptual site model

Based on the above assessment, potentially complete source-pathway-receptor contaminant linkages at the site during and following development include:

- During ground works, development worker and nearby resident exposure to inhaled asbestos fibres from former building or shed demolition and removal in the northern portion of the site.
- Direct exposure of development workers to a range of building materials and waste-derived contaminants including heavy elements.
- Exposure of future residents to building material and waste-derived contaminants via ingestion and inhalation. Produce consumption will not be a pathway as there is no allowance for growing produce at the site.
- Exposure of future garden and maintenance staff to building material and waste-derived contaminants via ingestion and inhalation. Management and advanced care staff will primarily work indoors and consequently are at considerably less risk.
- Impacts on soil quality and landscape planting from building material and waste-derived contaminants.
- Leaching of building material and waste-derived contaminants to groundwater, which may be used for agricultural or domestic purposes, and will eventually discharge into nearby waterways.

5. Soil sampling and analysis

5.1 Sampling plan

Given the initial conceptual site model, soil sampling had two main objectives:

- To assess surface soil quality, especially in and around the former residential dwelling and sheds in the north of the site.
- To assess surface soil quality in pastoral soils in the southern portion of the site.

Accordingly, the following approach was planned:

- In the northern portion of the site 4 surface soil samples for presence/absence of asbestos and for heavy elements (S1-S4).
- In the southern portion of the site 9 surface soil samples for heavy elements (S5-S13)
- In the southern portion of the site where maize cropping occurred 1 surface soil sample for organonitrogen and organophosphates (S11).

Two samples were to be collected and analysed in duplicate for quality assurance and quality control purposes. The data quality objective (DQO) was a mean relative percent difference (RPD) of less than 30 %, following MfE3.

Control samples were not collected since local natural background concentration ranges are available.

The sample locations are presented on Figure 3.

5.2 Sampling methodology

The soil sampling programme was completed on 30 April 2020. Sampling locations are shown on Figure 3.

Soil samples were collected using from shallow test pits excavated with a stainless-steel spade, which was decontaminated between sampling points by washing with Decon-90® detergent and rinsing with tap water. Each sample was handled with dedicated disposal gloves. Soil was placed directly into laboratory supplied containers. Samples were held chilled and couriered to the laboratory, Analytica Laboratories Limited (Analytica), under chain of custody documentation. Chain of custody documentation is included in Appendix F.

Two samples were also collected in duplicate, with the second of each pair submitted for blind analysis under a separate sample number: D1 for S7, D2 for S12. As no gross contamination was observed, rinsate blanks were not collected.

Figure 3 - Site Sampling Plan

56 Frontier Road, Te Awamutu

Scale = 1:4000 (A4)

0 100 200

Metres

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5.3 Field observations

General observations on site layout and condition are given in Section 2. In summary:

- Test pits at sample locations S1 and S2 encountered brown loam SILT, with minor ash and charcoal fragments to 0.2 m bgl overlying a yellow brown silt.
- Test pits at sample locations S3 and S4 encountered brown loam SILT, with minor charcoal fragments to 0.2 – 0.3 m bgl, overlying a yellow brown silt.
- Test pits at sample locations TP5 – TP13 encountered brown loam SILT to 0.2 – 0.3 m bgl overlying a yellow brown silt.

ACM or other evidence of former building materials (paint flakes, wood or steel fragments were not noted in the surface soils.

5.4 Basis for guideline values

Based on the initial site conceptual model, the applicable standards are soil contaminant standards (SCS) for a residential land use (Ref: MfE4). This is considered highly conservative as the proposed land use is unlikely to include vegetable gardens eliminating the consumption of home grown produce pathway.

For amenity purposes, the ecological soil guideline values (eco-SGV) promulgated by Landcare (Ref: Landcare) are of interest, specifically those for residential / recreational areas. Background concentrations for heavy elements in the Waikato have been determined (Ref: WRC), and 95th percentile values are used here for comparison purposes.

5.5 Results

Analytical results for the soil samples collected from the site are summarised in Table 2. Laboratory reports and block data analysis sheets are provided in Appendix G.

In summary the results show that:

- Mean concentrations of selected heavy metals in the topsoil samples were within applicable standards. Samples S3 and S4 in the north of the site were high outliers for arsenic, but at 15 and 14 mg/kg respectively, both results are within the residential SCS of 20 mg/kg, and are therefore considered unlikely to represent a significant 'hot spot'.
- Samples S1 and S4 contained concentrations of lead slightly above applicable standards. These samples were not identified as high outliers using Grubbs Test and a significance level of a = 0.05 and a sample set of n = 13. However, it is assumed that these elevated lead concentrations may be representative of isolated particles of lead paint and are considered unlikely to represent a significant 'hot spot'.
- Samples S1-S4 contained concentrations of zinc slightly above applicable standards. These samples were not identified a high outlier using Grubbs Test and a significance level of a = 0.05 and a sample set of n = 13. However, it is assumed that these elevated zinc concentrations may be representative of isolated particles of galvanised zinc roof coatings and are considered unlikely to represent a significant 'hot spot'.

- No organonitrogen or organophosphorus pesticides were reported in sample S11 from the south of the site, which was analysed in duplicate by the laboratory.
- Otherwise, samples typically contained elevated cadmium and zinc within assessment criteria, other contaminants of interest within background levels, and no reported asbestos.

5.6 Quality assurance and quality control

Analytica Laboratories 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. Analyses were performed in accordance with the terms of accreditation.

The mean relative percentage difference (RPD) between laboratory duplicate analyses of sample S1 was 3 % across the seven selected heavy metals, a highly satisfactory result. The mean RPD across two pairs of field duplicates analysed for selected heavy metals – S7/D1 and S12/D2 – was 14 %, within the investigation's data quality objective of 30 %.

Table 2: Summary of chemical analyses – surface soils

Sample	***Arsenic***	***Cadmium***	***Copper***	***Lead***	***Zinc***
S1	7.5	0.541	46.9	222	**297**
S2	9.5	0.666	38.7	195	**272**
S3	15.3	0.516	37.2	68.2	**264**
S4	13.7	0.791	68.6	222	**388**
S5	6.1	0.913	53.2	15.4	119
S6	5.6	1.15	55.9	13.5	142
S7	5.8	0.736	57.9	14	109
S8	6.8	0.778	45.2	13.4	95.3
S9	6.2	0.734	33.7	13.5	88.1
S10	6.9	0.43	54.6	14.4	108
S11	6	0.911	55.1	14	140
S12	5.7	0.782	50.5	14.5	107
S13	6.3	1.07	57.1	14	139
D1	5.4	0.631	54.1	12.7	97.1
D2	5.1	0.653	46.6	13.3	92.2
Guidelines					
SCS$_{res}$ (ref: MfE4)	20	3.0	>10,000	210	No SCS
Eco-SGV (ref: Landcare 2)	**60**	**12**	**300**	**900**	**200**
Background (ref: WRC)	*6.8*	*0.22*	*25*	*20*	*53*

Notes: Concentrations are total recoverable analyte, mg/kg dry weight. Red – exceeds SCS. **Bold** – exceeds eco-SGV. *Italics* – within background. Chromium, nickel, not shown, as all reported results within reported background.

6. Site characterisation

6.1 Revised conceptual site model

Based on information reviewed, field observations, soil sampling and analysis, mean concentrations of heavy elements are at concentrations below applicable standards across the site. In addition, asbestos fibres are not present, in surface soils within the northern portion of the site.

Underlying soils generally comprise SILTs that are likely to have low permeability and retain any heavy elements above background levels.

Accordingly, during and following development, no complete source-pathway-receptor contaminant linkages will be present.

7. Conclusions

Based on the revised conceptual site model, soil contaminants at the proposed Te Awamutu Country Club development does not require any specific management or remediation to mitigate risks to human health.

Soil disturbance and change to residential use is likely to generate dust and stormwater with elevated contaminants above background levels however standard bulk earthworks control measures are adequate to manage these potential discharges.

The development will require a controlled activity consent under the NES-CS, and potentially under the Waikato Regional Plan and Waipa District Plan.

8. Recommendations

Anecdotal information indicates that offal pits may be present near the former dairy milking shed which adjoined the south eastern boundary. While organic wastes within these pits is likely to have biodegraded potential co-disposal of non-organic wastes may pose a hazard.

Some elevated lead and zinc are present within the northern property. Samples collected within this portion of the site targeted the locations of former sheds and structures however the presence of buried demolition wastes with higher heavy element concentrations cannot be ruled out.

Due to the potential for waste disposal pits to be encountered during bulk earthworks it is recommended that contingency measures are adopted into earthworks management plans to manage any risks associated with these wastes if encountered.

9. Limitations

Because of the limited scope of work performed and the errors and omissions inherent in available historical and anecdotal records, HAIL Environmental cannot reach unqualified conclusions about soil contamination at the site:

- HAIL Environmental cannot validate that all anecdotal information is accurate.
- Conclusions based on review of representative regional land uses and their impacts cannot ensure that impacts from a particular site agree with these regional norms.
- The locations of apparent current and historical HAIL activities were used to target soil sampling locations. Sampling was not undertaken underneath buildings currently on site. Unreported activities may also have occurred, and if so, might not have been detected by the sampling and analysis performed.
- Some site conditions may be undetectable by the limited scope of work performed. Localised hotspots may exist between sampled locations. In particular, it is almost certain that sampling did not intercept all buried wastes.
- Groundwater was not sampled.

10. References

GNS1: Edbrooke, S.W. (compiler) 2005: Geology of the Waikato area: scale 1:250,000. Lower Hutt: Institute of Geological & Nuclear Sciences. Institute of Geological & Nuclear Sciences 1:250,000.

GNS2: Groundwater resource characterisation in the Waikato River catchment for Healthy Rivers Project. Draft for discussion purposes, commissioned by Technical Leaders Group for Healthy Rivers Wai Ora Project, Waikato Regional Council. Institute of Geological and Nuclear Sciences Limited. Lower Hutt. 2015.

Landcare1: S-map national soil mapping database. Landcare Research Limited, Lincoln. Accessed online at smap.landcare.co.nz during April 2020.

Landcare2: Development of soil guideline values for the protection of ecological receptors (Eco-SGVs): technical document. JE Cavanagh, K Munir. Landcare Research Limited, Lincoln. 2016.

MfE1: Hazardous activities and industries list (HAIL). Revised edition. Ministry for the Environment. Wellington. 2011.

MfE2: Contaminated land management guideline No. 1: Reporting on contaminated sites in New Zealand. Revised edition. Ministry for the Environment. Wellington. 2011.

MfE3: Contaminated land management guideline No. 5: Site investigation and analysis of soils. Revised edition. Ministry for the Environment. Wellington. 2011.

MfE4: Methodology for deriving standards for contaminants in soil to protect human health. Ministry for the Environment. Wellington. 2011.

NES:CS: Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations. 2011.

WRC: Natural background concentrations in the Waikato Region. Waikato Regional Council https://www.waikatoregion.govt.nz/services/regional-services/waste-hazardous-substances-and-contaminated-sites/contaminated-sites/natural-background-concentrations/ viewed on 8 May 2020

Appendix A: Proposed Scheme Plan

Te Awamutu Country Club

Frontier Drive, Te Awamutu

Proposed facilities

1. Care Facility
2. Club House
3. Health Spa
4. Pond
5. Bowls Lawn
6. Croquet Green
7. Campervan Parking
8. Hobby Shed
9. Golf Putting Green

98 Retirement Villas

105 Residential Lots

Appendix B: Site Photographs

Image from southern site boundary facing north

Image taken near southern site boundary facing east. Frontier Road is visible on the right with the water reservoir in the background

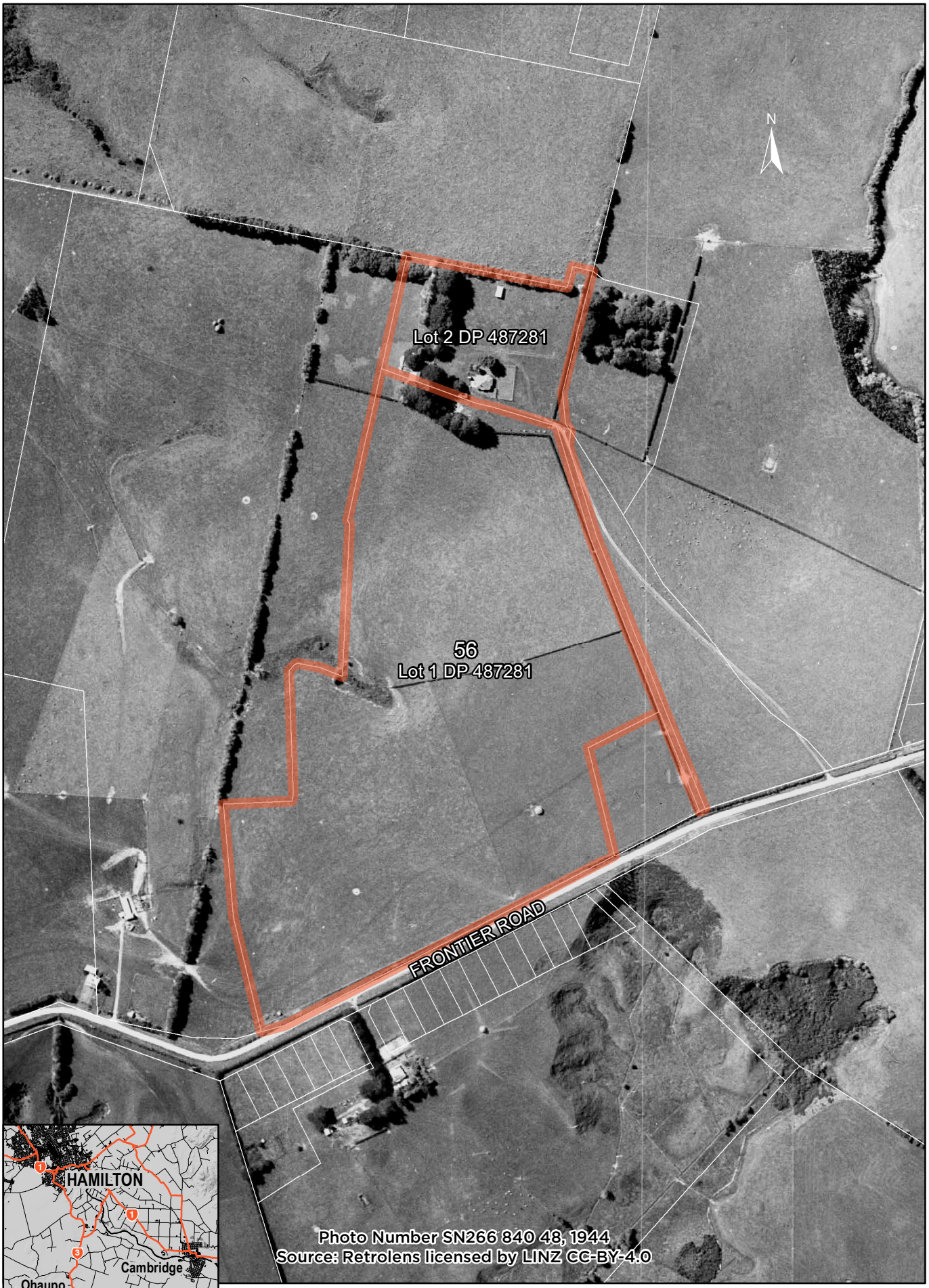
Building materials near the former residential dwelling

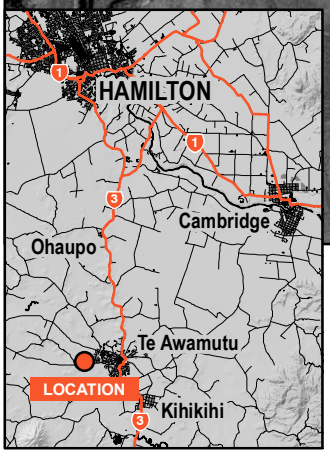
Shallow soil profile in sample location S2

Image taken near northern boundary facing south towards the existing residential dwelling

Image taken near locked implement shed located on southern boundary. Disused AST is visible in foreground.

Appendix C: Aerial Photographs





Historic Aerial Imagery - March 1944

56 Frontier Road, Te Awamutu

Scale = 1:5000 (A4)

0 100 200 300

Metres

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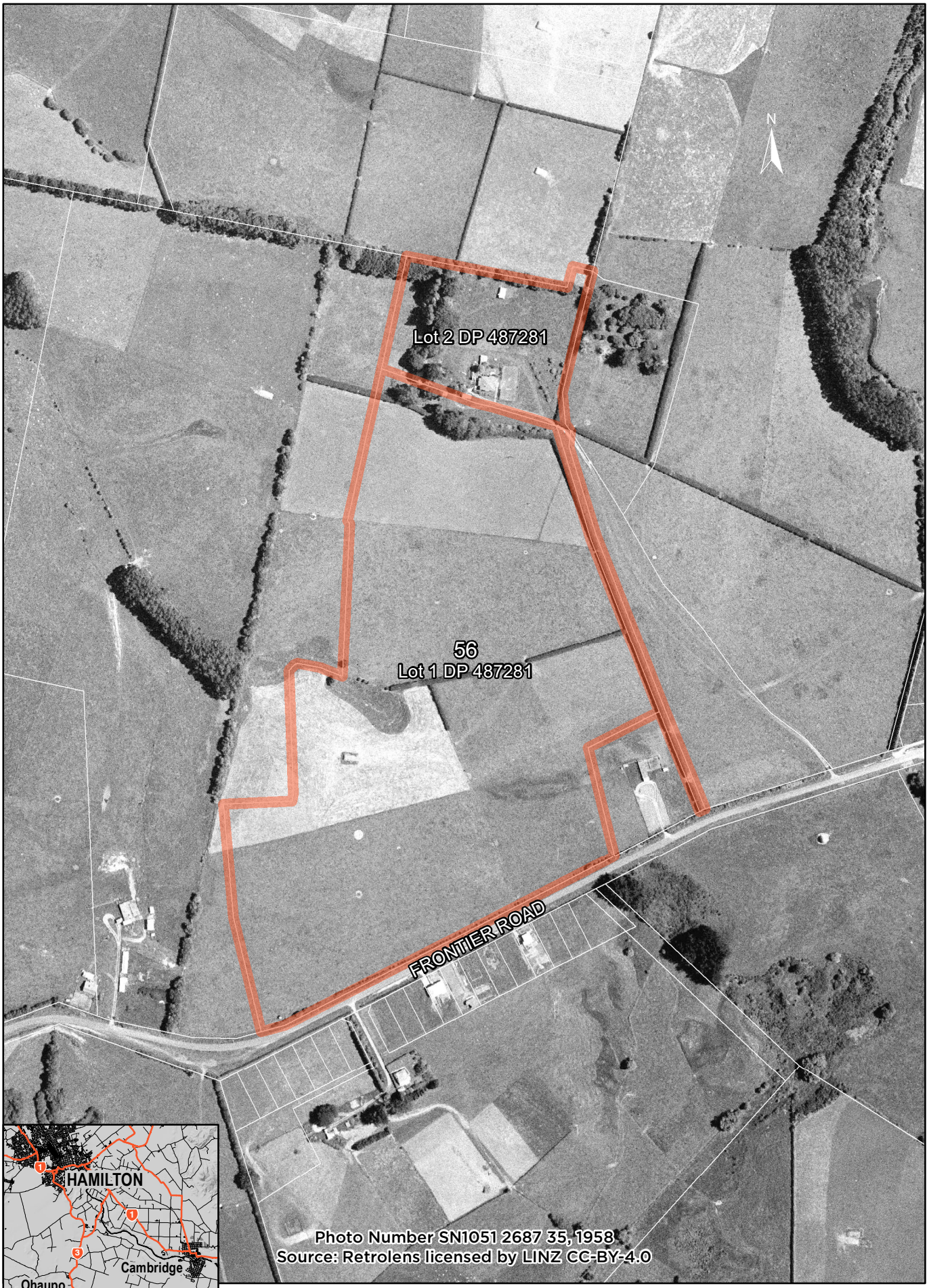

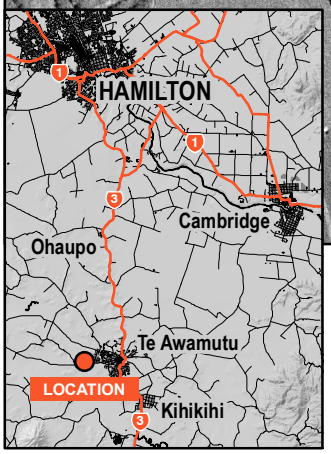

Historic Aerial Imagery - November 1958

56 Frontier Road, Te Awamutu

Scale = 1:5000 (A4)

0 100 200 300

Metres

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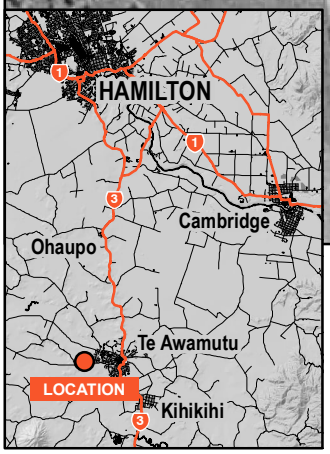

Historic Aerial Imagery - September 1961

56 Frontier Road, Te Awamutu

Scale = 1:5000 (A4)

0 100 200 300

Metres

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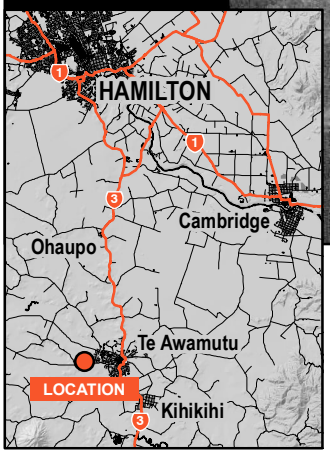

Historic Aerial Imagery - February 1966

56 Frontier Road, Te Awamutu

Scale = 1:5000 (A4)

0 100 200 300

Metres

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Historic Aerial Imagery - August 1971

56 Frontier Road, Te Awamutu

Scale = 1:5000 (A4)

0 100 200 300

Metres

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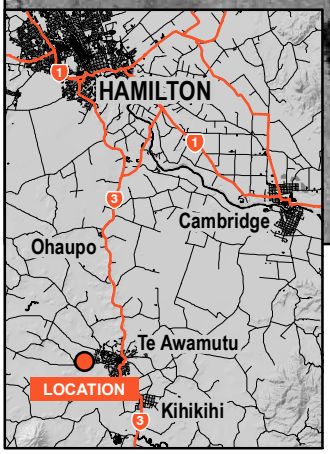

Historic Aerial Imagery - February 1995

56 Frontier Road, Te Awamutu

Scale = 1:5000 (A4)

0 100 200 300

Metres

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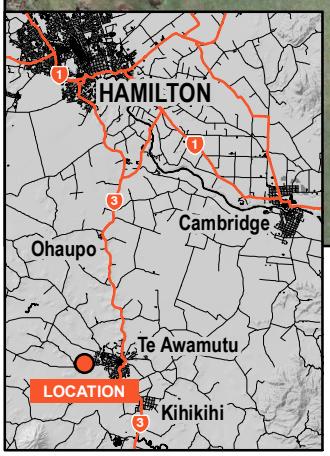


Historic Aerial Imagery - 2012/13

56 Frontier Road, Te Awamutu

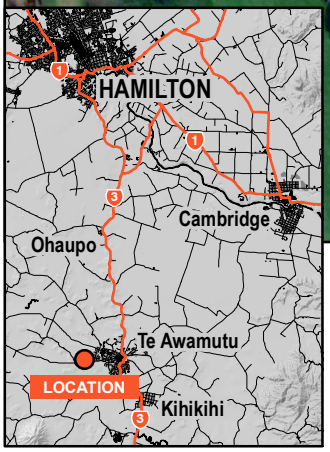
Scale = 1:5000 (A4)

0 100 200 300

Metres

HAIL Environmental

THE CONTAMINATED SITE CONSULTANCY



Historic Aerial Imagery - June 2019

56 Frontier Road, Te Awamutu

Scale = 1:5000 (A4)

0 100 200 300

Metres

HAIL Environmental

THE CONTAMINATED SITE CONSULTANCY

Appendix D: Certificates of Title

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **696841**
Land Registration District **South Auckland**
Date Issued 07 April 2016

Prior References
580866 630860

Estate Fee Simple
Area 2.5307 hectares more or less
Legal Description Lot 2 Deposited Plan 487281

Registered Owners
Rodney James Spiers as to a 1/2 share
Raewyn Dale Spiers as to a 1/2 share

Interests

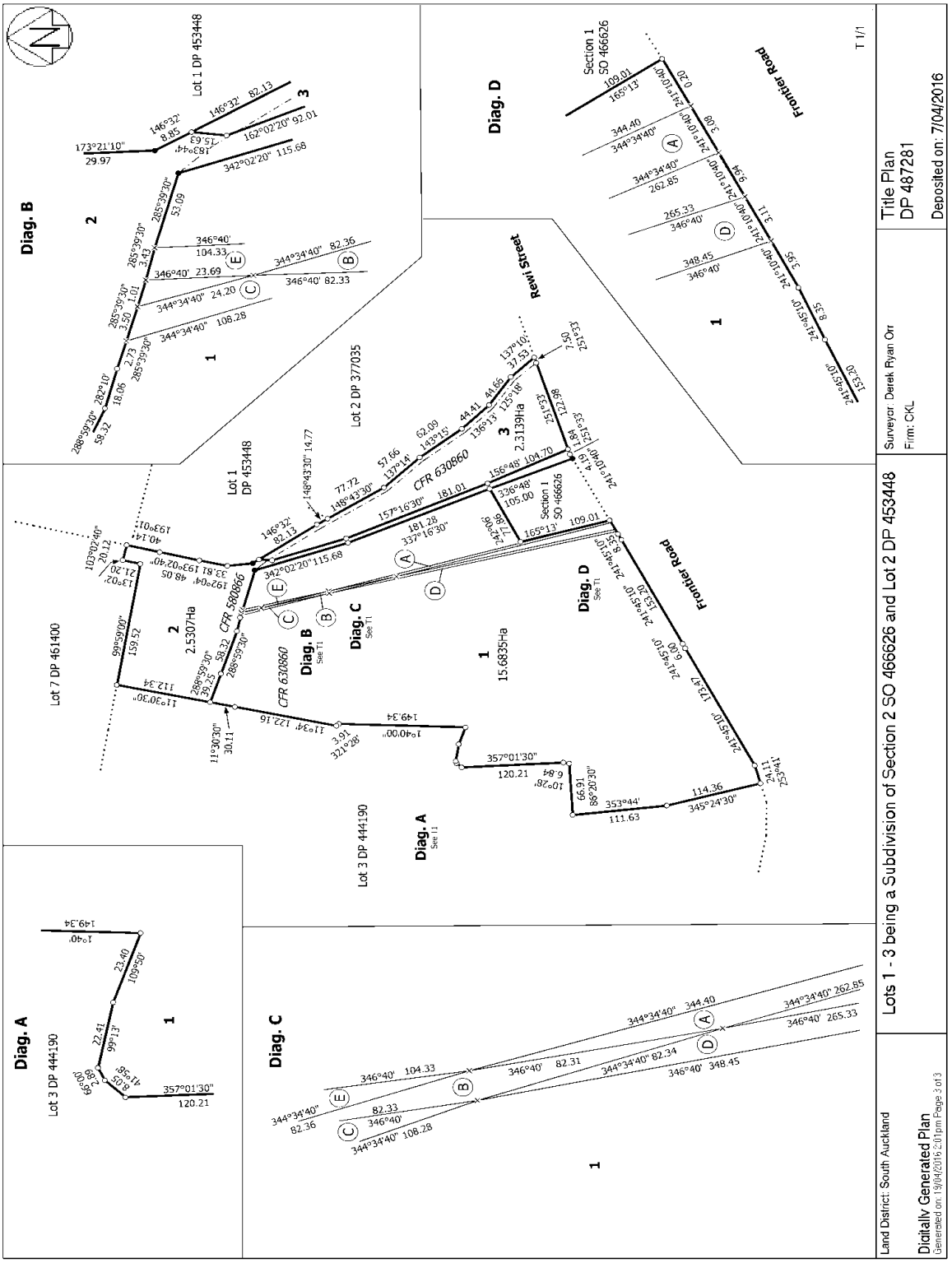
8852276.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 18.10.2011 at 11:04 am (Affects parts formerly Lot 2 DP 444190 and Lot 3 DPS 85145)

Appurtenant to part formerly Lot 2 DP 453448 is a right to convey electricity and water created by Easement Instrument 9161449.6 - 11.9.2012 at 10:32 am

The easements created by Easement Instrument 9161449.6 are subject to Section 243 (a) Resource Management Act 1991

9433009.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Waipa District Council - 19.6.2013 at 7:00 am (affects part formerly Section 2 SO 466626)

Identifier **696841**



RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **696840**
Land Registration District **South Auckland**
Date Issued 07 April 2016

Prior References
630860

Estate	Fee Simple
Area	15.6835 hectares more or less
Legal Description	Lot 1 Deposited Plan 487281

Registered Owners
Rodney James Spiers as to a 7/20 share
Raewyn Dale Spiers as to a 7/20 share
Rodney James Spiers, Raewyn Dale Spiers and Aubrey Mark Irwin as to a 3/10 share

Interests

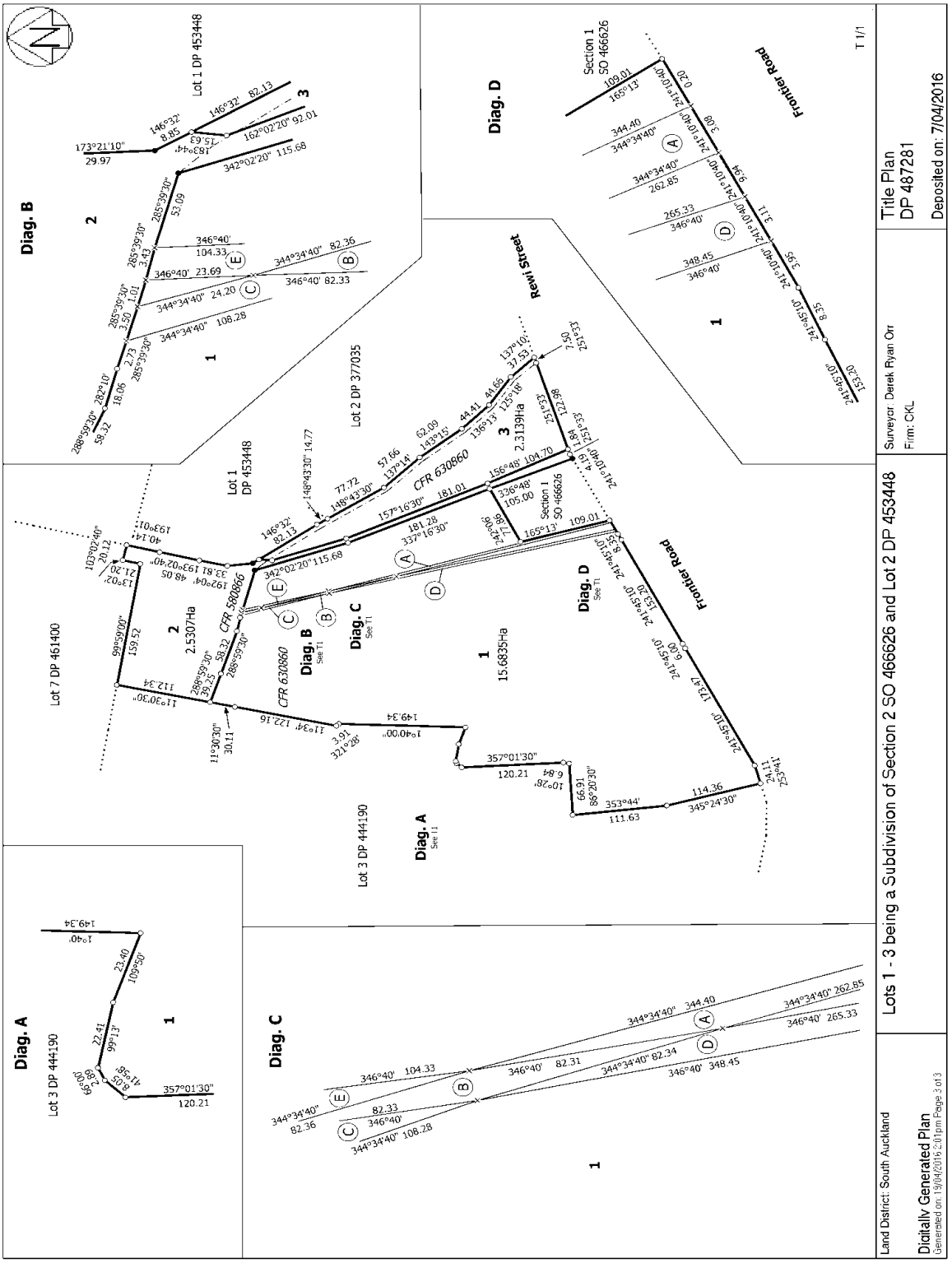
8852276.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 18.10.2011 at 11:04 am (Affects part formerly Lot 3 DPS 85145)

Subject to a right to convey electricity over parts marked A, B & C and a right to convey water over parts marked B, D & E all on DP 487281 created by Easement Instrument 9161449.6 - 11.9.2012 at 10:32 am

The easements created by Easement Instrument 9161449.6 are subject to Section 243 (a) Resource Management Act 1991

9433009.1 Compensation Certificate pursuant to Section 19 Public Works Act 1981 by Waipa District Council - 19.6.2013 at 7:00 am

Identifier **696840**



Appendix E: Contaminated Sites Enquiry

From: Caitlin Holm
To: Brendon Love
Subject: RE Land Use Information Register enquiry 0 & 52 Frontier Road, Te Awamutu (REQ160646) No SLUS
Date: Wednesday, 22 April 2020 12:31:27 PM
Attachments: image325273.png

Dear Brendon,

Thank you for your enquiry regarding information the Waikato Regional Council may hold relating to potential contamination at the property indicated below:

- **0 Frontier Road, Te Awamutu**: LOT 2 DP 487281 (VRN 04611/032/22)
- **52 Frontier Road, Te Awamutu**: LOT 1 DP 487281 (VRN 04611/032/21)

Background: The Waikato Regional Council maintains a register of properties known to be contaminated on the basis of chemical measurements, or potentially contaminated on the basis of past land use. This register (called the Land Use Information Register) is still under development and should not be regarded as comprehensive. The 'potentially contaminated' category is gradually being compiled with reference to past or present land uses that have a greater than average chance of causing contamination, as outlined in the Ministry for the Environment's Hazardous Activities and Industries List (HAIL):

http://www.mfe.govt.nz/sites/default/files/hazards/contaminated-land/is-land-contaminated/hazardous-activities-industries-list.pdf

These properties:

- I can confirm that these properties **do not** currently appear on the Land Use Information Register.

District Councils: Our records are not integrated with those of territorial authorities, so it would also be worth contacting the Waipa District Council to complete your audit of Council records if you have not already done so. In general, information about known contaminated land will be included on a property LIM produced by the territorial authority.

-

Rural Land Considerations: Examples of sites that are "more likely than not" to have soil contamination (HAIL sites) include timber treatment activities, service stations and/or petroleum storage, panel beaters, spray painters, etc. Whilst pastoral farming is not included on this list, typical farming activities of horticulture, sheep dipping, chemical storage, petroleum storage and workshops are; but are more difficult to identify and may not be as well represented on the Land Use Information Register. Therefore, individuals interested in pastoral land may be interested in completing further investigations in accordance with Ministry for the Environment Guidelines prior to land purchase and/or development.

Additional Information: Please note that:

- Significant use of lead-based paint on buildings can, in some cases, pose a contamination risk; the use of lead-based paint is not recorded on the Land Use Information Register.
- Buildings in deteriorated or derelict condition which contain asbestos can result in asbestos fibres in soil; the use of asbestos in building materials is not recorded on the Land Use Information Register.
- The long term, frequent use of superphosphate fertilisers can potentially result in elevated levels of cadmium in soil; the use of superphosphate fertiliser is not recorded on the Land Use Information Register.
- We are not currently resourced to fully incorporate historic aerial photographs in our region-wide assessment of HAIL activities. A significant proportion of the Crown historical aerial image archive for the Waikato region is available to view free of charge at http://retrolens.nz/. We recommend this resource is consulted for any HAIL assessment.
- Due to the large volume of enquiries being received, we may not be able to respond to your enquiry as quickly as previously. We are resourced to meet 20 day response times as per LGOIMA, but endeavour to respond more quickly when workload permits. If your enquiry is urgent, please note this first in your enquiry and we will do our best to assist.

Please feel free to contact me if you have any further queries on this matter. For any new enquiries or requests for information please continue to use the Request for Service form for 'Contaminated Land/HAIL.'

Regards,

Caitlin Holm | SCIENTIST | Geothermal & Air, Land Ecology & Contamination, Science and Stra
WAIKATO REGIONAL COUNCIL | Te Kaunihera ā Rohe o Waikato

Take a look at the work we do
P: +6479497129
F: facebook.com/waikatoregion
Private Bag 3038, Waikato Mail Centre, Hamilton, 3240

To ensure we are doing everything we can to slow down the impact of COVID-19, our offices are currently closed and our staff are working remotely. If you need health advice or information, call Healthline on 0800 358 5453 or head to covid19.govt.nz.

****
This email message and any attached files may contain confidential information, and may be subject to legal professional privilege. If you have received this message in error, please notify us immediately and destroy the original message. Any views expressed in this message are those of the individual sender and may not necessarily reflect the views of Waikato Regional Council. Waikato Regional Council makes reasonable efforts to ensure that its email has been scanned and is free of viruses, however can make no warranty that this email or any attachments to it are free from viruses.
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Appendix F: Chain of Custody

ENVIRONMENTAL TESTING:

CHAIN OF CUSTODY

20-15656

ANALYTICA LABORATORIES

CLIENT INFORMATION		Lab ID (Lab use only)	20-15656	Registered By	AV	Date Registered	04/05/20
Client	HAIL Environmental	Customer Comments/Instructions					
Address	18 Waikare Place, Welcome Bay, Tauranga	Brendon Confirmed he would like to test for PIA Asbestos. He would also like to add ONOPs to Sample S11. AV 04/05/20.					
Project Leader	Brendon Love						
Project ID	176						
Site	Frontier Road, Te Awamutu						
Sampler	Brendon Love						
Phone	Brendon Love - 0296339577						
Email	blove@hailenvironmental.co.nz						
Invoice Email	blove@hailenvironmental.co.nz						

CLIENT REQUESTS (Please Tick)											
Routine	x	Priority		Urgent		ESDAT		QC Report	x	Drinking Water	

TESTS REQUESTED											
					Analysis Requests/Suites [Enter Test Code Below]						
Sample ID	Depth	Sampling Date	Time	Matrix (Please Circle)		P/A				Sample Comments (ie: extra test requests,high odour, bulk material)	
1	S1	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S	ASB_S	PH_S			
2	S2	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S	ASB_S	PH_S			
3	S3	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S	ASB_S	PH_S			
4	S4	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S	ASB_S	PH_S			
5	S5	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
6	S6	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
7	S7	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
8	S8	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
9	S9	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
10	S10	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
11	S11	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S	ONOPs		
12	S12	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
13	S13	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
14	D1	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
15	D2	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			

Matrix Key	S (Solids)	CW (Clean Water)	SW (Saline Water)	WW (Waste Water)
	All soils, sediment, sludge	Potable, Ground, Bore, Surface, Fresh	Sea Water, Geothermal	Effluent, Trade Waste, Leachate

Sender Name	Brendon Love	Received by (Lab Staff)	AV	Courier company	NZC	Courier #	JDQ000006125		
Date Sent	30-Apr	Time sent	3.30	Date Received	04/02/20	Time Received	548 pm	Seal Status	✓	Sample Chilled	X

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Ruakura Research Centre
10 Bisley Road, Private Bag 3123
Hamilton 3240, New Zealand
Phone +64 7 974 4740
Email enviro.reception@analytica.co.nz
analytica.co.nz

ENVIRONMENTAL TESTING

CHAIN OF CUSTODY

20-15661

ANALYTICA LABORATORIES

CLIENT INFORMATION		Lab ID (Lab use only)	20-15661	Registered By	AV	Date Registered	04/05/20
Client	HAIL Environmental	Customer Comments/Instructions					
Address	18 Waikare Place, Welcome Bay, Tauranga	Brendon Confirmed he would like to test for PIA Asbestos. He would also like to add ONOPs to Sample S11. AV 04/05/20.					
Project Leader	Brendon Love						
Project ID	176						
Site	Frontier Road, Te Awamutu						
Sampler	Brendon Love						
Phone	Brendon Love - 0296339577						
Email	[redacted]						
Invoice Email	[redacted]						

ASBESTOS

CLIENT REQUESTS (Please Tick)											
Routine	X	Priority		Urgent		ESDAT		QC Report	X	Drinking Water	

TESTS REQUESTED

	Sample ID	Depth	Sampling Date	Time	Matrix (Please Circle)	Analysis Requests/Suites [Enter Test Code Below]					Sample Comments (ie: extra test requests, high odour, bulk material)
							P/A				
1	S1	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S	ASB_S	PH_S			
2	S2	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S	ASB_S	PH_S			
3	S3	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S	ASB_S	PH_S			
4	S4	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S	ASB_S	PH_S			
5	S5	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
6	S6	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
7	S7	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
8	S8	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
9	S9	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
10	S10	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
11	S11	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S	ONOPS		
12	S12	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
13	S13	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
14	D1	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			
15	D2	0.01-0.2	30/04/2020	11.30AM	S	MH7_TR_S		PH_S			

Matrix Key	S (Solids)	CW (Clean Water)	SW (Saline Water)	WW (Waste Water)
	All soils, sediment, sludge	Potable, Ground, Bore, Surface, Fresh	Sea Water, Geothermal	Effluent, Trade Waste, Leachate

Sender Name	Brendon Love	Received by (Lab Staff)	AV	Courier company	NZC	Courier #	JDQ00006125		
Date Sent	30-Apr	Time sent	3.30	Date Received	04/02/20	Time Received	548 pm	Seal Status	✓	Sample Chilled	X

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10 Bisley Road Private Bag 3123
Hamilton 3240, New Zealand
Phone +64 7 974 4740
Email enviroreception@analytica.co.nz
analytica.co.nz

Samples transferred to:		
Date:	Auckland	✓
Initials:	Hamilton	
	Wellington	
	Christchurch	
	Dunedin	

Appendix G: Laboratory Certificates and Block Data

Statistical tests for contaminated land data, taken from CIEH (2008) to meet the requirements of MfE (2011)

									Shapiro-Wilk Test for normality							
									W_{crit}	0.866	0.866	0.866	0.866			
				Assumed distribution:	Normal				W	0.695	0.969	0.614	0.801			
Te Awamutu Country Club - Topsoil									< LOD =		1	×LOD				
All units	mg/kg		Guideline value:		20	3	210	200	CLR5 tests for excessive LODs: >25%?					Grubbs Test to identify high outliers			
Location	Description	Easting	Northing	Depth	Arsenic	Cadmium	Lead	Zinc		Pass	Pass	Pass	Pass	2.285	2.285	2.285	2.285
S1				0.01-0.1	7.5	0.541	**222**	**297**		7.5	0.541	222	297	-0.09	-1.10	1.83	1.27
S2				0.01-0.1	9.5	0.666	195	**272**		9.5	0.666	195	272	0.54	-0.50	1.51	1.01
S3				0.01-0.1	15.3	0.516	68.2	**264**		15.3	0.516	68.2	264	2.37	-1.22	0.05	0.93
S4				0.01-0.1	13.7	0.791	**222**	**388**		13.7	0.791	222	388	1.87	0.10	1.83	2.21
S5				0.01-0.1	6.1	0.913	15.4	119		6.1	0.913	15.4	119	-0.54	0.68	-0.56	-0.58
S6				0.01-0.1	5.6	1.15	13.5	142		5.6	1.15	13.5	142	-0.70	1.82	-0.59	-0.34
S7				0.01-0.1	5.8	0.736	14	109		5.8	0.736	14	109	-0.63	-0.17	-0.58	-0.68
S8				0.01-0.1	6.8	0.778	13.4	95.3		6.8	0.778	13.4	95.3	-0.32	0.04	-0.59	-0.82
S9				0.01-0.1	6.2	0.734	13.5	88.1		6.2	0.734	13.5	88.1	-0.51	-0.18	-0.59	-0.90
S10				0.01-0.1	6.9	0.43	14.4	108		6.9	0.43	14.4	108	-0.28	-1.63	-0.58	-0.69
S11				0.01-0.1	6	0.911	14	140		6	0.911	14	140	-0.57	0.67	-0.58	-0.36
S12				0.01-0.1	5.7	0.782	14.5	107		5.7	0.782	14.5	107	-0.66	0.05	-0.57	-0.70
S13				0.01-0.1	6.3	1.07	14	139		6.3	1.07	14	139	-0.47	1.44	-0.58	-0.37
D1	Field duplicate of S7 above			0.01-0.1						Lower values th							
D1d	Lab duplicate of D1			0.01-0.1	Lower values than first sample - not used												
D2	Field duplicate of S12 above			0.01-0.1													
					Minimum	5.6	0.43	13	88								
					Maximum	15	1.2	**222**	388								
					Arithmetic mean	7.8	0.77	64	174								
					95%ile upper confidence limit (UCL95)	9.4	0.87	107	**222**								

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Certificate of Analysis

Hail Environmental Ltd
18 Waikare Place , Welcome Bay
Tauranga 3141

Attention: Brendon Love
Phone: 0296339577
Email: blove@hailenvironmental.co.n

Lab Reference: 20-15656
Submitted by: Brendon Love
Date Received: 4 05 2020
Testing Initiated: 4 05 2020
Date Completed: 8 05 2020
Order Number: N A
Reference: 176

Sampling Site: Frontier Road, Te A amutu

Report Comments

Samples ere collected by yourselves (or your agent) and analysed as received at Analytica Laboratories. Samples ere in acceptable condition unless other ise noted on this report.
Specific testing dates are available on request.

Heavy Metals in Soil

	Client Sample ID		S1 0.01-0.2	S2 0.01-0.2	S3 0.01-0.2	S4 0.01-0.2	S5 0.01-0.2
	Date Sampled		30 04 2020	30 04 2020	30 04 2020	30 04 2020	30 04 2020
Analyte	nit	*Reporting Limit*	20-15656-1	20-15656-2	20-15656-3	20-15656-4	20-15656-5
Arsenic	mg kg dry t	*0.125*	7.5	9.5	15.3	13.7	6.1
Cadmium	mg kg dry t	*0.005*	0.541	0.666	0.516	0.791	0.913
Chromium	mg kg dry t	*0.125*	9.0	11	12	15.7	12.6
Copper	mg kg dry t	*0.075*	46.9	38.7	37.2	68.6	53.2
Lead	mg kg dry t	*0.25*	222	195	68.2	222	15.4
Nickel	mg kg dry t	*0.05*	5.25	7.69	7.55	9.37	11.9
inc	mg kg dry t	*0.05*	297	272	264	388	119

Heavy Metals in Soil

	Client Sample ID		S6 0.01-0.2	S7 0.01-0.2	S8 0.01-0.2	S9 0.01-0.2	S10 0.01-0.2
	Date Sampled		30 04 2020	30 04 2020	30 04 2020	30 04 2020	30 04 2020
Analyte	nit	*Reporting Limit*	20-15656-6	20-15656-7	20-15656-8	20-15656-9	20-15656-10
Arsenic	mg kg dry t	*0.125*	5.6	5.8	6.8	6.2	6.9
Cadmium	mg kg dry t	*0.005*	1.15	0.736	0.778	0.734	0.43
Chromium	mg kg dry t	*0.125*	13.0	11	10	11	11
Copper	mg kg dry t	*0.075*	55.9	57.9	45.2	33.7	54.6
Lead	mg kg dry t	*0.25*	13.5	14.0	13.4	13.5	14.4
Nickel	mg kg dry t	*0.05*	8.31	6.28	6.06	7.15	6.25
inc	mg kg dry t	*0.05*	142	109	95.3	88.1	108

IANZ ACCREDITED LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation, with the exception of tests marked *, which are not accredited.

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Heavy Metals in Soil

		Client Sample ID	S11 0.01-0.2	S12 0.01-0.2	S13 0.01-0.2	D1 0.01-0.2	D2 0.01-0.2
		Date Sampled	30 04 2020	30 04 2020	30 04 2020	30 04 2020	30 04 2020
Analyte	nit	*Reporting Limit*	20-15656-11	20-15656-12	20-15656-13	20-15656-14	20-15656-15
Arsenic	mg kg dry t	*0.125*	6.0	5.7	6.3	5.4	5.1
Cadmium	mg kg dry t	*0.005*	0.911	0.782	1.07	0.631	0.653
Chromium	mg kg dry t	*0.125*	12	12	11	9.7	9.7
Copper	mg kg dry t	*0.075*	55.1	50.5	57.1	54.1	46.6
Lead	mg kg dry t	*0.25*	14.0	14.5	14.0	12.7	13.3
Nickel	mg kg dry t	*0.05*	7.72	8.86	8.52	5.77	5.85
inc	mg kg dry t	*0.05*	140	107	139	97.1	92.2

Soil Aggregate Properties and Nutrients

		Client Sample ID	S1 0.01-0.2	S2 0.01-0.2	S3 0.01-0.2	S4 0.01-0.2	S5 0.01-0.2
		Date Sampled	30 04 2020	30 04 2020	30 04 2020	30 04 2020	30 04 2020
Analyte	nit	*Reporting Limit*	20-15656-1	20-15656-2	20-15656-3	20-15656-4	20-15656-5
pH	pH	*1*	5.3	5.4	5.2	5.3	5.1

Soil Aggregate Properties and Nutrients

		Client Sample ID	S6 0.01-0.2	S7 0.01-0.2	S8 0.01-0.2	S9 0.01-0.2	S10 0.01-0.2
		Date Sampled	30 04 2020	30 04 2020	30 04 2020	30 04 2020	30 04 2020
Analyte	nit	*Reporting Limit*	20-15656-6	20-15656-7	20-15656-8	20-15656-9	20-15656-10
pH	pH	*1*	5.3	5.3	5.3	5.4	5.2

Soil Aggregate Properties and Nutrients

		Client Sample ID	S11 0.01-0.2	S12 0.01-0.2	S13 0.01-0.2	D1 0.01-0.2	D2 0.01-0.2
		Date Sampled	30 04 2020	30 04 2020	30 04 2020	30 04 2020	30 04 2020
Analyte	nit	*Reporting Limit*	20-15656-11	20-15656-12	20-15656-13	20-15656-14	20-15656-15
pH	pH	*1*	5.3	5.3	5.3	5.2	5.2

ONOPs in Soil

		Client Sample ID	S11 0.01-0.2
		Date Sampled	30 04 2020
Analyte	nit	*Reporting Limit*	20-15656-11
3-Hydroxycarbofuran	mg kg dry t	*0.05*	<0.05
Acephate	mg kg dry t	*0.05*	<0.05
Acetochlor	mg kg dry t	*0.05*	<0.05
Alachlor	mg kg dry t	*0.05*	<0.05
Aldicarb	mg kg dry t	*0.05*	<0.05
Aldicarb sulfone	mg kg dry t	*0.05*	<0.05
Aldicarb sulfoxide	mg kg dry t	*0.05*	<0.05
Ametryn	mg kg dry t	*0.05*	<0.05
Atra ine	mg kg dry t	*0.05*	<0.05
Atra ine-desethyl	mg kg dry t	*0.05*	<0.05
Atra ine-desisopropyl	mg kg dry t	*0.05*	<0.05
Avermectin B1a	mg kg dry t	*0.05*	<0.05

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ONOPs in Soil

			Client Sample ID	S11 0.01-0.2
			Date Sampled	30 04 2020
A acona ole	mg kg dry t		*0.05*	<0.05
A inphos-methyl	mg kg dry t		*0.05*	<0.05
A oxystrobin	mg kg dry t		*0.05*	<0.05
Benalaxyl	mg kg dry t		*0.05*	<0.05
Bendiocarb	mg kg dry t		*0.05*	<0.05
Bitertanol	mg kg dry t		*0.05*	<0.05
Bromacil	mg kg dry t		*0.05*	<0.05
Bupirimate	mg kg dry t		*0.05*	<0.05
Buprofe in	mg kg dry t		*0.05*	<0.05
Butachlor	mg kg dry t		*0.05*	<0.05
Carbaryl	mg kg dry t		*0.05*	<0.05
Carbenda im	mg kg dry t		*0.05*	<0.05
Carbofuran	mg kg dry t		*0.05*	<0.05
Chlorflua uron	mg kg dry t		*0.05*	<0.05
Chlorpyrifos	mg kg dry t		*0.05*	<0.05
Chlorpyriphos-methyl	mg kg dry t		*0.05*	<0.05
Chlortoluron	mg kg dry t		*0.05*	<0.05
Cyana ine	mg kg dry t		*0.05*	<0.05
Cyfluthrin	mg kg dry t		*0.05*	<0.05
Cyhalothrin (lambda)	mg kg dry t		*0.05*	<0.05
Cypermethrin	mg kg dry t		*0.05*	<0.05
Cyprocona ole	mg kg dry t		*0.05*	<0.05
Cyprodinil	mg kg dry t		*0.05*	<0.05
Deltamethrin	mg kg dry t		*0.05*	<0.05
Dia inon	mg kg dry t		*0.05*	<0.05
Dichlofluanid	mg kg dry t		*0.05*	<0.05
Dichlorvos	mg kg dry t		*0.05*	<0.05
Difenocona ole	mg kg dry t		*0.05*	<0.05
Dimethoate	mg kg dry t		*0.05*	<0.05
Diuron	mg kg dry t		*0.05*	<0.05
Emamectin B1a	mg kg dry t		*0.05*	<0.05
Fenarimol	mg kg dry t		*0.05*	<0.05
Fenpropimorph	mg kg dry t		*0.05*	<0.05
Fenpyroximate	mg kg dry t		*0.05*	<0.05
Fenvalerate	mg kg dry t		*0.05*	<0.05
Flua ifop-butyl	mg kg dry t		*0.05*	<0.05
Fluometuron	mg kg dry t		*0.05*	<0.05
Flusila ole	mg kg dry t		*0.05*	<0.05
Fluvalinate (tau)	mg kg dry t		*0.05*	<0.05
Furalaxyl	mg kg dry t		*0.05*	<0.05
Haloxyfop-methyl	mg kg dry t		*0.05*	<0.05
Hexacona ole	mg kg dry t		*0.05*	<0.05
Hexa inone	mg kg dry t		*0.05*	<0.05
Ima alil	mg kg dry t		*0.05*	<0.05
Imidacloprid	mg kg dry t		*0.05*	<0.05
Indoxacarb	mg kg dry t		*0.05*	<0.05
IPBC	mg kg dry t		*0.05*	<0.05
Iprodione	mg kg dry t		*0.05*	<0.05
resoxim-methyl	mg kg dry t		*0.05*	<0.05
Linuron	mg kg dry t		*0.05*	<0.05
Lufenuron	mg kg dry t		*0.05*	<0.05
Malathion	mg kg dry t		*0.05*	<0.05
Metalaxyl	mg kg dry t		*0.05*	<0.05
Methamidophos	mg kg dry t		*0.05*	<0.05

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ONOPs in Soil

			Client Sample ID	S11 0.01-0.2
			Date Sampled	30 04 2020
Methiocarb	mg kg dry	t	*0.05*	<0.05
Methomyl	mg kg dry	t	*0.05*	<0.05
Metolachlor	mg kg dry	t	*0.05*	<0.05
Metribu in	mg kg dry	t	*0.05*	<0.05
Mevinphos	mg kg dry	t	*0.05*	<0.05
Molinate	mg kg dry	t	*0.05*	<0.05
Monocrotophos	mg kg dry	t	*0.05*	<0.05
Myclobutanil	mg kg dry	t	*0.05*	<0.05
Naled	mg kg dry	t	*0.05*	<0.05
Norflua uron	mg kg dry	t	*0.05*	<0.05
Omethoate	mg kg dry	t	*0.05*	<0.05
Oxyflurofen	mg kg dry	t	*0.05*	<0.05
Paclobutra ol	mg kg dry	t	*0.05*	<0.05
Parathion-ethyl	mg kg dry	t	*0.05*	<0.05
Pendimethalin	mg kg dry	t	*0.05*	<0.05
Permethrin	mg kg dry	t	*0.05*	<0.05
Pirimicarb	mg kg dry	t	*0.05*	<0.05
Pirimiphos-methyl	mg kg dry	t	*0.05*	<0.05
Prochlora	mg kg dry	t	*0.05*	<0.05
Procymidone	mg kg dry	t	*0.05*	<0.05
Prometryn	mg kg dry	t	*0.05*	<0.05
Propachlor	mg kg dry	t	*0.05*	<0.05
Propanil	mg kg dry	t	*0.05*	<0.05
Propa ine	mg kg dry	t	*0.05*	<0.05
Propicona ole	mg kg dry	t	*0.05*	<0.05
Pyrimethanil	mg kg dry	t	*0.05*	<0.05
Pyriproxyfen	mg kg dry	t	*0.05*	<0.05
Qui alofop-ethyl	mg kg dry	t	*0.05*	<0.05
Sima ine	mg kg dry	t	*0.05*	<0.05
Simetryn	mg kg dry	t	*0.05*	<0.05
Sulfentra one	mg kg dry	t	*0.05*	<0.05
TCMTB	mg kg dry	t	*0.05*	<0.05
Tebucona ole	mg kg dry	t	*0.05*	<0.05
Terbufos	mg kg dry	t	*0.05*	<0.05
Terbumeton	mg kg dry	t	*0.05*	<0.05
Terbuthyla ine	mg kg dry	t	*0.05*	<0.05
Terbuthyla ine-desethyl	mg kg dry	t	*0.05*	<0.05
Terbutryn	mg kg dry	t	*0.05*	<0.05
Tetrachlorvinphos	mg kg dry	t	*0.05*	<0.05
Tetracona ole	mg kg dry	t	*0.05*	<0.05
Thiabenda ole	mg kg dry	t	*0.05*	<0.05
Thiacloprid	mg kg dry	t	*0.05*	<0.05
Thiobencarb	mg kg dry	t	*0.05*	<0.05
Tolylfluanid	mg kg dry	t	*0.05*	<0.05
Tria ophos	mg kg dry	t	*0.05*	<0.05
Triflumuron	mg kg dry	t	*0.05*	<0.05
Triphenylphosphate (Surrogate)	%		*1*	94.4

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Moisture Content

		Client Sample ID	S11 0.01-0.2
		Date Sampled	30 04 2020
Analyte	nit	*Reporting Limit*	20-15656-11
Moisture Content	%	*1*	36

Method Summary

Elements in Soil Samples dried and passed through a 2 mm sieve follo ed by acid digestion and analysis by ICP-MS. In accordance ith in-house procedure based on S EPA method 200.8.

pH in Soil 1:2.5 extraction ith 0.1M calcium chloride follo ed by pH probe determination.(Department of Sustainable Natural Resources).

ONOPs in Soil Fresh soil is extracted in acetonitrile and analysed by GC-MS MS and LC-MS MS. (In accordance ith in-house procedure).

Moisture Moisture content is determined gravimetrically by drying at 103 C.

Emily Hanna, B.Sc.
Trace Elements Team Leader

Sharelle Frank, B.Sc. (Tech)
Technologist

Derek Yang, B.Sc.(Tech)
Senior Technologist

Amelita Teves, B.Sc.
Sample Prep Team Leader

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sales@analytica.co.n
.analytica.co.n

Certificate of Analysis

Hail Environmental Ltd
18 Waikare Place , Welcome Bay
Tauranga 3141
Attention: Brendon Love
Phone: 0296339577
Email: blove@hailenvironmental.co.n

Lab Reference: 20-15661
Submitted by: Brendon Love
Date Received: 4 05 2020
Testing Initiated: 6 05 2020
Date Completed: 6 05 2020
Order Number: N A
Reference: 176

Sampling Site: Frontier Road, Te A amutu
Description of Work: 176

Report Comments

Samples ere collected by yourselves (or your agent) and analysed as received at Analytica Laboratories. Samples ere in acceptable condition unless other ise noted on this report.
Specific testing dates are available on request.

Asbestos in Soil (Qualitative)

Sample Details

Laboratory ID	Client Sample ID	Sample Location	Sample Description	Date Sampled	Date Analysed
	Units				
20-15661-1	S1 0.01-0.2		Soil	30 04 2020	6 05 2020
20-15661-2	S2 0.01-0.2		Soil	30 04 2020	6 05 2020
20-15661-3	S3 0.01-0.2		Soil	30 04 2020	6 05 2020
20-15661-4	S4 0.01-0.2		Soil	30 04 2020	6 05 2020

Information in the above table supplied by the client: Client Sample ID, Sample Location, Date Sampled.

Analysis Results

Laboratory ID	Client Sample ID	ACM Weight	ACM Types	Fibre Types	Trace Asbestos (Presence Absence)	Asbestos (Presence Absence)
	Units	g				
20-15661-1	S1 0.01-0.2	0.0000	No Asbestos Detected	Asbestos NOT Detected. Organic Fibres	Absent	Absent
20-15661-2	S2 0.01-0.2	0.0000	No Asbestos Detected	Asbestos NOT Detected. Organic Fibres	Absent	Absent
20-15661-3	S3 0.01-0.2	0.0000	No Asbestos Detected	Asbestos NOT Detected. Organic Fibres	Absent	Absent
20-15661-4	S4 0.01-0.2	0.0000	No Asbestos Detected	Asbestos NOT Detected. Organic Fibres	Absent	Absent

Information in the above table supplied by the client: Client Sample ID.

Asbestos in Soil (Qualitative) Approver:

IANZ ACCREDITED LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation, with the exception of tests marked *, which are not accredited.

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Georgina Jackson, PGDipSci.
Technician

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Method Summary

Asbestos Fibres in Soil (Qualitative)	Sample analysis as performed using polarised light microscopy ith dispersion staining in accordance ith AS4964-2004 Method for the qualitative identification of asbestos in bulk samples. Note 1: The reporting limit for this analysis is 0.1g kg (0.01%) by application of polarised light microscopy, dispersion staining and trace analysis techniques. Note 2: Trace asbestos is indicative that freely liberated respirable fibres are present and dust control measures should be implemented or increased on site. This is not the sole indicator for the friable nature of the asbestos present. Note 3: If mineral fibres of unkno n type are detected, by PLM and dispersion staining, these may or may not be asbestos fibres. To confirm the identity of this fibre, another independent analytical technique such as RD analysis is advised. Note 4: The laboratory does not take responsibility for the sampling procedure or accuracy of sample location description.

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Appendix K – Written Approvals

BLOXAM BURNETT & OLLIVER

Level 4, 18 London Street
PO Box 9041, Hamilton 3240
New Zealand

+64 7 838 0144
consultants@bbo.co.nz
www.bbo.co.nz

22 July 2020

Job No. 145570.03

To whom it may concern,

Te Awamutu Residential Development – Plan change, retirement village and residential subdivision

Introduction

Sanderson Group Limited are lodging a plan change (Plan Change 12) with Waipa District Council requesting a rezoning of an area of land already zoned as future residential, located at the western extent of Te Awamutu. The purpose of the rezoning is to allow for a retirement village development and residential subdivision to occur to help meet the demands from the local community who currently have very limited retirement living options.

We have identified you as a potentially affected party as your property is near the subject site. As such, we wish to undertake consultation with you, and seek your written approval for the proposed development. This letter provides a summary of the site, the rezoning, the retirement village development and the residential subdivision.

Site and Locality

The Waipa District Plan identifies residential growth cells within each of the towns in the Waipa District, which are appropriate locations to accommodate future growth. These are split between two separate groups;

1. Growth cells which are intended to be opened and developed between now and 2035; and
2. Growth cells which are intended to be opened and developed after 2035.

The site subject to the plan change is Growth Cell T2, located at the western extent of Te Awamutu. It is allocated for development after 2035 . Refer to **Figure 1** below displaying the location of the site.

TV5

V.6 28/7

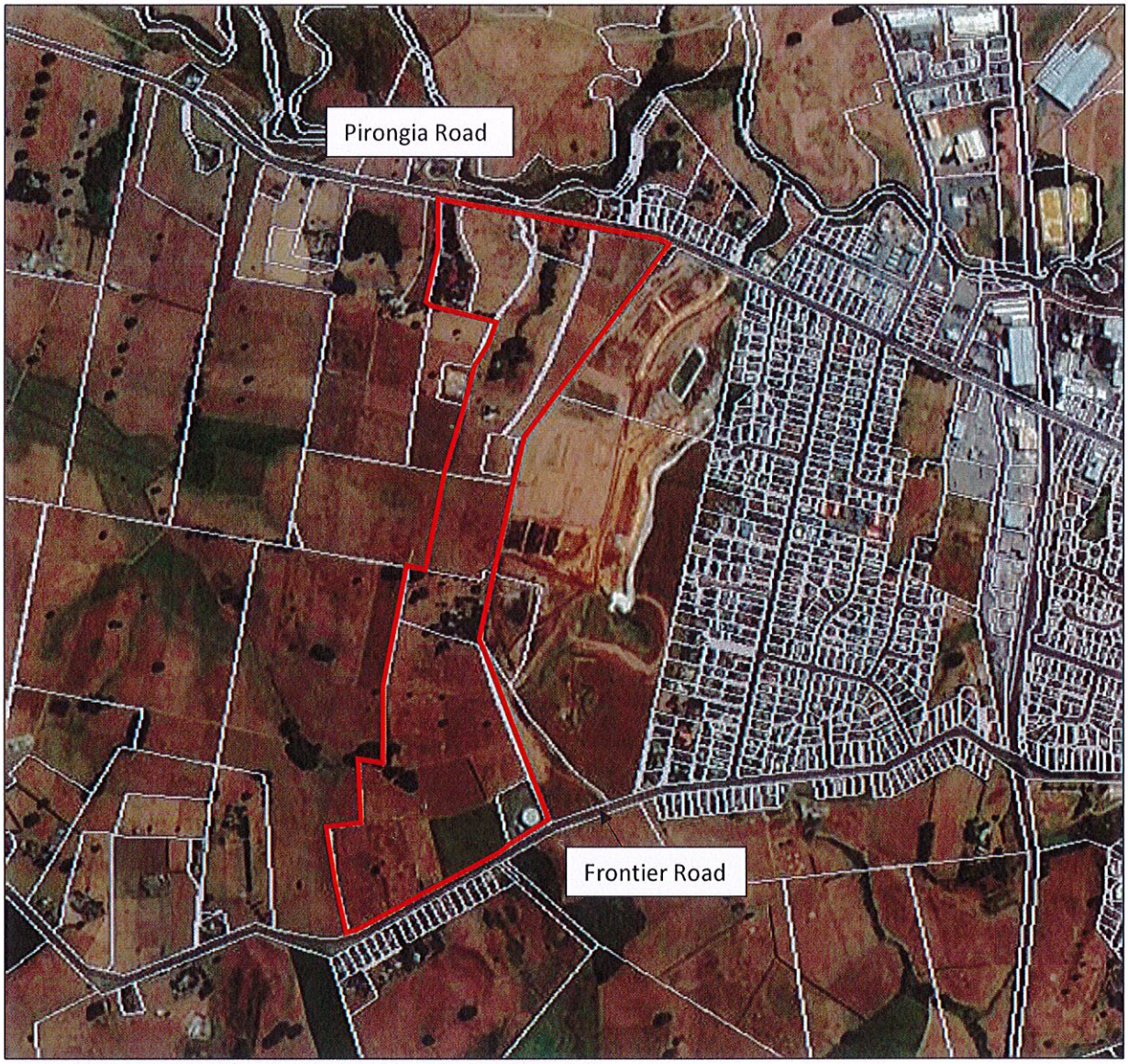


Figure 1: Site and locality (Growth Cell T2 outlined in red)

The site is 41ha in area. It is currently used for farming activities and contains farm buildings and dwellings located sporadically across the site.

Plan Change

Growth cell T2 is currently zoned 'Deferred Residential' in the Waipa District Plan, reflecting the intention to start residential development in this location after 2035. While Growth Cell T2 has been identified for development after 2035, the Waipa District Plan provides an opportunity to open up a growth cell for development earlier than originally anticipated. This is required to be done via a plan change to the Waipa District Plan. The plan change needs to include both a rezoning of the site from 'Deferred Residential' to 'Residential' and the insertion of a 'Structure Plan' into the District Plan. It needs to demonstrate that the site can be adequately serviced and environmental effects can be managed.

Sanderson Group propose to make use of the opportunity to undertake a plan change to rezone the site to Residential, allowing for residential development on the site to occur earlier than originally anticipated. Refer to **Attachment 1** of this letter which sets out the draft Structure Plan that will form part of the plan change.

TVS

VB 28/1

As the site is already Deferred Residential, it has been investigated and has previously been determined to be appropriate for Residential development. As such, the only change will be to bring forward the expected timeframe of residential development on the site.

The purpose of the plan change is to allow for the proposed retirement village development and residential subdivision on the southern half of the growth cell to occur as soon as possible. The retirement village requires a large site of at least 9ha which is not readily available in existing zoned areas. The developments are set out in more detail below. There is no development currently proposed on the northern half of the growth cell.

Retirement Village and Residential subdivision

Sanderson Group are a family orientated, leading provider of high quality retirement villages in New Zealand. Sanderson are currently constructing a retirement village in Tamahere (Tamahere Country Club). The Waikato population has shown a strong interest for a Sanderson Group retirement village to be established in Te Awamutu. Therefore, Sanderson Group have been searching for an appropriate site for several months. The site located at 10 Frontier Road and 52 Frontier Road, at the western extent of Te Awamutu has been identified as an ideal location for the village.

It is proposed to construct and operate a retirement village on 9.45ha of their landholding at 10 and 52 Frontier Road and Sanderson Group have also entered into an agreement to sell the remaining land of 8.76ha to a developer who will subdivide the balance of the site into residential lots.

The retirement village will comprise the following:

- Approximately 98 standalone retirement villas;
- A care facility containing care suites and a dementia unit; and
- A club house, incorporating a café that will be open to the public; and
- A health spa and outdoor amenities including a bowls lawn and croquet green.

The residential subdivision will comprise the following:

- Approximately 105 residential lots; and
- A reserve, including a wetland area doubling as stormwater disposal, and a neighbourhood reserve including a playground.

Attachment 2 contains a plan outlining the retirement village layout and residential subdivision layout. The retirement village and residential subdivision plans are yet to be finalised. The attached plans provide a good indication of what is proposed on the site, however there may be some minor amendments.

Written Approval

The process of seeking written approvals in a resource consent process enables potentially affected parties to view the details of a proposed development and make a decision on whether or not to provide their written approval. If a party decides to provide their written approval for an activity, the Council will no longer be able to take into account any adverse effects on that party in deciding on whether or not to notify the application for submissions. If a party decides not to give their written approval, the Council will take into account any potential adverse effects on that party.

For a more detailed description on how written approvals work please refer to page two of the attached written approval form. If you decide to provide your written approval for Plan Change 12 and the associated resource consent applications, please sign this letter, the attached written approval form and each of the attached plans.

VB/ 28/7

If you decide to provide your written approval, please return the signed documents to Brendon Russo at brendon@sandersongroup.co.nz. Alternatively, you can phone Brendon on 021 939 247 and he will come and collect them. If you have any questions around the proposal or the written approvals, please either email or phone Brendon or myself.

Attachments

1 Structure Plan for Growth Cell T2
2 Retirement Village and Residential Subdivision Layout
3 Written Approval Form

Yours sincerely
Bloxam Burnett & Olliver

Emily Patterson
Intermediate Planner
0278454321
epatterson@bbo.co.nz

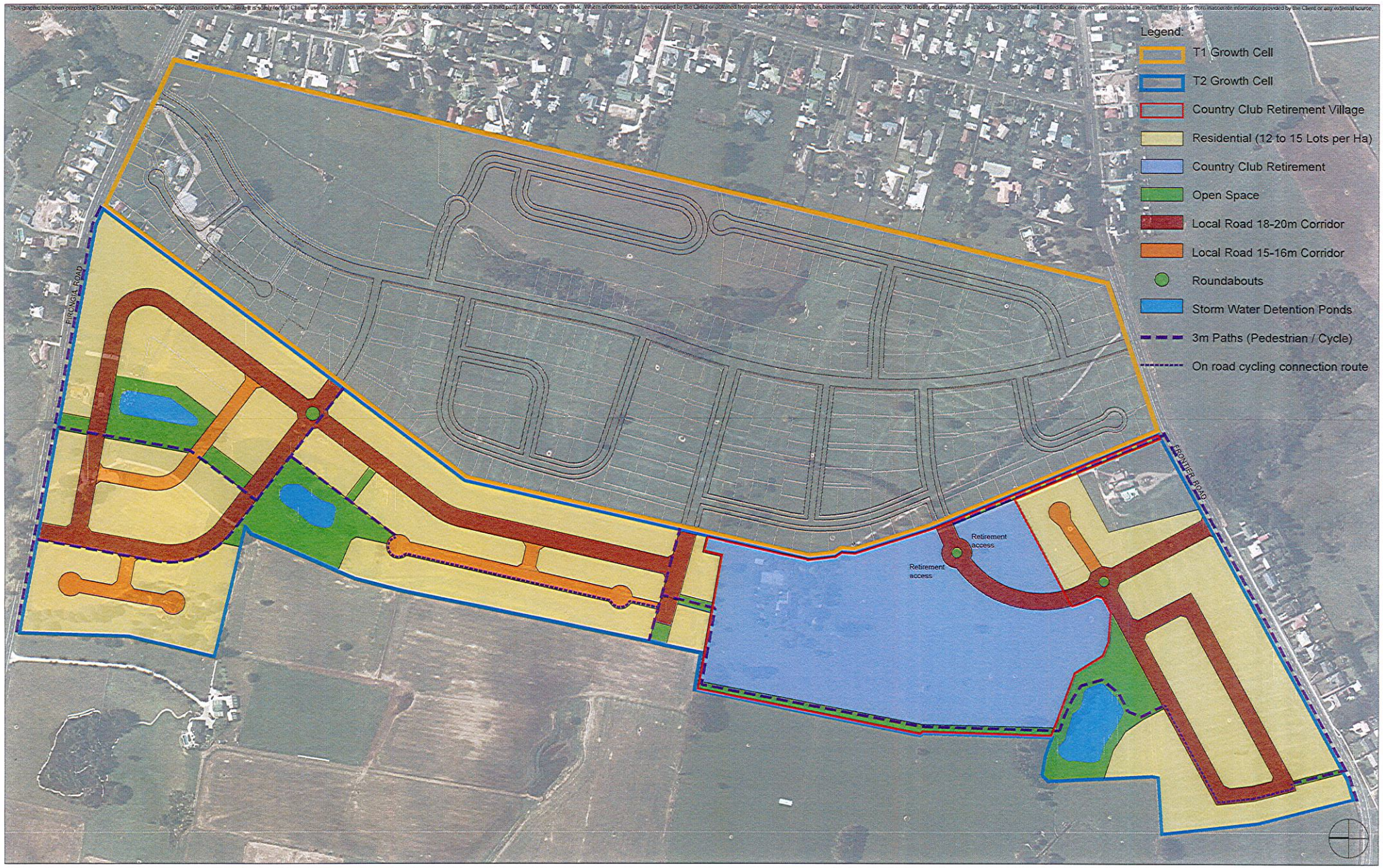
K:\145570 Sanderson Group Retirement Village\03 Te Awamutu Retirement Village\Consultation\Neighbour Consultation\Consultation Pack\Consultation Letter - Neighbours.docx

V.B 28/7

Attachment 1: Structure Plan for Growth Cell T2

VG 28-7

This graphic has been prepared by Boffa Miskell Limited on the specific instructions of our Client. It is solely for our Client's use in accordance with the agreed scope of work. Any use or reliance by a third party is at that party's own risk. Where information has been supplied by the Client or obtained from other external sources, it has been assumed that it is accurate. No liability or responsibility is accepted by Boffa Miskell Limited for any errors or omissions to the extent that they arise from inaccurate information provided by the Client or any external source.



Boffa Miskell

Te Awamutu Country Club

KOTARE PROPERTIES

Plotted 24/07/2020 9:56:11 AM

REV	DATE	DESCRIPTION	APPRVD
A	21/04/20	Preliminary for Review	MHu
B	28.04.20	Preliminary for Review	MHu
C	30.04.20	Preliminary for Review	JSo
D	30.04.20	Structure Plan Concept	JSo
E	19.05.20	Structure Plan Concept	JSo
F	19.05.20	Structure Plan Concept	JSo
G	19.05.20	Structure Plan Concept	MPe
H	21.07.20	Structure Plan Concept	MPe
I	21.07.20	Structure Plan Concept	MPe
J	23.07.20	Structure Plan Concept	MPe

CLIENT: Sanderson Group

CONSULTANTS: BBO, STANTEC, Nicklin CE Ltd, Waimu Environmental

Preliminary

T2 Structure Plan Concept

T2 Structure Plan

Design MHu | Drawn MHu/MPe | Check JSo

Scale: 1:2000 @ A1, 1:4000 @ A3

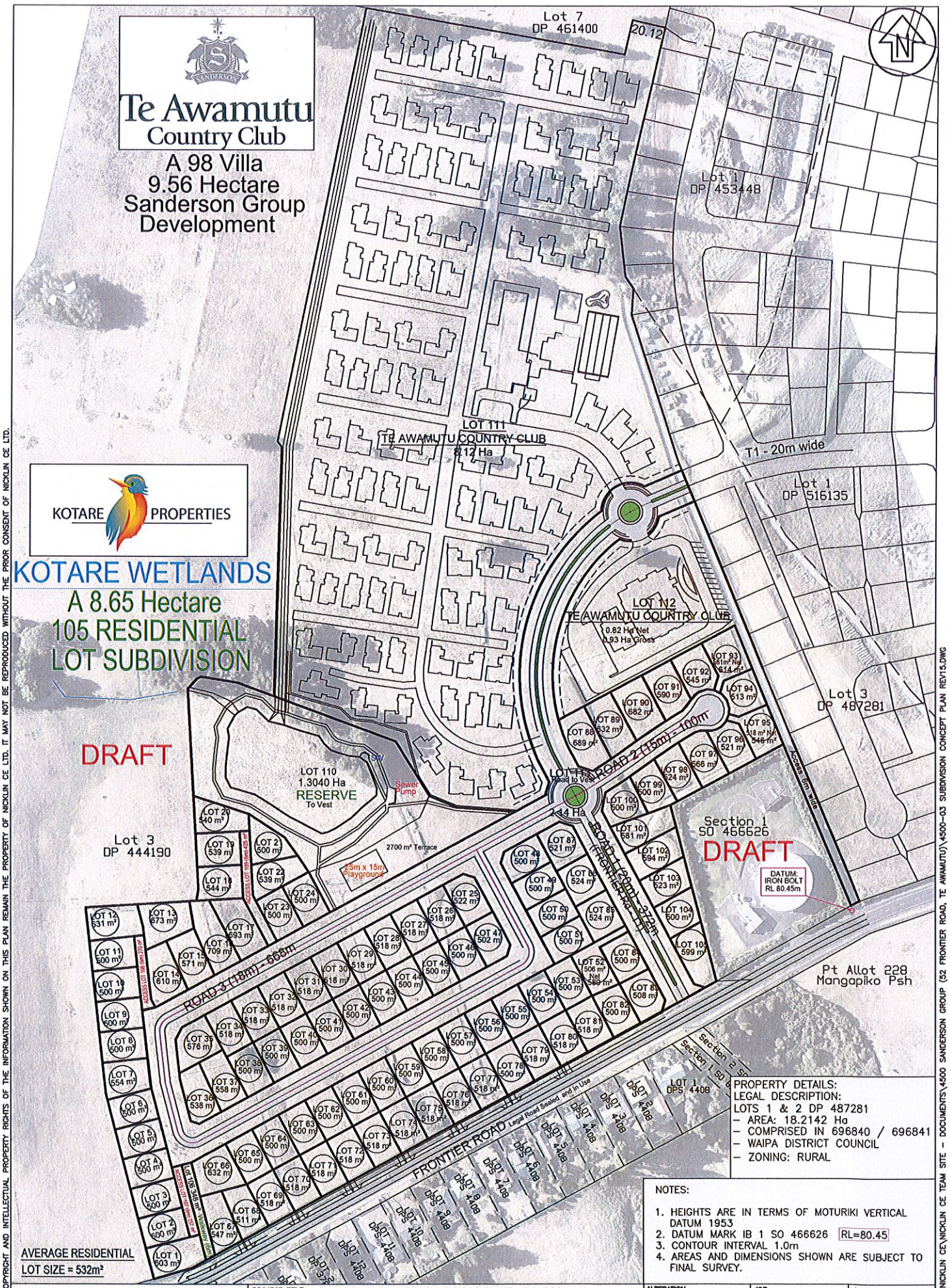
Date: 23/07/2020

DRAWING NO.: BM200127_001

REVISION: J

U:\2020\BM200127\JSo_Sanderson_Group_Te_Awamutu_Village\C.AD\BM200127_T2_SP_Base2_20020721.dwg

Attachment 2: Retirement Village and Residential Subdivision Layout



PROPERTY DETAILS:
LEGAL DESCRIPTION:
LOTS 1 & 2 DP 487281
- AREA: 18.2142 Ha
- COMPRISED IN 696840 / 696841
- WAIPA DISTRICT COUNCIL
- ZONING: RURAL

NOTES:

1. HEIGHTS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953
2. DATUM MARK IB 1 SO 466626 RL=80.45
3. CONTOUR INTERVAL 1.0m
4. AREAS AND DIMENSIONS SHOWN ARE SUBJECT TO FINAL SURVEY.

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ciaran@nicklince.co.nz
6 Wilson Street
P.O. Box 754
Cambridge 3450

PROJECT TITLE
SUBDIVISION CONCEPT PLAN

LOTS 1–115 BEING A SUBDIVISION
OF LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU

ALTERATION	JOB	SHEET
	4500	03
CAD CPM	ORIGINAL SCALE AT A3	REV 15
DATE 16 JULY 2020	1:2000	

C:\USERS\CIARAN\NICKLIN CE\NICKLIN CE TEAM SITE - DOCUMENTS\4500 SANDERSON GROUP (52 FRONTIER ROAD, TE AWAMUTU)\4500-03 SUBDIVISION CONCEPT PLAN REV15.DWG

VB 2817

Appendix 3: Written Approval Form

FORM 8a

Written Approval of Affected Persons

Form 8a of the Resource Management Regulations 2003.

Affected persons written approval to an activity that is the subject of a resource consent application.

Note to affected person(s) signing written approval form:

Before asking for your written approval the applicant should fully explain the proposal to you. You should look at the application containing a description of the activity and the accompanying plans. If you decide to give written approval to this application, you must complete the form and sign the applicant's plans. You should only sign this form if you fully understand the proposal. You should seek expert or legal advice if you need the proposal or resource consent process explained to you. You may also contact Council for assistance.

Conditional written approval **cannot** be accepted. There is no obligation to sign this form, and no reasons need to be given. If signing on behalf of a trust or company, please provide additional written evidence that you have signing authority.

To be completed by the applicant

To: Name of Council that is the consent authority for this application: Waipa District Council

Applicant Name

Full name: Sanderson Group Limited

Contact daytime phone: Brendon Russo: 021 939 247 or Nathan Sanderson: 021 628 365

Location of Proposed Activity

Please complete with as many details as you can, so the site for your proposal is clearly identifiable. Include details such as unit number, street number, street name and town.

Property address:

10, 52, Frontier Road and 1/51, 2/51, 65, 67 and 39 Pirongia Road

Legal description:

Lot 2 DPS 487281, Lot 1 DPS 487281, Lot 7 DPS 461400, Lot 2 DPS 534367, Lot 3 DPS 478844, Lot 1 DPS 534367, Lot 1 DPS 514120, Lot 1 DPS 327266, Lot 2 DPS 457600

Description of Proposed Activity

Please provide a brief description of your proposal, including which District Plan Rules or standards are infringed.

Plan Change to rezone the site, construction of a retirement village and residential subdivision, refer to attached letter for more detail.

THAMES COROMANDEL DISTRICT COUNCIL

Hamilton City Council Te kaunihera o Kirikiriroa

HAURAKI DISTRICT COUNCIL

Waipa DISTRICT COUNCIL

Waitomo District Council

ROTORUA LAKES COUNCIL Te kaunihera o ngā roto o Rotorua

matamata piako district council

South Waikato District Council

Waikato DISTRICT COUNCIL Te Kaunihera aa Takiwaa o Waikato

VB 28/7

FORM 8a

To be completed by affected person:

Owner to Complete

☒ I/we are also the occupier(s)

Full name of all property owners:

Victoria Beale

Being the owner/s of Street address:

36 Pirongia Road

Legal description:

☒ I/we have authority to sign on behalf of all of the owners of the property.

☒ I/we have read the full application for resource consent, the Assessment of Environmental Effects and any associated plans.

☒ I/we have signed and dated each page.

☒ Declaration: In signing this written approval, I/we understand that Council must decide that I/we are no longer an affected person, and Council must not have regard to any adverse effect on me/us.

☒ I/we understand that I/we may withdraw my/our written approval by giving written notice to Council before the hearing, if there is one, or, if there is not, before the application is determined.

Signed *(All owners or authorised persons):*

Date: 28/7/20

Fax/Email: vb.beale@gmail.com

Contact Phone Number: 021084040 85

Postal Address: 36 Pirongia Rd, Te Awamutu

Occupier to Complete

☐ I/we are also the occupier(s)

Full name of all occupiers:

Being the occupiers of Street address:

Legal description:

☐ I/we have authority to sign on behalf of all of the occupiers of the property.

☐ I/we have read the full application for resource consent, the Assessment of Environmental Effects and any associated plans.

☐ I/we have signed and dated each page.

☐ Declaration: In signing this written approval, I/we understand that Council must decide that I/we are no longer an affected person, and Council must not have regard to any adverse effect on me/us.

☐ I/we understand that I/we may withdraw my/our written approval by giving written notice to Council before the hearing, if there is one, or, if there is not, before the application is determined.

Signed *(All occupiers or authorised persons):*

Date:

Fax/Email:

Contact Phone Number:

Postal Address:

VB 28/7

BLOXAM BURNETT & OLLIVER

Level 4, 18 London Street
PO Box 9041, Hamilton 3240
New Zealand

+64 7 838 0144
consultants@bbo.co.nz
www.bbo.co.nz

22 July 2020

Job No. 145570.03

To whom it may concern,

Te Awamutu Residential Development – Plan change, retirement village and residential subdivision

Introduction

Sanderson Group Limited are lodging a plan change (Plan Change 12) with Waipa District Council requesting a rezoning of an area of land already zoned as future residential, located at the western extent of Te Awamutu. The purpose of the rezoning is to allow for a retirement village development and residential subdivision to occur to help meet the demands from the local community who currently have very limited retirement living options.

We have identified you as a potentially affected party as your property is near the subject site. As such, we wish to undertake consultation with you, and seek your written approval for the proposed development. This letter provides a summary of the site, the rezoning, the retirement village development and the residential subdivision.

Site and Locality

The Waipa District Plan identifies residential growth cells within each of the towns in the Waipa District, which are appropriate locations to accommodate future growth. These are split between two separate groups;

1. Growth cells which are intended to be opened and developed between now and 2035; and
2. Growth cells which are intended to be opened and developed after 2035.

The site subject to the plan change is Growth Cell T2, located at the western extent of Te Awamutu. It is allocated for development after 2035 . Refer to **Figure 1** below displaying the location of the site.

29-7-20

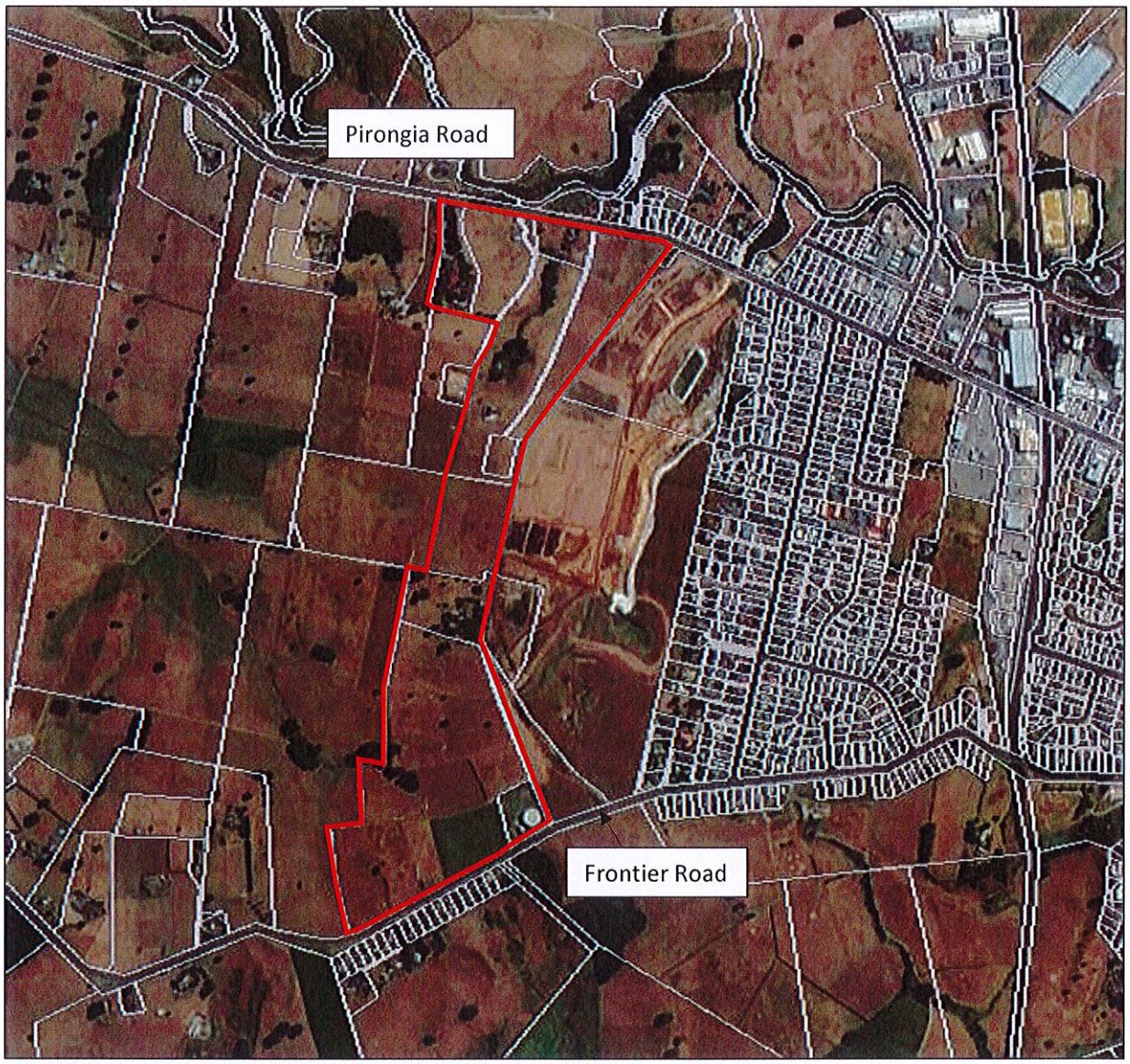


Figure 1: Site and locality (Growth Cell T2 outlined in red)

The site is 41ha in area. It is currently used for farming activities and contains farm buildings and dwellings located sporadically across the site.

Plan Change

Growth cell T2 is currently zoned 'Deferred Residential' in the Waipa District Plan, reflecting the intention to start residential development in this location after 2035. While Growth Cell T2 has been identified for development after 2035, the Waipa District Plan provides an opportunity to open up a growth cell for development earlier than originally anticipated. This is required to be done via a plan change to the Waipa District Plan. The plan change needs to include both a rezoning of the site from 'Deferred Residential' to 'Residential' and the insertion of a 'Structure Plan' into the District Plan. It needs to demonstrate that the site can be adequately serviced and environmental effects can be managed.

Sanderson Group propose to make use of the opportunity to undertake a plan change to rezone the site to Residential, allowing for residential development on the site to occur earlier than originally anticipated. Refer to **Attachment 1** of this letter which sets out the draft Structure Plan that will form part of the plan change.

29-7-20

As the site is already Deferred Residential, it has been investigated and has previously been determined to be appropriate for Residential development. As such, the only change will be to bring forward the expected timeframe of residential development on the site.

The purpose of the plan change is to allow for the proposed retirement village development and residential subdivision on the southern half of the growth cell to occur as soon as possible. The retirement village requires a large site of at least 9ha which is not readily available in existing zoned areas. The developments are set out in more detail below. There is no development currently proposed on the northern half of the growth cell.

Retirement Village and Residential subdivision

Sanderson Group are a family orientated, leading provider of high quality retirement villages in New Zealand. Sanderson are currently constructing a retirement village in Tamahere (Tamahere Country Club). The Waikato population has shown a strong interest for a Sanderson Group retirement village to be established in Te Awamutu. Therefore, Sanderson Group have been searching for an appropriate site for several months. The site located at 10 Frontier Road and 52 Frontier Road, at the western extent of Te Awamutu has been identified as an ideal location for the village.

It is proposed to construct and operate a retirement village on 9.45ha of their landholding at 10 and 52 Frontier Road and Sanderson Group have also entered into an agreement to sell the remaining land of 8.76ha to a developer who will subdivide the balance of the site into residential lots.

The retirement village will comprise the following:

- Approximately 98 standalone retirement villas;
- A care facility containing care suites and a dementia unit; and
- A club house, incorporating a café that will be open to the public; and
- A health spa and outdoor amenities including a bowls lawn and croquet green.

The residential subdivision will comprise the following:

- Approximately 105 residential lots; and
- A reserve, including a wetland area doubling as stormwater disposal, and a neighbourhood reserve including a playground.

Attachment 2 contains a plan outlining the retirement village layout and residential subdivision layout. The retirement village and residential subdivision plans are yet to be finalised. The attached plans provide a good indication of what is proposed on the site, however there may be some minor amendments.

Written Approval

The process of seeking written approvals in a resource consent process enables potentially affected parties to view the details of a proposed development and make a decision on whether or not to provide their written approval. If a party decides to provide their written approval for an activity, the Council will no longer be able to take into account any adverse effects on that party in deciding on whether or not to notify the application for submissions. If a party decides not to give their written approval, the Council will take into account any potential adverse effects on that party.

For a more detailed description on how written approvals work please refer to page two of the attached written approval form. If you decide to provide your written approval for Plan Change 12 and the associated resource consent applications, please sign this letter, the attached written approval form and each of the attached plans.

29-7-20

If you decide to provide your written approval, please return the signed documents to Brendon Russo at brendon@sandersongroup.co.nz. Alternatively, you can phone Brendon on 021 939 247 and he will come and collect them. If you have any questions around the proposal or the written approvals, please either email or phone Brendon or myself.

Attachments

1 Structure Plan for Growth Cell T2
2 Retirement Village and Residential Subdivision Layout
3 Written Approval Form

Yours sincerely
Bloxam Burnett & Olliver

Emily Patterson
Intermediate Planner
0278454321
epatterson@bbo.co.nz

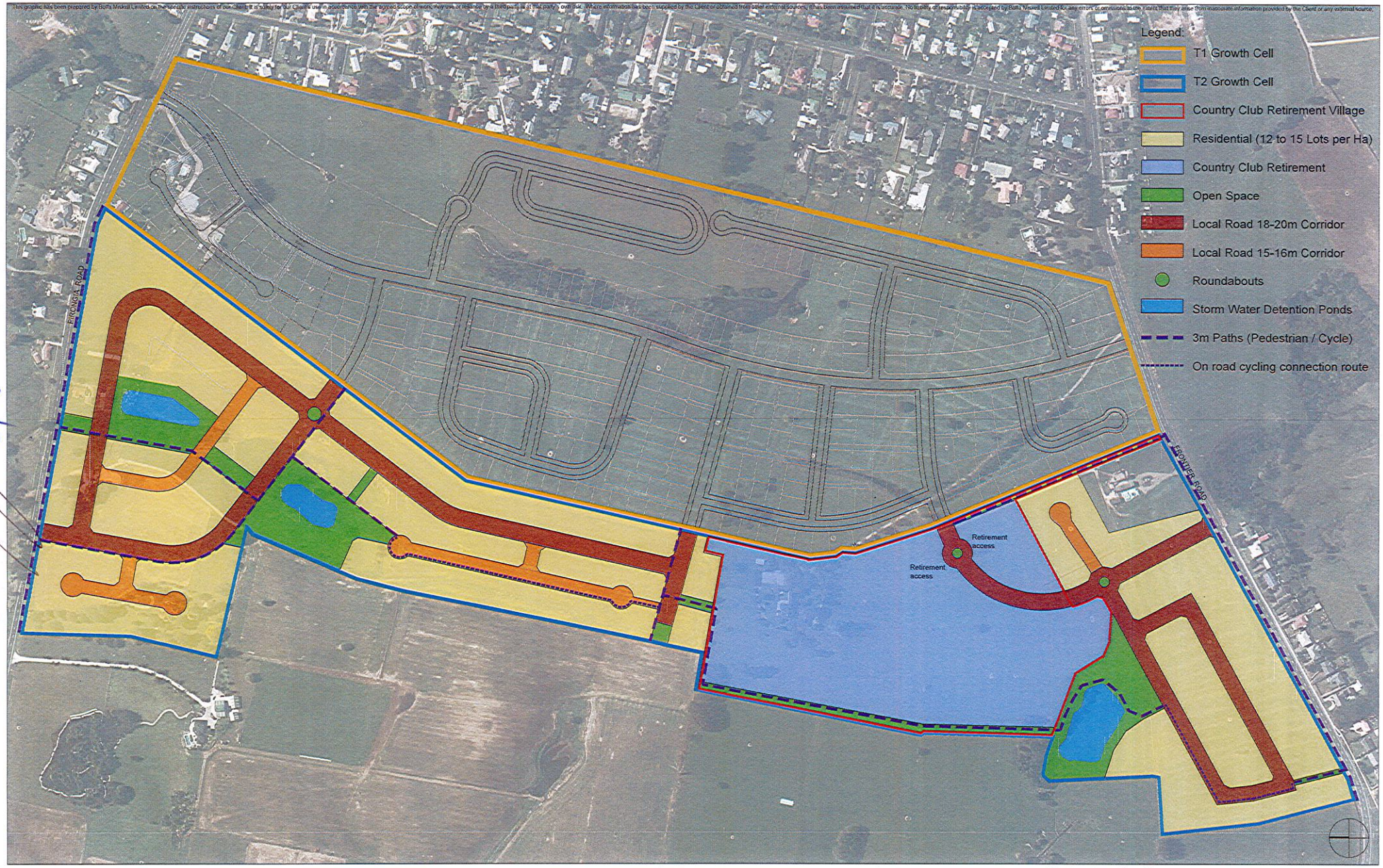
K:\145570 Sanderson Group Retirement Village\03 Te Awamutu Retirement Village\Consultation\Neighbour Consultation\Consultation Pack\Consultation Letter - Neighbours.docx

29-7-20

Attachment 1: Structure Plan for Growth Cell T2

29-7-20

This graphic has been prepared by Boffa Miskell Limited on the specific instructions of our Client. It is solely for our Client's use in accordance with the agreed scope of work. Any use or reliance by a third party is at that party's own risk. Where information has been supplied by the Client or obtained from other external sources, it has been assumed that it is accurate. No liability or responsibility is accepted by Boffa Miskell Limited for any errors or omissions to the extent that they arise from inaccurate information provided by the Client or any external source.



29-7-20

Boffa Miskell

Te Awamutu Country Club

KOTARE PROPERTIES

Printed 24/07/2020 9:56:11 AM

REV	DATE	DESCRIPTION	APPRVD
A	21/04/20	Preliminary for Review	MHu
B	26.04.20	Preliminary for Review	MHu
C	30.04.20	Preliminary for Review	JSo
D	30.04.20	Structure Plan Concept	JSo
E	19.05.20	Structure Plan Concept	JSo
F	19.05.20	Structure Plan Concept	JSo
G	19.05.20	Structure Plan Concept	MPe
H	21.07.20	Structure Plan Concept	MPe
I	21.07.20	Structure Plan Concept	MPe
J	23.07.20	Structure Plan Concept	MPe

CLIENT: Sanderson Group

CONSULTANTS: BBO; STANTEC; Nicklin CE Ltd; Wainui Environmental

Preliminary

T2 Structure Plan Concept

T2 Structure Plan

Design	MHu	Scale	Date
Drawn	MHu/MPe	1:2000 @ A1	23/07/2020
Check	JSo	1:4000 @ A3	

DRAWING NO.: BM200127_001

REVISION: J

U:\2020\BM200127\JSo_Sanderson_Group_Te_Awamutu_Village\CAD\BM200127_T2_SP_Base2_20020721.dwg

Attachment 2: Retirement Village and Residential Subdivision Layout

29-7-20

PROPERTY DETAILS:
LEGAL DESCRIPTION:
LOTS 1 & 2 DP 487281
- AREA: 18.2142 Ha
- COMPRISED IN 696840 / 696841
- WAIPA DISTRICT COUNCIL
- ZONING: RURAL

NOTES:

1. HEIGHTS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953
2. DATUM MARK IB 1 SO 466626 RL=80.45
3. CONTOUR INTERVAL 1.0m
4. AREAS AND DIMENSIONS SHOWN ARE SUBJECT TO FINAL SURVEY.

NICKLIN CE
SURVEYING PLANNING ENGINEERING
Tel: (07)827-4945
www.nicklince.co.nz
ciaran@nicklince.co.nz
6 Wilson Street
P.O. Box 754
Cambridge 3450

PROJECT TITLE
SUBDIVISION CONCEPT PLAN

LOTS 1–115 BEING A SUBDIVISION
OF LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU

ALTERATION	JOB	SHEET
	4500	03
CAD CPM	ORIGINAL SCALE AT A3	REV 15
DATE 16 JULY 2020	1:2000	

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C:\USERS\CIARAN\NICKLIN CE\NICKLIN CE TEAM SITE - DOCUMENTS\4500 SANDERSON GROUP (52 FRONTIER ROAD, TE AWAMUTU)\4500-03 SUBDIVISION CONCEPT PLAN REV15.DWG

Appendix 3: Written Approval Form

29-7-20

FORM 8a

Written Approval of Affected Persons

Form 8a of the Resource Management Regulations 2003.

Affected persons written approval to an activity that is the subject of a resource consent application.

Note to affected person(s) signing written approval form:

Before asking for your written approval the applicant should fully explain the proposal to you. You should look at the application containing a description of the activity and the accompanying plans. If you decide to give written approval to this application, you must complete the form and sign the applicant's plans. You should only sign this form if you fully understand the proposal. You should seek expert or legal advice if you need the proposal or resource consent process explained to you. You may also contact Council for assistance.

Conditional written approval **cannot** be accepted. There is no obligation to sign this form, and no reasons need to be given. If signing on behalf of a trust or company, please provide additional written evidence that you have signing authority.

To be completed by the applicant

To: Name of Council that is the consent authority for this application: Waipa District Council

Applicant Name

Full name: Sanderson Group Limited

Contact daytime phone: Brendon Russo: 021 939 247 or Nathan Sanderson: 021 628 365

Location of Proposed Activity

Please complete with as many details as you can, so the site for your proposal is clearly identifiable. Include details such as unit number, street number, street name and town.

Property address:

10, 52, Frontier Road and 1/51, 2/51, 65, 67 and 39 Pirongia Road

Legal description:

Lot 2 DPS 487281, Lot 1 DPS 487281, Lot 7 DPS 461400, Lot 2 DPS 534367, Lot 3 DPS 478844, Lot 1 DPS 534367, Lot 1 DPS 514120, Lot 1 DPS 327266, Lot 2 DPS 457600

Description of Proposed Activity

Please provide a brief description of your proposal, including which District Plan Rules or standards are infringed.

Plan Change to rezone the site, construction of a retirement village and residential subdivision, refer to attached letter for more detail.

THAMES COROMANDEL DISTRICT COUNCIL

Hamilton City Council Te kaunihera o Kirikiriroa

HAURAKI DISTRICT COUNCIL

Waipa DISTRICT COUNCIL

Waitomo District Council

ROTORUA LAKES COUNCIL Te kaunihera o ngā roto o Rotorua

matamata piako district council

South Waikato District Council

Waikato DISTRICT COUNCIL Te Kaunihera aa Takiwaa o Waikato

FORM 8a

V2 | 20.11.19

To be completed by affected person:

Owner to Complete

☑ I/we are also the occupier(s)

Full name of all property owners:

Ross Panier McGowan.

Being the owner/s of Street address:

24 Pirongia Rd. Te Awamutu

Legal description: Lot 3 DPS 15302. Lot 2 DPS 81434 Lot 4 DPS 92516

☑ I/we have authority to sign on behalf of all of the owners of the property.

☑ I/we have read the full application for resource consent, the Assessment of Environmental Effects and any associated plans.

☑ I/we have signed and dated each page.

☑ Declaration: In signing this written approval, I/we understand that Council must decide that I/we are no longer an affected person, and Council must not have regard to any adverse effect on me/us.

☑ I/we understand that I/we may withdraw my/our written approval by giving written notice to Council before the hearing, if there is one, or, if there is not, before the application is determined.

Signed *(All owners or authorised persons):*

Date: 29-7-20

Fax/Email: rossmcgowan@xtra.co.nz

Contact Phone Number: 0274 484735

Postal Address: 24 Pirongia Rd. Te Awamutu 3800

Occupier to Complete

☐ I/we are also the occupier(s)

Full name of all occupiers:

Beatrice McGowan

Being the occupiers of Street address:

24 - Pirongia Rd - Te Awamutu.

Legal description: Lot 3 DPS 15302 Lot 2 DPS 81434 Lot 4 DPS 92516.

☐ I/we have authority to sign on behalf of all of the occupiers of the property.

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Signed *(All occupiers or authorised persons):*

Date: 29.7.20.

Fax/Email: ← Same

Contact Phone Number: 021 917 9846

Postal Address: ← Same.

BLOXAM BURNETT & OLLIVER

Level 4, 18 London Street
PO Box 9041, Hamilton 3240
New Zealand

+64 7 838 0144
consultants@bbo.co.nz
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22 July 2020

Job No. 145570.03

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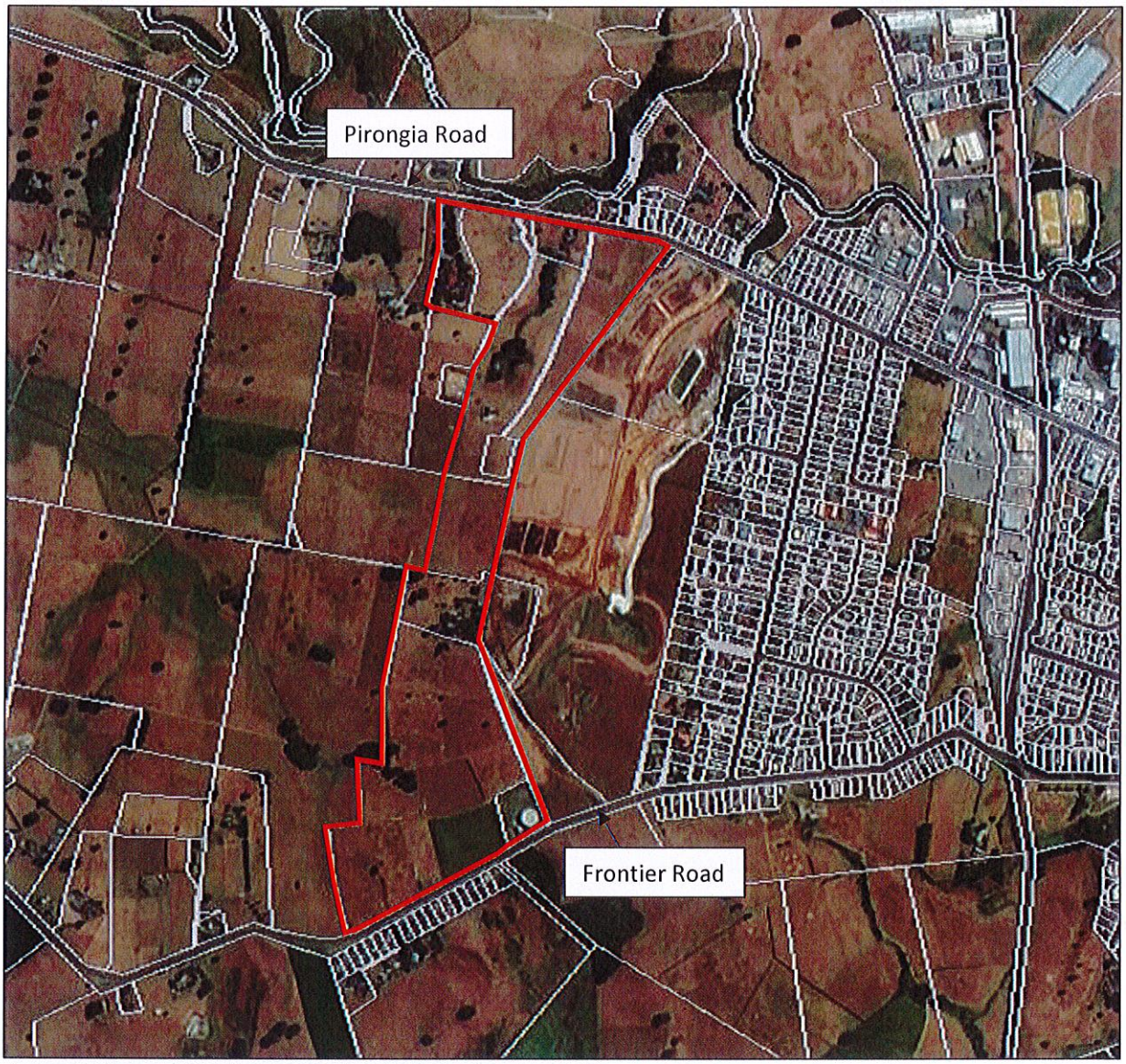
27/7/2020

TV5



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MHE
LWP 27/7/2020

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Bloxam Burnett & Olliver

Emily Patterson
Intermediate Planner
0278454321
epatterson@bbo.co.nz

K:\145570 Sanderson Group Retirement Village\03 Te Awamutu Retirement Village\Consultation\Neighbour Consultation\Consultation Pack\Consultation Letter - Neighbours.docx

L.M Robertson 27/7/2020

Attachment 1: Structure Plan for Growth Cell T2

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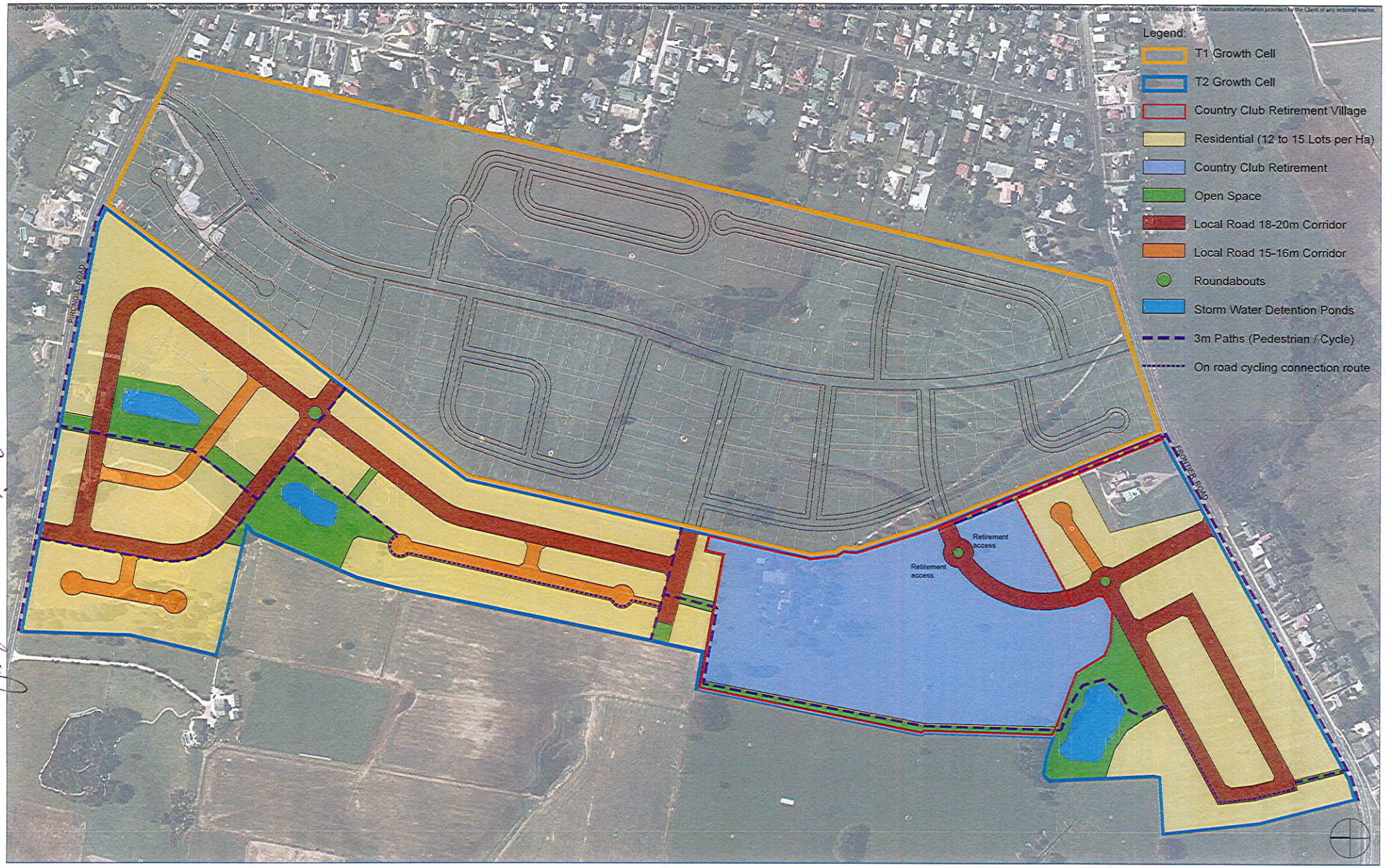

Boffa Miskell

Te Awamutu Country Club

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Printed 24/07/2020 9:56:11 AM

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J	23.07.20	Structure Plan Concept	MPe

CLIENT
Sanderson Group

CONSULTANTS
BBO
STANTEC
Nicklin CE Ltd Wainui Environmental

Preliminary

T2 Structure Plan Concept

T2 Structure Plan

Design MHu
Drawn MHu/MPe
Check JSo

Scale
1:2000 @ A1
1:4000 @ A3

Date
23/07/2020

DRAWING NO. BM200127_001

REVISION J

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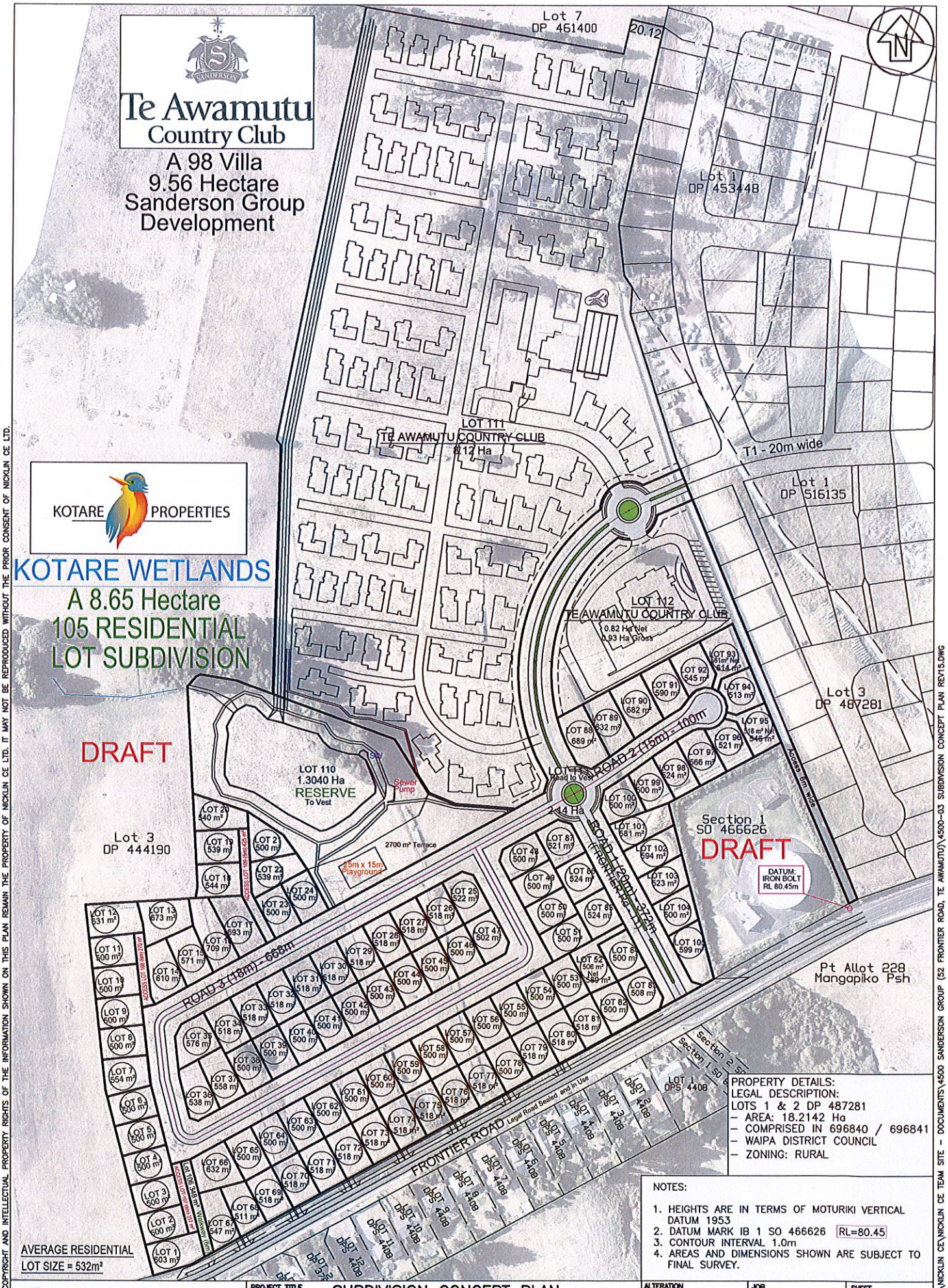
Attachment 2: Retirement Village and Residential Subdivision Layout



PROPERTY DETAILS:
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- AREA: 18.2142 Ha
- COMPRISED IN 696840 / 696841
- WAIPA DISTRICT COUNCIL
- ZONING: RURAL

NOTES:

1. HEIGHTS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953
2. DATUM MARK IB 1 SO 466626 RL=80.45
3. CONTOUR INTERVAL 1.0m
4. AREAS AND DIMENSIONS SHOWN ARE SUBJECT TO FINAL SURVEY.

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SURVEYING PLANNING ENGINEERING
Tel: (07)827-4945
www.nicklince.co.nz
ciaran@nicklince.co.nz
6 Wilson Street
P.O. Box 754
Cambridge 3450

PROJECT TITLE
SUBDIVISION CONCEPT PLAN

LOTS 1–115 BEING A SUBDIVISION
OF LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU

ALTERATION	JOB	SHEET
	4500	03
CAD CPM	ORIGINAL SCALE AT A3	REV 15
DATE 16 JULY 2020	1:2000	

C:\USERS\CIARAN\NICKLIN CE\NICKLIN CE TEAM SITE - DOCUMENTS\4500 SANDERSON GROUP (52 FRONTIER ROAD, TE AWAMUTU)\4500-03 SUBDIVISION CONCEPT PLAN REV15.DWG

27/7/2020

Appendix 3: Written Approval Form

FORM 8a

Written Approval of Affected Persons

Form 8a of the Resource Management Regulations 2003.

Affected persons written approval to an activity that is the subject of a resource consent application.

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To be completed by the applicant

To: Name of Council that is the consent authority for this application: Waipa District Council

Applicant Name

Full name: Sanderson Group Limited

Contact daytime phone: Brendon Russo: 021 939 247 or Nathan Sanderson: 021 628 365

Location of Proposed Activity

Please complete with as many details as you can, so the site for your proposal is clearly identifiable. Include details such as unit number, street number, street name and town.

Property address:

10, 52, Frontier Road and 1/51, 2/51, 65, 67 and 39 Pirongia Road

Legal description:

Lot 2 DPS 487281, Lot 1 DPS 487281, Lot 7 DPS 461400, Lot 2 DPS 534367, Lot 3 DPS 478844, Lot 1 DPS 534367, Lot 1 DPS 514120, Lot 1 DPS 327266, Lot 2 DPS 457600

Description of Proposed Activity

Please provide a brief description of your proposal, including which District Plan Rules or standards are infringed.

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27/7/2020.

THAMES COROMANDEL DISTRICT COUNCIL

Hamilton City Council Te kaunihera o Kirikiriroa

HAURAKI DISTRICT COUNCIL

Waipa DISTRICT COUNCIL

Waitomo District Council

ROTORUA LAKES COUNCIL Te kaunihera o ngā roto o Rotorua

matamata piako district council

South Waikato District Council

Waikato DISTRICT COUNCIL Te Kaunihera aa Takiwaa o Waikato

FORM 8a

V2 | 20.11.19

To be completed by affected person:

Owner to Complete

☐ I/we are also the occupier(s)

Full name of all property owners:

Colin + Lynn Pinkerton

Being the owner/s of Street address:

73 Pirongia Road

Legal description:

☑ I/we have authority to sign on behalf of all of the owners of the property.

☑ I/we have read the full application for resource consent, the Assessment of Environmental Effects and any associated plans.

☑ I/we have signed and dated each page.

☑ Declaration: In signing this written approval, I/we understand that Council must decide that I/we are no longer an affected person, and Council must not have regard to any adverse effect on me/us.

☑ I/we understand that I/we may withdraw my/our written approval by giving written notice to Council before the hearing, if there is one, or, if there is not, before the application is determined.

Signed *(All owners or authorised persons)*:

L. W. Pinkerton

Date: 27-7-2020

Fax/Email: lyncol.pinkerton7@gmail.com

Contact Phone Number: 07871 3554

Postal Address: 73 Pirongia Road
R.D.6
Te Awamutu 3876

Occupier to Complete

☐ I/we are also the occupier(s)

Full name of all occupiers:

Being the occupiers of Street address:

Legal description:

☐ I/we have authority to sign on behalf of all of the occupiers of the property.

☐ I/we have read the full application for resource consent, the Assessment of Environmental Effects and any associated plans.

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Signed *(All occupiers or authorised persons)*:

Date:

Fax/Email:

Contact Phone Number:

Postal Address:

BLOXAM BURNETT & OLLIVER

Level 4, 18 London Street
PO Box 9041, Hamilton 3240
New Zealand

+64 7 838 0144
consultants@bbo.co.nz
www.bbo.co.nz

22 July 2020

Job No. 145570.03

To whom it may concern,

Te Awamutu Residential Development – Plan change, retirement village and residential subdivision

Introduction

Sanderson Group Limited are lodging a plan change (Plan Change 12) with Waipa District Council requesting a rezoning of an area of land already zoned as future residential, located at the western extent of Te Awamutu. The purpose of the rezoning is to allow for a retirement village development and residential subdivision to occur to help meet the demands from the local community who currently have very limited retirement living options.

We have identified you as a potentially affected party as your property is near the subject site. As such, we wish to undertake consultation with you, and seek your written approval for the proposed development. This letter provides a summary of the site, the rezoning, the retirement village development and the residential subdivision.

Site and Locality

The Waipa District Plan identifies residential growth cells within each of the towns in the Waipa District, which are appropriate locations to accommodate future growth. These are split between two separate groups;

1. Growth cells which are intended to be opened and developed between now and 2035; and
2. Growth cells which are intended to be opened and developed after 2035.

The site subject to the plan change is Growth Cell T2, located at the western extent of Te Awamutu. It is allocated for development after 2035 . Refer to **Figure 1** below displaying the location of the site.

ES
25/7/20

TV5

Figure 1: Site and locality (Growth Cell T2 outlined in red)

The site is 41ha in area. It is currently used for farming activities and contains farm buildings and dwellings located sporadically across the site.

Plan Change

Growth cell T2 is currently zoned 'Deferred Residential' in the Waipa District Plan, reflecting the intention to start residential development in this location after 2035. While Growth Cell T2 has been identified for development after 2035, the Waipa District Plan provides an opportunity to open up a growth cell for development earlier than originally anticipated. This is required to be done via a plan change to the Waipa District Plan. The plan change needs to include both a rezoning of the site from 'Deferred Residential' to 'Residential' and the insertion of a 'Structure Plan' into the District Plan. It needs to demonstrate that the site can be adequately serviced and environmental effects can be managed.

Sanderson Group propose to make use of the opportunity to undertake a plan change to rezone the site to Residential, allowing for residential development on the site to occur earlier than originally anticipated. Refer to **Attachment 1** of this letter which sets out the draft Structure Plan that will form part of the plan change.

ES
28/7/20

As the site is already Deferred Residential, it has been investigated and has previously been determined to be appropriate for Residential development. As such, the only change will be to bring forward the expected timeframe of residential development on the site.

The purpose of the plan change is to allow for the proposed retirement village development and residential subdivision on the southern half of the growth cell to occur as soon as possible. The retirement village requires a large site of at least 9ha which is not readily available in existing zoned areas. The developments are set out in more detail below. There is no development currently proposed on the northern half of the growth cell.

Retirement Village and Residential subdivision

Sanderson Group are a family orientated, leading provider of high quality retirement villages in New Zealand. Sanderson are currently constructing a retirement village in Tamahere (Tamahere Country Club). The Waikato population has shown a strong interest for a Sanderson Group retirement village to be established in Te Awamutu. Therefore, Sanderson Group have been searching for an appropriate site for several months. The site located at 10 Frontier Road and 52 Frontier Road, at the western extent of Te Awamutu has been identified as an ideal location for the village.

It is proposed to construct and operate a retirement village on 9.45ha of their landholding at 10 and 52 Frontier Road and Sanderson Group have also entered into an agreement to sell the remaining land of 8.76ha to a developer who will subdivide the balance of the site into residential lots.

The retirement village will comprise the following:

- Approximately 98 standalone retirement villas;
- A care facility containing care suites and a dementia unit; and
- A club house, incorporating a café that will be open to the public; and
- A health spa and outdoor amenities including a bowls lawn and croquet green.

The residential subdivision will comprise the following:

- Approximately 105 residential lots; and
- A reserve, including a wetland area doubling as stormwater disposal, and a neighbourhood reserve including a playground.

Attachment 2 contains a plan outlining the retirement village layout and residential subdivision layout. The retirement village and residential subdivision plans are yet to be finalised. The attached plans provide a good indication of what is proposed on the site, however there may be some minor amendments.

Written Approval

The process of seeking written approvals in a resource consent process enables potentially affected parties to view the details of a proposed development and make a decision on whether or not to provide their written approval. If a party decides to provide their written approval for an activity, the Council will no longer be able to take into account any adverse effects on that party in deciding on whether or not to notify the application for submissions. If a party decides not to give their written approval, the Council will take into account any potential adverse effects on that party.

For a more detailed description on how written approvals work please refer to page two of the attached written approval form. If you decide to provide your written approval for Plan Change 12 and the associated resource consent applications, please sign this letter, the attached written approval form and each of the attached plans.

ES
28/7/20

If you decide to provide your written approval, please return the signed documents to Brendon Russo at brendon@sandersongroup.co.nz. Alternatively, you can phone Brendon on 021 939 247 and he will come and collect them. If you have any questions around the proposal or the written approvals, please either email or phone Brendon or myself.

Attachments

1 Structure Plan for Growth Cell T2
2 Retirement Village and Residential Subdivision Layout
3 Written Approval Form

Yours sincerely
Bloxam Burnett & Olliver

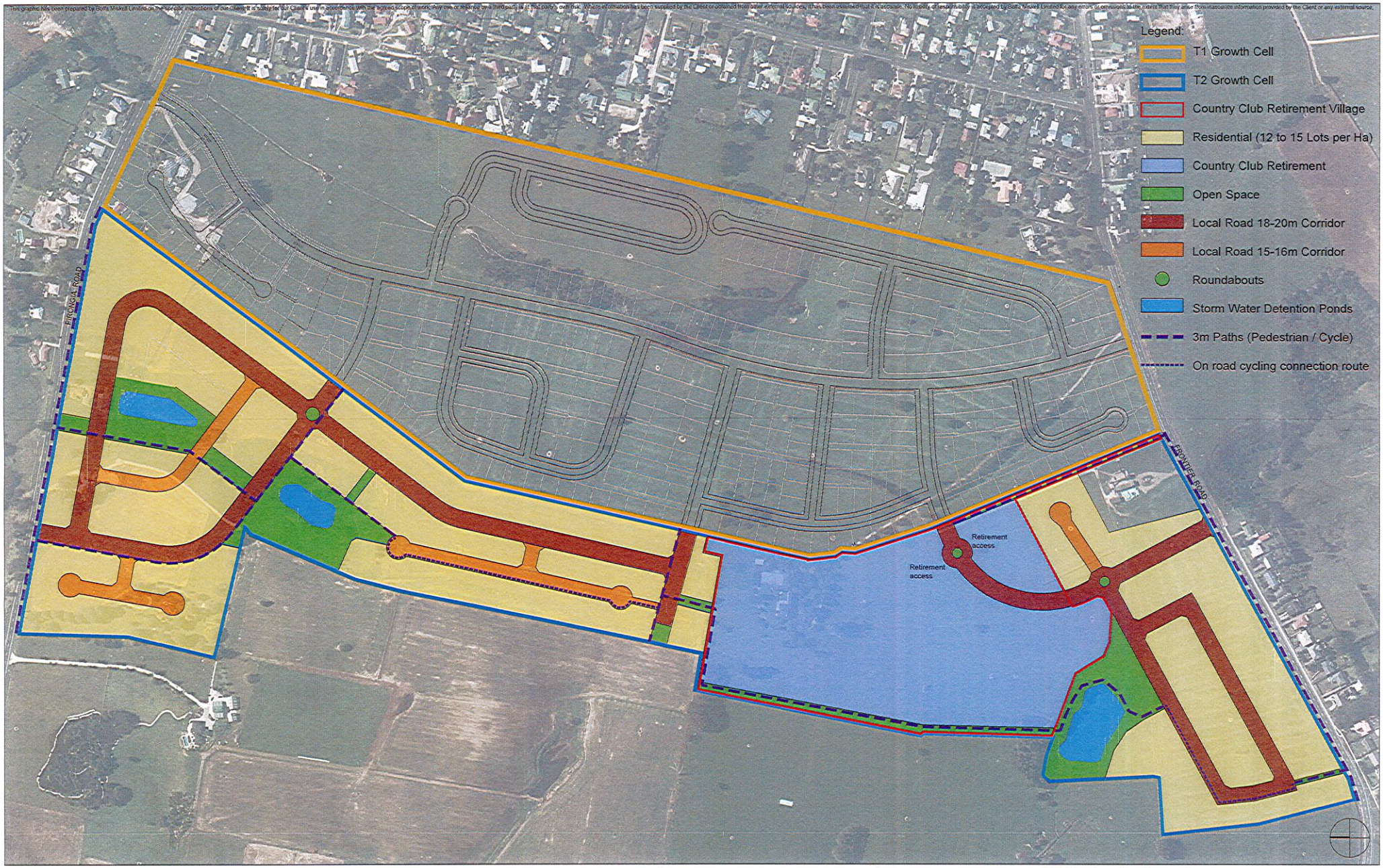
Emily Patterson
Intermediate Planner
0278454321
epatterson@bbo.co.nz

ES
28/7/20

Attachment 1: Structure Plan for Growth Cell T2

ES

This graphic has been prepared by Boffa Miskell Limited on the specific instructions of our client. It is solely for our Client's use in accordance with the agreed scope of work. Any use or reliance by a third party is at that party's own risk. Where information has been supplied by the Client or obtained from other external sources, it has been assumed that it is accurate. No liability or responsibility is accepted by Boffa Miskell Limited for any errors or omissions to the extent that they arise from inaccurate information provided by the Client or any external source.



28/7/

Boffa Miskell

Te Awamutu Country Club

KOTARE PROPERTIES

Printed 24/07/2020 9:56:11 AM

REV	DATE	DESCRIPTION	APPRVD
A	21/04/20	Preliminary for Review	MHu
B	28.04.20	Preliminary for Review	MHu
C	30.04.20	Preliminary for Review	JSo
D	30.04.20	Structure Plan Concept	JSo
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H	21.07.20	Structure Plan Concept	MPe
I	21.07.20	Structure Plan Concept	MPe
J	23.07.20	Structure Plan Concept	MPe

CLIENT
Sanderson Group

CONSULTANTS
BBO
STANTEC
Nicklin CE Ltd Wainui Environmental

Preliminary

T2 Structure Plan Concept

T2 Structure Plan

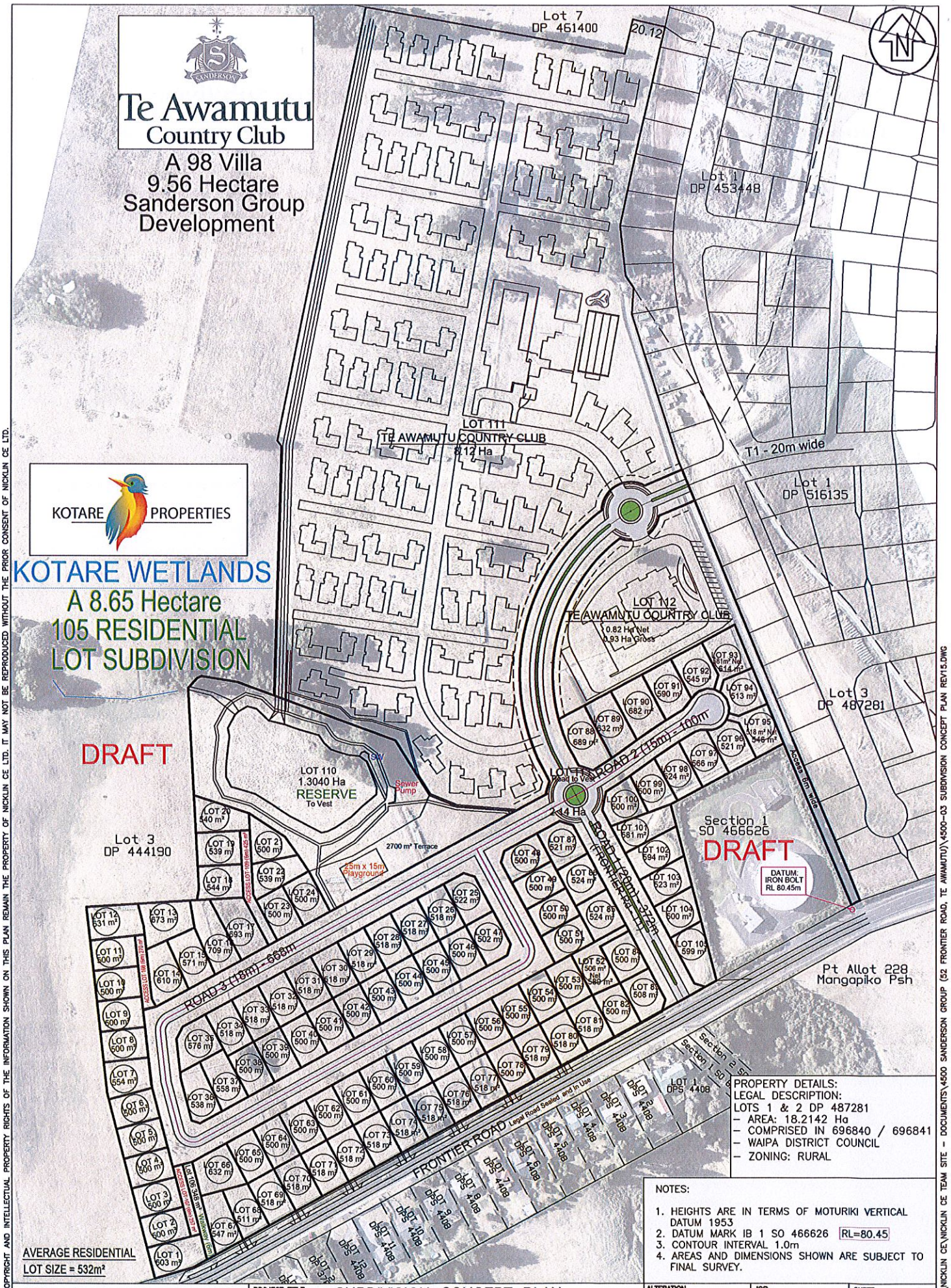
Design	MHu	Scale	Date
Drawn	MHu/MPe	1:2000 @ A1	25/07/2020
Check	JSo	1:4000 @ A3	

DRAWING NO. BM200127_001

REVISION J

U:\2020\BM200127\JSo_Sanderson_Group_Te_Awamutu_Village\CAD\BM200127_T2_SP_Base2_28072021.dwg

Attachment 2: Retirement Village and Residential Subdivision Layout



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NICKLIN CE
SURVEYING PLANNING ENGINEERING
Tel: (07)827-4945
www.nicklince.co.nz
ciaran@nicklince.co.nz
6 Wilson Street
P.O. Box 754
Cambridge 3450

PROJECT TITLE
SUBDIVISION CONCEPT PLAN
LOTS 1–115 BEING A SUBDIVISION OF LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU

ALTERATION	JOB	SHEET
	4500	03
CAD CPM	ORIGINAL SCALE AT A3	REV 15
DATE 16 JULY 2020	1:2000	

C:\USERS\CIARAN\NICKLIN CE\NICKLIN CE TEAM SITE - DOCUMENTS\4500 SANDERSON GROUP (52 FRONTIER ROAD, TE AWAMUTU)\4500-03 SUBDIVISION CONCEPT PLAN REV15.DWG

28/7/20 ES

Appendix 3: Written Approval Form

FORM 8a

Written Approval of Affected Persons

Form 8a of the Resource Management Regulations 2003.

Affected persons written approval to an activity that is the subject of a resource consent application.

Note to affected person(s) signing written approval form:

Before asking for your written approval the applicant should fully explain the proposal to you. You should look at the application containing a description of the activity and the accompanying plans. If you decide to give written approval to this application, you must complete the form and sign the applicant's plans. You should only sign this form if you fully understand the proposal. You should seek expert or legal advice if you need the proposal or resource consent process explained to you. You may also contact Council for assistance.

Conditional written approval **cannot** be accepted. There is no obligation to sign this form, and no reasons need to be given. If signing on behalf of a trust or company, please provide additional written evidence that you have signing authority.

To be completed by the applicant

To: Name of Council that is the consent authority for this application: Waipa District Council

Applicant Name

Full name: Sanderson Group Limited

Contact daytime phone: Brendon Russo: 021 939 247 or Nathan Sanderson: 021 628 365

Location of Proposed Activity

Please complete with as many details as you can, so the site for your proposal is clearly identifiable. Include details such as unit number, street number, street name and town.

Property address:

10, 52, Frontier Road and 1/51, 2/51, 65, 67 and 39 Pirongia Road

Legal description:

Lot 2 DPS 487281, Lot 1 DPS 487281, Lot 7 DPS 461400, Lot 2 DPS 534367, Lot 3 DPS 478844, Lot 1 DPS 534367, Lot 1 DPS 514120, Lot 1 DPS 327266, Lot 2 DPS 457600

Description of Proposed Activity

Please provide a brief description of your proposal, including which District Plan Rules or standards are infringed.

Plan Change to rezone the site, construction of a retirement village and residential subdivision, refer to attached letter for more detail.

THAMES COROMANDEL DISTRICT COUNCIL

Hamilton City Council Te kaunihera o Kirikiriroa

HAURAKI DISTRICT COUNCIL

Waipa DISTRICT COUNCIL

Waitomo District Council

ROTORUA LAKES COUNCIL Te kaunihera o ngā roto o Rotorua

matamata piako district council

South Waikato District Council

Waikato DISTRICT COUNCIL Te Kaunihera aa Takiwaa o Waikato

28/7/20

FORM 8a

To be completed by affected person:

Owner to Complete

☐ I/we are also the occupier(s)

Full name of all property owners:

Emma Spiers

Being the owner/s of Street address:

35 Pirongia Road

Legal description:

☑ I/we have authority to sign on behalf of all of the owners of the property.

☑ I/we have read the full application for resource consent, the Assessment of Environmental Effects and any associated plans.

☑ I/we have signed and dated each page.

☐ Declaration: In signing this written approval, I/we understand that Council must decide that I/we are no longer an affected person, and Council must not have regard to any adverse effect on me/us.

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Signed *(All owners or authorised persons):*

Date: 28/07/2020

Fax/Email:

Contact Phone Number: 027 5447954

Postal Address:

Occupier to Complete

☐ I/we are also the occupier(s)

Full name of all occupiers:

Being the occupiers of Street address:

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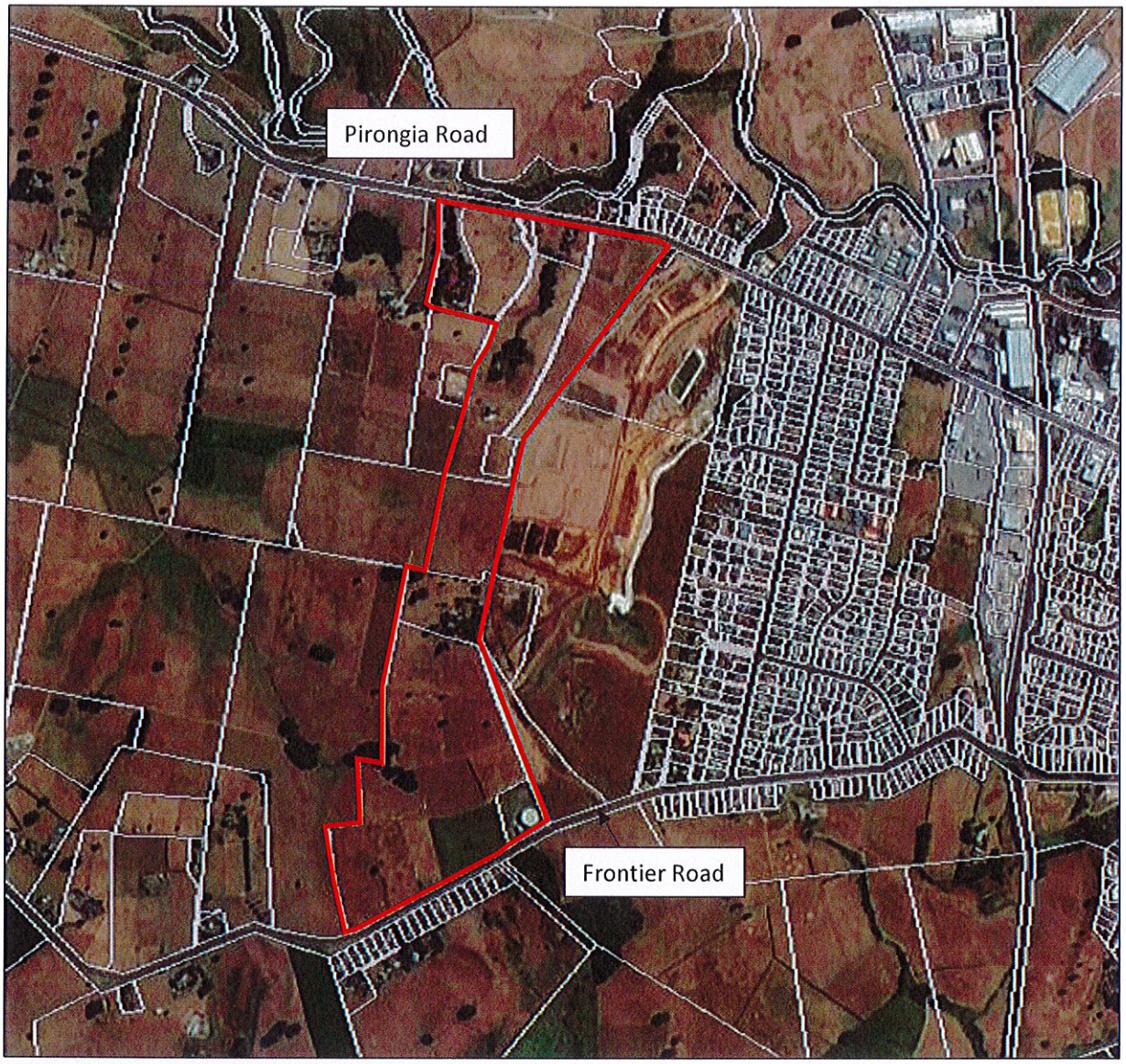
TV5



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Emily Patterson
Intermediate Planner
0278454321
epatterson@bbo.co.nz

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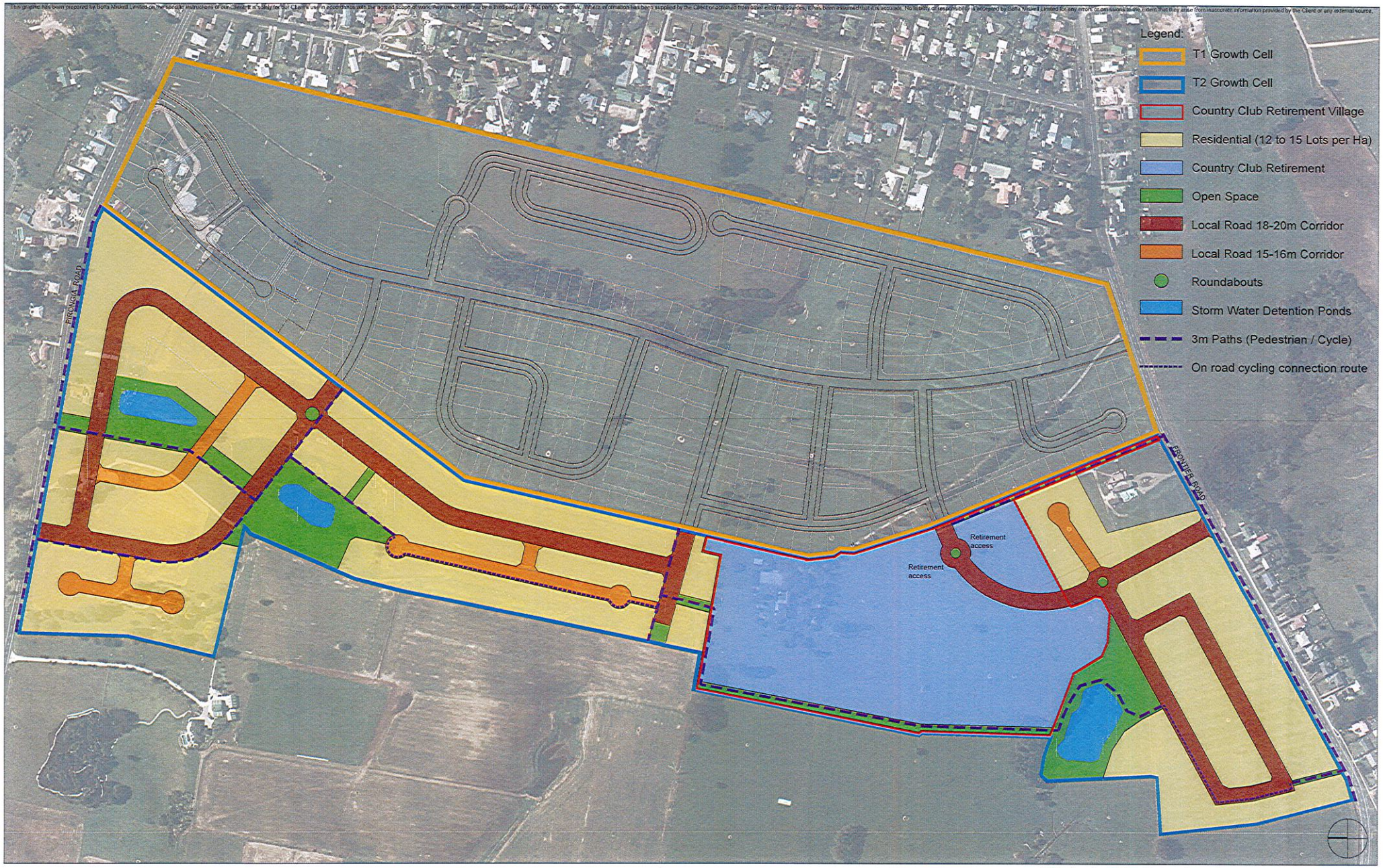

Boffa Miskell

Te Awamutu Country Club

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CLIENT
Sanderson Group

CONSULTANTS
BBO
STANTEC
Nicklin CE Ltd Wainui Environmental

Preliminary

T2 Structure Plan Concept

T2 Structure Plan

Design	MHu	Scale	Date
Drawn	MHu/MPe	1:2000 @ A1	23/07/2020
Check	JSo	1:4000 @ A3	

DRAWING NO. BM200127_001

REVISION J

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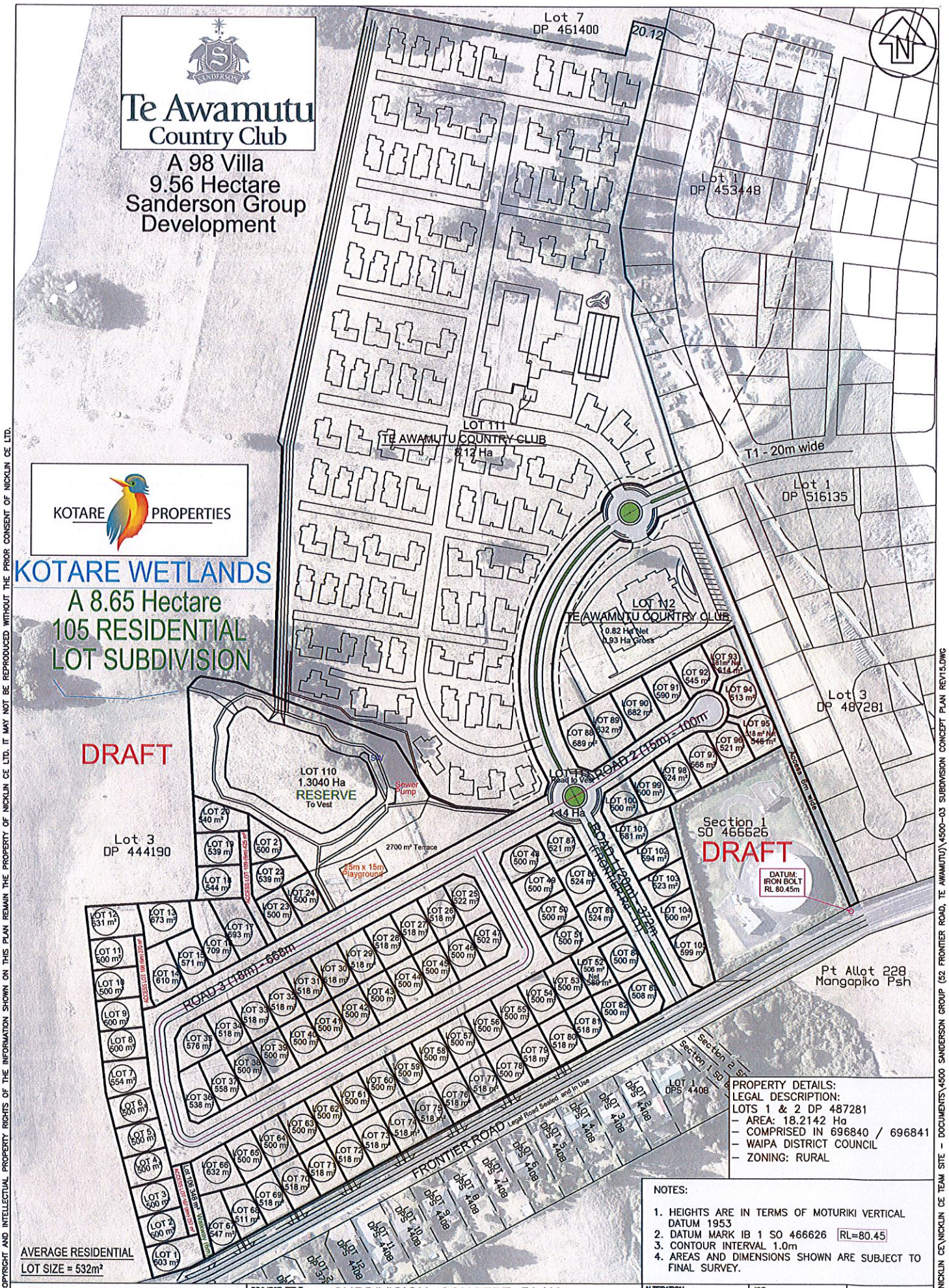
Attachment 2: Retirement Village and Residential Subdivision Layout



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www.nicklince.co.nz
ciaran@nicklince.co.nz
6 Wilson Street
P.O. Box 754
Cambridge 3450

PROJECT TITLE

SUBDIVISION CONCEPT PLAN

LOTS 1–115 BEING A SUBDIVISION
OF LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU

ALTERATION	JOB	SHEET
	4500	03
CAD CPM	ORIGINAL SCALE AT A3	REV 15
DATE 16 JULY 2020	1:2000	

C:\USERS\CIARAN\NICKLIN CE\NICKLIN CE TEAM SITE - DOCUMENTS\4500 SANDERSON GROUP (52 FRONTIER ROAD, TE AWAMUTU)\4500-03 SUBDIVISION CONCEPT PLAN REV15.DWG

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Applicant Name

Full name: Sanderson Group Limited

Contact daytime phone: Brendon Russo: 021 939 247 or Nathan Sanderson: 021 628 365

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Hamilton City Council Te kaunihera o Kirikiriroa

HAURAKI DISTRICT COUNCIL

Waipa DISTRICT COUNCIL

Waitomo District Council

ROTORUA LAKES COUNCIL Te kaunihera o ngā roto o Rotorua

matamata piako district council

South Waikato District Council

Waikato DISTRICT COUNCIL Te Kaunihera aa Takiwaa o Waikato

FORM 8a

V2 | 20.11.19

To be completed by affected person:

Owner to Complete

☑ I/we are also the occupier(s)

Full name of all property owners:

RODNEY JAMES + RAEWYN DALE SPIERS

Being the owner/s of Street address:

10 FRONTIER RD, RD6
TE AWAMUTU

Legal description:

Occupier to Complete

☐ I/we are also the occupier(s)

Full name of all occupiers:

Being the occupiers of Street address:

Legal description:

☐ I/we have authority to sign on behalf of all of the owners of the property.

☐ I/we have read the full application for resource consent, the Assessment of Environmental Effects and any associated plans.

☐ I/we have signed and dated each page.

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Signed *(All owners or authorised persons):*

Date: 27/7/2020

Fax/Email: r.d.spiers@xtra.co.nz

Contact Phone Number: 07 8714207
027 4864969

Postal Address: 10 FRONTIER RD
RD6, TE AWAMUTU

Signed *(All occupiers or authorised persons):*

Date: 27/07/2020

Fax/Email: r.d.spiers@xtra.co.nz

Contact Phone Number: 0274864969

Postal Address: 10 Frontier Rd RD6
Te Awamutu

RDJ

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PO Box 9041, Hamilton 3240
New Zealand

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consultants@bbo.co.nz
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22 July 2020

Job No. 145570.03

To whom it may concern,

Te Awamutu Residential Development – Plan change, retirement village and residential subdivision

Introduction

Sanderson Group Limited are lodging a plan change (Plan Change 12) with Waipa District Council requesting a rezoning of an area of land already zoned as future residential, located at the western extent of Te Awamutu. The purpose of the rezoning is to allow for a retirement village development and residential subdivision to occur to help meet the demands from the local community who currently have very limited retirement living options.

We have identified you as a potentially affected party as your property is near the subject site. As such, we wish to undertake consultation with you, and seek your written approval for the proposed development. This letter provides a summary of the site, the rezoning, the retirement village development and the residential subdivision.

Site and Locality

The Waipa District Plan identifies residential growth cells within each of the towns in the Waipa District, which are appropriate locations to accommodate future growth. These are split between two separate groups;

1. Growth cells which are intended to be opened and developed between now and 2035; and
2. Growth cells which are intended to be opened and developed after 2035.

The site subject to the plan change is Growth Cell T2, located at the western extent of Te Awamutu. It is allocated for development after 2035 . Refer to **Figure 1** below displaying the location of the site.

28/7/20 EaS.

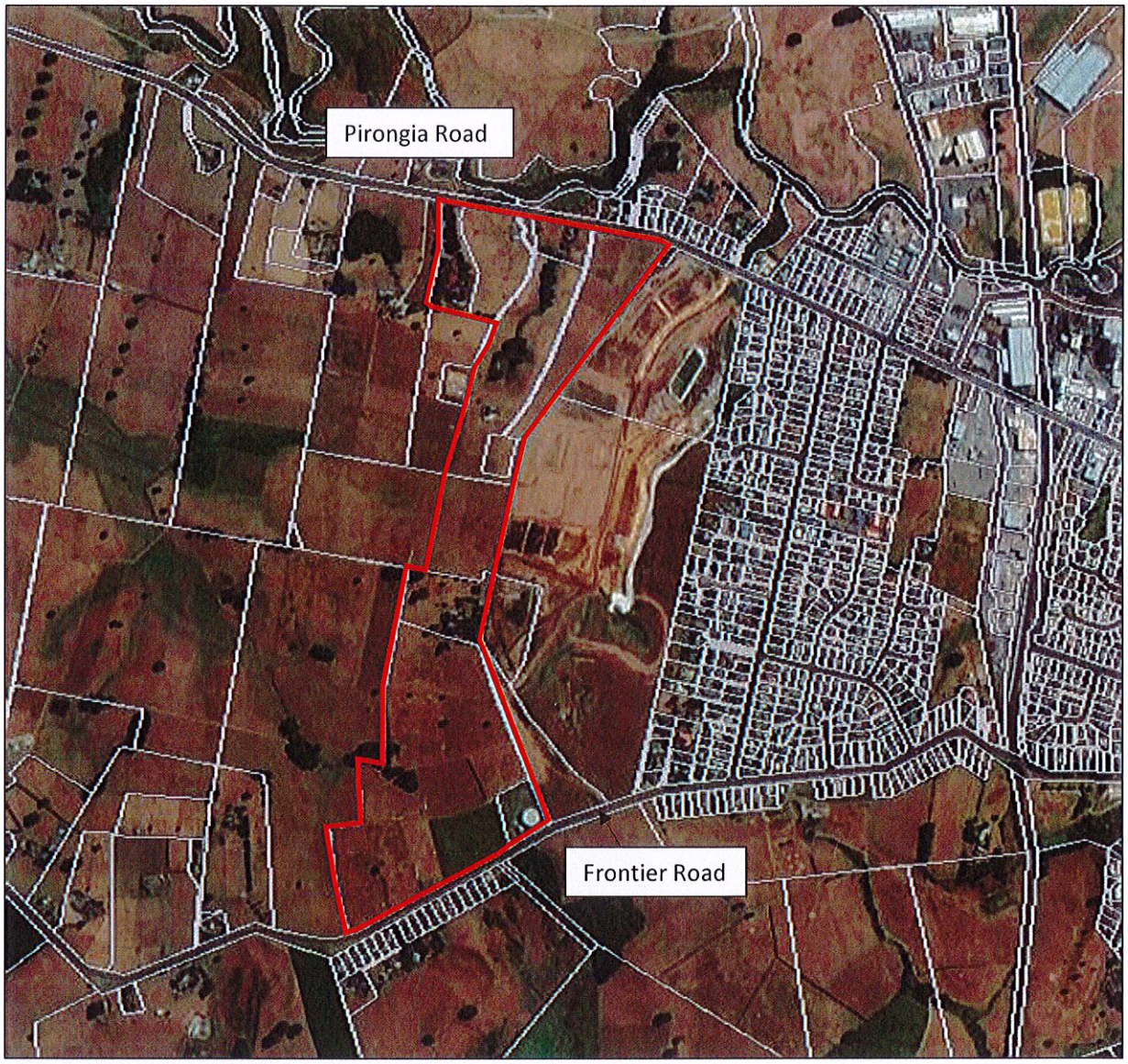


Figure 1: Site and locality (Growth Cell T2 outlined in red)

The site is 41ha in area. It is currently used for farming activities and contains farm buildings and dwellings located sporadically across the site.

Plan Change

Growth cell T2 is currently zoned 'Deferred Residential' in the Waipa District Plan, reflecting the intention to start residential development in this location after 2035. While Growth Cell T2 has been identified for development after 2035, the Waipa District Plan provides an opportunity to open up a growth cell for development earlier than originally anticipated. This is required to be done via a plan change to the Waipa District Plan. The plan change needs to include both a rezoning of the site from 'Deferred Residential' to 'Residential' and the insertion of a 'Structure Plan' into the District Plan. It needs to demonstrate that the site can be adequately serviced and environmental effects can be managed.

Sanderson Group propose to make use of the opportunity to undertake a plan change to rezone the site to Residential, allowing for residential development on the site to occur earlier than originally anticipated. Refer to **Attachment 1** of this letter which sets out the draft Structure Plan that will form part of the plan change.

28/7/20

As the site is already Deferred Residential, it has been investigated and has previously been determined to be appropriate for Residential development. As such, the only change will be to bring forward the expected timeframe of residential development on the site.

The purpose of the plan change is to allow for the proposed retirement village development and residential subdivision on the southern half of the growth cell to occur as soon as possible. The retirement village requires a large site of at least 9ha which is not readily available in existing zoned areas. The developments are set out in more detail below. There is no development currently proposed on the northern half of the growth cell.

Retirement Village and Residential subdivision

Sanderson Group are a family orientated, leading provider of high quality retirement villages in New Zealand. Sanderson are currently constructing a retirement village in Tamahere (Tamahere Country Club). The Waikato population has shown a strong interest for a Sanderson Group retirement village to be established in Te Awamutu. Therefore, Sanderson Group have been searching for an appropriate site for several months. The site located at 10 Frontier Road and 52 Frontier Road, at the western extent of Te Awamutu has been identified as an ideal location for the village.

It is proposed to construct and operate a retirement village on 9.45ha of their landholding at 10 and 52 Frontier Road and Sanderson Group have also entered into an agreement to sell the remaining land of 8.76ha to a developer who will subdivide the balance of the site into residential lots.

The retirement village will comprise the following:

- Approximately 98 standalone retirement villas;
- A care facility containing care suites and a dementia unit; and
- A club house, incorporating a café that will be open to the public; and
- A health spa and outdoor amenities including a bowls lawn and croquet green.

The residential subdivision will comprise the following:

- Approximately 105 residential lots; and
- A reserve, including a wetland area doubling as stormwater disposal, and a neighbourhood reserve including a playground.

Attachment 2 contains a plan outlining the retirement village layout and residential subdivision layout. The retirement village and residential subdivision plans are yet to be finalised. The attached plans provide a good indication of what is proposed on the site, however there may be some minor amendments.

Written Approval

The process of seeking written approvals in a resource consent process enables potentially affected parties to view the details of a proposed development and make a decision on whether or not to provide their written approval. If a party decides to provide their written approval for an activity, the Council will no longer be able to take into account any adverse effects on that party in deciding on whether or not to notify the application for submissions. If a party decides not to give their written approval, the Council will take into account any potential adverse effects on that party.

For a more detailed description on how written approvals work please refer to page two of the attached written approval form. If you decide to provide your written approval for Plan Change 12 and the associated resource consent applications, please sign this letter, the attached written approval form and each of the attached plans.

28/7/20

If you decide to provide your written approval, please return the signed documents to Brendon Russo at brendon@sandersongroup.co.nz. Alternatively, you can phone Brendon on 021 939 247 and he will come and collect them. If you have any questions around the proposal or the written approvals, please either email or phone Brendon or myself.

Attachments

1 Structure Plan for Growth Cell T2
2 Retirement Village and Residential Subdivision Layout
3 Written Approval Form

Yours sincerely
Bloxam Burnett & Olliver

Emily Patterson
Intermediate Planner
0278454321
epatterson@bbo.co.nz

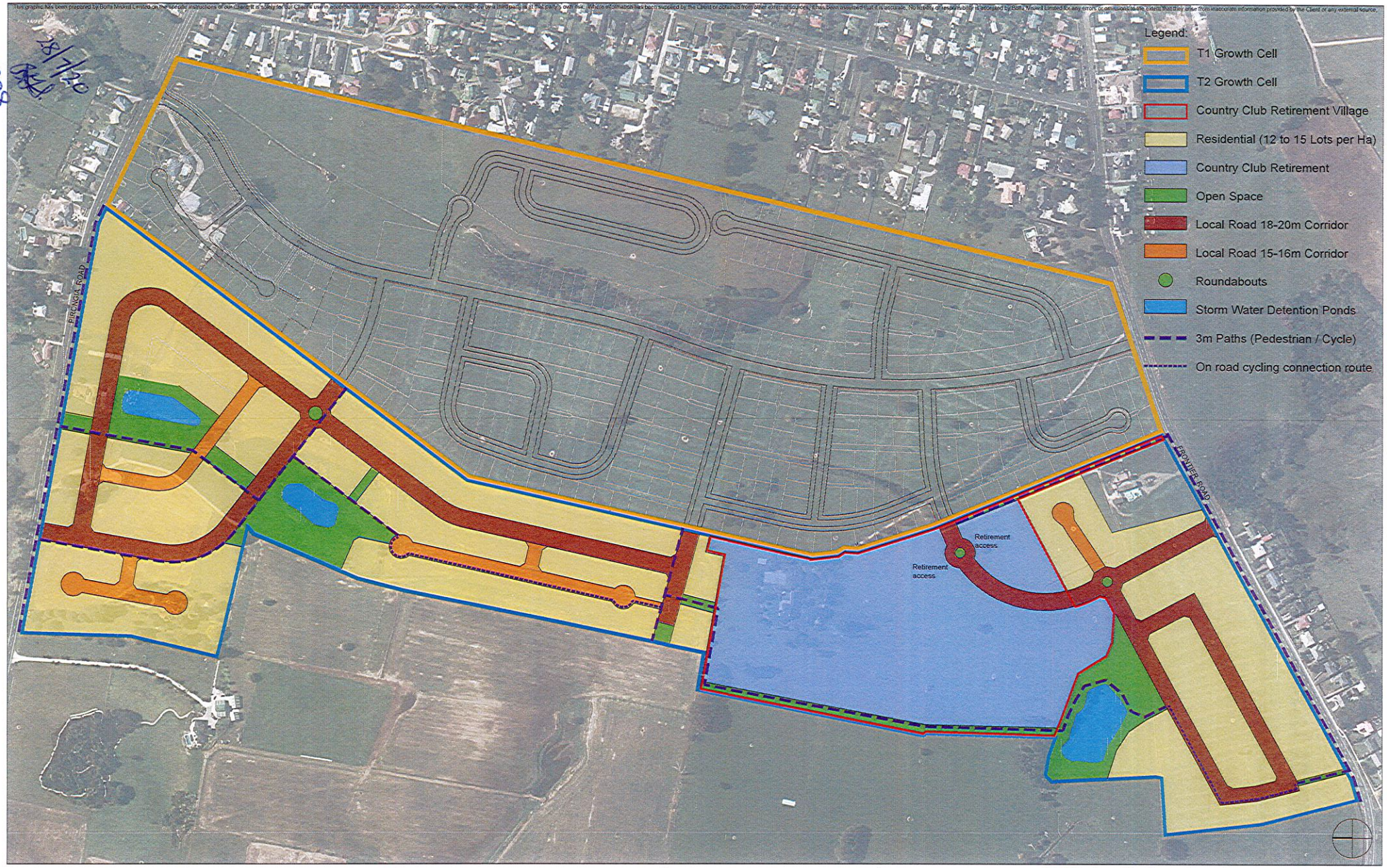
K:\145570 Sanderson Group Retirement Village\03 Te Awamutu Retirement Village\Consultation\Neighbour Consultation\Consultation Pack\Consultation Letter - Neighbours.docx

28/7/20 EAS

Attachment 1: Structure Plan for Growth Cell T2

This graphic has been prepared by Boffa Miskell Limited on the specific instructions of our Client. It is solely for our Client's use in accordance with the agreed scope of work. Any use or reliance by a third party is at that party's own risk. Where information has been supplied by the Client or obtained from other external sources, it has been assumed that it is accurate. No liability or responsibility is accepted by Boffa Miskell Limited for any errors or omissions to the extent that they arise from inaccurate information provided by the Client or any external source.

28/7/20
EOS



Boffa Miskell

Te Awamutu Country Club

KOTARE PROPERTIES

Printed 24/07/2020 9:56:11 AM

REV	DATE	DESCRIPTION	APPRVD
A	21/04/20	Preliminary for Review	MHu
B	28.04.20	Preliminary for Review	MHu
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D	30.04.20	Structure Plan Concept	JSo
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I	21.07.20	Structure Plan Concept	MPe
J	23.07.20	Structure Plan Concept	MPe

CLIENT
Sanderson Group

CONSULTANTS
BBO
STANTEC
Nicklin CE Ltd Wainui Environmental

Preliminary

T2 Structure Plan Concept

T2 Structure Plan

Design	MHu	Scale	Date
Drawn	MHu/MPe	1:2000 @ A1	23/07/2020
Check	JSo	1:4000 @ A3	

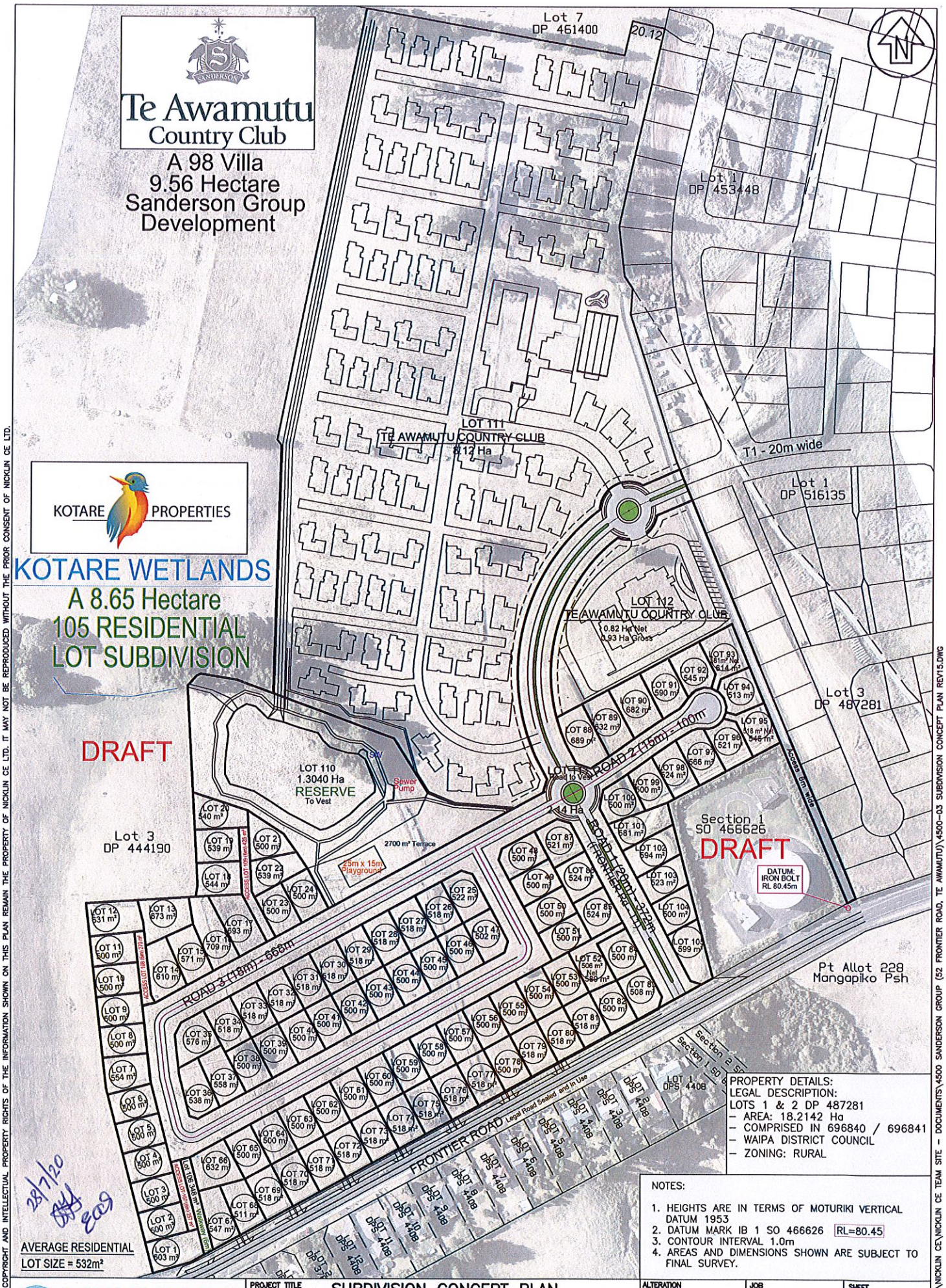
DRAWING NO. BM200127_001

REVISION J

U:\2020\BM200127\Jso_Sanderson_Group_Te_Awamutu_Village\CAD\BM200127_T2_SP_Rev2_20020721.dwg

Attachment 2: Retirement Village and Residential Subdivision Layout

28/7/20



PROPERTY DETAILS:
LEGAL DESCRIPTION:
LOTS 1 & 2 DP 487281
- AREA: 18.2142 Ha
- COMPRISED IN 696840 / 696841
- WAIPA DISTRICT COUNCIL
- ZONING: RURAL

NOTES:

1. HEIGHTS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953
2. DATUM MARK IB 1 SO 466626 RL=80.45
3. CONTOUR INTERVAL 1.0m
4. AREAS AND DIMENSIONS SHOWN ARE SUBJECT TO FINAL SURVEY.

NICKLIN CE
SURVEYING PLANNING ENGINEERING
Tel: (07)827-4945
www.nicklince.co.nz
ciaran@nicklince.co.nz
6 Wilson Street
P.O. Box 754
Cambridge 3450

PROJECT TITLE
SUBDIVISION CONCEPT PLAN
LOTS 1–115 BEING A SUBDIVISION OF LOTS 1 & 2 DP 487281 AT 10 & 52 FRONTIER ROAD, TE AWAMUTU

ALTERATION	JOB	SHEET
	4500	03
CAD CPM	ORIGINAL SCALE AT A3	REV 15
DATE 16 JULY 2020	1:2000	

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C:\USERS\CIARAN\NICKLIN CE\NICKLIN CE TEAM SITE - DOCUMENTS\4500 SANDERSON GROUP (52 FRONTIER ROAD, TE AWAMUTU)\4500-03 SUBDIVISION CONCEPT PLAN REV15.DWG

Appendix 3: Written Approval Form

28/7/20

FORM 8a

Written Approval of Affected Persons

Form 8a of the Resource Management Regulations 2003.

Affected persons written approval to an activity that is the subject of a resource consent application.

Note to affected person(s) signing written approval form:

Before asking for your written approval the applicant should fully explain the proposal to you. You should look at the application containing a description of the activity and the accompanying plans. If you decide to give written approval to this application, you must complete the form and sign the applicant's plans. You should only sign this form if you fully understand the proposal. You should seek expert or legal advice if you need the proposal or resource consent process explained to you. You may also contact Council for assistance.

Conditional written approval **cannot** be accepted. There is no obligation to sign this form, and no reasons need to be given. If signing on behalf of a trust or company, please provide additional written evidence that you have signing authority.

To be completed by the applicant

To: Name of Council that is the consent authority for this application: Waipa District Council

Applicant Name

Full name: Sanderson Group Limited

Contact daytime phone: Brendon Russo: 021 939 247 or Nathan Sanderson: 021 628 365

Location of Proposed Activity

Please complete with as many details as you can, so the site for your proposal is clearly identifiable. Include details such as unit number, street number, street name and town.

Property address:

10, 52, Frontier Road and 1/51, 2/51, 65, 67 and 39 Pirongia Road

Legal description:

Lot 2 DPS 487281, Lot 1 DPS 487281, Lot 7 DPS 461400, Lot 2 DPS 534367, Lot 3 DPS 478844, Lot 1 DPS 534367, Lot 1 DPS 514120, Lot 1 DPS 327266, Lot 2 DPS 457600

Description of Proposed Activity

Please provide a brief description of your proposal, including which District Plan Rules or standards are infringed.

Plan Change to rezone the site, construction of a retirement village and residential subdivision, refer to attached letter for more detail.

28/7/20 BKH. EOS

THAMES COROMANDEL DISTRICT COUNCIL | Hamilton City Council Te kaunihera o Kirikiriroa | HAURAKI DISTRICT COUNCIL | Waipa DISTRICT COUNCIL | Waitomo District Council

ROTORUA LAKES COUNCIL Te kaunihera o ngā roto o Rotorua | matamata piako district council | South Waikato District Council | Waikato DISTRICT COUNCIL Te Kaunihera aa Takiwaa o Waikato

FORM 8a

V2 | 20.11.19

To be completed by affected person:

Owner to Complete

☐ I/we are also the occupier(s)

Full name of all property owners:

BLENDDYN THOMAS STERLING
Elizabeth Ann Sterling

Being the owner/s of Street address:

39 PIRONGIA ROAD

Legal description: LOT 1 DP 327266 BLK II PUNIU SD

Occupier to Complete

☐ I/we are also the occupier(s)

Full name of all occupiers:

Being the occupiers of Street address:

Legal description:

☑ I/we have authority to sign on behalf of all of the owners of the property.

☑ I/we have read the full application for resource consent, the Assessment of Environmental Effects and any associated plans.

☑ I/we have signed and dated each page.

☑ Declaration: In signing this written approval, I/we understand that Council must decide that I/we are no longer an affected person, and Council must not have regard to any adverse effect on me/us.

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Signed *(All owners or authorised persons):*

Blendyn T. Sterling
E A Sterling

Signed *(All occupiers or authorised persons):*

Date: 28-7-2020

Fax/Email: lbsterling@xtra.co.nz

Contact Phone Number: 07-8716937

Postal Address: 39 PIRONGIA RD 3800

Date:

Fax/Email:

Contact Phone Number:

Postal Address:

BLOXAM BURNETT & OLLIVER

Level 4, 18 London Street
PO Box 9041, Hamilton 3240
New Zealand

+64 7 838 0144
consultants@bbo.co.nz
www.bbo.co.nz

22 July 2020

Job No. 145570.03

To whom it may concern,

Te Awamutu Residential Development – Plan change, retirement village and residential subdivision

Introduction

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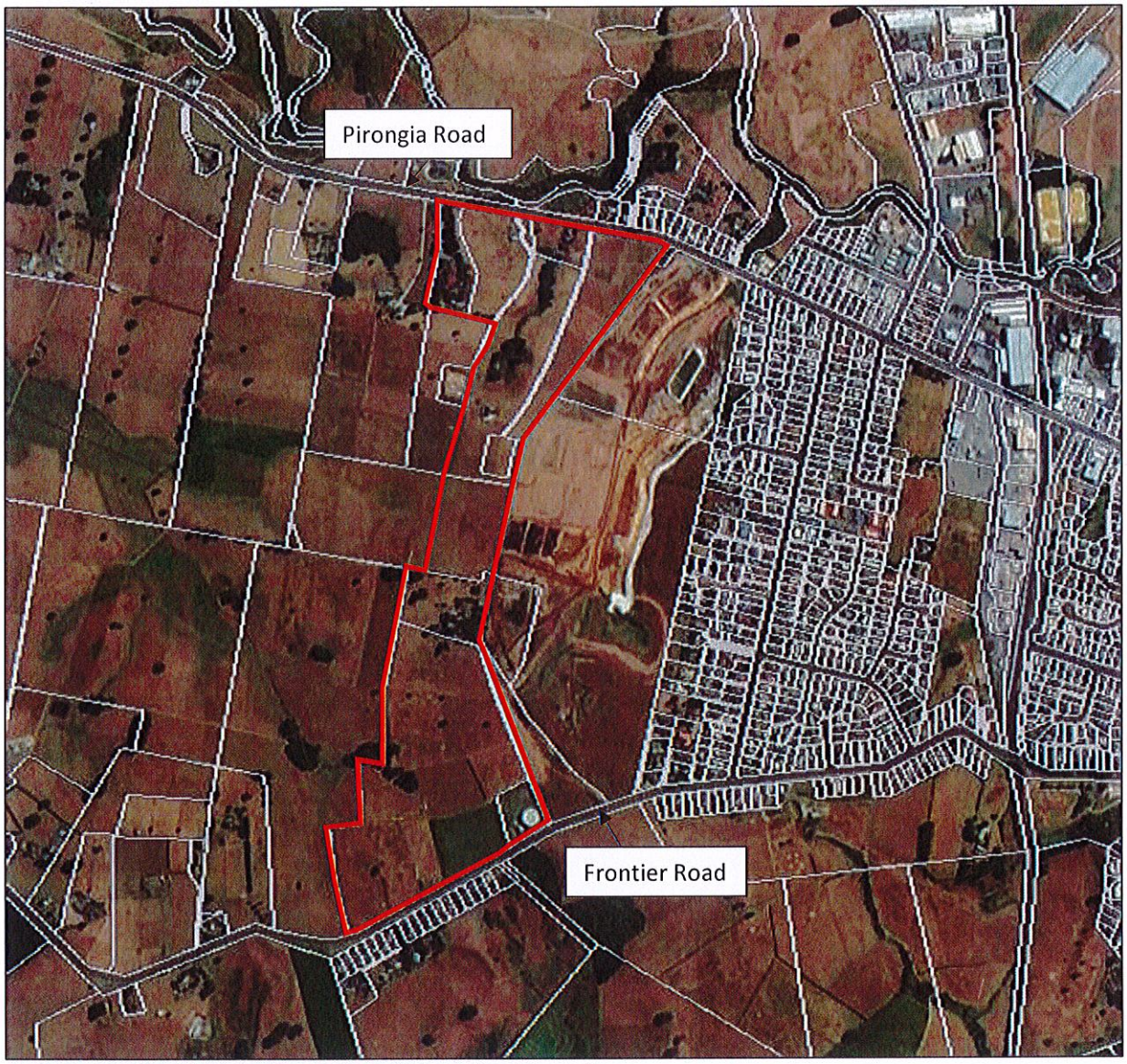
TV5



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Bloxam Burnett & Olliver

Emily Patterson
Intermediate Planner
0278454321
epatterson@bbo.co.nz

K:\145570 Sanderson Group Retirement Village\03 Te Awamutu Retirement Village\Consultation\Neighbour Consultation\Consultation Pack\Consultation Letter - Neighbours.docx

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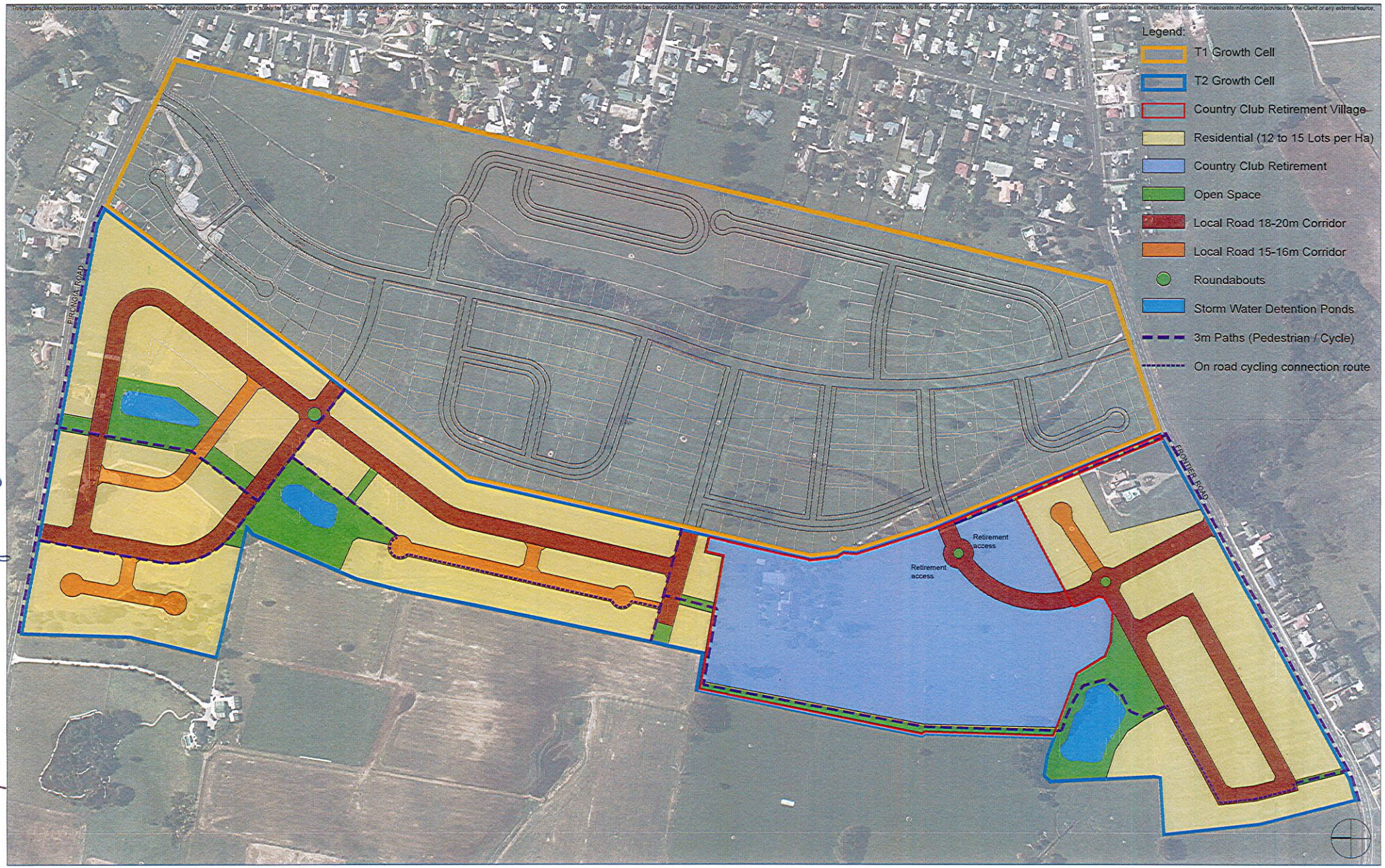

Boffa Miskell

Te Awamutu Country Club

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Printed 24/07/2020 9:56:11 AM

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CLIENT
Sanderson Group

CONSULTANTS
BBO
STANTEC
Nicklin CE Ltd Wainui Environmental

Preliminary

T2 Structure Plan Concept

T2 Structure Plan

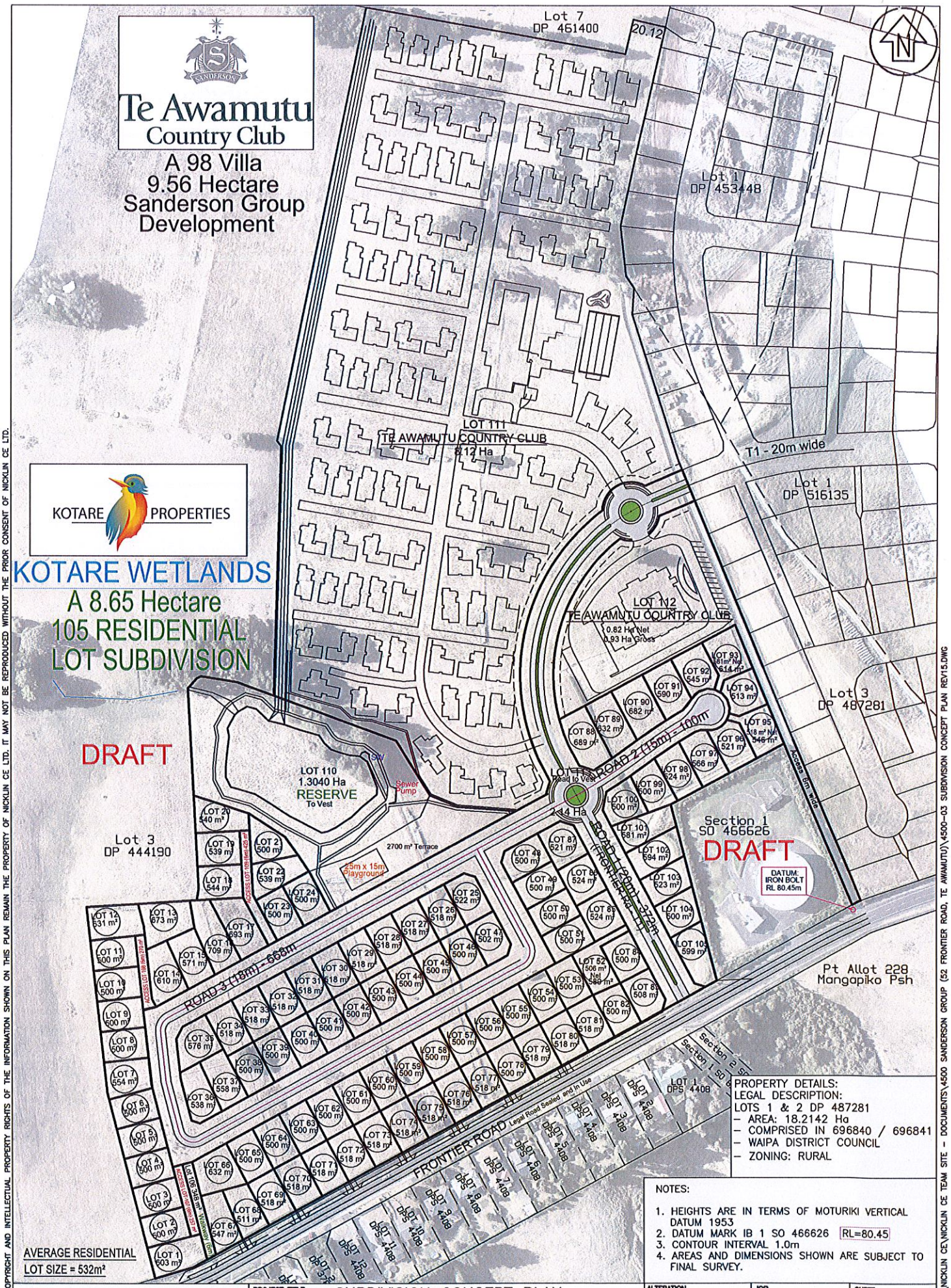
Design	MHu	Scale	Date
Drawn	MHu/MPe	1:2000 @ A1	23/07/2020
Check	JSo	1:4000 @ A3	

DRAWING NO. BM200127_001

REVISION J

U:\2020\BM200127\So_Sanderson_Group_Te_Awamutu_Village\cAD\BM200127_T2_SP_Base2_20072?.dwg

Attachment 2: Retirement Village and Residential Subdivision Layout



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Tel: (07)827-4945
www.nicklince.co.nz
ciaran@nicklince.co.nz
6 Wilson Street
P.O. Box 754
Cambridge 3450

PROJECT TITLE
SUBDIVISION CONCEPT PLAN
LOTS 1–115 BEING A SUBDIVISION OF LOTS 1 & 2 DP 487281
AT 10 & 52 FRONTIER ROAD, TE AWAMUTU

ALTERATION	JOB	SHEET
	4500	03
CAD CPM	ORIGINAL SCALE AT A3	REV 15
DATE 16 JULY 2020	1:2000	

C:\USERS\CIARAN\NICKLIN CE\NICKLIN CE TEAM SITE - DOCUMENTS\4500 SANDERSON GROUP (52 FRONTIER ROAD, TE AWAMUTU)\4500-03 SUBDIVISION CONCEPT PLAN REV15.DWG

Appendix 3: Written Approval Form

FORM 8a

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To be completed by the applicant

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Applicant Name

Full name: Sanderson Group Limited

Contact daytime phone: Brendon Russo: 021 939 247 or Nathan Sanderson: 021 628 365

Location of Proposed Activity

Please complete with as many details as you can, so the site for your proposal is clearly identifiable. Include details such as unit number, street number, street name and town.

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10, 52, Frontier Road and 1/51, 2/51, 65, 67 and 39 Pirongia Road

Legal description:

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Please provide a brief description of your proposal, including which District Plan Rules or standards are infringed.

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THAMES COROMANDEL DISTRICT COUNCIL

Hamilton City Council Te kaunihera o Kirikiriroa

HAURAKI DISTRICT COUNCIL

Waipa DISTRICT COUNCIL

Waitomo District Council

ROTORUA LAKES COUNCIL Te kaunihera o ngā roto o Rotorua

matamata piako district council

South Waikato District Council

Waikato DISTRICT COUNCIL Te Kaunihera aa Takiwaa o Waikato

FORM 8a

V2 | 20.11.19

To be completed by affected person:

Owner to Complete

☐ I/we are also the occupier(s)

Full name of all property owners:

Peter Thompson Steven Thompson
Tracy Thompson Yvonne Thompson

Being the owner/s of Street address:

38 Burn Road

Legal description:

Occupier to Complete

☐ I/we are also the occupier(s)

Full name of all occupiers:

Being the occupiers of Street address:

Legal description:

☐ I/we have authority to sign on behalf of all of the owners of the property.

☐ I/we have read the full application for resource consent, the Assessment of Environmental Effects and any associated plans.

☐ I/we have signed and dated each page.

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☐ I/we understand that I/we may withdraw my/our written approval by giving written notice to Council before the hearing, if there is one, or, if there is not, before the application is determined.

Signed *(All owners or authorised persons):*

Tracy Thompson.

Date: 28/7/20

Fax/Email:

Contact Phone Number: 02154586

Postal Address: 248 Frontier Road

Signed *(All occupiers or authorised persons):*

Date:

Fax/Email:

Contact Phone Number:

Postal Address:

CONSULTATION FORM

PHOTOCOPY THIS FORM FOR EACH PERSON OR GROUP TO BE CONSULTED

Applicant	
Description of proposal	

Person/group consulted in regard to this proposal

Name of contact person	Peter Thompson. Tracy Thompson. Steven Thompson ~~Yvonne Thompson~~.	
Name of group	PH, TL, SB & YM Thompson	
Street address	38 Burns Rd (Frontier Rd)	
	Te Awamutu. 3876	
Email address	peterhughthompson@gmail.com	
Contact number/s	phone: 02154538 6	fax:

Consulted party's views on the proposal (to be completed by person/group consulted)

If you would like the Waikato Regional Council to know your views on the applicant's proposal, and/or if you consider you may be adversely affected, please indicate your views below (attach additional pages if necessary). Consider the following: How do you consider you will be affected? How would you like the applicant's proposal to be modified to take account of your views? What other comments do you have on the proposal that you would like the Waikato Regional Council to consider in making a decision on these resource consent applications?

We agree to earthworks to fill in the gully.

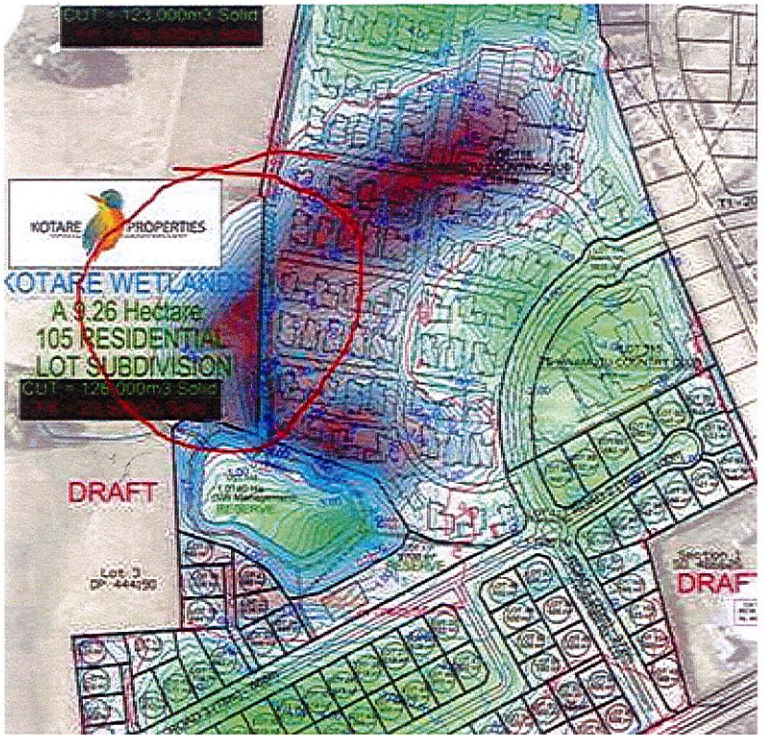
Applicant's response to views of consulted parties (to be completed by applicant)

Please indicate how your proposal can be modified to take account of the views of the party you have consulted with (or why the proposal may not be able to be modified to take account of those views).

Consulted party's response to the proposal (to be completed by person/group consulted) *Please tick one only*

- (✓) I/We give my/our approval for the proposal
- ( ) I/We do not give my/our approval for the proposal
- ( ) I/We are not affected by this proposal

Signed PH Thompson SB Thompson YM Thompson **Date** 28/7/20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Sandersons Group Ltd and Kotare Properties Plan Change 12

CULTURAL IMPACT ASSESSMENT ON BEHALF OF NGĀTI APAKURA

October 2020

Prepared by Norman Hill

Table of Contents

Mihi 3

1. Introduction 3

1.1 Purpose 3
1.2 Methods 4

2. Description of the Project 4

2.1 Site and surroundings 4
2.2 The proposal 6

3. Tangata Whenua/Mana whenua 7

3.1 Known history of the site and area 7

4. Statutory Context 8

4.1 Resource Management Act 1991 (RMA) 8
4.2 Heritage New Zealand Pouhere Taonga Act 2014 8
4.3 Te Ture Whaimana - Vision and Strategy 9
4.4 Te Rautaki Taiao a Raukawa 10
4.5 Ko Tā Maniapoto Mahere Taiao 10
4.6 Tai Tumu Tai Pari Tai Ao 13

5. Mana Whenua Consultation 14

6. Overview of Cultural Values and Issues 15

6.1 Heritage 15
6.2 Ecological 16
6.3 Landscape 16
6.4 Water, Wastewater and Stormwater 16
6.5 Geology 17
6.6 Contamination 17

7. Recommendations and Mitigation 18

7.1 Kaitiakitanga – Guardianship 18
7.2 Whakapapa - Heritage 18
7.3 Ngā Wai Ora- Freshwater 18
7.4 Kotahitanga- Partnership 19

8. Conclusions and Recommendations 19

Appendix 1 Māori customary practices and beliefs/tikanga 20

Mihi

"ma te whenua hei oranga te iwi mo ake ake ake"

"the land will nurture our people now and forever"

1. Introduction

A Plan Change 12 application (PC12) to the Waipa District Plan (WDP) is being made on behalf of Sandersons Group Limited (Sandersons Group) and Kotare Properties Limited (Kotare) to rezone of an area of land located at the western extent of Te Awamutu.

The site located at 10 Frontier Road and 52 Frontier Road, at the western extent of Te Awamutu is identified as Growth Cell T2 in the WDP.

Growth Cell T2 contains approximately 41ha of land, all of which is currently zoned Deferred Residential in the District Plan.

Sandersons Group Ltd has identified a portion of land within Growth Cell T2 as being a prime location to establish a retirement village and wish to commence construction as soon as possible. In coordination with the retirement village, Sandersons Group have also entered into an agreement to sell part of the land to local developers, Kotare Properties, to undertake an approximately 105 lot residential subdivision.

The WDP provides an opportunity to open identified growth cells for development earlier than originally anticipated, and this is required to be undertaken via a plan change to the WDP. As such, Sandersons Group, in conjunction with Kotare, are seeking to rezone the growth cell to allow for residential development to occur now.

Sandersons Group are a family orientated, leading provider of high-quality retirement villages in New Zealand. Established in 1987, Sandersons have been involved in several retirement village developments in Tauranga, Queenstown, Hamilton and Tamahere.

Kotare Properties are a Waikato-based residential subdivision land developer. Their most recent development is in Cambridge, namely the Kotare Downs development located on Swayne Road.

1.1 Purpose

The purpose of this Cultural Impact Assessment (CIA) is to ensure the significance of the relationship of mana whenua - Ngāti Apakura, is articulated, acknowledged and understood in order to ensure any proposed works as proposed under PC12, is approached in a manner that respects, acknowledges and maintains the integrity of this relationship.

The CIA reaffirms the cultural values of the site and seeks to understand the actual and potential adverse effects on the cultural and environmental values in relation to the proposed PC12 and future development of the retirement village and residential development.

This report also provides a list of recommendations that aim to avoid, remedy, or mitigate and/or improve outcomes for mana whenua in the event of the PC12 and future consents being granted.

1.2 Methods

The methodology used in the preparation of the CIA is broadly based on information provided by Bloxam Burnett & Olliver (BBO) in the report - Growth Cell T2 Rezoning Request for Plan Change No 12 (August 2020) and consultation with Ngāti Apakura.

Reading and reviewing relevant consent documentation in relation to the proposal, including:

i. Archaeological Assessment prepared by Warren Gumbley Archaeologists
ii. Ecological Impact Assessment prepared by Ecology New Zealand
iii. Integrated Transportation Assessment prepared by Stantec
iv. Stormwater Management Plan prepared by Wainui Environmental
v. Infrastructure Report prepared by Nicklin CE
vi. Landscape and Visual Assessment prepared by Boffa Miskell

Below are summaries of each phase and task undertaken in the preparation of this report. The primary responsibility in this process has been to provide the framework for the statutory assessment and the communication of values, issues, and opportunities. The values and uses are those of Ngāti Apakura as expressed by the iwi during consultation.

To assess the potential impact of the proposal the following sources were also researched or reviewed:

- Hui with representatives of Ngāti Apakura
- Skype conversations in August
- Hui and site visit

Identification and evaluation of potential impacts of the proposal against cultural values, objectives and policies outlined in the relevant iwi management plans.

Discussion of the report with feedback and approval from Ngāti Apakura.

2. Description of the Project

2.1 Site and surroundings

As presented in the Growth Cell T2 Rezoning Request for Plan change No 12 report prepared by BBO, the retirement village, called Te Awamutu Country Club (Country Club), is located on the northern part of the 18.2ha block of land at 10 and 52 Frontier Road.

The Growth Cell T2 is the subject of this plan change request, located at the western edge of Te Awamutu.

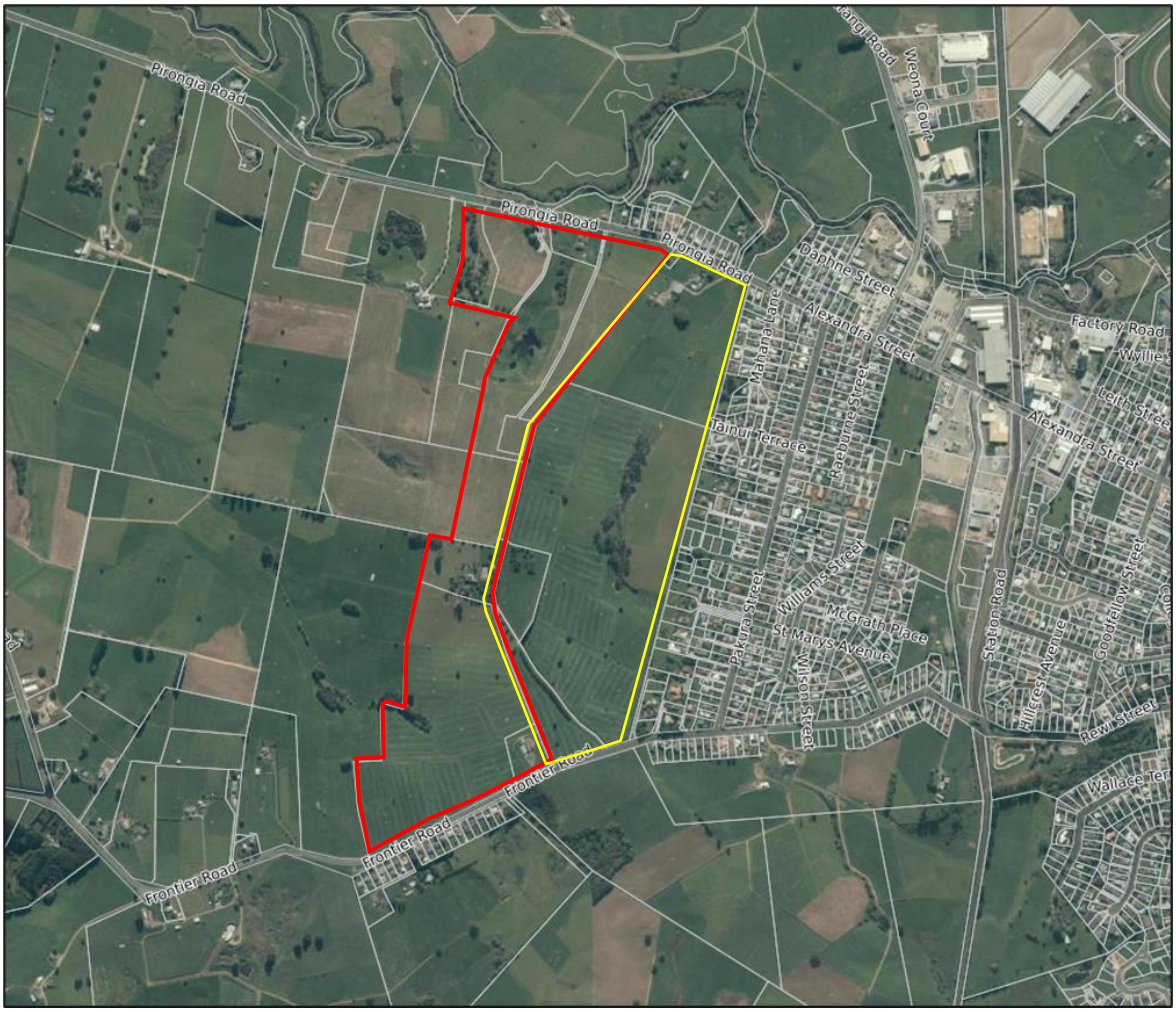

Figure 1: Locality of Growth Cell T2 in red and Growth Cell T1 in yellow (source BBO)

The purpose of PC12 is to allow for residential development within Growth Cell T2 to occur, and to highlight the relevant infrastructure and servicing requirements of the growth cell to guide future development.

The properties within Growth Cell T2 are currently mainly pasture for dairy farming, with some single residential dwellings and garages or sheds.

The site topography consists of rolling hills with moderate to steep slope angles, and incised gullies. There are two gully areas present within the site boundaries, one in the north and one in the south-west.

There are two developments proposals.

Firstly, a proposal to construct a retirement village on the northern part of the 18.2ha block and approximately 8.65ha will be developed as a residential subdivision.

2.2 The proposal

As mentioned previously, two development proposals make up the plan change application

Firstly, the retirement village will comprise approximately 9.56ha of land and includes the following development/amenities:

- Approximately 98 standalone retirement villas;
- A care facility including a dementia unit;
- A club house including a café that will be open to the public;
- A health spa; and
- Recreational amenities including a croquet lawn and bowls green, walkways, and cycleways.

The main access to the Country Club will be from the T1 Growth Cell development to the east. Construction of a retirement village within the residential zone of the WDP requires a resource consent application, therefore it will be designed and assessed in more detail in the subsequent resource consent application.

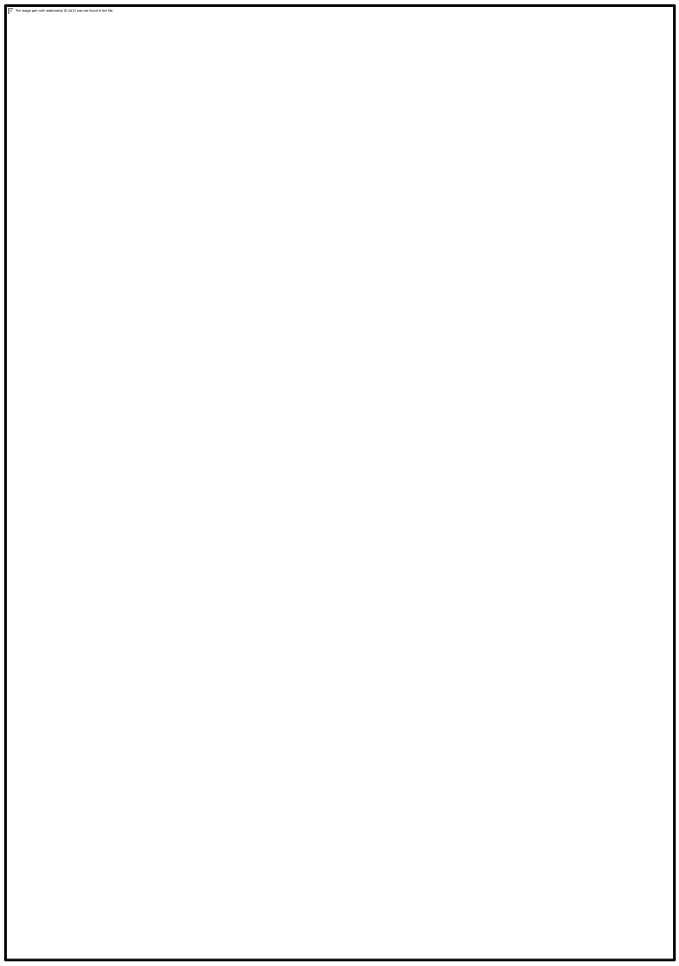

Figure 2: Proposed Retirement Village and Residential Subdivision (source BBO)

Secondly approximately 8.95 ha will be developed as a residential subdivision, which includes the following:

- Approximately 105 residential lots;
- A stormwater reserve, including a stormwater treatment wetland, to vest in Council;
- A recreation reserve to vest in Council;
- Various pedestrian and cycle paths to vest in Council;
- Roading infrastructure;
- Three waters infrastructure; and
- Telecommunications, electricity and natural gas supply connections.

The development of housing would provide for housing supply for Te Awamutu, with a aim to hopefully providing for a social benefit.

Once zoned Residential the subdivision will require resource consent under the WDP. The proposed subdivision will be set out in more detail in the subsequent resource consent application.

3. Tangata Whenua/Mana whenua

The iwi who have rights and interests in the area are Ngāti Apakura are Ngāti Maniapoto, Raukawa and Waikato – Tainui. These iwi are represented variously by post-settlement governance entities and their subsidiaries.

Ngāti Maniapoto is represented by the Maniapoto Māori Trust Board, Raukawa is represented by the Raukawa Settlement Trust and Waikato – Tainui by Te Whakakitenga o Waikato Incorporated.

Mana whenua refers to the mana or 'authority' held by an iwi, hapū or whanau over the land, territory and/or resources of a particular area. The Resource Management Act 1991 provides that 'mana whenua' means customary authority exercised by an iwi or hapū in an identified area. This authority is passed down through whakapapa (genealogy) and is based on the settlement and occupation of, and continued use and control of natural resources within, an area.

Mana whenua is also used to describe the people who hold this authority, and who are also considered the kaitiaki (guardian/ caregiver, steward) of their particular area or takiwā.

3.1 Known history of the site and area

There are several narratives of particular events, ancestors and places for the Te Awamutu district, Rohe Potae (King Country) and wider Tainui rohe. Material presented at the Rohe Potae hearings of the Waitangi Tribunal (1990-2014) provide traditions activities relating to Te Awamutu.

4. Statutory Context

4.1 Resource Management Act 1991 (RMA)

The RMA is the primary statute which governs the use and development of natural and physical resources in New Zealand. It applies to all resources within New Zealand (including the coast), and to all people seeking to exercise rights, obligations or powers in relation to those resources. Māori values and world views are a feature of New Zealand's environmental regulatory regime and have an influential role in the management of New Zealand's natural and physical resources.

The primary Part 2 provisions expressly addressing Māori values require persons exercising functions under the RMA to:

- Recognise and provide for the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, wāhi tapu, and other taonga as a matter of national importance (section 6(e)).
- Recognise and provide for the protection of protected customary rights as a matter of national importance (section 6(g)).
- Have particular regard to kaitiakitanga (section 7(a)).
- Take into account the principles of the Treaty (section 8).

The RMA provisions require substantive and procedural recognition of Māori values. The substantive provisions (such as Part 2) recognise that Māori values and world views will influence the outcome of RMA decisions and are to be given practical effect in policy and planning instruments and consenting processes.

The RMA recognises the role of iwi management plans in the preparation of regional policy statements, regional plans and district plans. Iwi management plans are an important tool in informing the preparation and assessment of applications for resource consent and designations.

4.2 Heritage New Zealand Pouhere Taonga Act 2014

The HNZPTA provides for the identification, protection, preservation, and conservation of the historical and cultural heritage of New Zealand. It requires that modification or destruction of an archaeological site needs an archaeological authority and sets out penalties for the unauthorised modification or destruction of archaeological sites. It outlines the regulatory function for HNZPT to control activities that may modify or destroy archaeological sites, including archaeological research investigations. It is based on the presumption that sites are avoided in the first instance. However, it also requires HNZPT to manage activities affecting sites in such a way as to balance the benefits of land use and the interests of landowners, with the safeguarding of archaeological heritage.

To recognise and respect the Crown's responsibility to give effect to the Treaty of Waitangi, the HNZPTA contains specific provisions relating to the functions, powers and delegations of the Māori Heritage Council and processes relating to the archaeological authority process, including:

- information requirements for applications,
- determining applications relating to sites of interest to Māori including emergency authorities,
- notification of decisions,

- recommendations for exploratory authorities affecting sites of interest to Māori,
- having regard to any statutory acknowledgment,
- taking steps to prevent activities affecting archaeological sites from continuing without an authority, and
- appeal rights.

HNZPT has special obligations under additional statutes in relation to its administration of the archaeological provisions. These include the Marine and Coastal Area (Takutai Moana) Act 2011, and provisions for specific areas of statutory acknowledgement in settlement statutes. The HNZPTA also complements the RMA and the Protected Objects Act 1975.

4.3 Te Ture Whaimana - Vision and Strategy

Te Ture Whaimana o Te Awa o Waikato – the Vision and Strategy for the Waikato River is contained within Schedule 2 of the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 Act.

The Vision and Strategy is a key part of the settlements for the five river iwi; Tuwharetoa, Ngāti Maniapoto, Te Arawa River Iwi, Raukawa and Waikato. Te Ture Whaimana o Te Awa o Waikato is referred to in the iwi management plans of Raukawa and Ngāti Maniapoto.

The Vision and Strategy is the primary direction-setting document for the Waikato River and its catchments, which includes the lower reaches of the Waipa River. The Vision and Strategy for the Waikato River sets out an overall vision to restore and enhance the river. Within the series of objectives for the Vision and Strategy is,

i. **Objective A.** The restoration and protection of the health and wellbeing of the Waikato River.
ii. **Objective B.** The restoration and protection of the relationship of Waikato-Tainui with the Waikato River, including their economic, social, cultural, and spiritual relationships.
iii. **Objective C.** The restoration and protection of the relationship of Waikato River Iwi according to their tikanga and kawa, with the Waikato River, including their economic, social, cultural and spiritual relationships.
iv. **Objective D.** The restoration and protection of the relationship of the Waikato Region's communities with the Waikato River including their economic, social, cultural and spiritual relationships.
v. **Objective E.** The integrated, holistic and coordinated approach to management of the natural, physical, cultural and historic resources of the Waikato River.
vi. **Objective F.** Adoption of a precautionary approach towards decisions that may result in significant adverse effects on the Waikato River, and in particular those effects that threaten serious or irreversible damage to the Waikato River.
vii. **Objective G.** Recognition and avoidance of adverse cumulative effects, and potential cumulative effects, of activities undertaken both on the Waikato River and within its catchments on the health and wellbeing of the Waikato River.
viii. **Objective H.** The recognition that the Waikato River is degraded and should not be required to absorb further degradation as a result of human activities.
ix. **Objective I.** The protection and enhancement of significant sites, fisheries, flora and fauna.
x. **Objective J.** The recognition that the strategic importance of the Waikato River to New Zealand's social, cultural, environmental and economic wellbeing is subject to the restoration and protection of the health and wellbeing of the Waikato River.

xi. **Objective K.** The restoration of water quality within the Waikato River so that it is safe for people to swim in and take food from over its entire length.

xii. **Objective L.** The promotion of improved access to the Waikato River to better enable sporting, recreational, and cultural opportunities.

xiii. **Objective M.** The application to the above of both maatauranga Maaori and the latest available scientific methods

4.4 Te Rautaki Taiao a Raukawa

Te Rautaki Taiao a Raukawa, Raukawa Environmental Management Plan was prepared by Raukawa Charitable Trust in 2015. At 243 pages long it is a comprehensive articulation of Raukawa views and perspectives across a broad range of environmental matters. The plan is endorsed by the Raukawa Kaunihera Kaumatua and the Raukawa Settlement Trust (the ultimate Governance entity for Raukawa).

As a result of Treaty settlement negotiations with the Crown, a further re-organisation occurred and the Raukawa Settlement Trust (RST), the Raukawa Charitable Trust (RCT), the Raukawa Asset Holding Company (RAHC) and Raukawa Iwi Development Ltd (RIDL) were formed in 2010.

Te Rautaki Taiao a Raukawa is an environmental management plan for the purposes of the Tuwharetoa, Raukawa and Te Arawa River Iwi Waikato River Act 2010, Part II, sections 61, 66, 74 and 104 of the RMA, and incorporates the entirety of the Raukawa Fisheries Plan.

4.5 Ko Tā Maniapoto Mahere Taiao

The Maniapoto Environmental Management Plan (Plan) was prepared by the Maniapoto Māori Trust Board on behalf of the people of Maniapoto. For the purposes of Section 35A of the Resource Management Act 1991, the Maniapoto Māori Trust Board is considered an iwi authority for Maniapoto and the Plan is considered an iwi management plan. Geographically the Plan covers the Maniapoto rohe and is a high-level direction setting document and describes issues, objectives, policies and actions to protect, restore and enhance the relationship of Maniapoto with the environment. The Plan sets out that resource users and regulators will usually be required to assess the effects of a project on the matters covered in the Plan.

The following sections of the Plan are considered relevant to the proposal:

Part 10: Maniapoto Cultural Heritage

Objective 10.3.1: Recognition of the role of Maniapoto as rangatira and kaitiaki

To ensure Maniapoto participate at the highest level of decision making on matters that affect cultural heritage within Maniapoto rohe

Policy 10.3.1.1 - Maniapoto is involved at the highest level of decision making to ensure that cultural heritage in the Maniapoto rohe is protected and enhanced.

Objective 10.3.2: Wāhi tapu and sites of significance

To protect Maniapoto wāhi tapu and sites of significance from the adverse effects of activities

Policy 10.3.2.1 - Maniapoto wāhi tapu are protected from damage, desecration, or adverse effects.

Objective 10.3.3: Site management protocols

Site Management protocols are in place for all work sites that ensure wāhi tapu, kōiwi and taonga are treated in a respectful manner.

Policy 10.3.3.1 - Site management protocols are incorporated into site management plans ensuring site works manage the discovery of wāhi tapu, kōiwi and taonga in a respectful way.

Objective 10.3.4: Discovery of taonga and/or archaeological sites

To ensure procedures are in place to manage the discovery and accidental discovery of taonga and archaeological sites

Policy 10.3.4.1 - Appropriate guidelines are in place to undertake archaeological surveys and excavations (information and permission).

Policy 10.3.4.2 - A clear protocol is followed in the event of discovering taonga.

Policy 10.3.4.3 - The appropriate protocol is followed after the accidental discovery of archaeological sites.

Part 14: Fresh Water

Objective 14.3.1: Recognition of the role of Maniapoto as rangatira and kaitiaki of Ngā Wai o Maniapoto Ngā Wai o Maniapoto is healthy and enhanced to protect the relationship of Maniapoto and water bodies.

Policy 14.3.1.1 - To give effect to the rangatira and kaitiaki role of Maniapoto in co-governance and co-management frameworks for Ngā Wai o Maniapoto.

Policy 14.3.1.2 - Ngā Wai o Maniapoto continue to provide sustenance to Maniapoto (including physical and spiritual nourishment).

Policy 14.3.1.3 - Access to freshwater bodies to undertake customary activities and uses are enhanced and protected.

14.3.2 Objective: Water quality - Restore and enhance the mauri of Ngā Wai o Maniapoto and protect Te Mana o te Wai

Policy 14.3.2.1 - Water quality supports healthy ecosystem functioning.

Policy 14.3.2.2 - Restoration and protection of Ngā Wai o Maniapoto makes best use of resources and time.

Policy 14.3.2.3 - Indigenous aquatic ecosystems are restored and maintained

Policy 14.3.2.4 - Sedimentation is managed to protect and restore the mauri of water.

Policy 14.3.2.5 - Physical characteristics of waterways are enhanced and/or restored.

Part 15: Wetlands

Objective 15.3.1: Recognition of the role of Maniapoto as rangatira and kaitiaki of wetlands.

Wetlands are healthy and enhanced to protect the relationship of Maniapoto and wetlands

Policy 15.3.1.1 - To achieve Maniapoto representation at the council decision-making table on matters that affect wetlands.

Objective 15.3.2: Mauri of wetlands

To enhance and protect natural wetlands to produce an overall net gain in wetland area in the rohe as wetlands are restored

Policy 15.3.2.1 - The net area of wetlands increases with no loss of existing natural wetland area.

Objective 15.3.3: Mauri of wetlands

To ensure planning and regulations for land use adjacent to wetlands restores and maintains wetland health

Policy 15.3.3.1 - Adjacent land-use practices do not impact negatively on wetlands.

Part 18: Land

Objective 18.3.1: Unsustainable and inappropriate land use practices

Land management and land use enhance and protect the holistic functioning and interconnected relationships of the natural environment and are compatible with Maniapoto values and principles.

Policy 18.3.1.1 - Land management and land use are sustainable, and the mauri of land is protected and enhanced.

Objective 18.3.2: Recognition of the role of Maniapoto as rangatira and kaitiaki for land and associated resources

To ensure Maniapoto participate at the highest level of decision making on matters that affect the relationship of the people with catchments in Maniapoto rohe.

Policy 18.3.2.1 - Maniapoto engage and participate at the highest level of decision-making on matters that affect the people in the catchment.

Objective 18.3.3: Soil Conservation

To effectively manage the mauri of land and soils by reducing soil nutrient loss, nutrient leaching, and runoff to water bodies.

Policy 18.3.3.1 - Best practice land and soil management techniques are implemented to minimise erosion and soil degradation or loss because of land development and use.

Part 19: Natural Heritage and Biodiversity

Objective 19.3.1: Biodiversity - The diversity of natural heritage areas, habitats and ecosystems are preserved in a healthy state alongside more modified ecosystems to ensure indigenous species and subspecies maintain genetic diversity and viable population densities

Policy 19.3.1.2 - Indigenous biodiversity is maintained, restored, enhanced, and protected throughout Maniapoto rohe.

Objective 19.3.2: Landscapes - To protect and enhance significant cultural, spiritual, natural, and ecological landscapes, features, and locations in the Maniapoto rohe and to protect and enhance Maniapoto relationships and associations with these features.

Policy 19.3.2.1 - Activities and uses that adversely affect significant cultural, spiritual natural and ecological landscapes, features or locations in the Maniapoto rohe are avoided, and Maniapoto relationships with those landscapes, features or locations are maintained and restored.

Part 22: Infrastructure

Objective 22.3.1: Relationship

To avoid adverse effects of infrastructure on the relationship of Maniapoto with significant sites and resources.

Policy 22.3.1.1 - Maniapoto participate at the highest level of decision making for infrastructure development to enhance the relationship of Maniapoto with significant sites and resources.

Objective 22.3.4: Transport networks

To ensure transport infrastructure connects Maniapoto communities and enables industry and businesses to develop while minimising negative impacts on the environment.

Policy 22.3.4.2 - Transport infrastructure avoids unacceptable adverse effects on the environment.

Part 26: Tourism and Recreation

Objective 26.3.1: Tourism activities

To ensure tourism activities are sustainable and provides for environmental, social, cultural and economic wellbeing of Maniapoto while protecting Maniapoto sites and culture

Policy 26.3.1.1 - Tourism in the Maniapoto rohe is operated in a manner that provides for environmental, social, cultural and economic wellbeing of Maniapoto while protecting Maniapoto sites and culture

Objective 26.3.2: Recreation Activities

To ensure recreation use and activities do not adversely affect the environment and facilities are available to provide for the reasonable needs of users, including supporting Maniapoto to restore and maintain their relationships with the environment.

Policy 26.3.2.1 - Recreation and associated facilities are managed to ensure that the environment is protected, that human health and safety is maintained and that Maniapoto can restore and maintain their relationships with the environment through recreation.

4.6 Tai Tumu Tai Pari Tai Ao

Tai Tumu, Tai Pari, Tai Ao (Waikato-Tainui Environmental Plan) covers a comprehensive list of environmental issues.

The plan was prepared by Waikato-Tainui Te Kauhanganui Incorporated, the mandated iwi authority at the time. The plan is a recognised iwi planning document for the purposes of the RMA (sec 35A), Waikato River Act (sections 40 & 94) and clause 9 of the Waikato-Tainui Deed of Settlement.

The Plan applies generally to the area populated by Waikato-Tainui marae including Manukau harbour in the north to Te Kuiti in the south, the west coast to Ngatira in the east.

The overarching purpose of the plan is to provide a pathway that will return the Waikato-Tainui rohe to the modern-day equivalent of the environmental state that it was in when Kiingi Taawhiao composed his maimai aroha.

5. Mana Whenua Consultation

Iwi engagement was conducted with members of Ngati Apakura reaffirmed following:

- Reaffirmed identity, whakapapa and enduring relationship with the whenua or land in Te Awamutu. The project area is of historic, cultural, and spiritual significance and important to iwi.
- Mana motuhake, rangatiratanga are key concepts underpinning how we exercise 'kaitiakitanga'. Through these concepts we demonstrate our authority of kaitiakitanga over the environment and its resources. They enable us to protect, enhance, restore, and utilise natural and physical resources appropriately.
- Freshwater is the source of all life. Protection and access to Mangapiko Stream, including protecting its heritage values should be upheld.

Mana whenua concerns regarding land management stem primarily from the effects of human activities. This relates to any development, mismanagement, unsustainable planning of land resources which has potential implications for water quality, aquatic biodiversity, habitat loss, heritage protection and the survival of indigenous flora and fauna.

Mana whenua considers all land within the rohe to be ancestral land. Even if they are not the 'owners' of the land they still have responsibilities and obligations as kaitiaki, therefore inappropriate activities that have adverse impacts on whenua, wai ora and heritage are not acceptable. Effective planning processes are needed for managing these effects.

6. Overview of Cultural Values and Issues

Mana whenua considers all land within Te Awamutu is ancestral land. Even if mana whenua are not the 'owners' of the land they still have responsibilities and obligations as kaitiaki, therefore inappropriate activities that have adverse impacts need to be addressed.

6.1 Heritage

An archaeological assessment of the entire Growth Cell T2, including historic maps and aerial photographs area has been undertaken by Warren Gumbley Archaeologists. No archaeological sites have been recorded on or adjacent to growth cell T2. The closest site is the pa site recorded as S15/86, S15/233 and the Otawaho Pa (S15/332). These pa sites are displayed in the following figure. The proposed rezoning and structure plan will not disturb or destroy any of these pa.

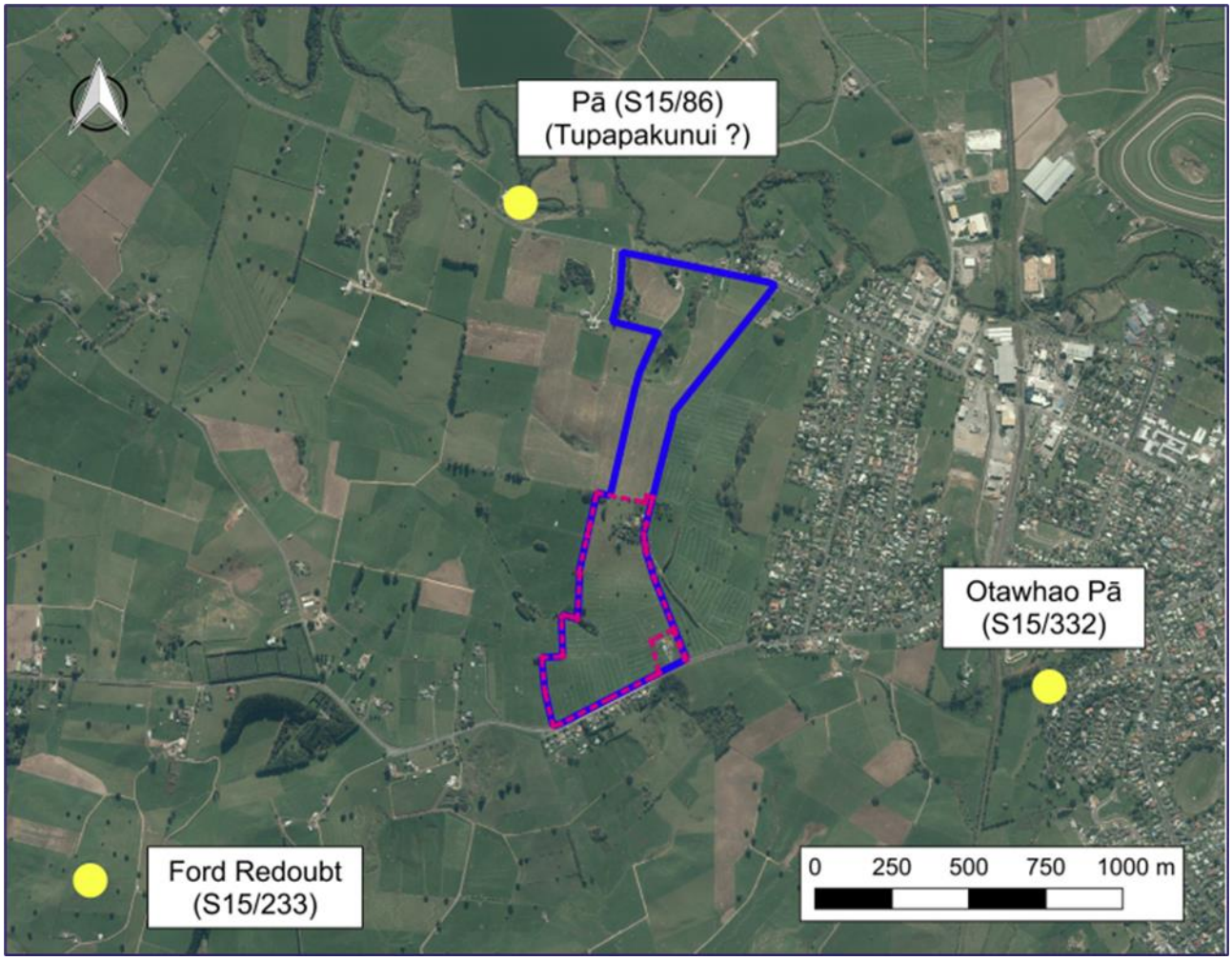

Figure 3: Recorded Archaeological Sites in the locality

A site investigation by Warren Gumbley was undertaken for the southern half of the growth cell and no evidence of archaeology was noted. A site investigation was not undertaken for the northern half of the growth cell. The archaeological report for this area notes that potential for archaeological sites within this area is considered to be low, however there is slightly increased potential for archaeological remains within proximity to Mangapiko Stream and the pa recorded as S15/86.

Mangapiko Stream is a watercourse of significance to iwi and the heritage overlay near Mangapiko confirms mana whenua expectations that all parties be committed to ensuring the appropriate protocols (tikanga and kawa) are followed throughout the project. Protocols need to be consistent with tikanga Māori.

The development does not involve any direct works within the Mangapiko Streambank that will compromise the cultural character and amenity or heritage values of the riverbank area.

Overall, the proposed rezoning will not have any heritage or archaeological effects, because it is expected that at the time of resource consent application for future development consent, conditions relating to accidental discovery and heritage will be imposed.

6.2 Ecological

Development on the site will result in removal of exotic and pest plant dominated vegetation and low ecological value natives on the site.

Vegetation on the site may cause impacts on nesting birds and their eggs during breeding season, loss of potential habitat and resources for lizards, there may be indirect impacts on long-tailed bats and loss of aquatic habitat and wetland habitat and potential mortality of native fish during stream works.

Mana whenua want to ensure the sustainable management and development of their environment. It is recommended that a process be established to develop a Taiao Environmental Management Plan. A number of wānanga could be established to ensure appropriate tikanga are established post the plan change including sensitive protection of information.

6.3 Landscape

No doubt any subdivision development will cause changes to the outlook of the surrounding locality. The level of effects is considered to be low because the primary visual effect will be the loss of the existing rural outlook. The LVA makes a number of recommendations to ensure that landscape and amenity values in the surrounding environment are maintained, which include;

- A buffer planting zone, building setbacks and shared pathways along the western boundary of the growth cell;
- Height restrictions for buildings and fencing along Frontier Road; and
- Requirements for specimen tree planting along Frontier Road.

Mana whenua assurances require….

6.4 Water, Wastewater and Stormwater

A water supply assessment was undertaken by WSP-Opus for the entire growth cell. It was concluded that there is adequate water supply in the Council system for the growth cell. A booster pump is required to provide adequate pressure for the demands within growth cell T1 and T2.

Stormwater Management Plan outlines treatment through two strategies for T2:

- Open swale system; or
- Centralised wetland.

Stormwater from the treatment devices and will then be discharged into the downstream receiving environment/catchment and makes its way to the Mangapiko Stream. The stormwater approach relates to the best practise design guidelines and overall stormwater management.

For T2 south, there are three main components to the wastewater system, being gravity reticulation network, wastewater pumping station and a rising main. Appropriate viable solution for wastewater reticulation within the growth cell and discharge to the existing wastewater network and treatment plant will apply.

Consistency should be applied when discharging into the Mangapiko Stream. Mana whenua expects alignment to report cards that have been developed, which is consistent with Waikato-Tainui aspirations of their Vision and Strategy (Te Ture Whaimana) for restoration of the health and wellbeing of the river and its people.

There must be a coordinated approach through the establishment of an advisory body comprising of mana whenua of the Mangapiko Stream to ensure an holistic approach is consistent with the desire of Ngaa Iwi Toopu o Waipa to keep intact the mauri of the Mangapiko in its entirety.

6.5 Geology

The geotechnical report concludes that the site is geotechnically suitable for the proposed rezoning and subsequent residential development. At the time of writing this report, further geotechnical investigations are required to provide a full understanding of the hazards and risks across the site.

Further engagement with mana whenua will be provided for during the resource consenting phase of the development.

6.6 Contamination

A Preliminary and Detailed Site Investigation has been prepared for the southern half of the growth cell, directly relating to the retirement village and residential subdivision finds the following:

- Mean concentrations of heavy elements in surface soils are below applicable standards across the site;
- Asbestos fibres are not present;
- Offal pits may be present near the former dairy shed adjoining the southern eastern boundary that may contain non-organic wastes;
- Elevated lead and zinc are present.

Overall, due to the potential for waste disposal pits to be encountered on the site during bulk earthworks the report recommends that contingency measures are adopted into earthworks management plans to manage the risks associated with these wastes if encountered.

Furthermore, these matters will be addressed at resource consent stage for bulk earthworks and future development on the site.

Mana whenua expects further engagement to ensure best practise methods and approaches will be upheld and applied.

7. Recommendations and Mitigation

Cultural and environmental issues raised by mana whenua, proposed mitigation, remedial or avoidance measures should be addressed through appropriate consent conditions.

Overall, it is considered that the proposed Sandersonss Group retirement village and Kotare Properties subdivision development will not be inconsistent with or have overly negative impacts on the cultural values associated with the area.

This is based on the view that adequate provision of the cultural values associated the area , including Mangapiko Stream overlay area will be provided for through appropriate measures.

Adequate construction particularly using stormwater retention ponds, as well as the use of accidental discovery protocols and the careful treatment of any springs is also considered critical.

Developing a landscape plan and considering a planned approach to the sourcing of native plants for landscaping are significant initial steps in the process going forward.

7.1 Kaitiakitanga – Guardianship

The protection of the Mangapiko Stream is essential. Assurances are required that wastewater discharge, storm water control, sediment control, culvert construction and associated impacts on fisheries and their migration is managed in accordance to best practice. An ongoing role for mana whenua is critical to any future work on proposed development. This includes the need to engage further around understanding infrastructure, detailed landscape design, cultural monitoring.

Recommendation 1: To establish, grow and maintain relationships with mana whenua by entering into working or formal relationships with mana whenua to oversee the implementation of the project and the relevant conditions and undertakings. This could also include facilitating economic and social development opportunities for mana whenua.

7.2 Whakapapa - Heritage

Whakapapa - heritage is important to mana whenua because it reaffirms identity and provides physical and emotional links to the past, present and future. This makes protecting heritage, cultural and traditions vital to continued cultural well-being.

Recommendation 2: Ensure that cultural protocols are established for not limited to: (a) observing tikanga before works commence. (b) The placement of cultural features within the development.

Recommendation 3: That an accidental discovery protocol (ADP) be implemented as part of any future consent granted/or work undertaken.

Recommendation 4: That any contractors involved in earthworks be given appropriate guidance on mana whenua tikanga and protocols including an understanding of the ADP which may be delivered by a mana whenua representative or designate, and that agreement is duly noted.

7.3 Ngā Wai Ora- Freshwater

Wai ora are considered taonga and require protection to maintain the special qualities they possess.

Recommendation 5: A cultural health indicator framework for water quality standards and water quantity take in relation to Mangapiko Stream be applied.

Where relevant and applicable, further support be provided via the restoration of wetlands and riparian margins in and around the local area in recognition of their purification role and for the improvement and protection of mauri.

7.4 Kotahitanga- Partnership

Partnership and communication are required during the PC12 process as well as future consents.

Recommendation 6: A partnership Kawenata be developed, agreed, and signed by mana whenua and Sandersonss Group Ltd and Kotare Properties.

8. Conclusions and Recommendations

This report provides a brief background to the purpose of PC12 and proposed retirement village and residential development, the methods undertaken , includes a brief analysis of relevant iwi management plan policies, a summary of key cultural issues, as well as potential mitigation opportunities to consider alongside this proposed future development.

Overall from a mana whenua perspective, it is considered that PC12 and the proposed development of the retirement village and subdivision will not be inconsistent with the relevant policies of iwi management plans or have overly negative impacts on the cultural values associated with the area.

Mana whenua desire to build a strong and meaningful partnership with Sandersonss Group Ltd and Kotare Properties on all aspects of the PC12 and future resource consents, to ensure accountability towards cultural environmental and holistic well-being.

Appendix 1 Māori customary practices and beliefs/tikanga

` Cultural Impact Assessment

Cultural considerations based on Māori customary practices and beliefs/*tikanga*

"Whatungarongaro te tangata, toitū te whenua

Man disappears but the land remains"

Haupai Puke

Reference: Request for Plan Change No. 12
Application to the Waipa District Council Growth Cell T2 Rezoning

Introduction

A Cultural Impact Assessment must include issues of historical importance concerning the proposed site to be developed. An archaeological assessment carried out for the adjoining Frontier Developments Growth Cell T1 begun in 2019, by Alexy Simmons focussed "on events and peoples associated with the general Structure Plan area, or who may have influenced activities in the area" (Simmons & Associates Ltd, 2015) and also provides context.

The study area: The area of development consists of Pirongia Road to the west of the site, Frontier Road to the south, and the western boundary of Te Awamutu township, known as the Growth Cell T2.

This report provides an assessment of:

1. the history of the land to be developed including
2. the Māori cultural values associated with the land to be developed,
3. any impact that the development may have on these cultural values, and
4. possible mitigations to alleviate any such impacts,
5. *tikanga/*customs and *kawa/*processes of the *iwi/*tribes upon whose traditional lands the development is to be undertaken.

An historical overview of the site to be developed

Ngāti Apakura and Ngāti Hikairo are identified as being the *iwi*/tribes of the Structure Plan area known as the Growth Cell T2 and often acted as one people (Simmons & Associates Ltd, 2015) although both are intimately connected through *whakapapa*/relationship. Information is provided by local European-authored histories (Roberton, 1966, pp.5-7) and confirmed by local *iwi/*tribes, where Thorne (2013, p.64) states the tribal boundary as "Following the Ōhaupō Ridge south including the lakes to the immediate east, until just north-west of Te Rahu, then south to Kaipaka on the Mangapiko Stream to down the Mangapiko Stream to Tūpāpakurua, then Tutupōrutu……."

In Gumbley's Archaeological Assessment of the Frontier Road site (2020), he identifies one of these *pā*/fortification sites as Tūpāpakunui (S15/86) but which has also been identified as Tūpāpakurua (Thorne). In the Summary of NZAA Recorded Archaeological sites it is noted as "A Ngāti Apakura pā on the north side of the Mangapiko Stream near the Te Awamutu sedimentation pond." "This might be the site of a series of battles between Ngāti Apakura and Ngāti Puhiawe, based on the information included in the site record in December 1965". Ōtāwhao Pā, as stated by Gumbley is 1.3 kilometres east of the proposed development. That distance was nothing to *iwi/*tribes in those days, used to walking what are not really long distances.

Roberton (1966, p.5) wrote of Ngāti Apakura being in the Waipā area by the 16 Century at Ngāroto, Pāterangi, Te Rore, Pirongia, Ōhaupō and Rangiaowhia, spreading out on eventual prosperous lands. Between the Mangapiko Stream and the Puniu river is what is known as the Mangapiko Ridge, now Frontier Road. They occupied sites along the Mangapiko Stream and its tributaries, on lakes and areas alongside. There were always *kāinga/*settlements that were temporary when food-gathering on land and water, and *pā* /fortification sites river-lakeside and hillside for habitation.

> "There was no extensive settlement along the wetland and swamp areas, but these provided plentiful food sources for the iwi who inhabited the surrounding area. Hence a network of walking tracks along the ridgelines of the area would give easy access to these wetland food resources. It is highly likely that the present Pirongia Road and Frontier Road were constructed on foot pathways that formerly crisscrossed the area" (Puke, 2019, p.5).

Within the Growth Cell T1 is a wetland which is being developed to encourage wildlife to inhabit that area. **A similar project could be instigated by Sanderson Group Ltd and/or Kōtare Properties Ltd, as well as the naming of roads to commemorate the origins of the Growth Cell site.**

The relationship between Ngāti Apakura and Ngāti Hikairo and how they became separate is one that is intimately known by the people of Kawhia and Pirongia and features in carved story in the *wharenui/*meeting house at Purekireki marae. Indeed, traditionally, marriages in particular based on the custom of *taumau,*[1] occurred till the beginning of the 20th century. As is stated in Simmons & Associates Ltd (2015, p.5) "genealogical relationships and their role in preserving survival and prosperity have been demonstrated time and time again throughout history and are an intrinsic part of Māori cultural history".

Trading in this part of the Te Ika a Māui/The North Island began in Kawhia, being a coastal settlement, in the 1820s with flax growing and its many uses such as medicinal purposes, and ropemaking as a lucrative trade. Traders aplenty there were, and flax commerce thrived in the area. After the battle of Mātakitaki pā at Pirongia (Alexandra as it was then known) in 1822, refugees from there were taken in by other tribes in the area including Ngāti Apakura, notably Ngāti Raukawa, Ngāti Maniapoto, Ngāti Kauwhata, Ngāti Ruru, Ngāti Kōura and Ngāti Waenganui amongst others. For example, Paewaka, who was closely related by marriage ties to Ngāti Apakura built Ōtāwhao Pā at Wallace Terrace. "This was the origin of Ngāti Ruru at Ōtāwhao" (Roberton,1966, p.6) as the later township of Te Awamutu was then known. The sudden increase in population, customs, leadership etc. all resulted in small and large conflicts between the hosts and the refugees, eventually culminating in changes in the settlement pattern of Ngāti Apakura.

The Māori settlements noted by Europeans that were in the general proximity of the Structure Plan area, included Ōtāwhao Pā and Kaipaka Pā at the junction of the Mangaōhoi and Mangapiko Streams, the headquarters of Ngāti Rāhui *hapū/*subtribe of Ngāti Apakura. From here the Awamutu (*end of the navigable stream*) was an indefinite frontier with Ngāti Raukawa (later Ngāti Paretekawa) to the Puniu River which formed the southern boundary connecting to the Waipā River. The Ōtāwhao Mission and Farm in present-day Gorst Avenue, does not extend west to the Structure Plan area, but it does border the Mangapiko Stream which would have served as a significant transport corridor for the Mission station.

[1]***Taumau*** the act of appropriating land either by discovery, or absence of ownership; maintaining a tribal or family relationship through marriage (Williams, p. 400).

Furthermore, as the inland population increased, bringing European traders and settlers, intermarriage between Māori and Pākehā occurred, and with it new ideas such as growing and milling wheat and lifestyles, as well as European clothing. Those were the heydays of cultivations and enterprise by Māori in the Waipā area, principally through provision of food supplies to Auckland. The crossing of the Mangatāwhiri line and subsequent sacking of Rangiaowhia in 1864 affected Māori aspirations for continued prosperity from this provision of food items to the increasing numbers of settlers in Auckland from England and Europe. Redress is in the process of being sought from the New Zealand Government by Ngāti Apakura for this travesty in 1864 and its subsequent effects still impacting to this day. Descendants of those early settlers in Kawhia, namely Cowell (Kaora), Payne (Pepine), Turner (Tana), Kent, and others, who brought with them new skills and knowledge, have predominantly remained in the district till recent times. As *kaitiaki/*guardians they maintain their cultural and spiritual values and roles over their *tupuna/*ancestral *awa/*rivers and *manga/s*treams, *roto/*lakes, flora and fauna, *whenua/*land, and *pā/*fortifications sites along the Mangapiko Stream, its tributaries and margins and the larger river of the Waipā.

The land where the Growth Cell T1 is situated once contained the Goodfellow Orchard (Simmons & Associates, 2015), having been purchased by Hugh and John Goodfellow after the military occupation of the land in the mid to late 1860s, thence being converted into a European style farm with the orchard established sometime prior to 1903. Simmons states that with knowledge of the history of the site "Consultation was carried out with Dr Rachel Darmody of Heritage New Zealand (HNZ) who advised that the orchard satisfied the criteria for an archaeological site under the Pouhere Taonga Act 2014" (p.1), and "If development of the orchard site is carried out an HNZ archaeological authority will be required for this work. Because the potential for discovery of buried pre-1900 archaeological deposits could not be totally ruled out it is recommended in the report that the earthworks for the development be carried out using an accidental discovery protocol" (p.1). **It is thus not unlikely that artefacts may surface in the preparation of ground-work of the site and Protocols for Archaeological Investigations must be followed**.

Concerns for the proposed situation resultant from the application

Significantly those prime lands mentioned in the last section have been taken over by varied farming practices which contribute to the country's gross product. Growth Cell T2 itself is situated in a prime locale within immediate distance of flourishing townships Te Awamutu, and further, Cambridge. Surrounding land features desirable aspects of two major bush-laden mountains, Pirongia and Kakepuku, part of the Alexandra Geological formation, known by Māori as Paewhenua, rich in lore and steeped in Māori tradition.

2.3 Table No. 2 Costs and Benefits Evaluation for Proposed Plan Change 2 Environmental

The following was noted: **There are no identified environmental costs.** It is assumed that the term 'costs' here is financially related. Evidence of the sustainability of the environment with regards to the proposed development will need to be clearly demonstrated when a Resource Application is submitted especially with regards to the Mangapiko Stream even though it is situated some distance away on the other side of Pirongia Road. *Iwi* as a partner to the application process hold a great concern for effects on the Mangapiko Stream. Influx from the Mangapiko Stream causes flooding to the Waipā River at its confluence at Pirongia which would endanger any future plans for a river-side walk esplanade in Pirongia township as per the proposed new concept plan. Any plan change should and will be tested for "acceptance by the community in a comprehensive manner."

References

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Thorne, F. (2010). Te Tahuanui: Ngāti Hikairo Heritage Management Plan 2010

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Consent Evaluation Report

Applicant:	Sanderson Group Limited & Kotare Properties Limited	**File No.:**	61 76 45A
Address of Site:	52 Frontier Road, Te Awamutu	**Project Code:**	RC25391
Application Number:	APP142118		

1 Introduction

Wainui Environmental Ltd has made application for resource consent on behalf of Sanderson Group Ltd & Kotare Properties Ltd (the joint applicants) to authorise earthworks activities and stormwater diversion and discharge associated with the development of a joint residential subdivision and retirement village at 52 Frontier Road, Te Awamutu. The specific resource consents sought from the Waikato Regional Council for the proposed activities are described as follows:

Reference Id	Activity Subtype	Activity Description
AUTH142118.01.01	Land - disturbance	To undertake Earthworks in association with a joint retirement village/residential subdivision development
AUTH142118.02.01	Water - stormwater	To divert and discharge stormwater in association with a residential subdivision and retirement village development

This report assesses the application for the consents outlined above and the associated effects and recommends whether consents should be granted for the proposed activities. The applications are for new consents.

The application doc ref# is **16989874**.

2 Background and Description of Proposal

2.1 General

For the most part, the following background information and description of the proposed activities discussed below are taken directly from the application with the agreement of the applicant.

Initially the entire site area was intended to be developed by Sanderson Group as a large scale retirement village complex, the plans for the retirement village have subsequently been down-scaled to cover the northern half of the site only with the planned retirement village development herein referred to as the Te Awamutu Country Club. Sanderson Group have subsequently entered into a joint development project with Kotare Properties Ltd with the southern half of the site now planned to be developed by this party for standard residential landuses.

The site subject to the proposed retirement village development is located within Growth Cell T2 as identified within the Waipa District Plan (WDP). This growth cell has been earmarked for future residential development with the site having a Deferred Residential zoning under the WDP, meaning that residential development is appropriate in this location, although not currently anticipated to occur within the immediate future. However, the applicant is also currently in the process of developing

applications under the Waipa District Plan to enable the planned development of the site within a more imminent timeframe.

It is the overall site development earthworks and permanent stormwater discharge activities associated with the establishment and operation of both the planned Te Awamutu Country Club retirement village complex and adjacent Kotare Properties residential subdivision development which are the subjects of these consent applications

2.2 Site Description

The site is located on the western outskirts of the existing Te Awamutu urban area accessed via Frontier Road and comprises an existing rural property currently utilised predominantly for dairy grazing purposes. There is one separate property located eastward between the subject site and the existing Te Awamutu residential development area comprising the property owned by Frontier Properties and forming the T1 growth cell as identified in the WDP. This site is currently subject to construction earthworks in anticipation of planned residential development. In this respect, the subject site will, in the near future be located on the immediate western boundary of the Te Awamutu urban area. Properties to the north, west and south of the site generally comprise rural land used for grazing purposes although an isolated row of around 20 existing residential properties is identified extending along the southern side of Frontier Road opposite the site.

As noted, the site is made up of two separate land parcels. The southern parcel (Lots 1 DPS 487281 – 15.68ha) comprises the larger parcel and comprises an entirely open pasture area utilised for dairy grazing purposes. The smaller northern parcel (Lots 2 DPS 487281 – 2.53ha) comprises a rural residential property containing the existing property owners dwelling and associated exotic specimen trees/landscaping. A large Waipa District Council (WDC) water reservoir is located within a parcel of Council owned land at the south eastern boundary of the site directly adjacent to Frontier Road.

Site topography comprises gentle to moderate slopes which generally fall westward from the ridgeline areas extending along the eastern and southern site boundaries towards the site drainage outlet on the western boundary. Site cover is almost entirely pasture other than a few exotic/farm trees scattered through the site with a localised stand surrounding the drainage outlet point at the western boundary and mature exotic specimen trees surrounding the existing dwelling.

The site location and key site features are outlined in Figures 1 and 2.

Figure 1

Figure 2

2.2.1 Drainage Hydrology

As noted, the site extends westward from the existing ridgeline features along the eastern and southern boundaries and in this respect generally comprises a wide basin which forms the very upper reaches of a tributary drainage catchment.

The site area can generally be split into three separate sub-catchment areas with runoff within each of these areas being limited to surface flows down the existing pasture slopes during/following any rain events only.

Drainage from the central site sub-catchment area drains across the pasture slopes to enter an existing artificial farm pond located at the western site boundary. During site visits undertaken in May and June, 2020 this pond feature was found to be entirely dry with a thick layer of cracked mud covering the pond surface with establishing weed growth – refer Figure 3. Nonetheless, the pond is understood to hold some water through the winter months which is likely fed by both surface runoff and groundwater seepage flows.

Figure 3 – Existing farm pond

The pond discharges to the downstream channel via an informal overflow channel/spillway which is set at a low level which only allows for shallow surface ponding to depths of less than 0.5m within the pond feature prior to overflow.

Drainage from the northern and southern sub-catchment areas occurs as surface runoff across the sites pasture slopes to enter the downstream channel directly below the central catchment farm pond outlet.

The drainage outlet channel at this point comprises the very upper reaches of a first order tributary which commences at the western site boundary extending through the rural farmland in a north westerly direction from the site. At the site boundary this channel comprises a small channel of around 0.5m wide to 0.5m deep with grassed banks/base being characteristic of an excavated/artificial drainage channel. During the site inspection the channel was observed to be entirely dry with no evidence of any recent flows – refer Figure 4.

Figure 4 – Site outlet watercourse

Immediately below the site boundary, the drainage channel passes through a farm culvert crossing to enter another on-line pond feature. At the time of inspection, this pond was again observed to be entirely dry with a thick layer of cracked mud covering the pond surface – refer Figure 5.

Figure 5 – On-line pond within downstream property.

Directly below this pond, the watercourse enters a wide, low gradient valley floor comprising a dairy grazing pasture environment. The watercourse extends north westward through this area as an incised, straightened drain feature of around 1m deep by 1m wide. Observations of this drainage channel observed shallow depths of ponded water with no noticeable flow and with an established weed coverage – refer Figure 6.

Figure 6 – Drainage channel below on-line pond.

The watercourse/drain extends north-westward through this farm-scape for around 2.5km to where it passes under Pirongia Road via a 1200mm culvert. Below the culvert the stream shortly enters another piped section where it is conveyed below an area of farm yards/sheds. The stream then discharges into the Mangapiko Stream approximately 3km below the subject development site. The Mangapiko Stream drains a large rural and urban (Te Awamutu urban area) catchment and flows westward flowing along a meandering course within an incised gully system eventuating in the Waipa River at Pirongia.

The tributary watercourse draining the site is not identified on the WRC water classification maps and hence defaults to a Waikato Surface Water classification under the Waikato Regional Plan (WRP). The Mangapiko Stream has an indigenous fish and trout fishery classification under the WRP.

Groundwater was encountered near the ground surface level within the gully floor with increasing depth extending up the site slopes. Stiff to hard clay/silt dominated site geology hence ground soakage was not considered suitable.

2.2.2 Ecology

As noted, the site comprises an almost entire pasture cover located on the western outskirts of Te Awamutu and with a broader rural landscape of open pasture land to the north west and south and hence presents minimal potential for any terrestrial ecological habitat values.

Aquatic habitat potential within the site is limited to the artificial pond feature located at the base of the central sub-catchment area. Based upon observations of this pond as comprising an artificial, shallow feature with only intermittent ponding along with the observed dry, artificial outlet channel below the site this feature is considered to provide very limited aquatic ecological values. The pond may provide for some limited functional values for capture/attenuation of rural runoff contaminants (sediment/nutrients) from the central sub-catchment area.

2.2.3 Archaeology

The Applicant has engaged W Gumbley to undertake an archaeological assessment of the site – refer Appendix E of the application. This assessment outlines that archaeological sites within the area have generally been found to be focussed around navigable waterways. The nearest recorded site of any significance is noted as comprising the Otawhao Pa located around 1.3km eastward of the site within the existing Te Awamutu urban area.

Neither review of historic documentation/aerial photos or the site inspection undertaken for this archaeological assessment has identified any site features or past activities of historic or archaeological significance.

2.2.4 Soil Contamination

A combined Preliminary/Detailed Site Investigation has been undertaken for the development site which is provided within the HAIL Environmental report attached as Appendix G of the application. Preparation of this report has included review of historic site information, field observations, soil sampling and analysis and makes the following conclusions.

'Mean concentrations of heavy elements in surface soils are at concentrations below applicable standards across both properties. Asbestos fibres are not present, in surface soils within the northern portion of the site. Accordingly, during and following development, no complete source-pathway-receptor contaminant linkages will be present.

Based on the revised conceptual site model, soil contaminants at the proposed Te Awamutu Retirement village development does not require any specific management or remediation to mitigate risks to human health.'

Despite these findings, the report identifies a potential that offal or waste pits may have been present within the site and hence recommends that contingency measures are developed for the earthworks to manage any potential soil contamination risks encountered. The report outlines that a controlled activity consent is required from Waipa District Council under the NES – Soil Contamination.

2.3 Proposal

The proposed development layout and associated works are outlined on the design plans included within Appendix B of the application and are summarised as follows.

2.3.1 General

As noted, the overall site development catchment will be split into two separate development types comprising the proposed Te Awamutu Country Club retirement village development within the northern half of the site and the Kotare Properties residential development within the southern half of the site.

Development of the retirement village activities will occur across an approximate 9.45ha area and will involve establishment of around 98 retirement units/dwellings, aged care facility/dementia unit and communal club house facilities along with associated roading and service infrastructure.

Development of the residential development will occur across an approximate 8.76ha and will involve establishment of 105 residential lots ranging from 500m^3 to 700m^3 along with associated roading and service infrastructure including a central reserve area containing a proposed stormwater management wetland device.

2.3.2 Earthworks

The proposal is to undertake bulk cut to fill earthworks followed by civil construction activities to establish the proposed development surfaces, roading network and service infrastructure within the development site. It is proposed that the Kotare Properties Ltd subdivision earthworks will occur this summer season with the Te Awamutu Country Club retirement village site likely to occur the following season. Hence, the works will essentially be staged in two separate seasons.

The overall extent of earthworks is outlined on the updated cut/fill earthworks plan (WRC Doc# 17248698). The earthworks will extend across the entire site area comprising a total area of 18.2ha and will generally comprising cutting from the elevated ridgeline/hilltop areas located around the southern, eastern and northern parts of the site with the placement of fill generally focussed within the localised gully within the central/western part of the site. Filling within this area is also noted as extending into the adjacent Thompsons property to the west to tie into the existing land contours within this area.

In addition to the fill area described in the original AEE extending across the western boundary into the Thompsons land, two additional areas of cut are also now proposed extending into the Thompsons land including a narrow sliver on the northwest boundary (1,500m3) and a larger area on the northern boundary (5,000m3) (refer to WRC Doc# 17248698). The applicant has received the written approval from this land owner to undertake these works on their property.

The cut/fill volumes within the Sanderson Retirement Village block has increased marginally from the volumes outlined in the WRC AEE from 221,000m3/157,000m3 up to 230,000m3/165,000m3;

Overall earthworks volumes are noted as comprising approximately 300,000m^3 of cut and 215,000m^3 of fill. Allowing for a suitable compaction factor for placed fill material along with placement of landscape fill the intention is that a cut/fill balance will be achieved across the site. However, in the instance that surplus fill volumes are encountered, these will be disposed of to a suitable, authorised off-site disposal site. Maximum cut depths are specified as around 11.4m and fill depths of 8.9m.

The plan includes some works extending across into the DMC/Frontier properties land to the east to tie into the contours on their development comprising approx. 8,000m3. Mr Steven Green is aware of these works and in discussions with the applicant over these works to confirm design details. The applicant has discussed this with him and he raised no issues and this area is already covered by the earthworks consent for their site.

Following site clearance (fences, existing dwellings etc), earthworks activities will commence comprising installation of erosion and sediment control measures followed by stripping of topsoil. Topsoil will either be stripped to perimeter bunding or to temporary stockpile locations. Bulk earthmoving can then

commence with the activities being undertaken by a combination of excavators, motor scrapers, tractor scoops, bulldozers, trucks and compactors.

Upon achieving the design earthworks contours, the finished surfaces will either be re-topsoiled (housing/reserve areas) and subject to re-grassing or covered with a layer of aggregate (road surfaces). Service trenching and installations will continue generally extending along the road alignments and will again be stabilised upon completion.

The site development earthworks are planned to commence in the summer 2020/21 season for the Kotare Properties Ltd and should be able to be completed within a single earthworks season.

Best practice erosion and sediment control measures are proposed to be implemented throughout the duration of the earthworks activities in accordance with the WRC Erosion and Sediment Control Guideline document with the proposed measures outlined on the preliminary Erosion and Sediment Control Plan (ESCP) contained within Appendix C of the application.

2.3.4 Stormwater

The proposed site development activities will result in the conversion of the existing site pasture slopes into areas of new impervious surfaces associated with the proposed retirement village/residential development including the development of dwellings/buildings and associated hard stand surfaces along with creation of the roading network and footpaths within the development site. Stormwater runoff from these surfaces will need to be captured and conveyed via a stormwater management system incorporating appropriate measures to manage the potential effects from these discharges within the site receiving environments.

The details of the proposed impervious surfaces anticipated within the development area which have formed the basis of the proposed stormwater system design are outlined within the Stormwater Management Plan (SMP) document included within Appendix D **of the application** and are summarised within Table 2 as follows.

Development Area	Impervious Surface (%)	Total Area (ha)	Impervious Area (ha)
Kotare Residential	Development Areas – 70% Reserve Area – 40%	8.8	5.6
Te Awamutu Country Club	70%	9.4	6.6
Total Impervious		**18.2**	**12.2**

Table 2 – Development Impervious Surfaces

The stormwater management system for managing runoff from these surfaces has been developed based upon the considerations and methods outlined within the WRCs Waikato Stormwater Guideline 2020 (TR2020/07) and the Waikato Regional Infrastructure Technical Standards 2018 (RITS) and including consideration of the downstream receiving environment characteristics and values. In this respect, the key philosophies guiding the proposed sites stormwater system design are as follows:

The stormwater management system has been designed to:

- Provide water quality treatment,
- Attenuate post-development peak flows to pre-development peak flow rates, and
- Provide extended detention.

Retention of initial abstraction has not been provided as the applicant has assessed the downstream watercourse and has determined that the potential for erosion and scour effects is low in the main receiving environment downstream of the second existing ponding area (refer to Section 3.2 of the SMP) which is considered acceptable under the WRC Stormwater Management Guidelines.

Based upon these key philosophies the proposed stormwater management system comprises the following measures:

- Catchment flows from the residential development, a portion of the existing Frontier Road carriageway at the southern site boundary and 4.9ha of the retirement village is to be piped to a wetland located in the central reserve area. The wetland has been designed to provide WQ, ED and to peak flow control for the 2- and 10-year ARI events. The wetland discharges to the existing downstream channel. The wetland will be bested in Waipa DC.

- Catchment flows from the remainder of the retirement village (4.4ha) is to be directed to a planted treatment swale extending along the western site boundary of the retirement village. The swale is designed to provide WQ and ED. At the southern end of the swale the WQ and ED flows will discharge via an outlet into the site outlet channel below the proposed wetland device outlet. Larger flows will be diverted to the wetland for attenuation of the 2- and 10-year ARI event peak flows. The swale will be a private device owned and maintained by the retirement village.

- Energy dissipation / outfall erosion control structures are proposed at the outlet of the proposed wetland and swale.

- Secondary overland flow paths will be provided via the roading network, these flows are proposed to be conveyed to the downstream watercourse.

The specific design basis, methods and plans for the proposed stormwater management networks are outlined within the SMP document included within Appendix D **of the application**.

The subject stormwater discharge consent seeks to obtain authorisation from the overall development catchment which incorporates both the residential subdivision and retirement village development areas, to the downstream receiving environment. This configuration presents some complexities in terms of the long-term ownership/operation of the stormwater management system and associated consent as follows:

- The entire residential development stormwater network and proposed stormwater management wetland device will initially be constructed and established by Kotare Developments Ltd however in the long term will be vested with the Waipa District Council water assets team for operation and maintenance;

- The entire retirement village development stormwater network will be constructed and operated by Sanderson Group. Part of this network will discharge directly into the Kotare Developments/Waipa DC wetland device for treatment/attenuation. Part of the network will discharge into the western swale for treatment/detention which will be constructed and operated by Sanderson Group, however with peak flow discharges occurring to the Kotare/Waipa DC wetland for attenuation.

Based upon this combined catchment stormwater management approach, the applicant considers that it is appropriate that a single stormwater discharge consent is obtained as proposed to authorise stormwater discharges from the overall development catchment to the downstream receiving environment. It is suggested that upon completion and establishment of the stormwater management system and following a suitable defects liability/maintenance period, the stormwater wetland device located within the central public reserve area will be subject to partial transfer to the Waipa District Council to authorise those discharge activities. The remainder of the development catchment comprising the portion of the retirement village discharging via the proposed treatment/detention

swale will retain authorisation under the balance of the consent authorisation and will be held by Sanderson Group for long term operation, maintenance and compliance responsibilities.

3 Status of Activities under the Plans

The consent activities applied for are regulated through the Waikato Regional Plan (WRP). The WRP became operative on 28 September 2007 therefore no other plans apply. The status of the activities under the WRP are described below:

3.1 Earthworks

The proposed subdivision earthworks activities at the site do not extend into any specific areas which would comprise High Risk Erosion Areas as defined in the WRP. However, considering the scale of the earthworks, a potential remains that any discharges which may occur from the site will be unable to adhere to the WRP permitted activity standards in terms of specified maximum suspended solids allowances. Hence, the earthworks are to be considered as a Discretionary Activity in accordance with Rule 5.1.4.13 of the WRP.

3.2 Stormwater Diversion and Discharge

The discharge of stormwater from the completed development surfaces to the tributary watercourse will occur from an urban catchment area catchment in excess of 1ha and thus cannot comply with WRP permitted activity requirements. The activity thus requires resource consent authorisation as a discretionary activity pursuant to rule 3.5.11.8 of the WRP.

3.3 Stormwater Diversion and Discharge

Waipa District Plan

As noted, the subject site is located within Growth Cell T2 as identified within the Waipa District Plan (WDP). This growth cell has been earmarked for future residential development with the site having a Deferred Residential zoning under the WDP, meaning that residential development is appropriate in this location, although not currently anticipated to occur within the immediate future.

The Applicant has lodged a joint plan change and land use consent application under the Waipa District Plan concurrently to these applications to initiate the planned urban development activities within the site in accordance with the longer term land-use provisions currently anticipated by the Waipa District Plan.

4 Consultation/Affected Party Approvals

4.1 Iwi

The subject site currently comprises a highly modified open pasture environment with no distinguishing features, aquatic habitat values or known archaeological values. Similarly, downstream receiving watercourses are considered to comprise highly modified watercourses with limited ecological values. Considering these characteristics of the site along with proposed site management methods, the subject activities are considered to present a low risk that the proposed activities will result in in any cultural, spiritual or archaeological effects that would be of interest or concern to local tangata whenua.

Consultation has been ongoing with representatives of tangata whenua for this area Nga Iwi Toopu O Waipa (NITOW) who are generally supportive of the proposed activities but at this time have not provided a written approval for the proposal. It is not clear when a written response will be provided as the plan change process is also some time off in the following year. However, the current proposal is

not indicating any potential adverse effects with respect to cultural/spiritual values at the site and there are no specific concerns that have been raised during the consultation to date. In addition, the consultation with tangata whenua will be ongoing and there will be further opportunity through the WDC plan change process for them to raise any issues - though not anticipated.

4.2 Neighbours

Frontier Developments Ltd

These neighbours comprise the party currently undertaking the large scale residential activities on the adjacent site to the east which is currently subject to large scale development earthworks (the T1 growth cell development site). The applicant has been in consultation with this party regarding subdivision layout/development interfaces along the eastern site boundary to ensure appropriate outcomes in accordance with the growth cell plans. However, this property currently comprises an open pasture/earthworks site with drainage occurring via a separate catchment which flows northward through their land towards Pirongia Road. In this respect, any potential adverse effects upon this party or their land arising from the subject earthworks/stormwater discharge activities which are the subject of these applications will be less than minor.

PH/SB/TL/YM Thompson

These parties comprise the owners of the largescale farming block located directly westward and downstream of the subject site. As discussed in Section 2.3.2 of this report, the application is proposing an area of earthworks which extends across the western site boundary into this property which is required to tie the proposed site development earthworks into the adjacent land contour. This property also encompasses the existing catchment drainage channel which will receive all earthworks and post development stormwater runoff from the site.

It is also noted that this party comprises the landowner of the property to the north of the site which is limited to open pastureland.

This party has provided their written approval to the proposed development activities.

29 – 67 Frontier Road

These properties comprise the 19 residential properties located opposite the site's southern boundary across Frontier Road. The dwellings within these properties are located at least 30m away from the site boundary, separated by the Frontier Road reserve. The earthworks design along the southern boundary generally comprises minimal depths of cut to fill and hence are not expected to occur for any extended duration which may present a risk for any persistent dust effects. Furthermore, the application proposes the implementation of best practice dust control measures (refer section 6.1.2) which if implemented effectively are considered appropriate to ensure that no nuisance dust effects occur beyond the site boundary. On this basis, the potential for any adverse effects upon these properties from the subject activities is considered to be less than minor.

4.3 Waipa District Council

As noted above, plan change and resource consent application documents have recently been lodged with the Waipa District Council to authorise the planned development activities within the site. Nonetheless, direct consultation has also been undertaken with Waipa's Development Engineer for this project in regards to the proposed stormwater management design on the basis that the development proposes some stormwater assets which will eventually be vested with this party for long term ownership/maintenance responsibility. This party has confirmed that they are aware of the proposed

stormwater management design for the development including the proposed central wetland device which is proposed to eventually be vested with this party and that this proposed management regime is typical and anticipated for the development. A copy of the correspondence received from this party is attached within Appendix H of the application.

Overall, there are no parties that are considered to be adversely affected by the proposed earthworks/stormwater activities which have not provided their written approval.

5 Process Matters

Resource consent application 142118 was received as complete on 7 August 2020. The application was placed on hold under s92(1) RMA for further information and taken off of hold on 3 September 2020 upon receipt of final information. There were no further processing matters of note.

Date	Process Detail
07/08/2020	Lodged
20/08/2020	S92(1) RMA Hold
03/09/2020	Active
23/09/2020	S37A(4) RMA timeframe extension

6 Statutory Considerations

The application was lodged on 7 August 2020 and therefore all amendments to the RMA apply. For the purposes of decision making the application is further assessed as a discretionary activity. It is also considered in accordance with section 104B of the Act which has regard to the determination of applications for discretionary and non-complying activities.

Section 104 Consideration of Applications
In summary, subject to Part 2 the following matters in Section 104(1) of the RMA are relevant to the consideration of the proposal.

"(1) When considering an application for a resource consent and any submissions received, the consent authority must, subject to Part 2, have regard to –

- *a) any actual and potential effects on the environment of allowing the activity; and*
- *b) 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; and*
- *c) any other matter the consent authority considers relevant and reasonably necessary to determine the application."*

The following statutory instruments and policy documents have been considered in the evaluation of this application:

- Resource Management Act (1991) (RMA);
- Waikato-Tainui Raupatu (Waikato River) Settlement Claims Act 2010;
- Waikato Regional Policy Statement (2016) (RPS);

- National Policy Statement for Freshwater Management 2020;
- Waikato Regional Plan (2007) (WRP);
- Healthy Rivers/Wai Ora: Proposed Waikato Regional Plan Change 1;
- National Environmental Standards for Freshwater 2020.

Due consideration has been given to Section 104 of the RMA. The actual and potential effects have been discussed in the sections below along with measures being taken to avoid, remedy or mitigate these effects.

Section 105
Furthermore, in relation to any discharge permits, Section 105(1) requires that the consent authority must have regard to a number of additional matters as follows:

> *"(1) If an application is for a discharge permit or coastal permit to do something that would contravene section 15 or section 15B, the consent authority must, in addition to the matters in section 104(1), have regard to—*
>
> *(a) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and*
>
> *(b) the applicant's reasons for the proposed choice; and*
>
> *(c) any possible alternative methods of discharge, including discharge into any other receiving environment.*

Section 107
Furthermore, Section 107 states that a consent authority shall not grant a discharge consent where the discharge may cause any of the following after reasonable mixing:

(a) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials:
(b) Any conspicuous change in the colour or visual clarity:
(c) Any emission of objectionable odour:
(d) The rendering of fresh water unsuitable for consumption by farm animals:
(e) Any significant adverse effects on aquatic life.

6.1 Assessment of Environmental Effect (s104(1)(a))

Existing environment
Section 104(1)(a) provides that when considering a consent application, the consent authority must, subject to Part 2, have regard to the actual and potential effects on the environment of allowing the activity.

The 'environment' as applicable to this particular proposal is recognised as modified agricultural land with gentle to moderate slopes which generally fall westward from the ridgeline areas extending along the eastern and southern site boundaries towards the site drainage outlet on the western boundary. Site cover is almost entirely pasture other than a few exotic/farm trees scattered through the site with a localised stand surrounding the drainage outlet point at the western boundary and mature exotic specimen trees surrounding the existing dwelling.

Permitted baseline
Section 104(2) provides that when forming an opinion about the actual or potential effects of the activity, the consent authority may disregard an adverse effect of the activity on the environment if the regional plan permits an activity with that effect.

There are no permitted activity baseline effects relevant to the applications and as such none have been discounted.

Actual and potential effects:

The key environmental effects which should be considered are:

The key environmental effects which should be considered are:

- Water quality effects from sediment discharges during earthworks;
- Effects of dust discharges;
- Ecological effects;
- Exotic weed invasion;
- Cultural and archaeological effects; and
- Catchment hydrology and water quality/quantity effects from stormwater discharges post development.

6.1.1 Water Quality Effects from Sediment Discharges during the Earthworks

Soil disturbance activities increase the potential for erosion and destabilisation effects and have the potential to discharge sediment into waterways both during and after the works until the ground surface is stabilised. Sediment discharges to water can cause a range of adverse effects on fresh water and marine ecosystems, including smothering aquatic life, damaging fish and invertebrates' gills, destruction of spawning grounds, and the deposition of nutrients to waterways. Increased turbidity can interfere with aquatic animal's abilities to feed due to poor visibility and reduced light penetration can reduce photosynthetic activity.

The applicant has provided a *'Preliminary Erosion and Sediment Control Plan*' as prepared by Wainui Environmental Ltd in Appendix C of the application, which outlines the high level concepts that will be undertaken to control and mitigate any potential adverse effects from earthworks activities. The ESCP has been assessed by Waikato Regional Council (WRC) staff, who consider that the plan has been prepared in general accordance with WRC's publication, '*Erosion and Sediment Control – Guidelines for Soil Disturbing Activities, January 2009'* (TR2009/02) which sets out the general methods that the WRC advocates to address the above mentioned erosion and sedimentation effects.

The methods proposed to manage these effects and the residual environmental risks/effects associated with the earthworks activities are discussed as follows.

Erosion and Sediment Control Methods

The methods proposed to manage the potential erosion and sediment effects of the earthworks activities are outlined within the preliminary Erosion and Sediment Control Plan (ESCP) document included within Appendix C of the application. This plan has been developed in general accordance with the best practice methods outlined in the Waikato Regional Councils 'Erosion and Sediment Control Guidelines for Soil Disturbing Activities' (TR2009/02).

Based upon the nature of the site topography as comprising a large scale open basin feature with open gradient, moderate terrain, the planned approach to erosion and sediment control is relatively simple comprising establishment of perimeter bunding/diversion channel around the site/catchment boundaries with all runoff from exposed earthworks surfaces diverted to the design sediment control devices for treatment prior to discharge to the single site outlet point comprising the highly modified farm watercourse discharging at the western site boundary.

The proposed approach to erosion and sediment control outlined in the preliminary ESCP document is summarised as follows:

- Provision of perimeter diversions in the form of compacted topsoil bunds to capture and divert earthworks runoff to the design sediment control devices;

- Provision of SRP1 which comprises a large scale SRP device to be formed within the footprint of the permanent stormwater wetland device at the western site boundary. This SRP is identified as providing sediment treatment for a design catchment area of 15ha which is noted as exceeding the maximum SRP catchment area specified in the TR2009/02 Guideline. However, in this instance this increased catchment area allowance is considered acceptable for a number of reasons as follows:

    - The permanent stormwater wetland is expected to be able to be formed to its full capacity as the first earthworks activity within the site area with a specified methodology within the preliminary ESCP for implementation of this large device. Once established, the wetland has a design capacity of 6480m^3. This volume represents a volume of around 4.5% of the contributing catchment area significantly exceeding the typical 3% design capacity required through TR2009/02 through provision of an approximate additional 2,000m^3 of storage;

    - The design for this SRP proposes the implementation of silt fence baffles to be installed across the invert of the device to further increase flow lengths and to reduce the potential for any potential wind effects associated with the increased SRP surface area to contribute to reduced settlement within the main pond basin or wave action effects on the pond batters;

    - This increased catchment area (again up to 15ha) approach has been implemented on the directly adjacent Frontier Developments site and has proven to be highly effective in managing potential sediment discharge effects from the enlarged development catchment earthworks activities;

- Provision of DEBs/silt fences for any smaller catchment earthworks areas within the site which are unable to drain to the main SRP devices;

- Provision of chemical flocculation of all SRP and DEB devices if proven effective in treating site soils;

- Implementation of erosion control measures including contour drains and progressive stabilisation to minimise the potential for erosion/sediment generation effects during catchment storm events.

A key aspect of the proposed activities will be to programme these works to be undertaken during the summer construction between October to April to avoid the wetter winter months where saturated site conditions leads to increased levels of runoff of potential for erosion and sediment discharges to occur.

In the event that site runoff/discharges do occur, the methods outlined in the preliminary ESCP document are considered to be representative of best practice methods for control of these types of activities. These types of controls (flocculated best practice SRPs/DEBs) are generally considered capable of achieving treatment efficiencies in the order of 85 – 95% and hence are considered to comprise effective methods for ensuring that any potential sediment discharges are minimised to the greatest extent possible over the duration of the earthworks activities.

The effective management of sediment discharges from the site is reliant on robust monitoring and maintenance of the specified erosion and sediment control devices throughout the duration of these activities. In this respect, the preliminary ESCP outlines robust methods for monitoring of weather forecasts throughout the works and regular inspections and maintenance of devices including

immediately prior to and following any rain events that occur to ensure their effective function at all times.

On completion of the earthworks in each part of the site, the finished surfaces will be progressively stabilised with roading aggregates being placed across the completed road subgrade surfaces and with the road batters and lot surfaces being stabilised through topsoiling and either grassing or landscape plantings. Where more rapid stabilisation is required, this will be achieved with application of hay mulch. Progressive stabilisation of the site surfaces will ensure that the duration of soil exposure is minimised and hence the risk of any sediment runoff effects is reduced.

To summarise, the proposed erosion and sediment control measures and methodologies outlined within the preliminary ESCP document are considered appropriate to confirm that best practice techniques can and will be implemented at the subject site and if implemented effectively, will ensure that any potential sediment discharge effects from the earthworks will be minimised to levels to ensure that any residual effects are no more than minor within downstream receiving environments. A consent condition has been included in the attached consent certificate requiring the submission and approval of a finalised ESCP which can be developed in consultation with the site contractor to confirm the finalised detailed design and layout of all erosion and sediment control measures prior to works.

Receiving Environment Effects

Treated runoff from the site will discharge from the proposed treatment devices into the ephemeral tributary watercourse/drain at the western site boundary.

While the proposed erosion and sediment control measures will ensure that the majority of mobilised sediment particles are retained on site, it is possible that some fine particulate and suspended colloidal material arising from the site earthworks will make their way into the receiving environment should any significant storm events be encountered. Within the receiving environment these discharges have the potential to result in adverse effects on water quality and aquatic ecology including the abrasive and smothering effects of fine sediments on aquatic organisms and habitats and the discolouration of water affecting visual feeder species as well as aesthetic and recreational values.

The immediate channel below the site comprises an intermittently flowing surface flow path with no aquatic habitat values, Furthermore, this channel also quickly enters an on-line, ephemeral farm pond feature which is likely to provide some further level of catchment buffering/settlement in the event that any sediment discharges do occur.

Below this feature, flows enter the heavily modified farm drainage watercourse which is again considered to present limited habitat and reduced water quality values based upon the surrounding agricultural landuses and past modifications. In this respect, while it is considered likely that elevated levels of sediment will discharge from the site during any significant storm events, it is considered that aquatic ecology within this watercourse will be tolerant to these intermittent, short term sediment discharges and based on the implementation of proposed erosion and sediment control measures these discharges within aquatic receiving environments will be no more than minor. Within the eventual Mangapiko Stream receiving environment approximately 3km below the site, any treated earthworks discharges are expected to be easily assimilated within the broader, large catchment flows and will not result in any noticeable increase in suspended solids levels. Some temporary/intermittent contribution to cumulative catchment sediment effects should however be anticipated.

Provided the proposed soil disturbance activities are undertaken in accordance with the Waikato Regional Council publication *'Erosion and Sediment Control Guidelines for Soil Disturbing Activities, January 2009'*, and as per the final approved *'Erosion and Sediment Control Plan,* I consider that the actual and potential adverse soil disturbance effects will be temporary and no more than minor. I have also recommended a series of conditions to minimise and/or avoid adverse effects on water quality

including the implementation of additional erosion and sediment control measures. It should be noted that ultimately the success of any erosion and sediment controls will require comprehensive planning and regular inspections and maintenance of sediment/erosion control devices.

To avoid fuel discharges entering any downstream water body during the proposed works, conditions have been included requiring that all machinery is operated in a manner which ensures spillages of fuel, oil and similar contaminants do not eventually enter downstream farm drain to the Mangapiko Stream.

6.1.2 Dust Effects

Sites where ground cover is removed and soil disturbed have the potential to discharge dust. The severity of dust discharges are determined by factors such as wind strength, soil type, size of area exposed and moisture content of soil.

Some of the adverse effects, which can result from dust discharges include:

- Potential health effects from breathing dust particles.
- Nuisance effects, which can result from dust settling on surfaces such as cars, houses and household washing.
- Visibility effects, which can result from dust clouds moving offsite.
- Effects on plants, which can result from dust deposits. These effects can include reduced palatability of pasture and reduced photosynthesis due to reduced light penetration.

The land holdings to the west and north of the site comprise open rural pasture land with no dwellings present which could be prone to adverse dust effects. The land to the east comprises the large Frontier Developments site which is currently subject to large scale construction earthworks activities and with no dwellings to be established within the part of this development adjacent to the subject site for a number of years. In this respect, no potential is considered to exist for potential adverse dust effects upon these properties.

As noted, southward of the site across Frontier Road is a row of existing residential dwellings with the nearest dwellings located at a distance of around 30m from the development site boundary, thus presenting a potential that nuisance dust effects may arise from the site earthworks activities should dry, windy conditions be encountered. In response to these potential effects, the applicant proposes that best practice dust effects will be implemented over the duration of the earthworks activities on site with the specific details of the dust management regime for the site to be confirmed within a detailed Dust Management Plan to be developed in conjunction with the site contractor for approval prior to the commencement of the earthworks activities. The key dust management methods to be addressed within this detailed Dust Management Plan will include:

- Implementation of a pro-active approach to monitoring of potential dust risks through monitoring of weather forecasts and soil conditions and ensuring that any works in proximity to sensitive dust receivers are appropriately programmed to minimise dust effect risks;

- Monitoring of all works activities to ensure that in the event that potential dust generating conditions are identified, appropriate control measures are implemented to manage these risks;

- The primary dust control method will comprise water suppression through spreading of water with a water cart to maintain dampened site surfaces. Water supply is available at the site via the directly adjacent Waipa District Council supply network including the existing 375mm water supply main running up Frontier Road at the site frontage with dual connections into the site along with the directly adjacent large scale reservoir at the south east corner of the site with a potential to

establish a metered connection for water cart filling. Alternatively, establishment of an on-site bore is also being considered as an alternative supply option for construction activities longer term landscape irrigation purposes within the retirement village site for which a groundwater water take consent will be pursued with WRC if determined necessary;

- Secondary dust control methods to include the use of soil stabiliser products such as polymer or hydroseed to provide instant/semi-permanent cover of exposed earth surfaces and immediately prevent dust generation;

- Detailed processes will be established for any potential dust complaints received including direct engagement with complainant parties to identify likely sources and effects, undertaking immediate steps to address the issues on site, consideration of any required remediation on complainant properties and reporting/notification to the Councils.

The above methods are considered to represent best practice methods for management of potential dust effects and if implemented effectively will ensure that no nuisance effects occur beyond the site boundary.

Furthermore, considering the location of the residential properties opposite the site on Frontier Road, the proposed earthworks occurring along this boundary are identified as comprising only shallow depths of cut/fill and hence are considered able to be implemented rapidly further reducing the timeframes with which adverse effects could arise. In addition, these properties are located to the south of the subject site and with predominant/prevailing winds typically coming from the south-west, the potential for adverse dust effects is further reduced with these winds blowing north eastward across the site, away from these properties.

Notwithstanding the proposed mitigation measures above, I have included a condition in the attached consent certificate requiring the applicant to prepare and submit for approval a Dust Management Plan to control potential dust emissions from the site prior to works commencing.

6.1.3 Exotic Weed Invasion

The proposed earthworks and vegetation clearance will provide conditions for invasive weeds to become established on exposed surfaces during and after construction. Machinery brought onto the site to undertake earthworks and vegetation clearance could potentially carry plant matter and/or seeds, which could result in the introduction of new weed species in the area. This is a potential detrimental impact as weeds may threaten the ecological integrity of the surrounding indigenous vegetation. I recommend that all machinery brought onsite is first cleaned to remove any plant matter and/or seeds. I have proposed a condition of consent in the attached certificate regarding washing of machinery. On this basis, I consider that the risk of exotic weed invasion will be adequately avoided.

6.1.4 Ecological Effects

As noted, the site area comprises a heavily modified agricultural environment with more or less continuous pasture cover and no notable terrestrial ecological habitat values. The exception is the isolated small stand of exotic trees (poplars) located around the existing farm pond at the western site boundary which while being located within a broad pasture environment, could present potential foraging habitat for long tailed bats. The area is subject to an ecological assessment to characterise any potential bat habitat values which will be subject to assessment as part of the Waipa District Council plan change/landuse consent process and is not considered to warrant further consideration/management through this consent process.

Aquatic habitat within the site is limited to the intermittently wet farm pond located at the western site boundary. This pond comprises an artificial, man-made feature which is understood to only provide for intermittent, shallow ponding of catchment runoff over the winter months with observed pond conditions during May and June, 2020 comprising a dry, mud surface with establishing weed growths and no aquatic habitat values. In this respect, any aquatic habitat impacts associated with the removal of this existing feature are considered to be no more than minor and will be adequately mitigated for through the establishment of the much larger, permanently wet, planted stormwater management wetland in this location.

Overall, based upon the low existing ecological habitat values of the site, any potential adverse ecological habitat values associated with the proposed site earthworks activities will be no more than minor.

6.1.5 Cultural and Archaeological Effects

The applicant has undertaken an Archaeological Assessment of the site contained in Appendix E of the application that determined no actual or potential archaeological values within the subject site. Subsequent to this application, the applicant has submitted a Cultural Impact Assessment (CIA).

Consultation has been ongoing with representatives of tangata whenua for this area Nga Iwi Toopu O Waipa (NITOW) who are generally supportive of the proposed activities but at this time have not provided a written approval for the proposal. It is not clear when a written response will be provided as the plan change process is also some time off in the following year. However, the current proposal is not indicating any potential adverse effects with respect to cultural/spiritual values at the site and there are no specific concerns that have been raised during the consultation to date. In addition, the consultation with tangata whenua will be ongoing and there will be further opportunity through the WDC plan change process for them to raise any issues - though not anticipated.

Waikato Regional Council has standard consent conditions relating to circumstances where unidentified archaeological sites are discovered. I consider that these conditions will ensure that appropriate procedures/protocols are followed. In the event that previously unidentified archaeological sites are discovered and not covered under the HNZ General Authorisations, there may be requirements for further General Authorisations imposed by the HNZ. The inclusion of these conditions does not preclude the use of other protocols if agreed between the applicant and iwi, however, they do provide a minimum standard to be followed.

6.1.6 Catchment Hydrology and Water Quality Effects Post Development

Urbanisation, development of greenfield site areas and the way in which stormwater management is incorporated into the design of developing catchments, will significantly influence catchment hydrology in the post development situation. Essentially it is the loss of pervious surface area and the piping of stormwater to surface waters that result in reduced rates of groundwater infiltration and recharge, and greater volumes of runoff being discharged from developed catchments. These changes often result in the lowering of groundwater tables, extreme dry and wet weather flow fluctuations in surface waters, and an overall limiting effect in the ability of surface waters to support aquatic life.

In addition to these effects, increased stormwater volumes and peak rates of discharge can result in adverse flooding hazards, stream channel scouring and erosion and diminished receiving water health through reduced ecosystem viability, habitat availability and downstream sedimentation effects. These effects are particularly common in urban catchments that have inappropriately designed stormwater management systems, or no particular management system (the widespread historical situation in existing urban catchments).

Stormwater runoff from roads and impervious areas are known to contain contaminants such as metals, hydrocarbons and sediment. A number of these contaminants, if allowed to enter the environment, will accumulate in the sediments of the receiving environment and may reach levels that are toxic to biota. The highest potential source of contaminants from roading surfaces are heavy metals and hydrocarbons from tyre/brake wear, exhaust fumes and fuel/lubricant leaks onto road surfaces. Other catchment contaminants can include gross pollutants (i.e rubbish) and sediments from associated development and sports fields as well as nutrient input from gardening/landscaping activities and possible sewer overflows/illegal connections. As contaminants often become attached to sediment particles, removal of suspended sediment provides partial treatment of stormwater.

As discussed in Section 2 of this report, the applicant is proposing to manage stormwater in accordance with the Stormwater Management Plan (SMP) included in Appendix D of the application.

Senior Environmental Engineer Ms Megan Wood (Wainui Consulting Ltd) has undertaken an assessment of the stormwater management design on behalf of Waikato Regional Council and provided a comprehensive analysis of the proposal below (technical report dated 14 September 2020 doc ref# 17248516).

6.1.6.1 Water Quality Treatment

Wetland

The contributing catchment area to the wetland is 19.58ha of residential lots (assumed imperviousness of 70%, maximum allowable levels from the Waipa District Plan), proposed retirement village and associated roads (assumed imperviousness of 75%, based on typical road cross sections). The following presents the adopted contributing catchment area used to inform the wetland design:

Description	Area (ha)
Kotare Wetlands Residential Area	8.65
Te Awamutu Country Club Retirement Village (2 and 10-year attenuation only)	9.56
Frontier Road	0.47
WDC Water Reservoir Site	0.90
Total Wetland Catchment	19.58

The SMP states that in the existing situation overland flows from the site reach the channel at different locations. The proposed development will see all flows entering the channel at the same location, hence there is the potential or associated erosion and scour effects to occur form the increase in concentrated flow. The applicant states this is contained to a short reach of channel (Reach 1) and effects are diminished once flows reach the main drain.

The report states that soil types and CN numbers have been adopted based on soil testing across several sites within the catchment and with supporting information from S-Maps Online. The applicant is advised that in future, actual site soil testing will need to be undertaken to determine the saturated hydraulic conductivity across the site (soil borings and double ring infiltrometer (or similar)) to inform the selection of the hydrological soil group and hence the stormwater design. Refer to Section 5.3 in the Waikato Stormwater Runoff Modelling Guideline for further details.

It has been assumed that no soil remediation will be undertaken at the site, so an increase in soil type and subsequent curve number has been adopted for the post-development condition.

The wetland design comprises:

- Normal water level area = 4,000m^2 (approximately 2.7% of the catchment)
- Permanent storage zone = 1,550m^3 (increased by 25% to account for planting)
- Batters above and below NWL = minimum 1V:3H.
- Top of batter area = 6,340m^2
- Total 10-year ARI volume = 6,480m^3
- Total stormwater reserve area = 10,350m^2
- Forebay = 350m^3 (30% of adjusted WQV)
- WQV = 1,550m^3 (50% of the calculated WQV as ED is being provided, increased by 25% to allow for planting)
- EDV = 1,088m^3, ED depth is RL62.0m (250mm above the PWL), peak discharge at ED level is 0.035m^3/s
- Outlet structure: to be designed at detailed design stage (this is considered acceptable)
- Spillway: Proposed on the NW side of the wetland. Preliminary design: 14m wide spillway with a depth of 350mm. Spillway to include 300mm freeboard to the top of the Wetland bund.
- Banded bathymetry is proposed and a minimum 80% vegetated area. Shaded trees are proposed around the wetland to reduce thermal effects.

The summary of peak discharge rates and required detention volumes is provided below:

Return Period (ARI)	Greenfields discharge rate (m^3/s)	Wetland Peak outflow (m^3/s)	Peak Stage RL (m)	Peak Storage (m^3)
Extended Detention*	-	0.034	62.00	1,088
2- Year	1.12	1.069	62.69	4,356
10- Year	2.23	2.035	63.10	6,482

'* ED catchment excludes the Country Club Swale catchment

Section 4.1.1 of the SMP states that where possible high flow bypass will be incorporated directing flows from larger events around the wetland forebay directly into the main body of the wetland. The applicant was required to clarify if this referred to 10-year or 100-year ARI flows. The applicant advised that the wetland has been designed to attenuate the 10-year ARI flows. The intention of the wetland high flow bypass is to (where possible) divert flows in excess of the ED/2 year ARI event around the forebay and into the main wetland body (or outlet pool) to prevent the resuspension of sediments in the forebay. It is anticipated that the SW reticulation will enter the wetland reserve from several locations and so whilst it is intended that this high-flow bypass arrangement is implemented, there may be challenges to implementing it, to be determined at detailed design stage. For events greater than the 10-year ARI event, where overland flow is triggered, overland flowpaths will be designed to convey flows around the wetland reserve, i.e. overland flows will not be discharged to the wetland. Overland flowpaths are to be designed at detailed design stage. Ms Wood considers this response acceptable.

The proposed wetland design is considered acceptable to provide water quality treatment and flow attenuation for the contributing catchment area. The contributing catchment area for water quality treatment in the wetland is less than the contributing catchment area for flow attenuation, as runoff from the northern end of the retirement village area is treated via a swale, with the larger flows being diverted to the wetland for flow attenuation.

Swale

Runoff from the northern end of the proposed retirement village (4.4ha including dwellings and the road network) is proposed to be treated via a planted swale to be located along the western boundary of the site. The swale has been designed to provide water quality treatment and extended detention. Preliminary design details are provided below:

- Swale base width = 2m
- Side batters = 1V;3H
- Max longitudinal slope = 1.5%
- Manning's n = 0.25
- WQ flow depth = 0.275m
- Total swale depth = 0.6m

The swale has been designed to have capacity for the 10-year ARI event flows. The swale is proposed to have a meandering pathway to mimic a natural stream where possible.

Treated WQ/ED flows will be discharged via a low flow diversion pipe directly to the existing drain within the downstream property. Flows greater than the WQ/ED event will be directed to the constructed wetland. The applicant states the expected residence time is approximately 25 minutes, this is well more than the minimum 9-minute residence time required in the Waikato Stormwater Management Guideline to achieve water quality treatment. Check dams are proposed to provide extended detention within the swale, with low flow pipes through the dams to ensure peak flow discharge over 24 hours. The application states that the detailed design for the swale check dams and ED outlets will be undertaken as part of the detailed design, this is considered acceptable.

The swale is proposed to be integrated into the surrounding area. It is to be formed as a semi-naturalised overland flowpath in a reserve area with a track. A planting plan will be prepared as part of the detailed design. Planting will likely comprise the swale invert being planted with a thick swathe of typical wetland rush species such as Oioi and Carex with other terrestrial species extending up the swale banks / batters to maximise stability and shading. The swale is to be owned and maintained by the Te Awamutu Country Club.

Overland Flow

The SMP states that where possible overland flows will discharge to the road corridors where they will be conveyed to or around the proposed wetland. Where this cannot be achieved overland flowpaths will be provided. These will be designed at the detailed design stage. Ms Wood considers that the overland flowpaths are considered adequate.

Low Impact Design

The proposed stormwater management system for this site relies on a traditional end of pipe solution approach with the bulk earth-working across the entire site and no at-source treatment. The applicant has assessed the site using the scoring matrix and the site scores a total of 8, with 1 point achieved for source control, 5 for LID devices and 2 for urban design. This score is low and does not meet the target scores for the site as per the Waikato Stormwater Management Guideline.

The applicant was advised that they needed to consider opportunities for the inclusion of more source control elements within the design proposal. The applicant replied advising that they have not incorporated any at-source management due to the following reasons:

> -Cost implications associated with the construction / operation of multiple other at-source treatment devices in addition to the wetland and the swale.
> -O&M requirements associate with other at-source devices in addition to the wetland and swale. Waipa DC apparently prefers centralised devices.
> -The nature of the site receiving environment comprising a managed agricultural drainage system which is not considered to justify multi-level treatment and at-source retention for the site.

-Consistency with stormwater treatment provisions for other development sites of this nature and within these types of catchments.

It is disappointing to see this approach still being taken for greenfield developments where there are no site constraints.

In summary, Ms Wood has reviewed the overall stormwater management design and assessed the calculations and engineering drawings for the proposed development and considers them to be acceptable and to be in general accordance with the Waikato Stormwater Runoff Modelling Guideline and Waikato Stormwater Management Guideline.

6.2 Assessment against Policy Statements, Plans and Regulations (s104(1)(b))

6.2.1 Vision and Strategy

Under s11 of the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 and other river "settlement" legislation, the Vision and Strategy is deemed to be part of the Waikato Regional Policy Statement. Under s104(1)(b), the Council must "have regard to" the RPS when considering any application for resource consent. However, additionally, the river settlement legislation also requires that the Council must have "particular regard" to the Vision and Strategy for the Waikato River when carrying out any of its functions under RMA 1991. Through case law, the Vision and Strategy is acknowledged as the primary, direction-setting policy for the River. Case law indicates that activities which are subject to the V&S are required to provide for the protection and restoration of the River, and that this will require "betterment" to an extent proportionate with the scale of the activity and its effects.

a) the restoration and protection of the health and wellbeing of the Waikato River;
b) the restoration and protection of the relationship of Waikato – Tainui with the Waikato River, including their economic, social, cultural and spiritual relationships;
c) the restoration and protection of the relationships of Waikato Iwi according to their tikanga and kawa with the Waikato River, including their economic, social, cultural and spiritual relationships;
d) the restoration and protection of the Waikato Region's communities, with the Waikato River, including their economic, social, cultural and spiritual relationships;
e) the integrated, holistic and coordinated approach to management of the natural, physical, cultural and historic resources of the Waikato River;
f) the adoption of a precautionary approach towards decision that may result in significant adverse effects on the Waikato River, and in particular those effects that threaten serious or irreversible damage to the River;
g) The recognition and avoidance of adverse cumulative effects, of activities undertaken both within the Waikato River and within its catchments on the health and wellbeing of the Waikato River;
h) The recognition that the Waikato River is degraded and should not be required to absorb further degradation as a result of human activities;
i) The protection and enhancement of significant sites, fisheries, flora and fauna;
j) The recognition that the strategic importance of the Waikato River to New Zealand's social, cultural, environmental and economic wellbeing, requires the restoration and protection of the health and wellbeing of the Waikato River;
k) The restoration of water quality within the Waikato River so that it is safe for people to swim in and take food from over its entire length;
l) The promotion of improved access to the Waikato River to better enable sporting, recreational, and cultural opportunities;

m) The application of the above of both matauranga Maaori and the latest available scientific methods.

The subject site is located upstream of the Mangapiko Stream with direct discharges to a modified farm channel/drain. In this respect, the proposed activities incorporate design features which are considered appropriate to maintain the quality of water and to avoid remedy or mitigate any potential adverse effects on the stream with consent conditions recommended to address these items.

Additionally, the project works will retire the existing site area from traditional agricultural landuse practices with the new landuse resulting in runoff from the new developments which will be treated within a best practice stormwater management (planted swale, wetland). Therefore, it is considered that the long-term stormwater discharge will result in a positive outcome/betterment for this receiving environment.

6.2.2 National environmental standards

As of 4 September 2018, there are six NESs that have come into effect - the National Environmental Standards for Air Quality (where various standards have been in effect since October 2004); Sources of Human Drinking Water; Electricity Transmission Activities; Telecommunication Facilities; Assessing and managing contaminants in soil to protect human health; and Plantation Forestry.

National Environmental Standard for Sources of Human Drinking Water
In terms of the stormwater discharge activity associated with this consent process, I have reviewed WRC's Smart Maps database and can confirm there are no registered drinking water supplies immediately downstream of the location of the proposed discharge activity.

6.2.3 Other regulations

There are no other regulations considered relevant to this consent process

6.2.4 National policy statements (including NZ Coastal Policy Statement)

National Policy Statement for Freshwater Management 2020
The Freshwater Management NPS has policies and objectives that direct local government to manage water in an integrated and sustainable way while providing for economic growth within specified water quality and quantity limits. The NPS requires regional councils to develop standards to safeguard the life supporting capacity of water bodies, with the objective that water quality will be maintained or improved. This will involve protection of high quality water bodies and implementation of methods to improve degraded water bodies. In the interim, when considering consent applications regional councils must have regard for any effects (actual or cumulative) that contaminants contained in the discharge may have on freshwater and fresh water ecology. The principle of adopting best practicable options in order to minimise effects is included in the decision making process under this policy.

Given the proposed mitigation measure to be put in place to manage water quality through the constructed wetland treatment pond and planted swale, it is my opinion that should the application be granted, it will not be contrary to the Freshwater NPS.

The NZ Coastal Policy Statement is not relevant to this application.

6.2.5 Regional Policy Statement

The RPS identifies the significant resource management issues of the region and sets out the objectives, policies and methods to address these issues and to achieve integrated management of the natural and

physical resources of the Region. The RPS aims to ensure the way we use our resources does not tip the balance and compromise the ability of future generations to provide for their own needs.

The Waikato Regional Council's RPS was made operative on 20 May 2016.

The RPS identifies the significant resource management issues of the region and sets out the objectives, policies and methods to address these issues and to achieve integrated management of the natural and physical resources of the Region. The RPS aims to ensure the way we use our resources does not tip the balance and compromise the ability of future generations to provide for their own needs.

The Waikato Regional Council's RPS was made operative on 20 May 2016.

Key issues in the RPS relating to this proposal are the state of resources (Issue 1.1), effects of climate change (Issue 1.2), managing the built environment (Issue 1.4), and the relationship of tangata whenua with the environment (Issue 1.5). There are a number of overlapping objectives under each of these relevant to this proposal. These are listed as follows:

- Integrated management of natural and physical resources (Objective 3.1);
- Resource use and development (objective 3.2);
- Decision making (Objective 3.3);
- Health and well being of the Waikato River (Objective 3.4)
- Adapting to climate change (Objective 3.6)
- Ecosystem services (Objective 3.8);
- Relationship of tangata whenua with the environment (Objective 3.9);
- Sustainable and efficient use of resources (Objective 3.10)
- Air quality (Objective 3.11);
- Built environment (Objective 3.12)
- Mauri and values of fresh water bodies (Objective 3.14);
- Riparian areas and wetlands (Objective 3.16)
- Ecological integrity and indigenous biodiversity (Objective 3.19)
- Amenity (Objective 3.21)
- Natural character (Objective 3.22)
- Values of soil (Objective 3.25)

6.2.6 Regional Plan

The Waikato Regional Plan ("WRP") is operative. The purpose of regional plans is to help the Council carry out its functions under s30 of the RMA.

Plan	**Rule/Objective**
Waikato Regional Plan	5.1.4.13 - Discretionary Activity Rule - Soil Disturbance, Roading and Tracking and Vegetation Clearance
Waikato Regional Plan	3.5.11.8 - Discretionary Activity Rule - Discharge of Stormwater

The objectives and policies contained in the WRP that are relevant to this proposal are those relating to water resources, land and soil and air. The following provides a discussion of these objectives and policies.

3.1 Water Resources

3.1.2 Objective

The management of water bodies in a way which ensures:

a. that people are able to take and use water for their social, economic and cultural wellbeing

b. net improvement[1] of water quality across the Region

c. the avoidance of significant adverse effects on aquatic ecosystems

d. the characteristics of flow regimes are enhanced where practicable and justified by the ecological benefits

e. the range of uses of water reliant on the characteristics of flow regimes are maintained or enhanced

f. the range of reasonably foreseeable uses of ground water and surface water are protected

g. that significant adverse effects on the relationship tangata whenua as Kaitiaki have with water and their identified taonga such as waahi tapu, and native flora and fauna that have customary and traditional uses in or on the margins of water bodies, are remedied or mitigated

h. the cumulative adverse effects on the relationship tangata whenua as Kaitiaki have with water their identified taonga such as waahi tapu, and native flora and fauna that have customary and traditional uses that are in or on the margins of water bodies are remedied or mitigated

i. the management of non-point source discharges of nutrients, faecal coliforms and sediment to levels that are consistent with the identified purpose and values for which the water body is being managed

j. the natural character of the coastal environment, wetlands and lakes and rivers and their margins (including caves), is preserved and protected from inappropriate use and development

k. concentrations of contaminants leaching from land use activities and non-point source discharges to shallow ground water and surface waters do not reach levels that present significant risks to human health or aquatic ecosystems

l. that the positive effects of water resource use activities and associated existing lawfully established infrastructure are recognised, whilst avoiding, remedying or mitigating adverse effects on the environment.

3.2.3 Policies

Policy 1: Management of Water Bodies

Manage all water bodies to enable a range of water use activities, whilst ensuring that a net improvement in water quality across the Region is achieved over time through:

a. Classifying and mapping water bodies based on the characteristics for which they are valued and implementing the classification through a mixture of regulatory and non-regulatory methods.

b. Maintaining overall water quality in areas where it is high, and in other water bodies, avoiding, remedying or mitigating cumulative degradation of water quality from the effects of resource use activities.

c. Enhancing the quality of degraded waterbodies.

d. Providing for the mitigation and remediation of adverse effects in accordance with Section 1.3.3 of the Waikato Regional Policy Statement.

e. Recognising the positive benefits to people and communities arising from use or development of water resources and by taking account of existing uses of water and the associated lawfully established infrastructure.

Policy 3: Tangata Whenua Uses and Values

Ensure that the relationship of tangata whenua as Kaitiaki with water is recognised and provided for, to avoid significant adverse effects and remedy or mitigate cumulative adverse effects on:

a. The mauri of water,

b. Waahi tapu sites,
c. Other identified taonga.

Policy 4: Waikato Region Surface Water Class

<u>Section 3.5.3 Discharges</u>
Policy 1: Enabling Discharges to Water that will have only Minor Adverse Effects
Policy 2: Managing Discharges to Water with More than Minor Adverse Effects
Policy 3: Alternatives to Direct Discharge to Water
Policy 4: Discharges to Land
Policy 5: Ground Water
Policy 7: Stormwater Discharges

<u>Section 5.1.2 – Accelerated Erosion Objective</u>

"A net reduction of accelerated erosion across the Region so that:

- *soil productivity, versatility and capability is maintained*
- *there are no adverse effects on water quality, aquatic ecosystems and wetlands that are inconsistent with Water Management Objective 3.1.2*
- *there is no increase in the adverse effects of flooding or land instability hazards*
- *accelerated infilling of lakes, estuaries, rivers, wetlands and cave systems is avoided and the rate of infilling of artificial watercourses, excluding structures designed to trap sediment, is minimised*
- *significant adverse effects on the relationship tangata whenua as Kaitiaki have with their identified ancestral taonga such as ancestral lands, water and waahi tapu are avoided*
- *cumulative adverse effects on the relationship tangata whenua as Kaitiaki have with their identified taonga such as ancestral lands, water, waahi tapu are remedied or mitigated*
- *significant adverse effects on natural character and ecological values associated with land and the coastal environment including dune systems is avoided*
- *there are no adverse effects on air quality that are inconsistent with Air Quality Objective 6.1.2, Objectives 2 and 3*
- *damage to property and infrastructure is avoided*

in particular in High Risk Erosion Areas…."

<u>Section 5.1.3 Accelerated Erosion</u>

Policy 1: Managing Activities that Cause or Have the Potential to Cause Accelerated Erosion and Encouraging Appropriate Land Management Practices

Policy 2: Use of Regulatory and Non-Regulatory Approaches of Management for Soil Disturbance/Vegetation Clearance Activities in High Risk Erosion Areas.

Policy 3: Promote Good Practise.

6.1 Regional and Local Air Management
Objective2:
No significant adverse effects from individual site sources on the characteristics of air quality beyond property boundary.

The objectives and policies of the relevant sections of the WRP outlined above have been considered and assessed within the assessment of environmental effects carried out within section 6.1 of this report. This assessment has determined that based on the implementation of best practice erosion and sediment controls and dust management, the proposed activities will not result in any adverse environmental effects which are more than minor. In this respect it is considered that the proposed activities will not compromise values associated with water resources and air quality or result in accelerated erosion as outlined within the above objectives and policies and thus the proposed activities are considered to be consistent with the provisions of the Waikato Regional Plan.

6.2.7 Healthy Rivers/Wai Ora: Proposed Waikato Regional Plan Change 1

Waikato Regional Plan Proposed Plan Change 1 (PPC1) is applicable to the Waikato and Waipa River catchments and gives effect to the National Policy Statement on Freshwater Management (NPS-FM) and the Vision and Strategy. The purpose of the proposed plan change is to reduce point source and non-point sources of contaminants – nitrogen, phosphorus, sediment and bacteria - entering waterbodies (including groundwater) within the Waikato and Waipa River catchments.

The "Decisions version" of PC1 was formally notified on 22/4/2020 and must be given regard to. The objectives and policies of PC1 are unlikely to be in conflict with relevant policies and objectives of the existing WRP. As such, the policies and objectives should be given "considerable" (but not "full") weight.

The activities are within the Waikato River catchment and have been considered against the relevant objectives and policies of Healthy Rivers. Based upon the implementation of the proposed best practice avoidance and mitigation methodologies, the earthworks and stormwater activities are considered to be consistent with these preliminary provisions.

6.3 Other Matters

Waikato-Tainui Environmental Plan
The Waikato-Tainui Environmental Plan provides a background to, and identifies key, resource based issues for Waikato-Tainui. The plan sets out Waikato-Tainui's vision statement for environmental and heritage issues and key strategic objectives such as tribal identity and integrity, including "to grow our tribal estate and manage our natural resources." The plan is designed to enhance Waikato-Tainui participation in resource and environmental management.

I have assessed this proposal against the objectives and outcomes within this plan and overall I consider that the proposal is consistent with this Iwi Environmental Plan.

Maniapoto Environmental Management Plan
The Maniapoto Environmental Management Plan (Ko tā Maniapoto Mahere Taiao) provides a background to, and identifies key, resource based issues for the Maniapoto Whanui. The plan sets out Maniapoto Whanui's vision statement for environmental and heritage issues within their rohe (area). Detailed within the plan are central principles to achieve Maniapoto Whanui vision and goals.

I have assessed this proposal against the objectives and outcomes within this plan and overall, I consider that the proposal is consistent with this Iwi Environmental Plan. This conclusion is based on the level of engagement of the Applicant with the Nehenehenui Regional Management Committee (NRMC) of the Maniapoto Māori Trust Board, the construction methodology, and ultimately the overall environmental outcomes of the proposal.

6.4 Customary activities

There are no customary activities relevant to this consent process.

7 Relevant Part 2 Considerations

All considerations are subject to Part 2 of the RMA, which sets out the purpose and principles that guide this legislation. This means the matters in Part 2 prevail over other provisions of the RMA or provisions in planning instruments (e.g. regional plans) in the event of a conflict. Section 5 states the purpose of the RMA and sections 6, 7 and 8 are principles intended to provide additional guidance as to the way in which the purpose is to be achieved.

The application of Section 5 involves an overall broad judgement of whether a proposal will promote the sustainable management of natural and physical resources. The RMA's use of the terms *"use, development and protection"* are a general indication that all resources are to be managed in a sustainable way, or at a rate which enables people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety. The enabling and management functions found in section 5(2) should be considered of equal importance and taken as a whole.

Sections 6, 7 and 8 of the RMA provide further context and guidance meaning to the constraints found in section 5(2)(a),(b) and (c). The commencing words to these sections differ, thereby laying down the relative weight to be given to each section.

Section 6 of the RMA sets out the matters of national importance which need to be recognised and provided for and includes among other things and in no order of priority, the protection of outstanding natural features and landscapes, the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna, and the protection of historic heritage.

Section 7 of the RMA requires the consent authority to give particular regard to those matters listed in the section. Section 7 matters are not expressly ranked in order of priority. Therefore, all aspects of this section are to be considered equally.

Section 8 of the RMA requires the consent authority to take into account the principles of the Treaty of Waitangi. This section of the RMA recognises the relationship of Tangata Whenua with natural and physical resources and encourages active participation and consultation with Tangata Whenua.

These purposes and principles outlined within part 2 of the RMA have been considered within the assessment section of this report and it is considered that based on proposed environmental management procedures proposed by the Applicant and required through consent conditions, the proposed activities are consistent with Part 2 of the RMA.

8 Discussion/Conclusions

Wainui Environmental Ltd has made application for resource consent on behalf of Sanderson Group Ltd & Kotare Properties Ltd (the joint applicants) to authorise earthworks activities and stormwater diversion and discharge associated with the development of a joint residential subdivision and retirement village at 52 Frontier Road, Te Awamutu.

The main potential adverse environmental effects associated with the proposed works are considered to be:

- Water quality effects from sediment discharges during earthworks;

- Effects of dust discharges;
- Ecological effects;
- Exotic weed invasion;
- Cultural and archaeological effects; and
- Catchment hydrology and water quality/quantity effects from stormwater discharges post development.

However, for the reasons outlined in section 6.1 of this report, I am satisfied that these adverse effects can be avoided, remedied or mitigated such that the adverse environmental effects associated with the works are likely to be minor.

The overall proposal has been assessed in respect to its consistency with the objectives and policies of the Regional Council's policies and plans, and the statutory provisions of the RMA. It has further been considered in accordance with section 104B of the RMA which has regard to the determination of applications for discretionary or non-complying activities. Provided the activities are undertaken in accordance with the application for consent and subsequent supporting documentation, and the recommended consent conditions in the attached Resource Consent Certificate, I consider that they will not be inconsistent with Council's policy and plans, or the statutory provisions of the RMA.

For these reasons I recommend that consent be granted subject to the consent conditions in the attached Resource Consent Certificates.

- Resource Consent AUTH142118.01.01 – 5 years (Earthworks); and
- Resource Consent AUTH142118.02.01 – 35 years (Stormwater Discharge)

The following considerations have been taken into account in recommending these terms:

- The temporary nature of the soil and bed disturbance activities;
- The stormwater diversion and discharge is designed to be permanent;
- The design of the stormwater management system (wetland pond, treatment swale);
- The various proposed mitigation measures and ongoing monitoring requirements;
- The actual and potential adverse effects of the proposed activities on the environment;
- Consistency with Regional Council policies, objectives and plans;
- Consistency with the purpose and principals of the RMA; and
- Waikato Regional Council's internal guidelines for consent duration.

9 Monitoring

Waikato Regional Council has a statutory obligation under section 35 of the RMA to monitor the effects of resource consents being exercised in its region. The actual and reasonable costs incurred by Waikato Regional Council when undertaking this monitoring will be recovered from the consent holder. It should be noted that if a condition(s) of consent is not complied with, the activity may receive an elevated level of monitoring until Waikato Regional Council is satisfied that the consent is being exercised in accordance with consent conditions.

- With regard to the soil and bed disturbance activities, it is recommended that the applicant ensures that all erosion and sediment controls at the site are regularly inspected and in good working order prior to, and immediately after rain events, and that these controls are maintained to achieve optimal sediment capture efficiency at all times.

- It is recommended that the consent holder undertakes regular monitoring and maintenance of the stormwater system (inclusive of all stormwater management devices, and in particular the

treatment swale, wetland and for any downstream channel erosion) to ensure optimum stormwater treatment is achieved at all times.

- With respect to the wetland and swale, it is recommended that ongoing maintenance of planted areas is undertaken to ensure plants become well established and replaced when needed.

- With regard to the stormwater outfall structure, it is recommended that the consent holder undertakes regular monitoring and maintenance of this structure to ensure that it is kept clear of debris blockages, erosion and scour effects are mitigated, and the riparian planting is established and replaced if needed.

The actual and reasonable costs incurred by Waikato Regional Council when undertaking this monitoring will be recovered from the consent holder.

10 Recommended Decision

I recommend that in accordance with s104B resource consents AUTH142118.01.01 and AUTH142118.2.01 be granted in accordance with the duration and conditions prescribed in the attached Resource Consent Certificates for the following reasons:

- The activities will have no more than minor actual or potential adverse effects on the environment
- The activities are not contrary to any relevant plans or policies
- The activities are consistent with the purpose and principles of the Resource Management Act 1991

Brian Richmond **Date: 23 September 2020**

Resource Officer - Infrastructure

Resource Use Directorate

11 Decision

That the resource consent applications are granted in accordance with the above recommendations.

Hugh Keane **Date: 24 September 2020**

Team Leader - Infrastructure

Resource Use Directorate

RESOURCE CONSENT CERTIFICATE

Resource Consent: AUTH142118.01.01

File Number: 61 76 45A

Pursuant to the Resource Management Act 1991, the Regional Council hereby grants consent to:

Sanderson Group Limited & Kotare Properties Limited
75 Elizabeth Street
Tauranga 3110

(hereinafter referred to as the Consent Holder)

Consent Type: Land Use Consent

Consent Subtype: Land - disturbance

Activity authorised: To undertake Earthworks in association with a joint retirement village/residential subdivision development

Location: 52 Frontier Road, Te Awamutu

Map reference: NZTM 1801366.0000 E 5790395.0000 N

Consent duration: This consent will commence on the date of decision notification and will expire on 30 April 2025.

Subject to the conditions overleaf:

CONDITIONS

General

1. The soil disturbance activities authorised by this resource consent shall be undertaken in general accordance with the application for this resource consent (WRC doc ref# **16989874**), titled ***'Sanderson Group Ltd & Kotare Properties Ltd – Resource Consent Application to Waikato Regional Council to Undertake Earthworks and Discharge Stormwater – Frontier Road, Te Awamutu,*** dated 1 August 2020, prepared by Wainui Environmental Ltd and in particular the ***'Preliminary Erosion and Sediment Control Plan'*** in Appendix C of the application, and all other subsequent supporting documentation submitted, except where otherwise required in the resource consent conditions below. Where there is any discrepancy between the application documents and the resource consent conditions then the conditions below shall prevail.

2. The consent holder shall appoint a representative(s) prior to commencement of any works authorised by this resource consent, who shall be the Waikato Regional Council's principal contact person in regard to matters relating to this consent. The consent holder shall inform the Waikato Regional Council of the representative's name and how they can be contacted prior to this consent being exercised. Should that person(s) change during the term of this resource consent, the consent holder shall immediately inform the Waikato Regional Council and shall also give written notice to the Waikato Regional Council of the new representatives name and how they can be contacted.

3. The consent holder shall be responsible for all contracted operations relating to the exercise of this resource consent, and shall ensure contractors are made aware of the conditions of this consent and ensure compliance with those conditions.

4. A copy of this resource consent shall be kept onsite at all times that the works authorised by this consent are being undertaken, and shall be produced without unreasonable delay upon request from a servant or agent of the Waikato Regional Council.

Winter Works

5. The works authorised by this resource consent shall not be carried out during the winter period 1st May to 30th September inclusive in any year that this consent is current unless authorised by the Waikato Regional Council as per condition 7.

6. The consent holder shall ensure that the site is appropriately stabilised by 30 April of each year unless otherwise approved in writing by the Waikato Regional Council. Stabilisation shall be undertaken by providing adequate measures (vegetative and/or structural and including, pavement, metalling, hydroseeding, revegetating and mulching) that will minimise erosion of exposed soil to the extent practicable.

7. Requests to undertake works during the period 1st May to 30th September inclusive shall be submitted in writing to the Waikato Regional Council by 1st April, and shall be in the form of amendments to the approved Earthworks and Sediment Control Plan.

   Advice Note: *In considering a request for the continuation of winter works, the Waikato Regional Council will consider a number of factors; including:*

   - *the nature of the site and the winter soil disturbance works proposed;*
   - *the quality of the existing/proposed erosion and sediment controls;*
   - *the compliance history of the site/operator;*
   - *seasonal/local soil and weather conditions;*

- *sensitivity of the receiving environment; and*
- *any other relevant factor.*

Pre-works Requirements

8. The consent holder shall inform the Waikato Regional Council in writing, at least 10 working days prior to commencement of any works, of the start date of the works authorised by this resource consent.

9. The consent holder shall arrange and conduct a pre-construction site meeting and invite, with a minimum of 10 working days notice, the Waikato Regional Council, the site representative nominated under condition 2 of this consent, the contractor, and any other party representing the consent holder prior to any works authorised by this consent commencing on the site.

   Advice Note: *In the case that any of the invited parties, other than the site representative does not attend this meeting, the consent holder will have complied with this condition, provided the invitation requirements are met.*

Erosion and Sediment Control

10. The consent holder shall provide the Waikato Regional Council with an updated ***'Erosion and Sediment Control Plan'*** (ESCP), at least 10 working days prior to the commencement of each stage of earthworks for the activities authorised by this consent. The objective of the ESCP shall be to minimise sediment discharge from the site to the extent practicable over the earthworks period.

11. The ESCP shall as a minimum be based upon and incorporate those specific principles and practices which are appropriate for the activity authorised by this consent and contained within the Waikato Regional Council document titled "Erosion and Sediment Control – Guidelines for Soil Disturbing Activities" (Technical Report No. 2009/02 – dated January 2009), and shall include at least the following;

    a. Details of all principles, procedures and practices that will be implemented to undertake erosion and sediment control to minimise the potential for sediment discharge from the site;
    b. Detailed design methodology for the dewatering of the wetland and artificial drains along the boundary of the wetland;
    c. The design criteria and dimensions of all key erosion and sediment control structures;
    d. A site plan of a suitable scale to identify;
        i. The locations of waterways;
        ii. The extent of soil disturbance and vegetation removal;
        iii. Any "no go" and/or buffer areas to be maintained undisturbed adjacent to watercourses;
        iv. Areas of cut and fill;
        v. Locations of topsoil stockpiles;
        vi. All key erosion and sediment control structures;
        vii. The boundaries and area of catchments contributing to all stormwater impoundment structures;
        viii. The locations of all specific points of discharge to the environment; and
        ix. Any other relevant site information.
    e. Construction timetable for the erosion and sediment control works and the bulk earthworks proposed;
    f. Timetable and nature of progressive site rehabilitation and re-vegetation

proposed;

g. Maintenance, monitoring and reporting procedures;
h. Rainfall response and contingency measures including procedures to minimise adverse effects in the event of extreme rainfall events and/or the failure of any key erosion and sediment control structures;
i. Procedures and timing for review and/or amendment to the ESCP; and
j. Identification and contact details of personnel responsible for the operation and maintenance of all key erosion and sediment control structures.

The ESCP shall be approved in writing by the Waikato Regional Council acting in a technical certification capacity prior to any works authorised by this consent commencing and the consent holder shall undertake all earthworks authorised by this consent in accordance with the approved ESCP.

12. The consent holder shall ensure that a copy of the approved ESCP, including any approved amendments, is kept onsite and this copy is updated within 5 working days of any amendments being approved.

13. Any changes proposed to the approved ESCP shall be confirmed in writing by the consent holder following consultation with the Waikato Regional Council, and approved in writing by the Waikato Regional Council acting in a technical certification capacity, prior to the implementation of the changes proposed.

14. Prior to bulk earthworks commencing on any area, the consent holder shall submit to the Waikato Regional Council a certificate signed by an appropriately qualified and experienced engineer to certify that the erosion and sediment controls have been constructed in accordance with the approved erosion and sediment control plans and in accordance with the document titled *"Erosion and Sediment Control Guidelines for Soil Disturbing Activities January 2009"*. Certified controls shall include the sediment retention ponds, decanting earth bunds, silt fences and diversion channels/bunds. The certification for these measures shall be supplied within 5 working days of completion of construction of those measures.

Information supplied if applicable shall include:

a. Contributing catchment area; and
b. Retention volume of structure (dead storage and live storage measured to the top of the primary spillway); and
c. Shape and dimensions of structure; and
d. Position of inlets/outlets; and
e. Stabilisation of the structure; and
f. Compliance with the Waikato Regional Council document titled "Erosion and Sediment Control Guidelines for Soil Disturbing Activities January 2009" (Technical Report No. 2009/02); and
g. Compliance with any relevant conditions of this consent.

Advice Note: *An example template and the information required for the As Built Certification Statements can be found on the Waikato Regional Council website www.waikatoregion.govt.nz/earthworks.*

15. The consent holder shall ensure that all sediment laden run-off from the site is treated by sediment retention structures. These structures are to be fully operational before bulk earthworks commence and shall be maintained to perform at least at 80% of their full operational capacity.

16. The consent holder shall ensure that all clean water run-off from stabilised surfaces including catchment areas above and around the site shall be diverted away from the earthworks area via a stabilised diversion system.

17. The consent holder shall ensure that all runoff diversion systems are designed and installed to convey flows from contributing catchment areas up to the 20% AEP rainfall event without overtopping and shall also ensure that these systems incorporate adequate protection against erosion.

18. The consent holder shall ensure that all erosion and sediment controls are inspected and in good working order prior to, and immediately after rain events. The consent holder shall further ensure that all erosion and sediment controls are maintained such that optimal sediment capture efficiency is achieved at all times.

19. The erosion and sediment controls specified in the ESCP shall not be disestablished without the prior written approval of the Waikato Regional Council, acting in a technical certification capacity.

Importation of Cleanfill

20. The consent holder shall ensure that any importation of cleanfill from off-site must meet the definition of cleanfill as defined by the Waikato Regional Plan. Cleanfill, deposition authorised by this consent shall exclude:

    a. material that has combustible, putrescible or degradable components;
    b. materials likely to create leachate by means of biological or chemical breakdown;
    c. any products or materials derived from hazardous waste treatment, hazardous waste stabilisation or hazardous waste disposal practices;
    d. materials such as medical and veterinary waste, asbestos, or radioactive substances that may present a risk to human health; and
    e. soils or other materials contaminated with hazardous substances or pathogens

Flocculation

21. Prior to bulk earthworks commencing, the consent holder shall undertake flocculant bench testing to determine the reactivity of soils to chemical treatment within those areas of the site where runoff is proposed to be treated by sediment retention ponds or decanting earth bunds.

22. If the bench testing required in condition 21 above determines that the soils are conducive for the use of flocculant, the consent holder shall incorporate a suitable rain activated dosing system unless otherwise agreed to by the Waikato Regional Council.

23. Prior to the commissioning of any flocculation treatment system, the consent holder shall provide the Waikato Regional Council with a Flocculation Management Plan (FMP), for the written approval of the Waikato Regional Council. The FMP shall include as a minimum:

    a. Specific design details for the flocculation system;
    b. Monitoring, maintenance (including posts-storm) and including a record system;
    c. Details of optimum dosage (including assumptions);
    d. Results of any initial flocculation trial;
    e. A spill contingency plan; and
    f. Contact details of the persons responsible for the operation and maintenance of the flocculation treatment system and the organisational structure to which this person shall report.

24. The FMP required by condition 23 shall be approved in writing by the Waikato Regional Council acting in a technical certification capacity prior to any works authorised by this consent commencing.

25. Any changes proposed to the FMP required by condition 23 shall be confirmed in writing by the consent holder and approved in writing by the Waikato Regional Council acting in a technical certification capacity, prior to the implementation of any changes proposed.

Machinery

26. All earthmoving machinery, pumps and generators shall be operated in a manner which ensures that spillages of fuel, oil and similar contaminants are prevented, particularly during refuelling and machinery servicing and maintenance. Refuelling and lubrication activities shall be carried out away from any surface water such that any spillage can be contained and does not enter any surface water.

27. The consent holder shall ensure that all machinery used in the exercising of this consent is cleaned prior to being transported to the site to ensure that all seed and/or plant matter has been removed and documented in accordance with the WRC document titled *'KEEP IT CLEAN*' – Machinery hygiene guidelines and logbook to prevent the spread of pests and weeds (June 2013)'.

Monitoring and Maintenance

28. The consent holder shall ensure that the erosion and sediment controls at the site are inspected a minimum of once per week and within 24 hours of each rainstorm event that is likely to impair the function or performance of the controls.

29. The consent holder shall carry out monitoring and maintenance of erosion and sediment controls in accordance with the conditions of this consent and shall maintain records detailing;

    a. The date, time and results of the monitoring undertaken; and
    b. The erosion and sediment controls that required maintenance; and
    c. The time when the maintenance was undertaken; and
    d. The type of maintenance carried out.

    These records shall be provided to the Waikato Regional Council on request.

Sampling

30. If requested in writing by the Waikato Regional Council the consent holder shall take samples of the discharges from all sediment retention ponds on the site a minimum of once per month and after all rainfall events greater than 20 millimetres in the preceding 24 hours, excepting times when there are no discharges. The consent holder shall take the samples within four hours of becoming aware of a rainfall event greater than 20 millimetres in the preceding 24 hours.

    Advice Note: *The purpose of this condition is to provide an opportunity for pond discharge sampling to be required if either flocculants are being used due to potential overdosing pH/Al issues, or where the discharge from a pond is not acceptable and actions are required (potentially including the use of flocculants) to resolve that situation.*

31. Within one working day of taking any samples required, the consent holder shall have those samples analysed for suspended solids and turbidity and (if flocculants are being used to treat

any sediment retention pond) pH, and soluble aluminium. The results of the analysis shall be forwarded to the Waikato Regional Council within 7 days of analysis.

32. The consent holder shall ensure that the soluble aluminium concentration of any discharge from a sediment retention pond flocculated in accordance with a Flocculation Management Plan approved in accordance with condition 23, shall not exceed 0.2 grams per cubic metre.

33. The consent holder shall ensure that the pH of any discharge from a sediment retention pond flocculated in accordance with a Flocculation Management Plan approved in accordance with condition 23, shall not be less than 5.5 or greater than 8.5 pH units.

34. Any sampling required by this resource consent, the frequency of sampling, analyses and reporting may be altered or reduced with the written agreement of the Waikato Regional Council.

Discharges

35. The concentration of suspended solids in the downstream farm drain or any other downstream water body shall not exceed 150 grams per cubic metre suspended solids concentration as a result of the exercise of this consent. This standard shall apply, except where the suspended solids concentration in the named water body, unaffected by the activity, is greater than the standard specified. When the concentration of suspended solids in the named water body, unaffected by the activity, exceeds 150 grams per cubic metre then there shall not be any increase in the suspended solids concentration in the named water body as a result of activities authorised by this consent.

Advice Note: *When assessing compliance with this condition a minimum of three water samples should be collected: (a) upstream and unaffected by the activities authorised by this consent; (b) the point source discharge from the activities authorised by this consent; and (c) downstream after reasonable mixing.*

Archaeological

36. The consent holder shall ensure that the exercise of this resource consent does not disturb any sites of archaeological value or of cultural significance to Tangata Whenua. In the event of any archaeological artefacts being discovered the works shall, in the vicinity of the discovery, cease immediately and the Waikato Regional Council, Heritage New Zealand and representatives of local iwi (where artefacts are of maori origin) shall be notified within 24 hours. Works may recommence on the written approval of the Waikato Regional Council after considering:

    a. Tangata Whenua interests and values;
    b. Protocols agreed upon by Tangata Whenua and the consent holder;
    c. The consent holders interests;
    d. Any Heritage New Zealand authorisations; and
    e. Any archaeological or scientific evidence.

Stabilisation/Rehabilitation

37. All construction entranceways to the site shall be stabilised with aggregate or similar non-erosive cover to the satisfaction of the Waikato Regional Council.

38. The site shall be stabilised against erosion as soon as practicable and in a progressive manner as earthworks are finished over various areas of the site. The consent holder shall monitor and maintain the site until vegetation is established to such an extent that it prevents erosion and

prevents sediment from entering any watercourse.

39. The discharge of untreated surface runoff from any area where soil has been disturbed as a result of the exercise of this resource consent shall only occur after consultation and the prior written approval of the Waikato Regional Council acting in a technical certification capacity. In this regard, the main issues that will be considered by the Waikato Regional Council include:

    a. The quality of the stabilisation and/or covering vegetation;
    b. The quality of the water discharged from the rehabilitated land; and
    c. The quality of the receiving water.

40. If so required by the Waikato Regional Council, the consent holder shall carry out immediate stabilisation of any required area of exposed earthworks surfaces on site using straw mulching, pinned geotextile or similar instant stabilisation techniques to the satisfaction of the Waikato Regional Council.

Dust

41. All earthworks activities carried out on site shall be conducted and managed in such a manner as to ensure that all dust and particulate emissions are kept to a practical minimum to the extent that there are no dust discharges beyond the boundary of the site that cause an objectionable effect.

42. The consent holder shall ensure that, at all times, the soil moisture of exposed areas is maintained at sufficient levels, under prevailing wind conditions, to prevent dust generated by normal earthmoving operations from remaining airborne beyond the boundary of the work site.

43. The consent holder shall ensure that, outside of normal working hours, staff are available on-call at all times to operate the water application systems for dust suppression in accordance with the Dust Management Plan approved through condition 45.

44. If so required by the Waikato Regional Council, the consent holder carry out immediate sealing of any problematic dust generating surfaces within the site using hydro-seed/hydro-mulch, polymer soil stabilisers or a similar dust control product to provide instant remediation of dust effects to the satisfaction of the Waikato Regional Council.

45. The consent holder shall provide the Waikato Regional Council with a detailed **Dust Management Plan** (DMP), at least 10 working days prior to the commencement of activities authorised by this consent. The objective of the DMP shall be to outline the site management methods to ensure that compliance with conditions 41 to 44 is achieved throughout the earthworks and as a minimum shall address the following items:

    a) Confirmation of the parties responsible for dust management throughout the works;
    b) Detailed monitoring methods for weather/soil conditions to ensure that any periods of elevated dust risk are appropriately anticipated and managed;
    c) Detailed staging plan for each season of earthworks to ensure that exposed surfaces at any one time are minimised in accordance with the requirements of this consent;
    d) Proposed dust control methods to ensure damp ground conditions can be maintained within the site during high dust risk periods;
    e) Confirmation of the required water supply volumes for dust control purposes for each stage of works and the provision of an appropriate supply source for the site;
    f) Methods for managing dust risk outside of standard working hours e.g weekends;
    g) Contingency methods for controlling any identified dust effects e.g cease works/site

stabilisation; and

h) Protocols for responding to and addressing any complaints received from neighbours.

The DMP shall be approved in writing by the Waikato Regional Council acting in a technical certification capacity prior to any works authorised by this consent commencing and the consent holder shall undertake all earthworks authorised by this consent in accordance with the approved DMP.

Administrative

46. The consent holder shall pay the Waikato Regional Council any administrative charge fixed in accordance with section 36 of the Resource Management Act (1991), or any charge prescribed in accordance with regulations made under section 360 of the Resource Management Act (1991).

In terms of s116 of the Resource Management Act 1991, this consent commences on 24 September 2020

Advice Notes - General

1. This resource consent does not give any right of access over private or public property. Arrangements for access must be made between the consent holder and the property owner.
2. This resource consent is transferable to another owner or occupier of the land concerned, upon application, on the same conditions and for the same use as originally granted (s.134-137 RMA). The transfer of water, including changes of location, may occur as provided for in Chapter 3.4 of the Waikato Regional Plan, subject to the requirements of those rules.
3. The consent holder may apply to change the conditions of the resource consent under s.127 RMA.
4. The reasonable costs incurred by Waikato Regional Council arising from supervision and monitoring of this/these consents will be charged to the consent holder. This may include but not be limited to routine inspection of the site by Waikato Regional Council officers or agents, liaison with the consent holder, responding to complaints or enquiries relating to the site, and review and assessment of compliance with the conditions of consents.
5. Note that pursuant to s332 of the RMA 1991, enforcement officers may at all reasonable times go onto the property that is the subject of this consent, for the purpose of carrying out inspections, surveys, investigations, tests, measurements or taking samples.
6. If you intend to replace this consent upon its expiry, please note that an application for a new consent made at least 6 months prior to this consent's expiry gives you the right to continue exercising this consent after it expires in the event that your application is not processed prior to this consent's expiry.

RESOURCE CONSENT CERTIFICATE

Resource Consent: AUTH142118.02.01

File Number: 61 76 45A

Pursuant to the Resource Management Act 1991, the Regional Council hereby grants consent to:

Sanderson Group Limited & Kotare Properties Limited
75 Elizabeth Street
Tauranga 3110

(hereinafter referred to as the Consent Holder)

Consent Type: Discharge Permit

Consent Subtype: Water - stormwater

Activity authorised: To divert and discharge stormwater in association with a residential subdivision and retirement village development

Location: 52 Frontier Road, Te Awamutu

Map reference: NZTM 1801366.0000 E 5790395.0000 N

Consent duration: This consent will commence on the date of decision notification and will expire on 15 September 2055

Subject to the conditions overleaf:

CONDITIONS

General

1. The stormwater diversion and discharge activities authorised by this resource consent shall be undertaken in accordance with the application for this resource consent (WRC doc ref# **16989874**), titled ***'Sanderson Group Ltd & Kotare Properties Ltd – Resource Consent Application to Waikato Regional Council to Undertake Earthworks and Discharge Stormwater – Frontier Road, Te Awamutu,*** dated 1 August 2020, prepared by Wainui Environmental Ltd and in particular the ***'Stormwater Management Plan'*** in Appendix D of the application,, and all other subsequent supporting documentation submitted, except where otherwise required in the resource consent conditions below. Where there is any discrepancy between the application documents and the resource consent conditions, the conditions below shall prevail.

2. The stormwater diversion and discharge activities authorised by this resource consent relates to the Te Awamutu Country Club & Kotare Properties Ltd residential development 'stormwater network' which includes, but is not necessarily limited to, the stormwater wetland, swale, stormwater inlet and outlet structures, and overland flow paths (as described in the, ***'Stormwater Management Plan'***, Appendix D of the application).

3. The consent holder shall be responsible for the design, structural integrity and maintenance of the stormwater network so that it continues to perform in accordance with the application and consent to avoid, remedy or mitigate any actual or potential adverse effects of the stormwater diversion and discharge activities authorised by this resource consent on the downstream watercourses.

4. The consent holder shall appoint a representative, who shall be the Waikato Regional Council's principal contact person in regard to matters relating to this resource consent. The consent holder shall inform the Waikato Regional Council of the representative's name and how they can be contacted. Should that person change during the term of this resource consent, the consent holder shall give written notice to the Waikato Regional Council of the new representative's name and how they can be contacted.

5. The consent holder shall be responsible for all contracted operations related to the exercise of this resource consent, and must ensure contractors are made aware of the conditions of this resource consent and ensure compliance with those conditions.

6. The consent holder shall not undertake any changes to the stormwater network which would increase the scale or intensity of the actual and potential adverse effects of the stormwater diversion and discharge activities authorised by this consent on the environment.

Detailed Engineering Design

7. The consent holder shall retain an appropriately qualified and experienced person to complete and finalise the detailed design for the stormwater management system for the development catchment. More specifically, the consent holder shall submit a report(s) summarising the detailed design and plans for the development catchment which confirms provision of the following stormwater management functions of the various components of the stormwater system in accordance with the **Stormwater Management Plan** and Waikato Regional Council's Stormwater Management Guideline (WRC Technical Report 2020/07):

    a. Stormwater wetland;

b. Planted treatment swale;
c. Stormwater reticulation network including all catchpits, pipelines and overland flowpaths; and
d. Discharge outlet structures.

The detailed engineering design and drawings shall be to a standard acceptable to the Waikato Regional Council and shall be submitted to the Waikato Regional Council for written approval in a technical certification capacity, prior to construction of the permanent stormwater network for each development stage within the catchment.

Stormwater Operations and Maintenance Plan

8. The consent holder shall retain an appropriately qualified and experienced person to prepare a ***'Stormwater Operations and Maintenance Plan'*** for the stormwater network inclusive of all stormwater management devices, and in particular the stormwater wetland, swale and inlet/outlet structures. The ***'Stormwater Operations and Maintenance Plan'*** shall be developed in general accordance with Waikato Regional Council's Stormwater Management Guideline (WRC Technical Report 2020/07). The ***'Stormwater Operations and Maintenance Plan'*** shall provide for all operational, maintenance, planting and monitoring measures associated with the stormwater discharge activity authorised by this resource consent and may include but not be limited to:

    a. A programme for regular monitoring and inspection of the stormwater management system, in particular any potential scour and erosion effects downstream of the stormwater wetland outlet structure and planted swale (Reach 1) including details of monitoring and inspection frequency;

    b. A programme for the regular collection and disposal of debris and sediment collected by the stormwater management devices to ensure that attenuation volumes are not compromised and that appropriate contaminant removal procedures are established;

    c. Inspection checklists for all aspects of the stormwater management system including monitoring and management of the wetland, swale and overland flowpaths and stormwater inlet/outlet structures;

    d. Details of who will be responsible for the operation and maintenance works;

    e. Details of recording and reporting of operation and maintenance activities.

    The ***'Stormwater Operations and Maintenance Plan'*** shall be approved by Waikato Regional Council acting in a technical certification capacity prior to the completion of the stormwater infrastructure and it becoming operational.

9. The consent holder shall implement the operations, monitoring, and maintenance activities adopted by the ***'Stormwater Operations and Maintenance Plan'***, in accordance with that plan and as required by Condition 8 of this resource consent.

10. The ***'Stormwater Operations and Maintenance Plan'*** shall be reviewable at any time by the Waikato Regional Council, or at the written request of the consent holder, or at any time a significant adverse effect has arisen. Any proposed changes to the ***'Stormwater Operations and Maintenance Plan'*** shall be subject to the written approval of the Waikato Regional Council acting in a technical certification capacity.

Stormwater Treatment Planting Management Plan

11. The consent holder shall retain an appropriately qualified and experienced person to prepare a ***'Stormwater Treatment Management Planting Plan'*** for the stormwater wetland and planted swale. The Plan shall be developed in general accordance with Waikato Regional Council's Stormwater Management Guideline (WRC Technical Report 2020/07). The Plan shall be to a standard acceptable to the Waikato Regional Council and shall be submitted to the Waikato Regional Council for written approval in a technical certification capacity, prior to commencement of the activities authorised by this resource consent. The Plan shall include but not be limited to:

    a. Site plantings including species to be planted, size of plants, and where they are to be planted;
    b. Site preparation for planting including weed and pest control;
    c. Timeline for planting;
    d. Ongoing weed and pest control;
    e. Supplementary/replacement planting plan specifications;
    f. Timing of monitoring, maintenance and inspections; and

12. The consent holder shall implement the planting, monitoring and maintenance activities adopted by the ***'Wetland Planting Plan'***, in accordance with that plan and as required by Condition 11 of this resource consent.

As Built Certification Statements

13. The consent holder shall retain an appropriately qualified and experienced person to prepare and sign 'As Built Certification Statements', which certify that the stormwater management system including wetland, swale and outlet structure have been constructed in accordance with the approved detailed engineering design details and drawings required by Condition 7 of this resource consent. The 'As Built Certification Statements' shall be submitted to the Waikato Regional Council within 3 months of completion of the final construction works associated with the stormwater management devices.

Stormwater Quantity and Receiving Environment

14. The consent holder shall manage the stormwater network to avoid the following stormwater quantity effects:

    a. Adverse scour, erosion and sediment deposition on land, property and the beds of stormwater receiving water bodies.
    b. Adverse flooding of land, property and stormwater receiving water bodies;
    c. Adverse effects on aquatic ecosystems.

All such adverse effects that are more than minor shall be addressed in the manner provided for in Condition 15 hereof, where they have been caused by the stormwater diversion and discharge activities authorised by this consent.

Advice Note: *Stormwater diversion and discharge activities in conjunction with urban land-use, can adversely affect flood potential by either limiting the rate at which stormwater drains from a catchment, or by increasing the rate and volume of discharge to downstream catchments. Whilst such effects are the subject of this consent, it is also recognised that 'levels of service' for*

flood alleviation in urban catchments are established by territorial authorities through separate statutory procedures and community consultation. The 'levels of service' that are established between the territorial authority and the community are not the subject of this resource consent.

15. As soon as practicable after becoming aware of any of the adverse effects of the nature specified in Condition 14 that are more than minor, the consent holder shall submit a report to the Waikato Regional Council in relation to the adverse effects. As a minimum, the report shall include:

    a. A description of the adverse effects;
    b. A description of the cause of the adverse effects;
    c. An explanation of any measures taken to remedy or mitigate the adverse effects, the outcome of those measures, and whether further measures are necessary and reasonably practicable;
    d. If no measures have been taken in accordance with (c), a description of any reasonably practicable measures that could be taken to remedy or mitigate the adverse effects and a recommendation as to whether those measures are necessary.

    The consent holder shall liaise with the Waikato Regional Council with a view to determining any reasonably practicable measures which should be taken to remedy or mitigate the adverse effects.

    Advice Note: *Separate resource consents may be required to undertake remedial or mitigation works. The consent holder is advised to obtain all such consents at its sole expense, prior to any works being undertaken.*

Stormwater Quality and Receiving Environment

16. The consent holder shall manage the stormwater network to avoid the discharge of any substance that is likely to cause the production of conspicuous oil, or grease films, scums or foams, or floatable suspended materials in stormwater receiving water bodies after reasonable mixing.

17. The consent holder shall manage the stormwater network to avoid as far as practicable and otherwise minimise, the discharge of suspended solids and any other substances that are likely to cause the following effects in stormwater receiving water bodies after reasonable mixing:

    a. Conspicuous changes in colour or visual clarity;
    b. Increases in suspended solids concentrations by more than 10 percent;
    c. 100 grams per cubic metre suspended solids concentrations or greater.

    Advice Note: *For the purposes of this condition, the suspended solids discharge parameters referenced above shall only apply to the post development stormwater discharges authorised by this resource consent and do not apply to the earthworks activities which are authorised under a separate land disturbance resource consent.*

18. The consent holder shall manage the stormwater network to avoid as far as practicable and otherwise minimise, the discharge of hazardous substances in concentrations that are likely to adversely affect aquatic life, or the suitability of water for human consumption after treatment. Where a question arises as to whether the concentration of any particular hazardous substance is causing these effects, it shall be determined through the application of the United States Environmental Protection Agency National Recommended Water Quality

Criteria (USEPA, 2009) – Criteria Maximum Concentration, or any other technical publication approved in advance by the Waikato Regional Council in a technical certification capacity.

19. The consent holder shall manage the stormwater network to avoid as far as practicable and otherwise minimise, discharges that are likely to adversely affect aquatic ecosystems and cause the following effects in the downstream farm drain after reasonable mixing:

    a. Dissolved oxygen levels to fall below 80% of saturation;

    b. pH to fall below 6 or exceed 9;

    c. Suspended sediments to smother benthic organisms;

    d. Undesirable biological growths;

    e. Water temperature to change by more than 3 degree C or exceed 25 degree C;

    f. Turbidity levels to exceed 25 NTU between the months of August and December;

    g. Ammoniacal nitrogen concentrations to exceed 0.88 grams of nitrogen per cubic metre; and

    h. Other contaminant concentrations to exceed the United States Environmental Protection Agency National Recommended Water Quality Criteria (USEPA, 2009) – Criteria Maximum Concentration.

Stormwater Treatment Devices

20. All stormwater treatment devices which form part of the stormwater network and are designed to attenuate and/or treat contaminated stormwater, shall be operated and maintained by the consent holder to provide best practicable stormwater treatment efficiency at all times.

Review Clause

21. The Waikato Regional Council may at any time two months either side of January of 2022, 2027, 2032, 2037, 2042, 2047, and 2052 serve notice on the consent holder under section 128(1) of the Resource Management Act (1991), and commence a review of the conditions of this resource consent for the following purposes:

    a. To review the effectiveness of the conditions of this resource consent in avoiding, remedying or mitigating any adverse effects on the environment from the exercise of this resource consent, and if necessary to avoid, remedy or mitigate such effects by way of further or amended conditions;

    b. If necessary and appropriate, to require the consent holder to adopt the Best Practicable Option or other specific measures to avoid, remedy or mitigate any adverse effects on the environment that result from the exercise of this resource consent;

    c. To review the adequacy of and necessity for the monitoring and reporting undertaken by the consent holder, and if necessary, to amend and/or introduce new conditions to monitor any adverse effects on the environment that result from the exercise of this resource consent;

d. To achieve consistency with any future changes to the Waikato Regional Council's plans or policies in regard to catchment management planning and stormwater management.

Costs associated with any review of the conditions of this resource consent will be recovered from the consent holder in accordance with the provisions of section 36 of the Resource Management Act (1991).

Administrative

22. The consent holder shall pay the Waikato Regional Council any administrative charge fixed in accordance with section 36 of the Resource Management Act (1991), or any charge prescribed in accordance with regulations made under section 360 of the Resource Management Act (1991).

In terms of s116 of the Resource Management Act 1991, this consent commences on 24 September 2020

Advice Notes - General

1. In accordance with section 125 RMA, this consent shall lapse five (5) years after the date on which it was granted unless it has been given effect to before the end of that period.
2. This resource consent does not give any right of access over private or public property. Arrangements for access must be made between the consent holder and the property owner.
3. This resource consent is transferable to another owner or occupier of the land concerned, upon application, on the same conditions and for the same use as originally granted (s.134-137 RMA). The transfer of water, including changes of location, may occur as provided for in Chapter 3.4 of the Waikato Regional Plan, subject to the requirements of those rules.
4. The consent holder may apply to change the conditions of the resource consent under s.127 RMA.
5. The reasonable costs incurred by Waikato Regional Council arising from supervision and monitoring of this/these consents will be charged to the consent holder. This may include but not be limited to routine inspection of the site by Waikato Regional Council officers or agents, liaison with the consent holder, responding to complaints or enquiries relating to the site, and review and assessment of compliance with the conditions of consents.
6. Note that pursuant to s332 of the RMA 1991, enforcement officers may at all reasonable times go onto the property that is the subject of this consent, for the purpose of carrying out inspections, surveys, investigations, tests, measurements or taking samples.
7. If you intend to replace this consent upon its expiry, please note that an application for a new consent made at least 6 months prior to this consent's expiry gives you the right to continue exercising this consent after it expires in the event that your application is not processed prior to this consent's expiry.