

**BEFORE INDEPENDENT HEARING COMMISSIONERS APPOINTED BY THE  
WAIMAKARIRI DISTRICT COUNCIL**

**IN THE MATTER OF**

The Resource Management Act 1991 (**RMA** or  
**the Act**)

**AND**

**IN THE MATTER OF**

Hearing of Submissions and Further  
Submissions on the Proposed Waimakariri  
District Plan (**PWDP** or **the Proposed Plan**)

**AND**

**IN THE MATTER OF**

Hearing of Submissions and Further  
Submissions on Variations 1 and 2 to the  
Proposed Waimakariri District Plan

**AND**

**IN THE MATTER OF**

Submissions on the Proposed Waimakariri  
District Plan by **Martin Pinkham and Others**

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**SUBMISSION OF MARTIN PINKHAM  
ON BEHALF OF MARTIN PINKHAM AND OTHERS  
REGARDING HEARING STREAM 12C**

DATED: 12 July 2024

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## INTRODUCTION

- 1 My name is Martin John Pinkham.
- 2 I have spent most of my career as a civil and environmental engineer. I have a degree in civil engineering from the University of Canterbury, was a Professional Member of Institute of Professional Engineers of New Zealand and a Registered Engineer (prior to title ceasing),, and a former Member of Association of Local Government Engineers. My full qualifications and experience are set out in Appendix J of this submission.
- 3 I confirm that this submission is also prepared in accordance with the Environment Court's Code of Conduct.
- 4 I have prepared this submission regarding Hearing Stream 12C in support of the submission of myself and others on the Proposed Waimakariri District Plan (**PDP**) to rezone approximately 86ha at Mandeville East from Rural Lifestyle Zone (**RLZ**) to Large Lot Residential Zone (**LLRZ**). The names and addresses of the submitters, along with their submission numbers, is attached as Appendix A.
- 5 The original submissions identified two potential areas for rezoning to LLRZ, but this has now been refined to one area as shown on the drawing attached as Appendix B. This revision to the area recognises that there needs to be a 300-metre buffer zone between an existing intensive farming operation at 342 Mandeville Road and any potential LLRZ development.
- 6 I wish the Panel to note that in November 2021 I made submissions to the PDP requesting the rezoning of many areas of land to LLRZ, including Mandeville East, and opposed the rezoning of some areas of land to LLRZ, that had been identified in the WDC RRDS. Subsequent to that process my wife and I purchased 859 Tram Road in October 2022 and are currently the owner of that land.
- 7 On 23 May 2024 the Waimakariri District Council (**Council**) released an Officer Report for Hearing Stream 12C prepared under section 42A of the RMA containing an analysis of submissions seeking Large Lot Residential Zone and recommendations in response to those submissions (**Officer Report**).
- 8 The Officer Report recommends that the Mandeville East rezoning submissions be rejected. My submission is filed in response to that Report.

## SCOPE OF SUBMISSION

- 9 In my submission I address the following matters:
- (a) The background to the current land uses.
  - (b) A response to the Officer Report with particular emphasis on matters where there is a difference of view between myself and the Officer Report.
  - (c) Further details to support the original submissions.
- 10 In preparing this submission I have:
- (a) Reviewed the Officer Report and the Appendices to that Report
  - (b) The Panel's questions to the s42A report writer (Appendix 1 to Minute 27)
  - (c) Reviewed the Officer's preliminary response to written questions on Large Lot Residential Rezoning dated 27 June 2024 (the **Officer's Response**);

## CONTEXT AND APPROACH

- 11 As noted above, the Officer Report recommends declining the Mandeville East rezoning submissions. A range of reasons are given for this recommendation.
- 12 The approach I have adopted in this submission is to provide context to the location of the properties requested to be rezoned to LLRZ, identify those parts of the Officer Report (including Appendices attached to that Report) where I disagree with the Officer Report, and to explain my reasons for disagreement. There are also some matters noted in the Officer's Response that are relevant, and comments on these are provided. I have also provided additional information to support this submission.

## BACKGROUND

- 13 The requested Mandeville East LLRZ rezoning encompasses 21 properties ranging in size from 1.77ha to 9.52ha. Prior to the notification of the PDP one of the property owners canvassed the other Mandeville East property owners as to whether they would support rezoning from RLZ to LLRZ. Approximately half of the property owners expressed strong support for rezoning. A common reason for supporting a rezoning to LLRZ was that the landowners were not utilising most of their land for productive purposes, and that they primarily purchased the land for a rural outlook. Many of the landowners expressed the view that they only wanted "an acre or so" (4000 m2) for a large garden and the balance of the land was just a "nuisance".
- 14 As noted in paragraph 4 above some of the property owners have supported the requested rezoning by way of formal submission to the PDP. One property owner made a submission to the PDP opposing the rezoning request. As noted in the Officer's Response a group of

property owners have recently informally advised the Officer that they do not support the rezoning request. From the time that submissions to the PDP were received to the present day approximately six properties have changed ownership.

- 15 Most of the properties in Mandeville East have been the result of subdivision under the WDC Operative District Plan which required a minimum lot size of 4ha in the Rural zone.
- 16 Apart from three smaller properties on the western edge of Mandeville East that are connected to the Mandeville potable water and wastewater schemes, all the properties have their own potable water well, and their own septic tank wastewater system. All the properties have an electricity connection. While each lot is serviced with underground telephone connections AmuriNet have recently installed fibre cable on the surrounding roads and each lot can connect to the fibre network.
- 17 As noted above most of the land is poorly utilized for primary production with agricultural activities primarily employed to reduce fire risk. This is not untypical of this type of landholding in the Mandeville area.
- 18 Each of the lots subject to this rezoning request is shown as RLZ in the Proposed District Plan. If the landowners request to rezone the land from RLZ to LLRZ is approved any landowners wishing to develop their land will be required to lodge subdivision resource consents to ensure compliance with the PDP, the WDC Code of Practice, and an approved Outline Development Plan (ODP). Depending on the configuration of the subdivision(s) there could be approximately 150 new lots created.
- 19 The implementation of the subdivision(s) will require a wide range of services to be constructed and would involve at least the following:
- the construction of new roads and rights of way with footpaths where required
  - the installation of water pipes within the development area and connection to the existing Fernside – Mandeville water scheme
  - the installation of pressure sewer pipes, pump chambers and connection to the existing Mandeville wastewater scheme
  - the construction of stormwater channels in the road reserves, construction of road crossing culverts, the realignment of flow channels, and the construction of stormwater management areas
  - the installation of underground power supplies
  - the installation of fibre cable ducts.
  - landscaping
- 20 In accordance with the WDC Code of Practice any new lot will be required to install a large

potable water tank which has a restricted flow connection to the WDC potable water network. Each lot will need to install an approved wastewater holding tank with its self-contained pump system that pumps to the WDC sewer reticulation. Each lot is required to have a contract with an approved wastewater contractor to maintain the wastewater system. All buildings and hardstand areas on each lot would be required to install approved design soakpits to dispose of stormwater to ensure that there is no significant change in the runoff from each lot.

### **WDC Rural Residential Strategy (RRDS)**

- 21 In 2010 the WDC developed a non-statutory Rural Residential Development Plan (RRDP). This Plan identified Mandeville as a preferred Rural Residential development area, and south of Tram Road. The area in the southwest area has now been developed but in addition there have been large areas to the northwest of Mandeville (on the north side of Tram Road) that have been developed as rural residential in response to the significant demand following the Christchurch earthquakes, even though they were not identified as part of the plan.
- 22 In 2019 the WDC undertook the development of a new non statutory Rural Residential Development Strategy (RRDS). I participated in this process and in my opinion this process was highly flawed.
- 23 The preliminary assessment was very dismissive of Mandeville as an option. I have enclosed Page 3 of the Preliminary Assessment as Appendix F. I am of the view that the existence of the Mandeville Growth Boundary as a reason for dismissing Mandeville as an option was not logical, especially when it was considered that there were no other Preliminary Criteria triggered.
- 24 The concerns over high groundwater and undercurrents may have applied to some parts of Mandeville but there did not appear to be any detailed investigation of this matter. As the relevant section of Appendix-G-Mandeville-San-Dona-Groundwater-Assessment of the Officer Report has highlighted the areas to the east of the Mandeville Shopping area and south of Tram Road are not considered to be of concern.
- 25 The Hearings Panel that considered submissions to the draft RRDS did not have any expert members and there was very little change from the draft RRDS to the final version.
- 26 As noted in paragraph 210 to 212 of the Officers Report the North Swannanoa area (Area 1 of the RRDS) that was identified for LLRZ under the RRDS is now considered to be unsuitable and is now not recommended for rezoning to LLRZ.
- 27 As noted in paragraphs 383 to 393 of the Officers Report part of the Oxford area (Area 2 of the RRDS) that was identified for LLRZ under the RRDS is now considered to be unsuitable and is now not recommended for rezoning to LLRZ.
- 28 It is also noted that the landowners of Area 4 Gressons Road of the RRDS have requested

alternative GRZ and MRZ zonings for 140ha of their land to the south of the Gressons Road LLRZO. This is inconsistent with the RRDS strategy of not having LLRZ zoning adjacent to GRZ and MRZ zones. It has been a consistent, and problematic, issue in Waimakariri District of landowners with LLRZ properties adjacent to GRZ and MRZ zones wanting to subdivide their land. This causes major issues for retrofitting urban services and altering the nature of the roads and streets from the distinctive LLRZ style to a fully urban style.

29 The 2019 RRDS is now 5 years old and given the changes noted above the PDP has fallen well short of providing an appropriate amount of LLRZ land that is in high demand in the district.

30 In summary, the assessments of the Officers Report has highlighted that the non-statutory 2019 RRDS prepared by WDC has numerous and significant flaws. There are many areas identified for LLRZ zoning in the RRDS that have now been dismissed, but there are likely to be many areas where LLRZ zoning has been requested that will meet the criteria detailed in UFD-P3 Identification/location and Extension of Large Lot Residential Zone areas. It is my opinion that the RRDS should be given little weight when considering requests for LLRZ rezoning.

#### **RESPONSE TO OFFICER REPORT**

31 The Officer Report makes the following comments:

##### ***5.3.7 Matters raised by submitters***

164. *Martin Pinkham [187.1], Oxford-Ohoka Community Board [172.1], Clifford Sinclair Bishop and Hope Elizabeth Hanna [200.1], Darrell O'Brien [225.1], Adrian Selwyn Meredith [232.1], Mark Lupi [269.1], Matt Pidgeon [327.1], Beth Suzanne Warman [328.1] and Margaret Boyd Pierson [329.1] have requested that the Mandeville LLRZ zone be extended to the east to incorporate those properties as shown in Figure 9. The proposed rezoning was assessed against the criteria in UFD- P3. No technical supplementary information was provided.*
165. *Ulrike van Nek [156.1] submitted that they wanted the remaining Ohoka area to retain the RLZ zoning. They are a resident within the area proposed in the Mandeville East Extension rezoning proposal.*



**Figure 9: East Mandeville extension (red outline)**

32 Appendix C of this submission is a marked-up version of WDC Planning Map 167 Mandeville North Growth Boundary dated 17 November 2014 and shows the location of the requested LLRZ rezoning.

33 The following paragraphs discuss the assessment made in the Officer Report.

**5.3.8 Assessment**

186. *The proposed rezoning is inconsistent with Policy 1 of the NPSUD as it does not meet the requirements of being a well-functioning urban environment, in that it does not have good accessibility to jobs and community services, and does not support a reduction in GHG emissions.*

34 Firstly, it is my opinion that Policy 1 of the NPSUD does not apply to the requested rezoning to LLRZ. The Officers Response has also concluded that LLRZ should not be considered urban, and therefore Policy 1 of the NPSUD is no longer relevant.

35 Secondly, as shown on Appendix C the requested LLRZ zoning is located immediately adjacent to an existing LLRZ zone (Ohoka Meadows). The edge of this requested LLRZ rezoning is within 500m of the existing Mandeville Shopping Centre, the existing service centre for this part of the district. Ohoka Meadows Drive is off Mandeville Road and is almost opposite the entrance to the Mandeville Recreation Area, the main sports and recreation facility for the local area.

36 The requested LLRZ rezoning is 8.4km from the SH1 / Tram Road interchange. This location is as close to Christchurch than any other requested new LLRZ zone in Waimakariri District. It is noted that almost all the lots within the Mandeville Growth Boundary (MGB), as shown as WDC Planning Map 167 Mandeville North Growth Boundary, have been developed. As other submitters have noted there is a significant demand for LLRZ type properties in the Waimakariri District, and that potential new residents are generally not interested in purchasing 4ha lots as they only wish to purchase a lot that provides more space than a residential lot in Christchurch and local towns. Many of these new residents purchase LLRZ type lots as a work from home base or obtain work in the Waimakariri District.

187. *The rezoning does not meet the requirements of Policy 6.3.9 RPS, in that it was not identified in the RRDS, there is insufficient capacity in the wastewater network for it to be serviced, it could potentially result in reverse sensitivity effects on primary production, and no ODP was provided.*

37 It is acknowledged that the requested rezoning was not included in the 2019 RRDS. However, as I discussed earlier in my submission, the development of the 2019 RRDS was highly flawed, and the Officer Report has already concluded that some areas included in the 2019 RRDS are no longer recommended for rezoning to LLRZ. The risk of reserve sensitivity effects on primary production is very low as scale of primary production in the adjacent areas is minor. A further section of this submission discusses the development of an ODP.

188. *Some of the properties will be within 300m of the poultry operation at 342 Mandeville Road. Rezoning of the land will potentially create reverse sensitivity issues and would be inconsistent with Policy UFD-P10, Objective RLZ-O1 and Policy LLRZ-P3.*

38 It is acknowledged that the intensive poultry operation should be protected utilising the 300-metre setback required in the Operative District Plan, and the Proposed District Plan. This would limit the scope of LLRZ development and as noted earlier the extent of the requested LLRZ has been amended to consider this operation.

189. *As with the other Mandeville rezoning requests, any additional development will have an impact upon the wastewater and roading networks, and could potentially contribute to increased flooding in those downstream areas, such as Silverstream and Kaiapoi. I do not support the rezoning submission for the properties.*

39 It is acknowledged that impacts on the wastewater and roading networks needs to be mitigated and this is discussed later in this submission. Avoidance of these overland flow paths to construct dwellings on 5000m<sup>2</sup> lots would be simple and is a common practice in rural and rural residential developments. The creation of new lots that are required to have a minimum average size of 5000m<sup>2</sup> would have a minimal impact on the characteristics of the downstream overland flow paths. These matters are discussed in further detail elsewhere in my submission.

## PLANNING FRAMEWORK

### National Policy Submissions (NPS) and National Environmental Standards

40 The following National Policy Submissions (NPS) and National Environmental Standards (NES) are relevant to this requested LLRZ rezoning.

**Table 3 Relevant NPS or NES**

NPS or NES	Relevance
NPS-UD	As discussed in paragraph 24 this is not relevant
NPS-HPL	The NES-HPL requires a Regional Policy Submission (RPS) to identify Highly Productive Land and discourages development on HPL. While Environment Canterbury has not formally updated the CRPS a draft has been circulated and this draft includes the assessment of HPL in each district. A copy of this draft, along with an extract from that draft showing the location of the requested LLRZ rezoning, is attached as Appendix D and shows that the Mandeville East LLRZ is not in an area of HPL.
NPS-FM	Not relevant
NPS-IB	Not relevant



NES FW	Not relevant
NES-CS	A search of the Environment Canterbury LLUR has resulted in identifying two of the properties requested for LLRZ rezoning having a record of potential contamination. These are 843 and 855 Tram Road, and a copy of the LLUR reports are attached as Appendix E. It is not entirely clear why these two properties have been identified as HAIL sites, but it is probably due to the historical use of pesticides and fungicides associated with the now abandoned olive orchard. Prior to the lodging of a subdivision consent application the landowner will need to complete a Detailed Site Investigation (DSI) and potentially implement a Site Remediation Plan.
NES-DW	The NES-DW requires regional councils to ensure that activities' effects on drinking water sources are considered in decisions on resource consents and in regional plans. It is possible that the discharges from the existing septic tanks within the Mandeville East area have the potential to contaminate downstream wells. Rezoning the Mandeville East to LLRZ would result in these septic tank discharges ceasing as the tanks would be connected to the Mandeville Wastewater Scheme. Evidence is emerging that the level of organic and chemical contamination of the relatively shallow aquifers that are used for drinking water in the Canterbury plains is increasing and could cause harm to users. Rezoning the Mandeville East to LLRZ would result in all these properties being connected to the Fernside - Mandeville Water Scheme and eliminating this risk.

### Canterbury Regional Policy Submission (CRPS)

41 The relevant provisions of the CRPS are summarized in the table below:

**Table 4 Relevant Rules of the CRPS**

Policy	Requirements	Commentary
6.3.3	Development within greenfield areas and rural residential areas to be in accordance with an ODP and sets out the requirements for ODPs, including density considerations;	A further section of this submission discusses the development of an ODP. It is also noted that most of the details of extending services and access can be dealt with during the subdivision resource consent process.
6.3.9	Restricts new areas of rural residential development to only occur within areas identified in a Rural Residential Development Strategy (RRDS)	As noted in paragraphs 17 to 25 above the 2019 WDC RRDS is highly flawed and should be given little weight, and the criteria detailed in UFD-P3 Identification/location and Extension of Large Lot Residential Zone areas should take precedence when considering requested LLRZ zoning.

### Proposed District Plan

42 The Proposed District Plan has specific policies regarding the identification/location and extension of Large Lot Residential Zone areas is described in Section Part 2 – District-wide matters Strategic directions UFD - Āhutatanga auaha ā tāone - Urban form and development, repeated below, along with an assessment of the requested LLRZ rezoning:

***UFD-P3 Identification/location and Extension of Large Lot Residential Zone areas***  
*In relation to the identification/location of Large Lot Residential Zone areas:*

- *new Large Lot Residential development is located in the Future Large Lot Residential Zone Overlay which adjoins an existing Large Lot Residential Zone as identified in the RRDS and is informed through the development of an ODP;*
- *new Large Lot Residential development, other than addressed by (1) above, is located so that it:*

<b>Criteria</b>	<b>Assessment</b>
<ul style="list-style-type: none"> <li>• <i>occurs in a form that is attached to an existing Large Lot Residential Zone or Small Settlement Zone and promotes a coordinated pattern of development;</i></li> </ul>	Complies as it attached to the existing Mandeville LLRZ
<ul style="list-style-type: none"> <li>• <i>is not located within an identified Development Area of the District's main towns of Rangiora, Kaiapoi and Woodend identified in the Future Development Strategy;</i></li> </ul>	Fully complies
<ul style="list-style-type: none"> <li>• <i>is not on the direct edges of the District's main towns of Rangiora, Kaiapoi and Woodend, nor on the direct edges of these towns' identified new development areas as identified in the Future Development Strategy;</i></li> </ul>	Fully complies
<ul style="list-style-type: none"> <li>• <i>occurs in a manner that makes use of existing and planned transport infrastructure and the wastewater system, or where such infrastructure is not available, upgrades, funds and builds infrastructure as required, to an acceptable standard; and</i></li> </ul>	Complies. Will utilise the existing Ohoka Meadows Drive, Mandeville Road, Whites Road and Tram Rd sealed roads. Connection to the existing Mandeville potable water and wastewater schemes is possible, but may require an upgrade of some infrastructure. The existing Mandeville potable water and wastewater systems have provision to accommodate new connections. It is anticipated that a specific development contributions regime will need to established to fund some of the required infrastructure to service the Mandeville East LLRZ.
<ul style="list-style-type: none"> <li>• <i>is informed through the development of an ODP.</i></li> </ul>	Complies A further section of this submission discusses the development of an ODP. It is also noted that most of the details of extending services and access can be dealt with during the subdivision resource consent process.

## **OUTLINE DEVELOPMENT PLAN**

43 As required by CRPS Policy 6.3.3 an Outline Development Plan (ODP) is required to accompany any proposed rezoning to LLRZ. A draft OPD is attached as Appendix K of this

submission. This ODP has been developed on the basis that the Mandeville East LLRZ will be developed in accordance with the following provisions of the PDP:

- Policies LLRZ-P1 to P5
- Activity Rules LLRZ-R1 to R27
- Built Form Standards LLRZ-BFS1 to BFS7

44 The key parameter of the above is that there will be an average site density of one residential unit per 5,000 square metres, or 2 residential units per hectare.

45 The attached ODP has been developed with the following matters being of significance:

- There is only one road off Tram Road, and this is located at the position of an existing large right of way.
- All other roads servicing the LLRZ are off Whites Road, Baileys Road, or Mandeville Road.
- The WDC Code of Practice for Development provides very detailed drawings and specifications for the infrastructure required in LLRZ developments, but the key features are summarized in the following bullet points.
- Most of the roads would have a width of 20m to accommodate the road carriageway and wide berms. Shallow water tables would be required on each side of the carriageway, with culverts at road intersections to ensure flow connectivity.
- Each property would have a sealed driveway from the carriageway to the boundary, with culverts under each driveway.
- There is a high level of permeability within the LLRZ
- There is minimal alteration of existing stormwater flow paths as these traverse the site. Any crossings of these flow paths will be required to pass expected stormwater flows.
- There is an extensive network of pedestrian and cycle paths within the LLRZ. Pedestrian / cycle connectivity to the wider Mandeville area will need to be way of paths in the Tram Road and Mandeville Road road corridor. There is a possibility of a pedestrian / cycle path accessing the eastern end of Ohoka Meadows Drive but that is subject to the development of a suitable development plan for existing LLRZ zoned properties in the Ohoka Meadows development.
- The potable water system for the LLRZ would be an extension of the existing Fernside – Mandeville water scheme. As this is a Restricted system there is considerable flexibility on the reticulation configuration, but all the mains would be located within the new road reserves, with a water toby box located at each property boundary.
- The sewerage system for the LLRZ is based the in the pressurized property reticulation connecting to the WDC system at the property boundary. The internal sewerage pressurized reticulation would terminate at pump chambers in Whites Road and Tram Road, which in turn pump to the existing Mandeville Wastewater pump station at the

## **ENGINEERING MATTERS**

46 The following sections provide the relevant information as recommended in the Memo to Rezoning Submitters dated 12 December 2023.

### **Potable Water**

47 Three of the smaller properties subject to this request for rezoning to LLRZ are already connected to the Fernside - Mandeville Water Scheme with the balance having individual wells.

48 The Officer Report has noted that the WDC Engineers have advised that additional connections to the Fernside - Mandeville Water Scheme are feasible. This is a restricted supply and therefore requires each lot to have its own on-site storage and pressure pump system. This is consistent with the data contained in the Fernside - Mandeville Water Scheme Activity Management Plan which shows that the scheme expects approximately 290 new connections over the next 20 years.. A copy of the following extracts from the Fernside - Mandeville Water Scheme Activity Management Plan are attached as Appendix G.

- Plan of the Serviced Area
- Table of Growth Projections
- Graph of Growth Projections

49 However, I note that the Plan for the Serviced Area is in error as the three properties already serviced by this scheme, and included in this request for rezoning to LLRZ, are not shown on the Plan.

50 Adding the Mandeville East LLRZ to the existing Fernside - Mandeville Water Scheme will probably require upgrades, and extensions, to the existing infrastructure. Some of these, such as the Mandeville Road water main extension are already in the Fernside - Mandeville Water Scheme Activity Management Plan.

51 It is anticipated that a specific development contributions regime will need to be established to fund the required water infrastructure to service the Mandeville East LLRZ. The configuration and size of the system are matters that are dealt with at subdivision resource consent stage.

### **Wastewater**

52 Three of the properties subject to this request for rezoning to LLRZ are already connected to the Mandeville Wastewater Scheme. This is a pressure system and therefore requires each lot to have its own storage tank and a pressure pump system that pumps the wastewater to the WDC reticulation.

53 The Officer Report has noted that the WDC Engineers have advised that additional connections to the Mandeville Wastewater Scheme are not feasible. This is inconsistent with the data contained in the Mandeville Water Scheme Activity Management Plan which shows that the scheme expects approximately 160 new connections over the next 20 years. A copy of

the following extracts from the Mandeville Wastewater Scheme Activity Management Plan are attached as Appendix H.

- Plan of the Serviced Area
- Table of Growth Projections
- Graph of Growth Projections

54 However, I note that the Plan for the Serviced Area is in error as the three smaller properties already serviced by this scheme, and included in this request for rezoning to LLRZ, are not shown on the Plan.

55 Adding the Mandeville East LLRZ to the existing Mandeville Wastewater Scheme will probably require upgrades, and extensions, to the existing infrastructure. It is acknowledged that a key constraint to expansion of the Mandeville Wastewater Scheme is the current capacity of the rising main from the Bradleys Road pump station to the Rangiora Wastewater plant. This may result in development of the Mandeville East LLRZ having to be staged if this is not upgraded in the short term.

56 A preliminary wastewater extension plan is shown on the attached draft ODP. It is anticipated that a specific development contributions regime will need to be established to fund the required wastewater infrastructure to service the Mandeville East LLRZ. The configuration and size of these are matters that are dealt with at subdivision resource consent stage.

### **Stormwater**

57 In accordance with the WDC Code of Practice all buildings and hardstand areas on each lot are required to install approved design soakpits to dispose of stormwater. This approach ensures that there is minimal increase in the runoff characteristics resulting from the higher density of lots in a LLRZ development compared to an RLZ environment. Similarly, runoff from roads and rights of way are disposed to ground.

58 The Officers Report includes Appendix-G-Mandeville-San-Dona-Groundwater-Assessment, and a copy of the section relevant to this submission is attached as Appendix I. The conclusions of this part of the report are that net groundwater take and reduction is not anticipated to be significant.

59 A key consideration of the design of the Mandeville East ODP has been maintaining the integrity and functionality of the existing overland flow paths. These are shown on the ODP. In addition to maintaining these flowpaths it may be necessary to provide flow attenuation / treatment in Stormwater Management Areas which are shown on the ODP. The configuration and size of these are matters that are dealt with at subdivision resource consent stage.

### **Natural Hazards**

60 Data from the Waimakariri District Natural Hazards Interactive Viewer shows that some of the

properties may be subject to low hazard level of flooding as shown on Diagram 3 above. The low levels of flooding risk due to overland flow paths which must be maintained. Avoidance of these overland flow paths to construct dwellings on 5000m<sup>2</sup> lots will be simple and is a common practice in rural residential developments. It is noted that the risk of flooding is less than many areas of Ohoka Meadows.

61 There are no other known natural hazards.

### **Floor Levels**

62 At the time of lodging subdivision resource consent, it will be necessary to establish finished floor levels to ensure that building platforms are located above, with sufficient freeboard, the overland flow paths noted in the Natural Hazards section above.

### **Greenspace Levels of Service**

63 Feedback from the WDC Plan Development team has been that the primary greenspace and recreation area in the Mandeville area is the Mandeville Sports Ground located on Mandeville Road, and no further greenspace facilities would be required because of a rezoning to LLRZ.

### **Transport**

64 The rezoning of Mandeville East to LLRZ could result in the creation of up to 150 new lots which will result in an increase in traffic movements in the local network. This is a small percentage of total traffic movements in the local network but will contribute to an incremental decrease to the functionality of the network. This is an ongoing issue for WDC, and the existing WDC Development Contributions framework already has provision for new lots contributing to improvements to the wider roading network. WDC has programmed the imminent construction of a roundabout at the corner of Tram Road and Bradleys Road as part of these network improvements.

65 The development of the ODP has carefully considered the implication of this and the following features are incorporated into the ODP:

- The ODP has only one road off Tram Road, and this is located at the position of an existing right of way.
- There would be no new accessways off Tram Road, although some may be relocated.
- There are already a significant number of accessways off Whites Road and Mandeville Road, but it is anticipated that almost all new lots would be serviced from the new internal roads.
- The speed environment for the internal road network would be 50 km/hr.
- All other roads servicing the LLRZ are off Whites Road, Baileys Road, or Mandeville Road.

- 66 The WDC Code of Practice has standard details for each of these intersections and constructing these will be the responsibility of the developers. The COP also has standard details for all internal roading, and pedestrian / cycle facilities.
- 67 At the time of lodging subdivision resource consent application, it will be necessary for the applicants to prepare an Integrated Traffic Assessment (ITA). The ITA will provide guidance on whether there will need to be improvements to the road network outside the Mandeville East LLRZ. A preliminary assessment of what improvements may be required include:
- Minor safety improvements at the Baileys Road intersection with Mandeville Road.
  - Minor safety improvements at the Whites Road intersection with Tram Road.

## **CONCLUSION**

- 68 The requested Mandeville East rezoning from RLZ to LLRZ will have a minimal effect on the environment as there will be little change in the use of the land from its current use. A LLRZ zoning will not preclude small scale primary production or activities reliant on the natural and physical resources of the environment but will be an efficient use of the land compared to the current inefficient use. The change to a LLRZ zoning will not be inconsistent with the area surrounding the site as the site does not lend itself to primary production activities currently due to its relatively small area. The proposal will therefore maintain the existing character and reflect the existing activities surrounding the existing sites. A Mandeville LLRZ would provide a high quality semi residential environment that is well located to both existing services and Christchurch and help meet the current demand for such properties in Waimakariri District.
- 69 Thank you for the opportunity to present this submission.

Martin Pinkham  
12 July 2024

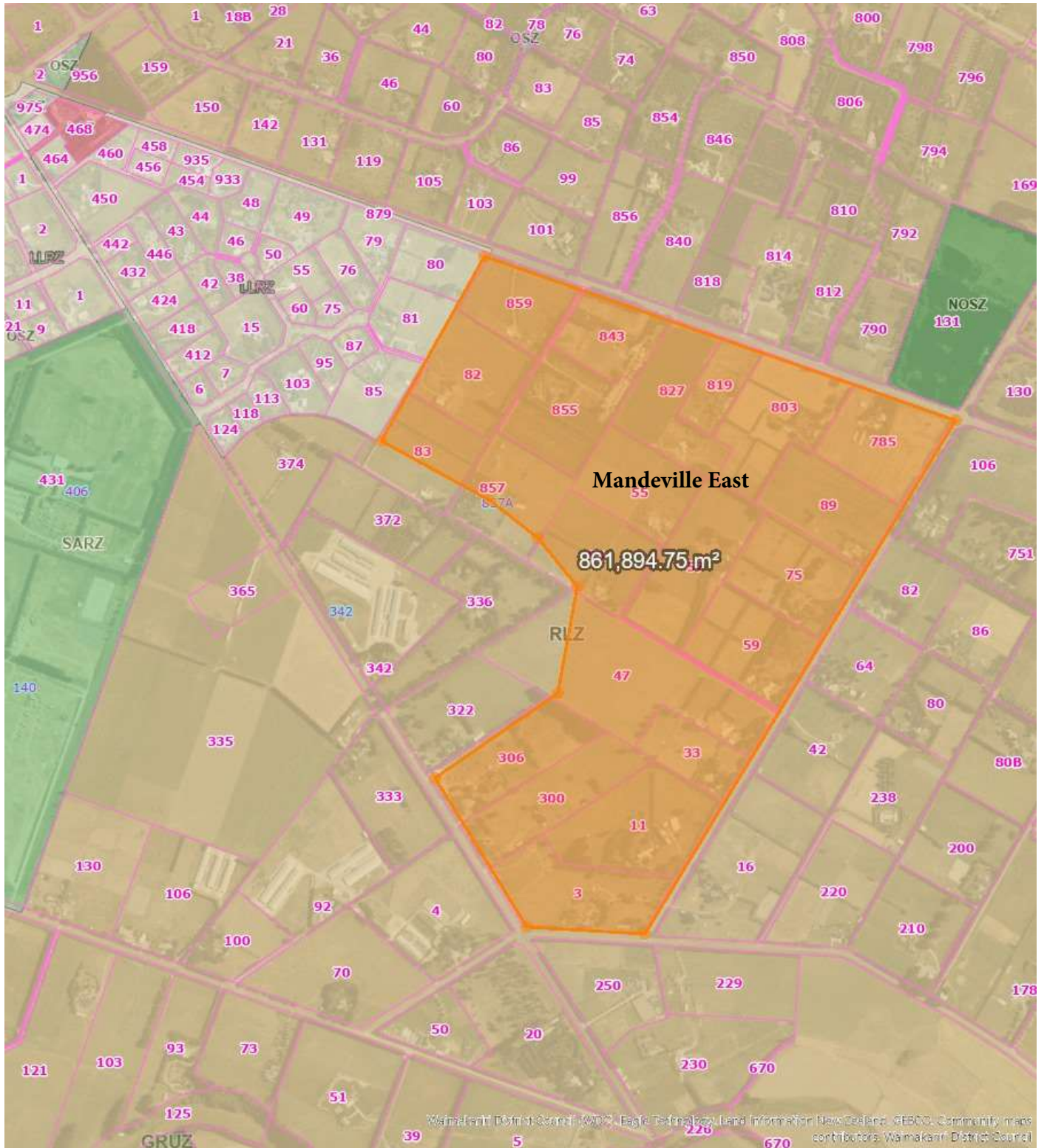
## **Appendices**

- Appendix A Submitters  
Appendix B Revised Mandeville East LLRZ  
Appendix C Mandeville Growth Area  
Appendix D HPL Map from Draft CRPS 2024  
Appendix E LLUR Report for 843 and 855 Tram Road  
Appendix F RRDS-PRELIMINARY-CRITERIA-ASSESSMENT 2019  
Appendix G Mandeville-Fernside-Water-Supply-Scheme-Activity-Management-Plan  
Appendix H Mandeville-Wastewater-Scheme-Activity-Management-Plan  
Appendix I Pages from Appendix-G-Mandeville-San-Dona-Groundwater-Assessment  
Appendix J 200 Year Flood Hazard Map  
Appendix K Mandeville East Outline Development Plan  
Appendix L Authors Qualifications and Experience

97.64

Landowner	Address			Land Area (ha)	Submitter	Submission No
Beth Warman	3 Whites Road	3	Whites Road	4.71	A	328.1
Margaret Boyd Pierson	338B Mandeville Road	338B	Mandeville Road	5.17	A	329.1
Matt Pidgeon	322 Mandeville Road	322	Mandeville Road	4.19	A	327.1
Cliff Bishop and Hope Elizabeth Hanna	803 Tram Road	803	Tram Road	4.82	A	200.1
Darrell O'Brien and Alessandra de Olivier	827 Tram Road	827	Tram Road	4.00	A	225.1
Adrian Meredith	843 Tram Road	843	Tram Road	2.92	A	232.1
Mark Lupi	855 Tram Road	855	Tram Road	4.18	A	269.1
Martin and Janine Pinkham	859 Tram Road	859	Tram Road	3.12	A	187.1





Mandeville North Growth Boundary

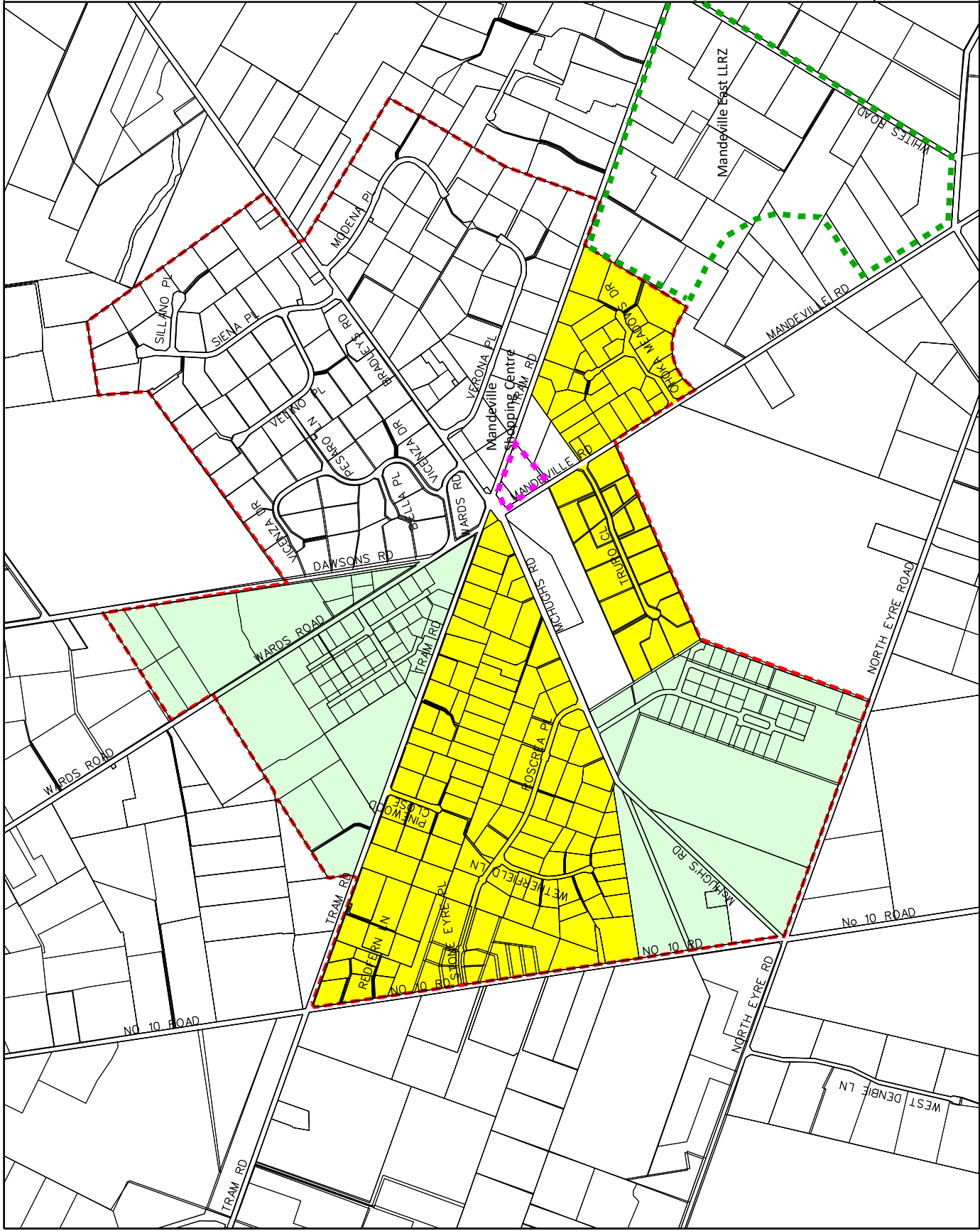
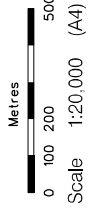
167



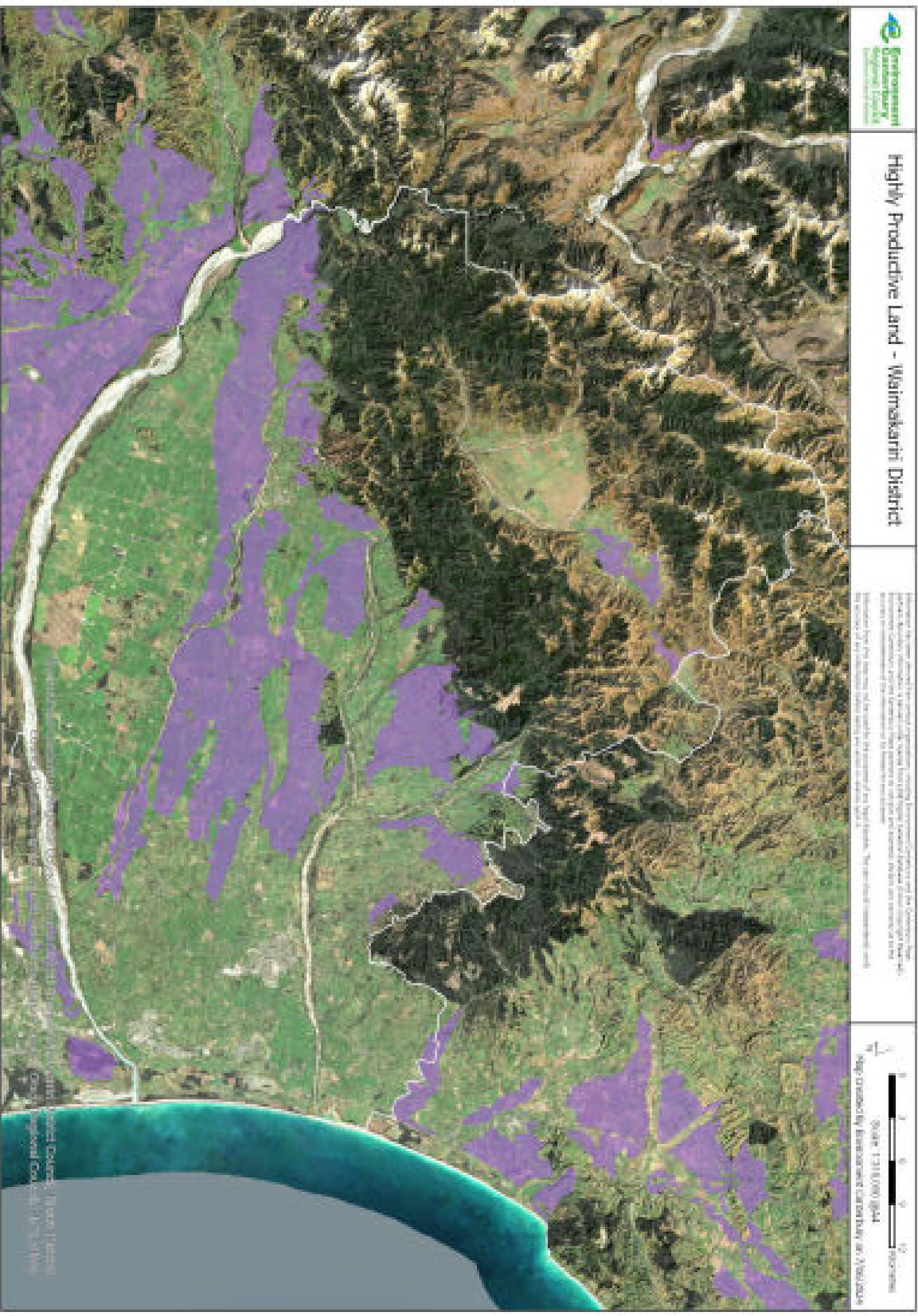
- RESIDENTIAL 4A ZONE
- RESIDENTIAL 4B ZONE
- Mandeville Growth Boundary. Refer Policy 18.1.3.1

- Mandeville East LLRZ
- Mandeville Shopping Centre

NOTE: Disclaimer - refer to map legend sheet



Waimakariri







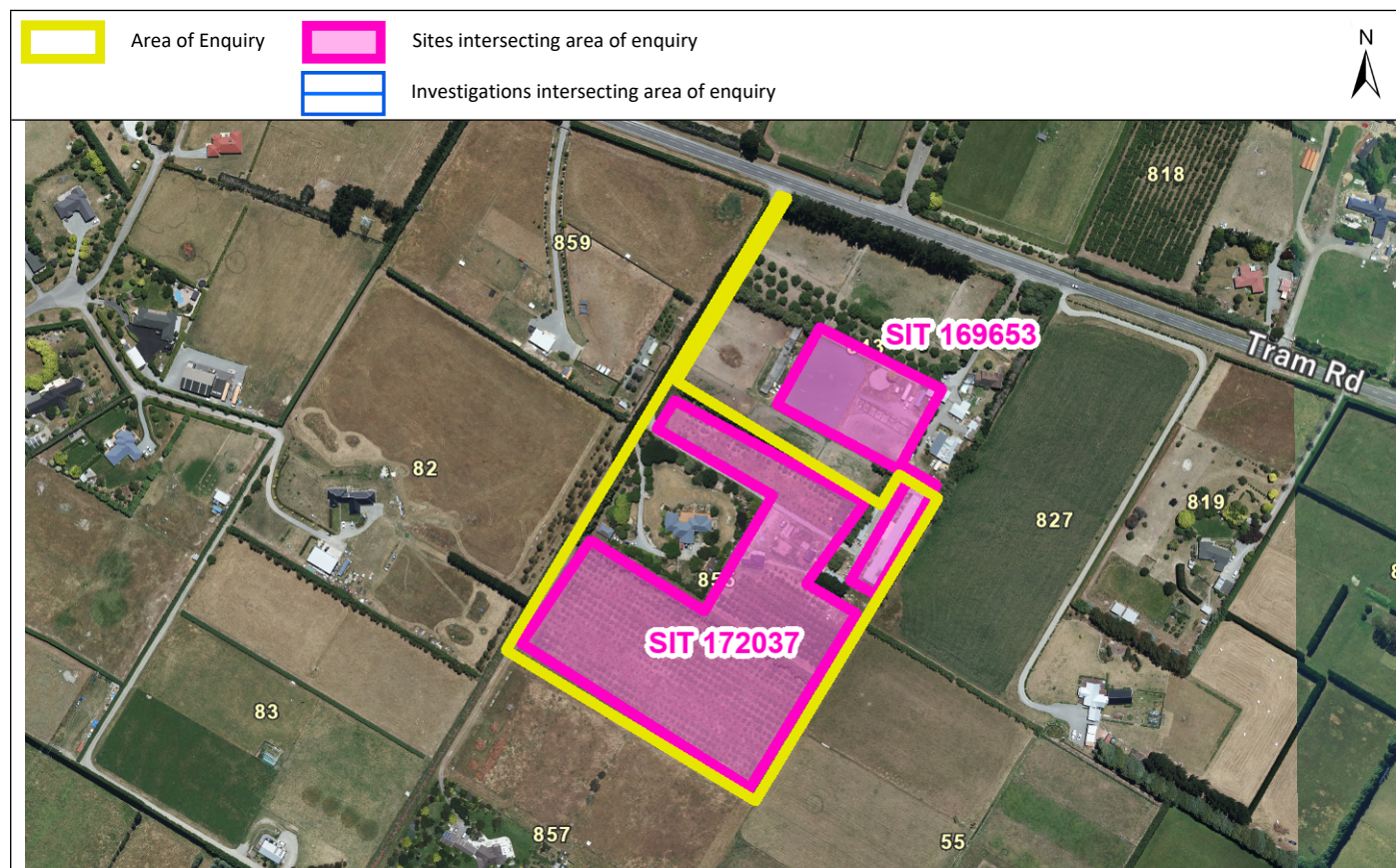
Environment Canterbury Regional Council; Hurunui District Council; Waimakairi Council; Waimate District Council; Mackenzie District Council; Otago



# Property Statement from the Listed Land Use Register

Visit [ecan.govt.nz/HAIL](http://ecan.govt.nz/HAIL) for more information or contact Customer Services at [ecan.govt.nz/contact/](http://ecan.govt.nz/contact/) and quote ENQ381738

**Date generated:** 13 June 2024  
**Land parcels:** Lot 2 DP 78821



The information presented in this map is specific to the property you have selected. Information on nearby properties may not be shown on this map, even if the property is visible.

## Sites at a glance

 Sites within enquiry area

Site number	Name	Location	HAIL activity(s)	Category
169653	843 Tram Road, Ohoka	843 Tram Road, Ohoka	A10 - Persistent pesticide bulk storage or use;	Not Investigated
172037	855 Tram Road, Ohoka	855 Tram Road, Ohoka	A10 - Persistent pesticide bulk storage or use;	Not Investigated

## More detail about the sites

**Site 169653: 843 Tram Road, Ohoka** (Intersects enquiry area.)

**Category:** Not Investigated

**Definition:** Verified HAIL has not been investigated.

Location: 843 Tram Road, Ohoka  
Legal description(s): Lot 1 DP 78821, Lot 2 DP 78821

HAIL activity(s):	Period from	Period to	HAIL activity
	1975	2000	Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glass houses or spray sheds

**Notes:**

- 29 Nov 2016** This record was created as part of the Waimakariri District Council 2016 HAIL identification project.
- 7 Jul 2017** Area defined from 1975 to 2000 aerial photographs. A10 - Horticultural activities, a poultry farm or sports turf were noted in aerial photographs reviewed.



**Investigations:**

There are no investigations associated with this site.

**Site 172037: 855 Tram Road, Ohoka** (Intersects enquiry area.)

Category: Not Investigated  
Definition: Verified HAIL has not been investigated.

Location: 855 Tram Road, Ohoka  
Legal description(s): Lot 2 DP 78821

HAIL activity(s):	Period from	Period to	HAIL activity
	Unknown	Present	Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glass houses or spray sheds

**Notes:**

- 6 Dec 2016** This record was created as part of the Waimakariri District Council 2016 HAIL identification project.
- 21 Aug 2017** Area defined from Unknown to Present aerial photographs. A10 - Persistent pesticide bulk storage or use was noted in aerial photographs reviewed.



**Investigations:**

There are no investigations associated with this site.

## Disclaimer

The enclosed information is derived from Environment Canterbury's Listed Land Use Register and is made available to you under the Local Government Official Information and Meetings Act 1987.

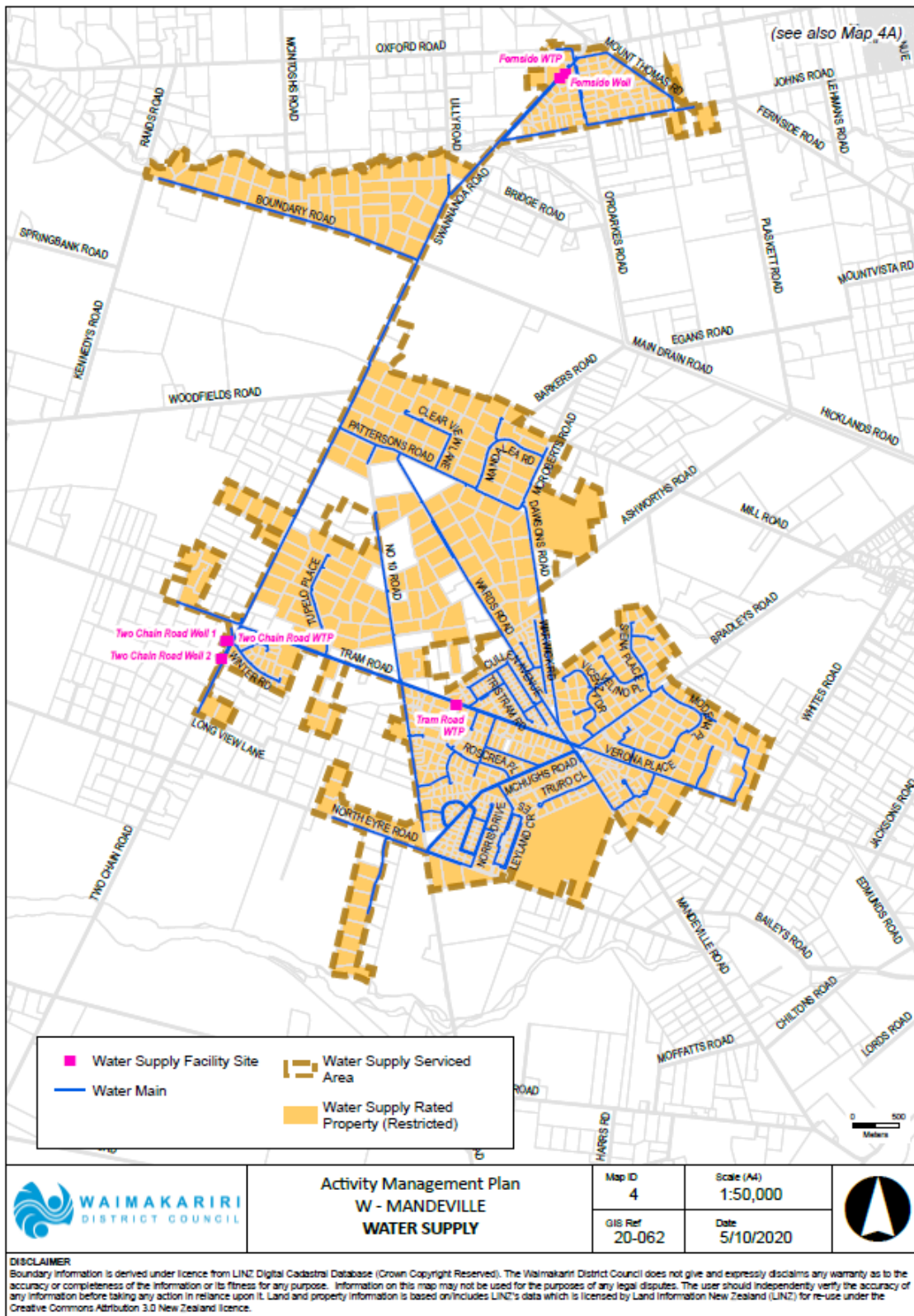
The information contained in this report reflects the current records held by Environment Canterbury regarding the activities undertaken on the site, its possible contamination and based on that information, the categorisation of the site. Environment Canterbury has not verified the accuracy or completeness of this information. It is released only as a copy of Environment Canterbury's records and is not intended to provide a full, complete or totally accurate assessment of the site. It is provided on the basis that Environment Canterbury makes no warranty or representation regarding the reliability, accuracy or completeness of the information provided or the level of contamination (if any) at the relevant site or that the site is suitable or otherwise for any particular purpose. Environment Canterbury accepts no responsibility for any loss, cost, damage or expense any person may incur as a result of the use, reference to or reliance on the information contained in this report.

Any person receiving and using this information is bound by the provisions of the Privacy Act 1993.

Locality	Specific location (Source)	Preliminary Criteria Assessment	Site in or out
	<ul style="list-style-type: none"> <li>219 - 221 Gladstone Rd (Landowner interested)</li> </ul>	<ul style="list-style-type: none"> <li>Not connected to existing rural residential nodes or small settlements</li> </ul>	OUT
Mandeville	<ul style="list-style-type: none"> <li>Ashworths Rd (Internal workshops)</li> <li>West of No. 10 Rd (Internal workshops)</li> <li>Area bounded by Tram Rd, Wards Rd, No. 10 Rd (Internal workshops)</li> <li>South east of domain, 335 Mandeville Rd (Internal workshops)</li> <li>East (Internal workshops)</li> <li>South-west (Internal Workshops)</li> <li>South-east (Internal Workshops)</li> <li>135 Wards Rd / North-west (DDS submission)</li> <li>229 North Eyre Rd, 238 No10 Road, 275 North Eyre Rd (DDS submission)</li> </ul>	<ul style="list-style-type: none"> <li>Does not trigger any Preliminary Criteria</li> <li>However removed under special circumstances as Mandeville has the Mandeville Growth Boundary around it which was put in there during Council Plan Change 32 in 2012 in order to address sprawl issues in Mandeville. Given this was only 6 years ago, there is no argument that the basis for this growth boundary has changed. Also Mandeville is affected by undercurrents / groundwater resurgence, along with high groundwater levels and overland flows.</li> <li>Mandeville Growth Boundary shown on the following map: <a href="https://www.waimakariri.govt.nz/data/assets/pdf_file/0016/10393/sht167-dp2005.pdf">https://www.waimakariri.govt.nz/data/assets/pdf_file/0016/10393/sht167-dp2005.pdf</a></li> </ul>	OUT
Swannanoa	<ul style="list-style-type: none"> <li>North Tram Rd, east Two Chain Rd (Internal workshops)</li> <li>1275 Tram Rd (DDS submission)</li> <li>South (Internal workshops)</li> <li>South east (Internal workshops)</li> <li>South (Partially undeveloped RRDP area)</li> <li>West of Cones Rd Res 4B (Internal workshops)</li> <li>North Fawcetts Rd Res 4B (Internal workshops)</li> <li>East of Cones Rd, parallel with Loburn Lea Res 4B (Internal workshops)</li> </ul>	<ul style="list-style-type: none"> <li>Does not trigger any Preliminary Criteria</li> <li>Does not trigger any Preliminary Criteria</li> <li>Does not trigger any Preliminary Criteria</li> <li>Does not trigger any Preliminary Criteria</li> <li>Engineers advise that this area could be connected to reticulated water provided the appropriate critical mass was proposed</li> <li>Therefore does not trigger any Preliminary Criteria</li> </ul>	IN
Ohoka			IN
Ashley / Loburn			IN



Figure 14: A1 - Plan of Serviced area – Mandeville





**Table 11: Growth Projections**

Mandeville-Fernside	Rates Strike July 2019	Years 1 - 3	Years 4 - 10	Years 11 - 20	Years 21 - 30	Years 31 - 50
	2019/20	2021/22 to 2023/24	2024/25 to 2030/31	2031/32 to 2040/41	2041-42 to 2050/51	2051/52 to 2070/71
Projected Connections	952	1,019	1,113	1,241	1,352	1,552
Projected Rating Units	2,012	2,146	2,334	2,589	2,812	3,213
Projected increase in Connections		7%	17%	30%	42%	63%
Projected Average Daily Flow (m3/day)	1,319	1,407	1,529	1,694	1,839	2,100
Projected Peak Daily Flow (m3/day)	1,801	1,956	2,171	2,465	2,721	3,182

Note that the time frames have been chosen to reflect the periods 3, 10, 20 and 30 years from the AMP release date, however due to the time it takes to complete the analysis the base rates strike data used was from 2019/20.

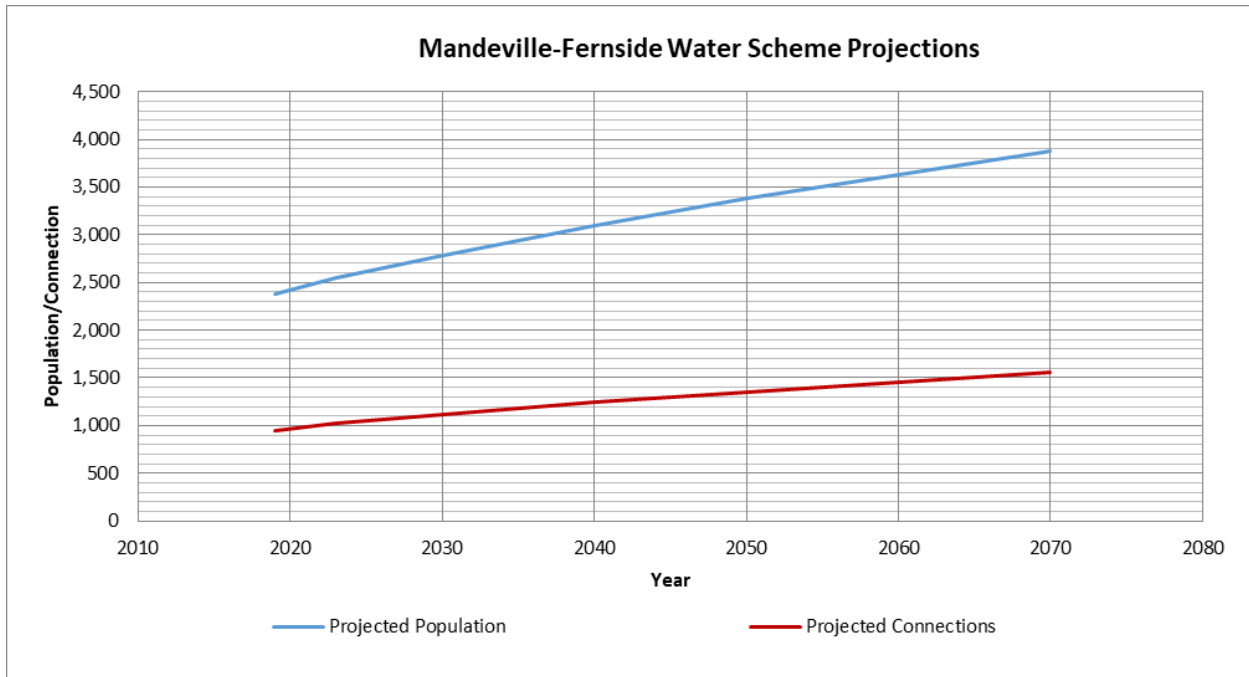
Longer term, connections are projected to increase by 63%. This long term projection is similar to the 2017 growth projection, 67% (used for the 2017 AMP). Both projections utilised the best data and information available to project the connections for the water schemes at the time. The base population projections given to PDU for 2019 infrastructure planning were more area specific than the 2017 projections (separating the Mandeville area into residential and rural), and has given a better projection for the Mandeville-Fernside scheme.

Water use predictions for the Mandeville-Fernside water supply scheme have been based on the standard assumption used when modelling the future water demands within the water distribution models, average and peak daily water use per day of 1,000 litres and 2,500 litres respectively (including losses).

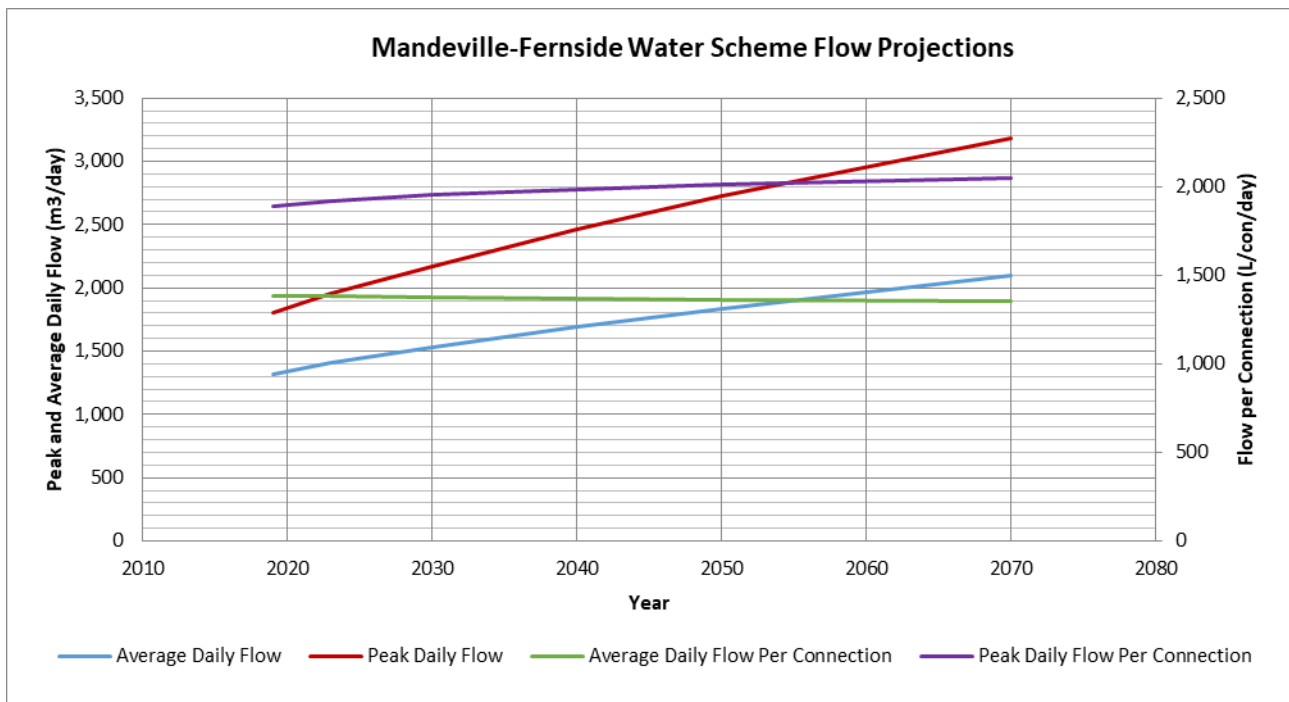
### Projections

Figure 5 and Figure 6 present the projected growth and corresponding demand trends for the Mandeville-Fernside-Fernside Water Supply Scheme.

**Figure 5: Population Projections**



**Figure 6: Flow Projections**



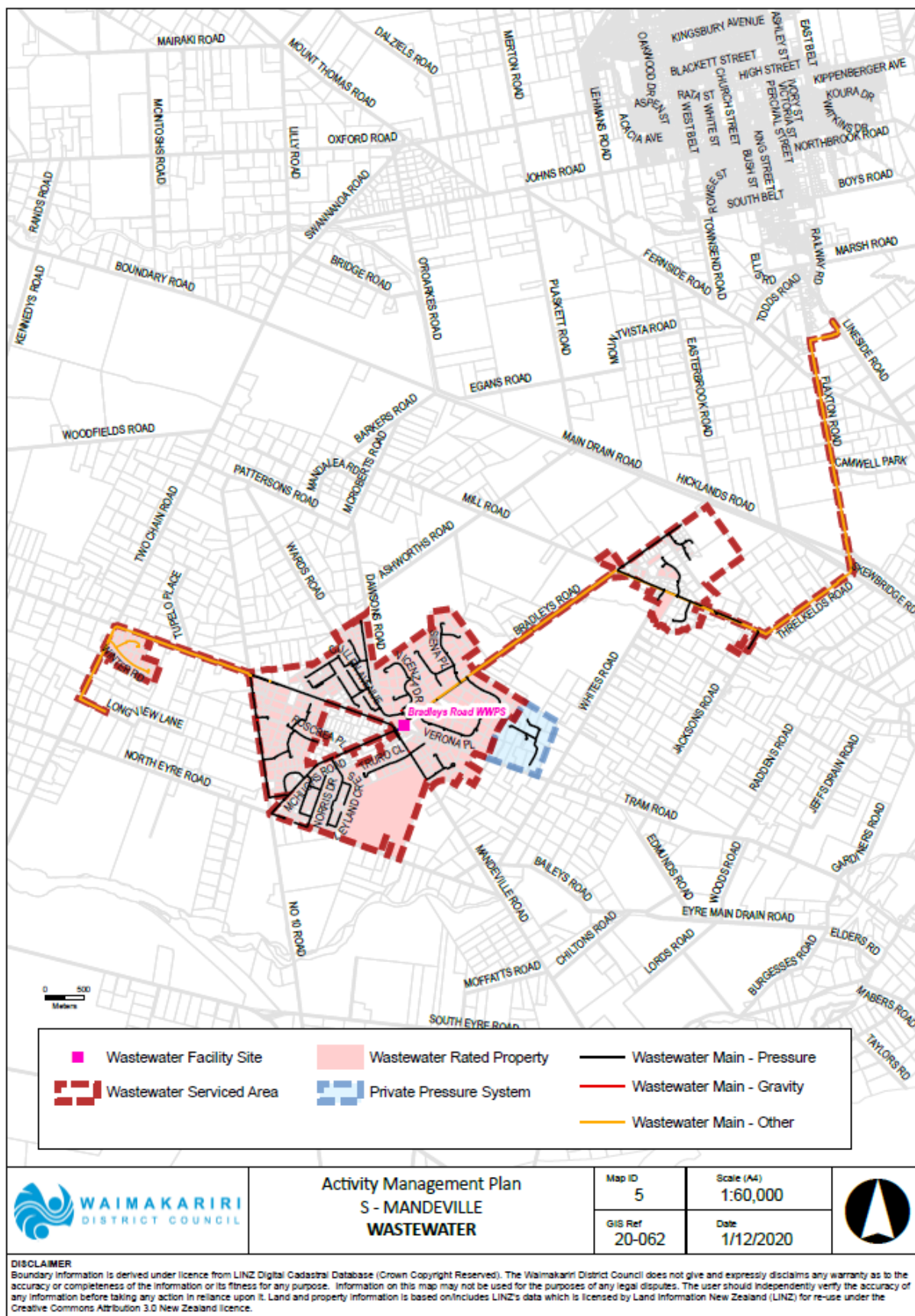
### 5.8 Capacity & Performance

This section of the AMP considers the capacity and performance of the Mandeville-Fernside Water Supply, both given the current demand, and also taking into account the forecast growth. The specific aspects of the scheme that have been considered are the source, treatment, storage, headworks, and reticulation system. These are discussed in more detail in the following sub-

APPENDIX 'A'.

PLANS

Figure 13: A1 - Plan of Served Area - Mandeville



The number of new residential connections are predicted to increase by 8 per year, during the 2021-31 Long Term Plan (LTP) period to accommodate this demand. Demand beyond the 2021-31 LTP period (2030/31 to 2070/71) is forecast to transition to a slightly lower growth profile resulting in an average of 6 new connections per year (Table 12).

**Table 12: Growth Projections**

Mandeville-Ohoka	Rates Strike July 2019	Years 1 - 3	Years 4 - 10	Years 11 - 20	Years 21 - 30	Years 31 - 50
	2019/20	2021/22 to 2023/24	2024/25 to 2030/31	2031/32 to 2040/41	2041-42 to 2050/51	2051/52 to 2070/71
Projected Connections	536	572	622	693	755	862
Projected Rating Units	592	628	678	749	811	918
Projected increase in Connections		7%	16%	29%	41%	61%
Projected Average Dry Weather Flow (m3/day)	248	273	307	354	396	468
Projected Peak Wet Weather Flow (m3/day)	1,208	1,330	1,499	1,737	1,948	2,307

Note that the time frames have been chosen to reflect the periods 3, 10, 20 and 30 years from the AMP release date, however due to the time it takes to complete the analysis the base rates strike data used was from 2019/20.

Longer term, connections are projected to increase by 61%. This long term projection is lower than the 2017 growth projection, of 109% (used for the 2017 AMP). Both projections utilised the best data and information available to project the connections for the wastewater schemes at the time. The base population projections given to PDU for 2019 infrastructure planning were more area specific than the 2017 projections (separating the Mandeville area into residential and rural), and has given a better projection for the Mandeville scheme.

Average Dry Weather Flow (ADWF) and Peak Wet Weather Flow (PWWF) projections have been based on the assumptions that for future development areas the Engineering Code of Practice (ECOP) ADWF or PWWF per person is added to the existing flow.

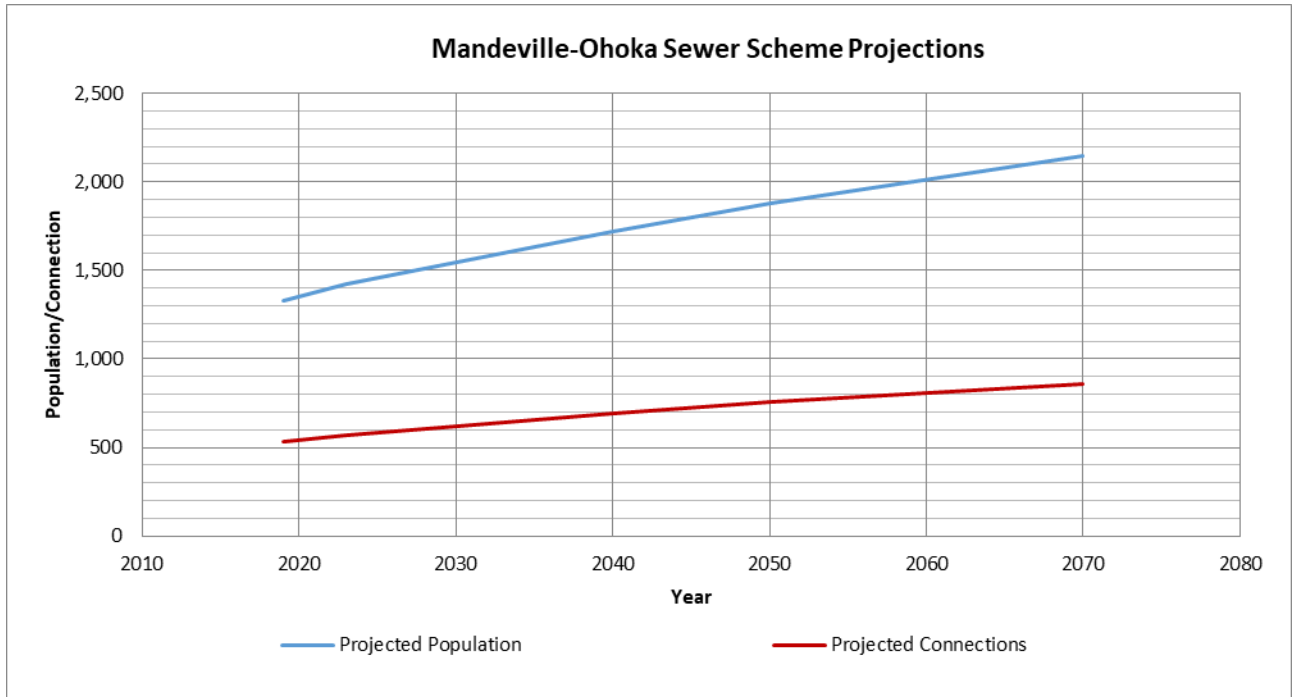
The assumptions made to calculate the future ADWF were based on the ECOP, with the residential 0.675m3/prop/day and non-residential 0.2m3/Ha/day; and the future PWWF was based on the ECOP, at residential 3.375m3/prop/day and non-residential 1m3/Ha/day.

On average Mandeville's existing Inflow/Infiltration level is considered low, resulting in below-average Peak Wet Weather Flow (PWWF).

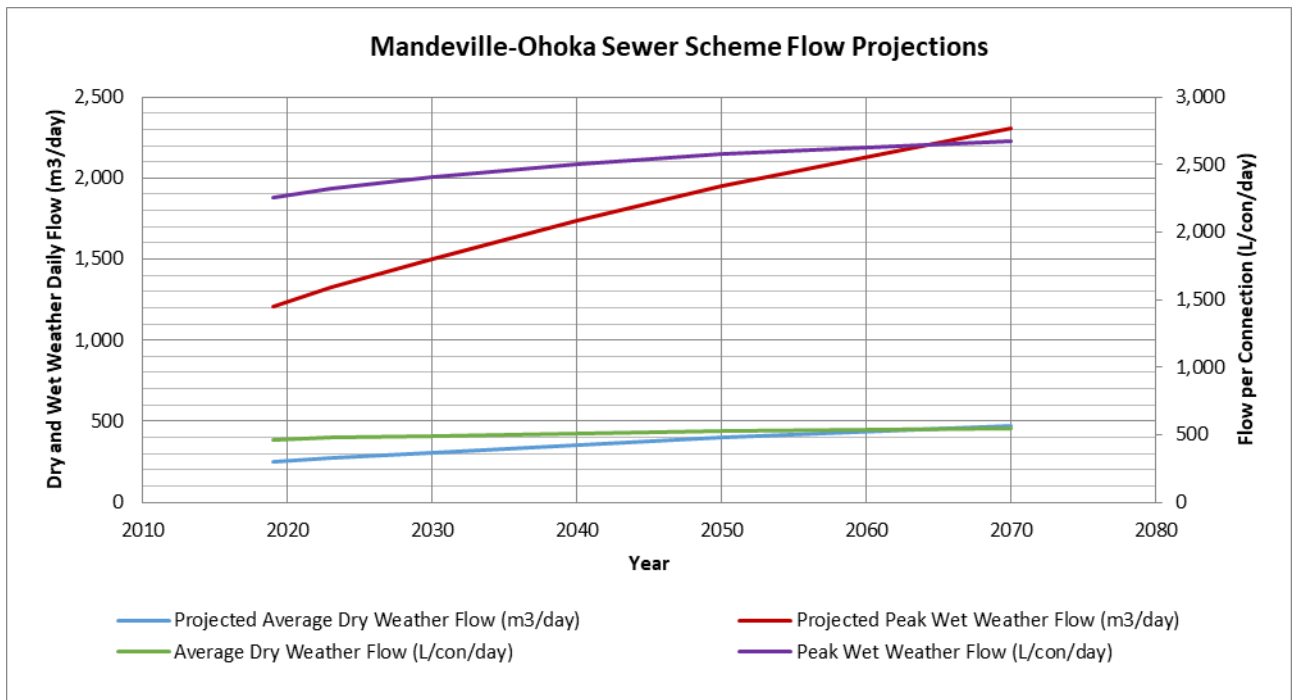
## Projections

Figure 5 & Figure 6 present the projected growth and corresponding demand trends for the Mandeville Area wastewater scheme.

**Figure 5: Population Projections**



**Figure 6: Flow Projections**



**Provide comments as to whether any expansion of the Mandeville area to the east along Tram Road down to the Whites Road intersection would result in groundwater issues**

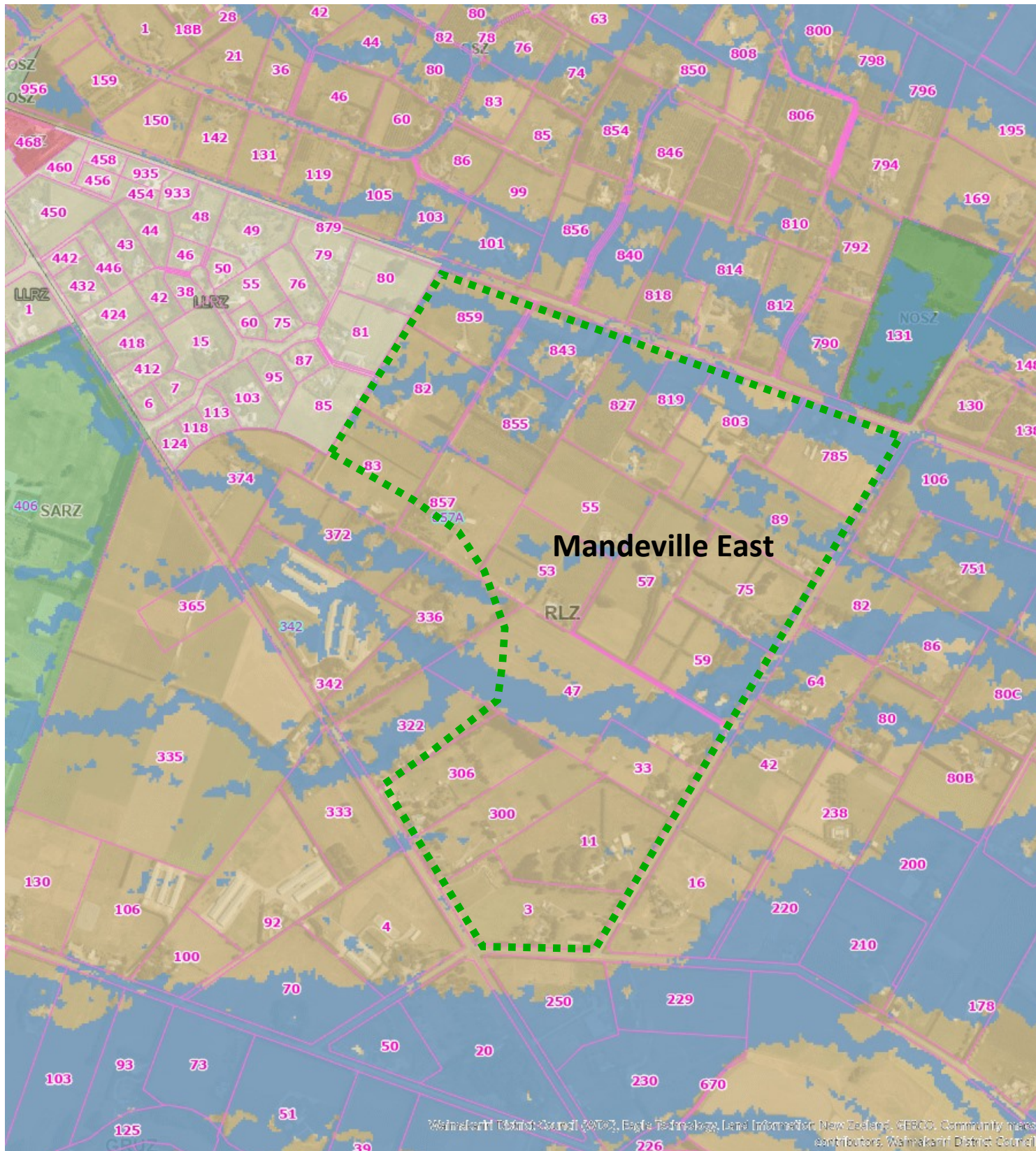
- a) given that most properties have bores what is the likely impact upon the underlying aquifer,**
- b) will localised irrigation cause an increase in shallow groundwater (bearing in mind the stock water race may be removed?)**

Likely impacts for groundwater resulting from expansion to the east of Mandeville along Tram Road are the same as those previously described for San Dona.

Assuming that irrigation water is locally sourced shallow groundwater, as previously described, deep infiltration and recycling of groundwater is only anticipated to comprise a small proportion of the overall groundwater take. The overall effect is anticipated to be a net groundwater take and reduction in groundwater levels; however, this is also not anticipated to be significant.

Properly managed irrigation should also limit the potential for deep drainage and recharge to groundwater.














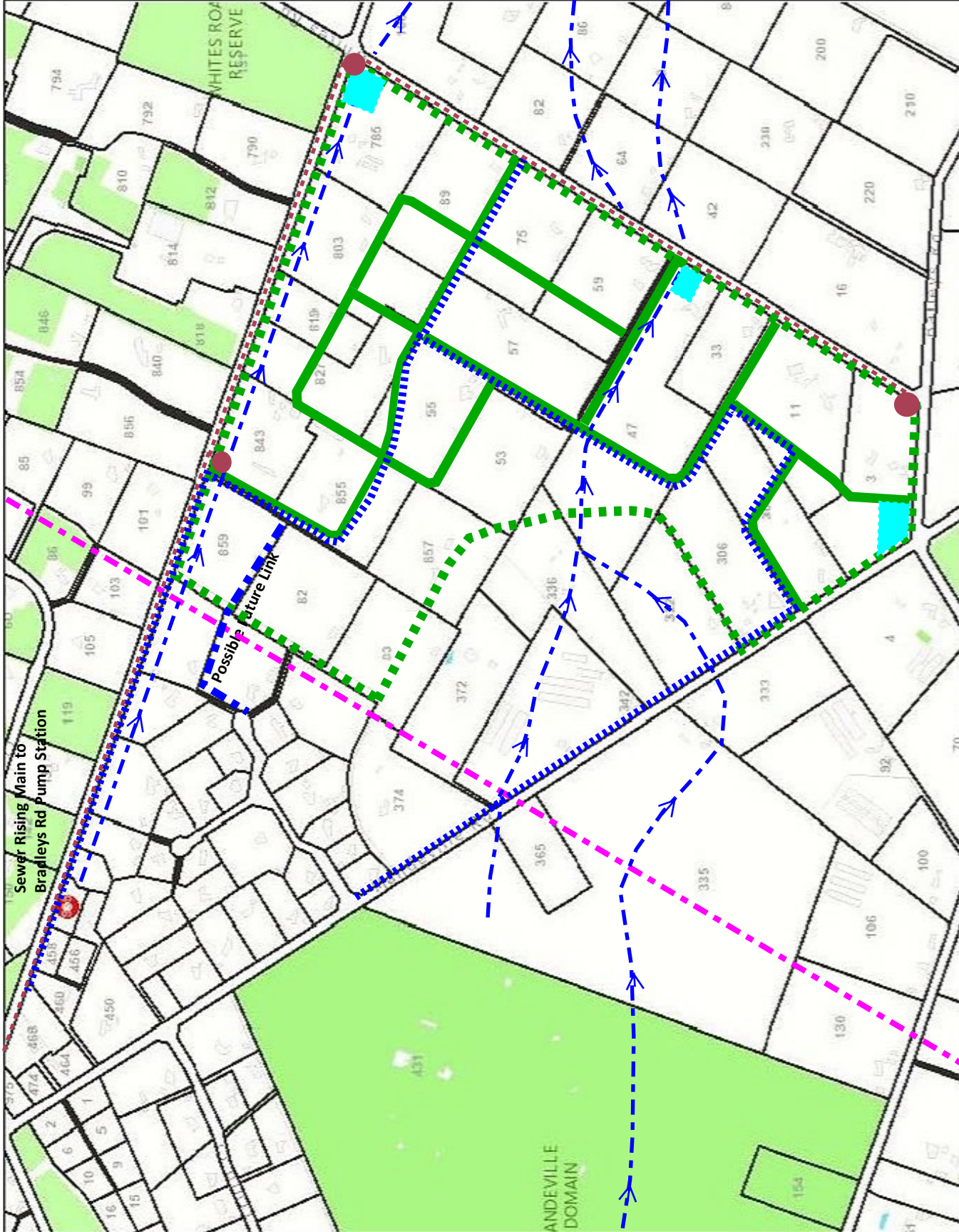
200 Year All Flood Hazard



Issue:	Date:	Drawn:	Notes:
A	20/6/24	MJP	Draft 1
B			

-  Outline Development Plan Area
-  Existing Road
-  Transpower HV
-  Proposed Road
-  Overland Flow Path
-  Stormwater Management Area
-  Pedestrian Link
-  Sewer Pump Station
-  Sewer Rising Main

Scale 1:8,000 (A4)



Drawing:	7051
Sheet:	1
File:	7051S1IssueA

Sheet Title:  
**Mandeville East LLRZ**  
**Outline Development Plan**

Project:  
**WDC Proposed District Plan**

Notes:  
 1

Adderley Projects Ltd  
 11 Magnate Drive, Kaiapoi  
 Phone: 021 548 751



## Author's Qualifications and Experience

### QUALIFICATIONS

Bachelor of Engineering (Civil) University of Canterbury

Former Member of Institute of Professional Engineers of New Zealand

Registered Engineer (prior to title ceasing)

Former Member of Association of Local Government Engineers

**May 2022 -**

**Retired**

**January 2016 – May 2022**

**Safety, Risk & Property Manager, McAlpines Ltd**

- Group Safety Manager for timber manufacturing and retail group with 380 employees in four locations.
- Group Risk Manager for McAlpines Group of companies with responsibility for \$250 million of assets
- Responsible for environmental compliance of group's timber manufacturing and retail sites
- Responsible for building compliance of group's timber manufacturing and retail sites
- Principal project manager for a wide range of capital expenditure and operational improvement projects at timber processing and retail sites

**May - November 2015**

**Travelling in Europe with family**

**July 2013 – May 2015**

**National Projects Manager, Waste Management NZ Ltd**

- Principal project manager for a wide range of capital expenditure and operational improvement projects for Transpacific Industries, with focus on South Island projects
- Principal project manager for capital projects for Transwaste Canterbury Ltd, a public private partnership, including landfill development, environmental protection, power generation, and land development.
- Responsible for the technical performance and regulatory compliance of the Kate Valley Landfill, Redruth Landfill in Timaru, and Fairfield Landfill in Dunedin.
- Team leader of South Island project management team.

**May 2010 – June 2013**

**General Manager, Canterbury Waste Services**

- Profitable financial performance, leadership and general management of \$20 million per annum operation with 45 staff including Kate Valley Landfill, transfer station to landfill waste haulage, and Fairfield Landfill.
- Principal advisor and administrator to the Board of Transwaste Canterbury Ltd, a public private partnership.
- Development and maintenance of strategic plan, and risk management plan.
- Champion of development and implementation of health, safety, and environmental compliance systems.
- Responsible for staff recruitment, training, and development of the organisation.
- Responsible for liaison with key customers, stakeholders, public and media.
- Responsible for the technical performance and regulatory compliance of the Kate Valley Landfill, Redruth Landfill in Timaru, and Fairfield Landfill in Dunedin.
- Winner of Service Industry section of 2010 Champion Canterbury Awards.

**Oct 2004 – 2010**

**Kate Valley Landfill Manager, Canterbury Waste Services**

- Responsible for financial and asset management of a \$7 million division.
- Establishment of operational facilities, the purchase of plant, recruitment of 20 operations staff for Kate Valley Landfill ready for opening in June 2005.
- Member of the winning team of Infrastructure section of 2004 IPENZ Engineering Excellence Awards
- Preparation of Landfill Management Plan, and other operational plans, as required by consent conditions.
- Operation of landfill, compliance with consents including liaison with regulatory authorities and Peer Review Panel.

- Development and maintenance of whole of life planning and long term financial plans.
- Principal liaison contact with local community including Community Liaison Group, neighbours general public.
- Preparation and presentation of financial, operational and development proposals to board of directors of Transwaste Canterbury Ltd
- Responsible for staff recruitment, training, and development.
- Development and implementation of health, safety, and environmental systems.
- Design manager, and operational reviewer, of Redruth Landfill in Timaru, and Fairfield Landfill in Dunedin.

**Jan 2000 – Oct 2004**

**Development Manager, Canterbury Waste Services**

- Briefing, management and coordination of consultant team. Collation and review of technical data for resource consent applications for Kate Valley Landfill
- Preparation and presentation of evidence for local hearings and Environment Court.
- Development of landfill and waste haulage systems, including liaison with customers
- Design Manager for the Kate Valley Landfill and associated dams, roading access and other infrastructure with a value of over \$20 million. Project designers received Gold Prize from Association of Consulting Engineers.
- Development of Alliance agreement, client representative for development and implementation of Alliance construction contract.

**Oct 1993 – Dec 1999**

**Technical Services Manager, Waimakariri District Council.**

- Management and operation of the Technical Services business unit of 12 to 15 professional/technical staff.
- Negotiating contracts, allocating and programming work, quality assurance and profitability of the unit.
- Responsible for Design Team, Development Team, Water and Waste Technical Team and Technical Records Team, including gaining of ISO accreditation for some operations.
- Project Manager for the District Development Strategy, and most major projects.
- Technical reviewer of submissions to the Waimakariri District Plan 1995 - 1997
- Engineer to Contract for most contracts, and principal contract advisor to Council.
- Author of the council's Code of Practice for Urban and Rural Development.

**Sept 1989 – Oct 1993**

**Regional Manager/Director, T H Jenkins & Associates Consulting Engineers Ltd.**

- Responsible for the successful management of the Christchurch office, and the civil design of the whole practice.
- Responsible for nine professional/technical staff, procuring commissions, allocating and programming work, quality assurance and profitability of the branch.
- Project manager for the implementation of the \$10 million Acute Services Review for CDHB including upgrading of clinical services across three sites, relocation of services to Christchurch Hospital, and relocating elective services to satellite sites.

**July 1983 – Sept 1989**

**Contracts Manager, Pavroc Contracting (now Fulton Hogan Canterbury Ltd)**

- Responsible for tendering for contracts, contract administration, allocation of people and plant resources.
- Maintenance management of a large fleet of specialised road building plant
- Management of a number of divisions with up to fifty staff throughout Canterbury.

**Dec 1980 – July 1983**

**Site Engineer, British Pavements (renamed Pavroc Holdings in 1981).**

- Supervising construction of large roading and drainage contracts throughout Canterbury.
- Design-build of a range of civil works for various institutions in the Canterbury area.
- Site Engineer for five months of the resurfacing of main runway, Nadi Airport, Fiji. Undertook all site surveying and quality control of asphalt laying operations. Responsibility for the management of runway operations with a staff of twenty-five expatriates and locals.