THE PLANNING CONSULTANCY

Selwyn District Council

Leeston Stormwater Flood Bypass Scheme

Land Use Consent Application to the Selwyn District Council
(as consent authority)

October 2023

DOCUMENT CONTROL RECORD

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Revisions:

Revision	Revision date	Revision details/status
A	3.10.2022	Final for lodgement
B	13.1.2023	Incorporate Site Validation Report for 60 Leeston Dunsandel Road, details on proposed planting, removes bunds and updates volunteered consent conditions
C	26.10.2023	Final for notification incorporating s.92 Response on Flooding effects and Cultural Advice Report (new **Appendix 10**).

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RESOURCE CONSENT APPLICATION FORM

To: the Selwyn District Council (consent authority)

1. Selwyn District Council (the applicant) applies for the following resource consents:

(a) A land use consent for works associated with the establishment, operation and maintenance of the Leeston Stormwater Flood Bypass scheme as a **discretionary activity**, under the Selwyn District Plan (**District Plan**).

(b) A land use consent to undertake soil disturbance and potential removal, as a **controlled activity**, in accordance with **Regulation 9** of the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (**NES-CS**).

The proposal is fully described in the attached AEE and plans which form part of this application.

2. The site at which the proposed activity is to occur is as follows:

The proposal relates to the Leeston Stormwater Flood Bypass Scheme; the extent of this drainage scheme is shown in **Figure 1** below**.**

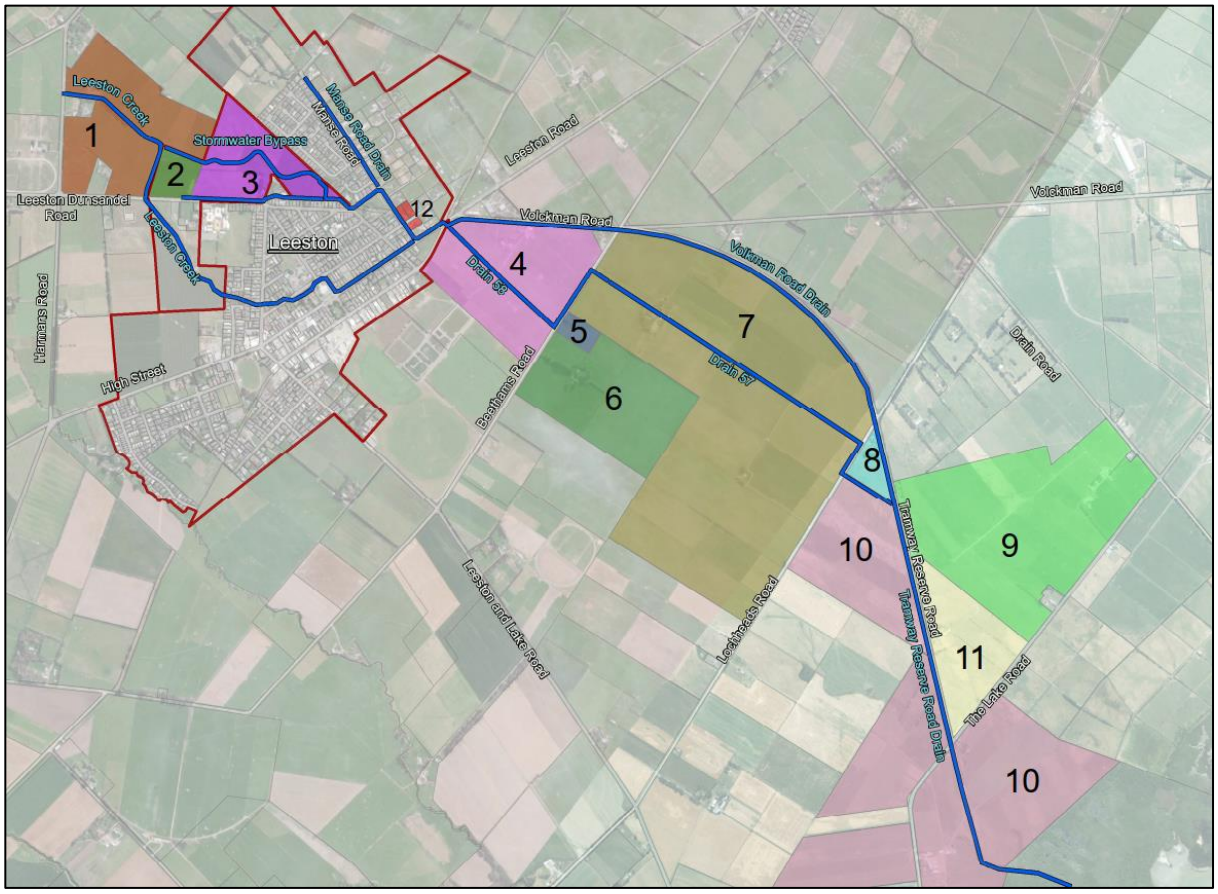

Figure 1: Site Location Map

The Records of Title for the three properties traversed by Leeston Creek and proposed bypass channel are included in **Appendix 1** and listed in **Table 1.**

The Records of Title for the properties adjoining the Leeston Stormwater Flood Bypass Scheme and subject to proposed bank raising works can be provided on request.

Address	Legal Description	Title	Owner
178 Harmans Road	Lot 2 DP 494752 Lot 2 DP 44961	727181	David and Lee Anne Rathgen
60 Leeston Dunsandel Road	Lot 2 DP 365379	264986	John and Sandra Howson, Michael Lay.
2 Leeston Dunsandel Road	Part Lot 3 DP 33419	CB16F/1078	FTOTF Limited

Table 1: Properties traversed by Leeston Creek upgrade and proposed Bypass Channel.

3. The other activities that are part of the proposal to which the application relates are as follows:

There are a number of aspects of the proposal that are permitted activities and therefore do not trigger non-compliances under the operative Selwyn District Plan. Permitted activities associated with this proposal have been identified in **Appendix 7**.

4. The following additional resource consents are needed for the proposal to which this application relates and have been applied for:

Consents Obtained:

The Leeston Stormwater Flood Bypass scheme has obtained a number of district and regional consents to date; see **Section 2.2** of the AEE. These consents are included in **Appendix 9**.

Other Consents Lodged:

SDC has also applied to the Canterbury Regional Council for a global discharge permit to discharge stormwater from the existing stormwater network of Leeston to surface water (CRC186175).

5. We attach an assessment of the proposed activity's effect on the environment that —

(a) includes the information required by clause 6 of Schedule 4 of the Resource Management Act 1991; and

(b) addresses the matters specified in clause 7 of Schedule 4 of the Resource Management Act 1991; and

(c) includes such detail as corresponds with the scale and significance of the effects that the activity may have on the environment.

6. We attach an assessment of the proposed activity against the matters set out in Part 2 of the Resource Management Act 1991.

7. We attach an assessment of the proposed activity against any relevant provisions of a document referred to in section 104(1)(b) of the Resource Management Act 1991, including the information required by clause 2(2) of Schedule 4 of that Act.

8. We attach all necessary further information required to be included in this application by the district plan, the regional plan, the Resource Management Act 1991, or any regulations made under that Act.

Emma Taylor (Director)

The Planning Consultancy Limited
On behalf of Selwyn District Council

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* The Planning Consultancy Limited accepts no liability for any Council costs or charges. Invoices for all such work are to be sent to the Applicant's address above for billing.

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ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

1 Introduction

1. Selwyn District Council ('the Applicant') seek land use consent from the Selwyn District Council (SDC), as territorial authority, for works associated with the establishment, operation and maintenance of the Leeston Stormwater Flood Bypass scheme.

2. The Leeston Stormwater Flood Bypass scheme seeks to alleviate flood risk in Leeston and the surrounding area. This scheme is in response to previous flooding events which have damaged property and put the health and safety of residents at risk. The main source of floodwaters during previous flood events has been identified as Leeston Creek, a waterway that originates on farmland north-west of Leeston.

3. The scheme seeks to divert high flows from Leeston Creek via a new bypass channel within the northern part of the township. This channel connects to the existing drainage network, east of the township, which has experienced recent upgrades. Leeston Creek, upstream of the proposed bypass channel, is also proposed to be widened and deepened ('upgraded') to provide additional capacity for high flows.

4. The proposal is discussed in greater detail under the following subheadings with supporting information included in the attached Appendices, summarised below:

    a. **Appendix 1** – includes the Records of Title relevant to the Leeston Creek upgrade and bypass channel.

    b. **Appendix 2** – includes the Site Location Plan and General Arrangement Plans for the stormwater bypass channel, diversion structure and Leeston Creek upgrade. *These drawings are subject to some minor amendments but may be further refined through the design/construction process.*

    c. **Appendix 3 –** includes the subdivision and land use consents granted to the Karumata Oaks subdivision developer at 2 Leeston Dunsandel Road.

    d. **Appendix 4 –** includes the NES-CS land use consent and Site Validation Report for 60 Leeston Dunsandel Road.

    e. **Appendix 5 –** includes the ECan Listed Land Use Register property statements for 2 Leeston Dunsandel Road, 60 Leeston Dunsandel Road and 178 Harmans Road.

    f. **Appendix 6 –** Contaminated Land Review – Collaborations Memorandum.

    g. **Appendix 7 –** includes an assessment of the proposal against the Selwyn District Plan.

    h. **Appendix 8 –** is a summary of the Stormwater Flood Modelling and Assessment associated with the Leeston Stormwater Flood Bypass scheme. This summary describes the scheme, proposed infrastructure and potential flooding effects, including modelled flood maps. Relevant, supporting technical information is attached as Appendices to this Summary and include:

        i. Appendix 1 – Site Location Map.

        ii. Appendix 2 – Flood Modelling Maps dated 2017 and updated 2022.

        iii. Appendix 3 – Leeston Stormwater Bypass Stages 4 and 5 Detailed Design Report dated 18 December 2020, Revision C.

        iv. Appendix 4 – Floor Level Survey and Analysis dated 12 November 2020, Revision B.

v. Appendix 5 – 1 in 200 year event effect HEC-RAS modelling check on Howson's property (60 Leeston Dunsandel Road) dated 3 March 2021.

vi. Appendix 6 – Modelling data of drainage improvements and proposed bank raising dated 28 January 2022.

vii. Appendix 7 – Photos of completed works to drainage network.

i. **Appendix 9 –** includes the consents/permits obtained from the Canterbury Regional Council for the Leeston Creek upgrade and new bypass channel.

j. **Appendix 10 –** includes the cultural advice report from Mahaanui Kurataiao Ltd on behalf of Ngāi Tūāhuriri Rūnanga and Te Taumutu Rūnanga.

2 Background

2.1 Flooding in Leeston and surrounds

5. Flooding is the most common natural hazard in Canterbury. Three main types of flooding affect Canterbury region; river flooding, local runoff flooding and coastal overtopping[1].

6. Flood risk in the Selwyn District is influenced by the extensive low-lying plains and multitude of braided rivers, such as the Selwyn River, which is fed by the Hororata, Hawkins and Waianiwaniwa Rivers[2]. Leeston is a relatively low-lying township within the Selwyn District and, like many Canterbury towns and settlements, has been affected by flooding.

7. Leeston and the surrounds experienced a significant amount of rainfall over two main periods in June 2013 when a very strong cold southerly flow swept over the country, bringing very heavy snowfall, heavy rain, and gale force winds[3]. The rain, combined with a high groundwater table, resulted in overtopping of Leeston Creek and surface flooding in the township and surrounding areas.

8. Images of this flooding are available on the Canterbury Regional Council Flood Imagery Register[4]; **Photos 1 and 2** illustrate the June 2013 event with **Photo 3** showing overland flow paths in August 1986.

[1] *Canterbury Regional Council website: Natural Hazards – Floods. Accessed 24 October 2023: https://www.ecan.govt.nz/your-region/your-environment/natural-hazards/floods/*
[2] *Selwyn District Plan Review website: Selwyn's flooding and coastal hazards. Accessed 24 October 2023: https://apps.canterburymaps.govt.nz/SelwynNaturalHazards/*
[3] *NIWA NZ Historic Weather Events Catalogue website. Accessed 24 October 2023: https://hwe.niwa.co.nz/event/June_2013_New_Zealand_Storm*
[4] *Canterbury Flood Imagery Register website. Accessed 24 October 2023: https://canterburymaps.govt.nz/map?webmap=c1037dbeb10945aea0296b67867c104f*

Photo 1: Flooding in Leeston Township - taken 20 June 2013.

Photo 2: Canterbury Flood Imagery Register - Aerial Image dated 23 June 2013.

Photo 3: Canterbury Flood Imagery Register - Aerial Image dated 24 August 1986.

9. Existing flood risk within the Canterbury region has been modelled and presented in Canterbury Maps[5], an online viewer that displays the results of flood modelling investigations undertaken by Environment Canterbury, Waimakariri District Council, and Selwyn District Council. The viewer represents a prediction of what may happen during flood events of a given magnitude.

10. This flood hazard mapping (**Figure 2**) demonstrates that there is a wider risk of flooding to Leeston and the surrounding area from overland flows and sources *beyond* that of the Leeston Creek sub-catchment.

11. Flood risk within the Leeston Creek sub-catchment is the focus of this application. **Appendix 8** includes a summary of the Flood Modelling and Assessment associated with the Leeston Stormwater Flood Bypass scheme.

[5] *Canterbury Maps; Flood Model Results Viewer. Accessed 24 October 2023: https://apps.canterburymaps.govt.nz/FloodModelResults/*

Figure 2: 'Home' image from Canterbury Maps: Flood Model Results Viewer (All scenarios visible).

2.2 Leeston Stormwater Flood Bypass Scheme

12. Hydraulic modelling and design of the Leeston Stormwater Flood Bypass commenced in 2006 with preliminary design completed in 2007. Resource consents were obtained from the Canterbury Regional Council (CRC) and SDC in 2007 and 2008 based on this preliminary design:

- CRC071838 (discharge permit) – to discharge construction and operational stormwater associated with the 49.7ha residential subdivision north of Leeston township. This included the construction of swales and a 'wetland pond'. This consent has been subject to a number of variations and is now referred to as CRC143914.

- CRC071839 (water permit) – to divert a watercourse, being the flood overflow channel of Leeston Creek.

- CRC071840 (water permit) – to undertake works in a watercourse (Leeston Creek) to establish the overflow for the flood overflow channel (lined channel and gabion weir).

- CRC072300 (land use consent) – to excavate soil from over a confined aquifer for the creation of a new channel and wetland.

- RC065414 (SDC land use consent) – issued to Oakvale Developments Limited for a 163 lot subdivision of 2 Leeston Dunsandel Road (Part Lot 3 DP 33419). This resource consent authorised earthworks associated with the construction of the subdivision including the new channel. (Lapsed).

13. Physical works were initially placed on hold but proceeded after the flood event in June 2013. These works have been split into six main design/construction 'stages' (**Figure 3**):

a. Stage 1 – Connection of the Ellesmere Hospital drain to Manse Road and widening of the High Street Drain (complete 2016).

b. Stage 2 – Upgrade of Manse Road Drain and Reids Culvert (complete 2017).

c. Stage 3 – Upgrade capacity of drainage channels, including the new High Street culvert (complete 2020).

d. Stage 4 – Establish new stormwater bypass channel connecting to previously completed stages and a new diversion structure from Leeston Creek.

e. Stage 5 – Upgrade capacity of Leeston Creek upstream of the bypass channel (between Harmans Road and the bypass diversion structure).

f. Stage 6 – Extend existing stormwater 'wetland' facility. This stage is primarily to treat stormwater from the new residential subdivision (Karumata Oaks) at 2 Leeston Dunsandel Road and will be undertaken by the developer.

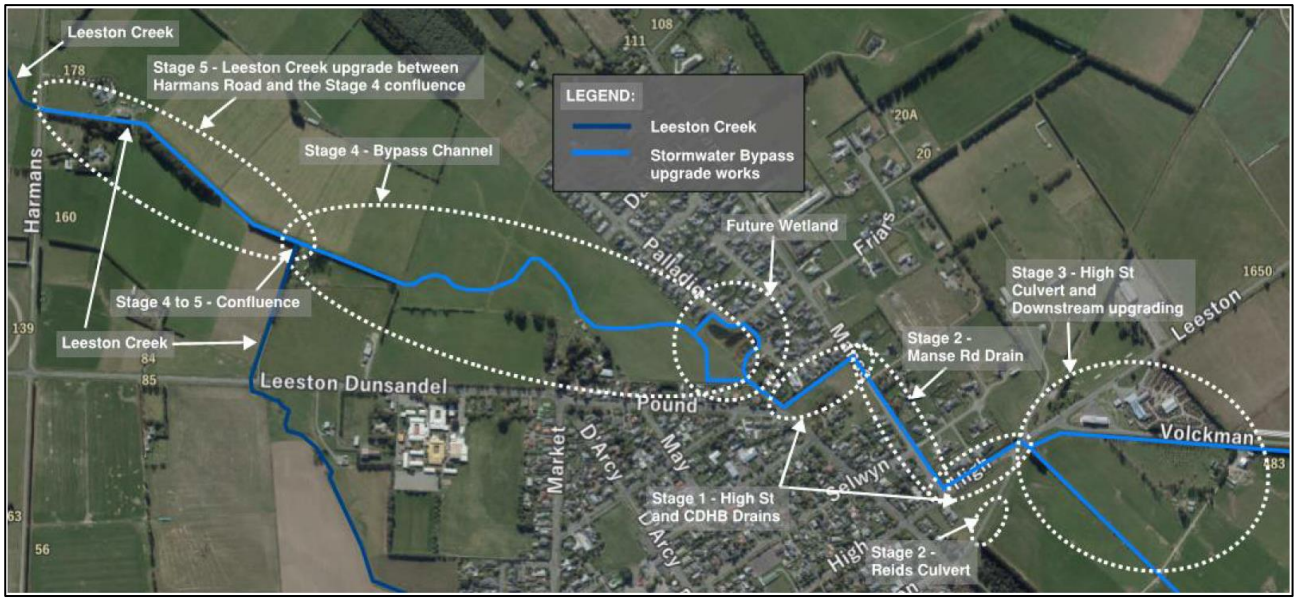

Figure 3: Design/construction stages for Leeston Stormwater Flood Bypass.

14. Stage 3, to upgrade the capacity of existing drainage channels, is the most recently completed stage (**Figure 4**). Stage 3 works obtained resource consents from CRC and SDC in 2020, including:

- CRC210449 - regional permit to use land to excavate and placement of a structure.
- CRC210450 - regional permit to use water for dewatering purposes and temporarily dam.
- CRC210451 - regional permit to discharge dewatering water and sediment to surface water.
- CRC211477 - regional permit to remove vegetation and excavate land.
- RC205351 - land use consent under the Selwyn District Plan.

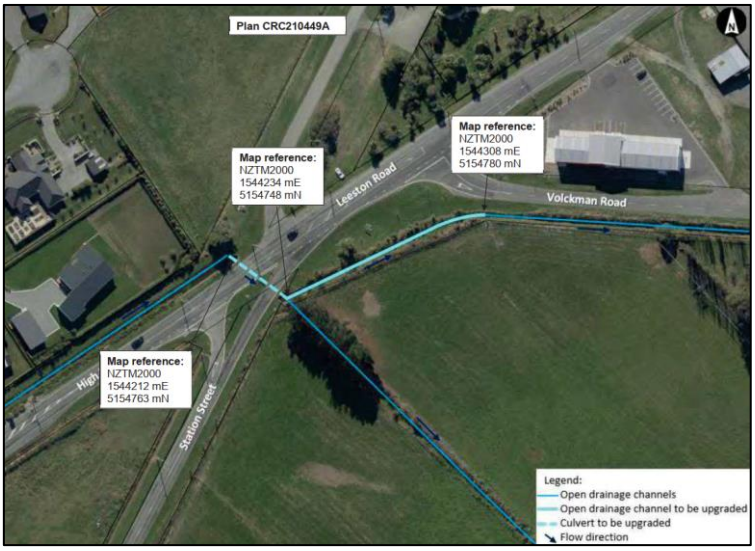

Figure 4: Stage 3 Works.

15. As of 2022, the Leeston Stormwater Flood Bypass scheme is now well progressed. Maintenance and upgrade works have been completed, which has in turn increased the capacity of the wider scheme (described below).

16. The effectiveness of the scheme in alleviating flood risk to Leeston and its surrounds is dependent on the bypass channel and Leeston Creek upgrade being completed.

2.3 Drainage Network – other completed works

17. Other works to the downstream drainage network have been completed additional to the above 'stages' (**Figure 5)**. These completed works include:

    a. Vegetation removal and cleaning out Drain 57.

    b. Vegetation removal and cleaning out Drain 58.

    c. Vegetation removal, cleaning out and removal of sections of legacy spoil banks along Volckman Road Drain.

    d. Replacing the existing Beethams Road culvert with a new box culvert.

18. Before and after photos of these works are provided in **Appendix 8**.

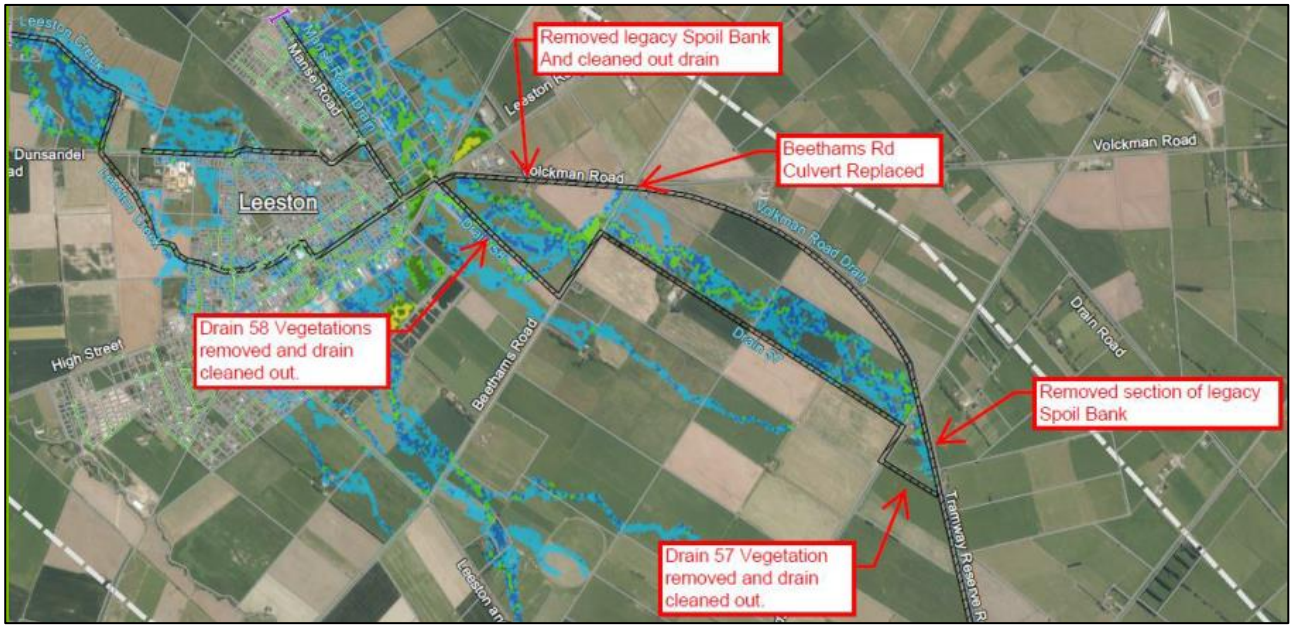

Figure 5: Location of completed works to drainage network.

2.4 Drainage Network – ongoing maintenance

19. The maintenance of the drainage network has a significant influence on carrying capacity and associated flood risk. There has already been a substantial amount of drain clearance and regular inspections and maintenance is required going forward.

20. There are several mechanisms that enable maintenance of utilities including:

    a. The Selwyn District Plan enables the upgrading, maintenance, operation and replacement of existing drainage utilities as permitted activities, as outlined in **Appendix 7**.

    b. The Proposed Selwyn District Plan also seeks to enable '*the establishment of a new, or the expansion, maintenance, or repair of an existing artificial waterway or associated structure (including outfall structures, water storage, conveyance of water for stock or irrigation, and land drainage purposes) by a network utility operator'.*

    c. Discharges from maintenance activities are addressed within the regional permits/consents to the Canterbury Regional Council, including global stormwater discharge permit application (CRC186175).

    d. The Selwyn District Council Stormwater and Drainage Bylaw 2018 applies to both public and private stormwater and land drainage systems.

3 Bypass Scheme and Leeston residential development

21. The bypass scheme, in alleviating flood risk, is inherently linked to existing and future development within the Leeston township.

22. This relationship between such development and flood risk is embodied in the policy framework within the operative Selwyn District Plan:

    a. **Township Policy B4.3.54** is specific to Leeston and is to '*ensure that any land rezoned for new residential or business development does not cause, or exacerbate, a natural hazard by increasing the rate of stormwater runoff into the Leeston main drain'.*

The **Explanation and Reasons** states that '*The Leeston main drain overflows during heavy rainfall events. A project is in place to install a flood swale to relieve the existing flooding. However, any further residential or business development should not exacerbate the problem, in accordance with Policy B3.1.2'*.

b. **Township Policy B3.1.7** sits at the District level and relates to 'Localised Natural Hazards. This policy seeks to ensure that '*any new residential or business development does not adversely affect the efficiency of the District's land drainage system or the risk of flooding from waterbodies*'.

23. The relationship between two *proposed* residential developments and the Leeston Stormwater Flood Bypass scheme is summarised below. These properties include 2 and 60 Leeston Dunsandel Road, identified in **Figure 6** and also discussed in **Section 5**.

Figure 6: Canterbury Maps Aerial Image dated 17 April 2019 of 2 and 60 Leeston Dunsandel Road.

3.1 2 Leeston Dunsandel Road, Karumata Oaks Subdivision

24. 'Karumata Oaks' is a proposed residential subdivision located at 2 Leeston Dunsandel Road (Part Lot 3 DP 33419). The applicant for Karumata Oaks, FTOTF Limited, was granted land use consent (RC215690) and subdivision consent (RC215689) from SDC on 25 January 2022**.**

25. These SDC consents (**Appendix 3)** are subject to a number of conditions:

a. In relation to flooding, Condition 39 of RC215689 requires that '*a report be provided by a suitably qualified and experienced person confirming that either:*

a. the engineering design of the subdivision is sufficient to mitigate flooding on every site, based on a 200-year Annual Exceedance Probability flood event; or

b. where the engineering design is insufficient to satisfy Condition (a) above, the required minimum building finished floor height above ground level for dwellings or other principal buildings, in order to achieve a 300mm freeboard above a 200-year Annual Exceedance Probability flood event.

b. In relation to stormwater, clause s) of RC215689 states that '*the stormwater system for the application site cannot function or be constructed without Council's flood bypass channel consented and in place*'.

26. The Approved Subdivision Plan (RC215689) (**Figure 7**) identifies the Stormwater Bypass Channel in green and labelled as a "*Swale*" and "*Local Purpose (Utility) Reserve to vest in SDC*".

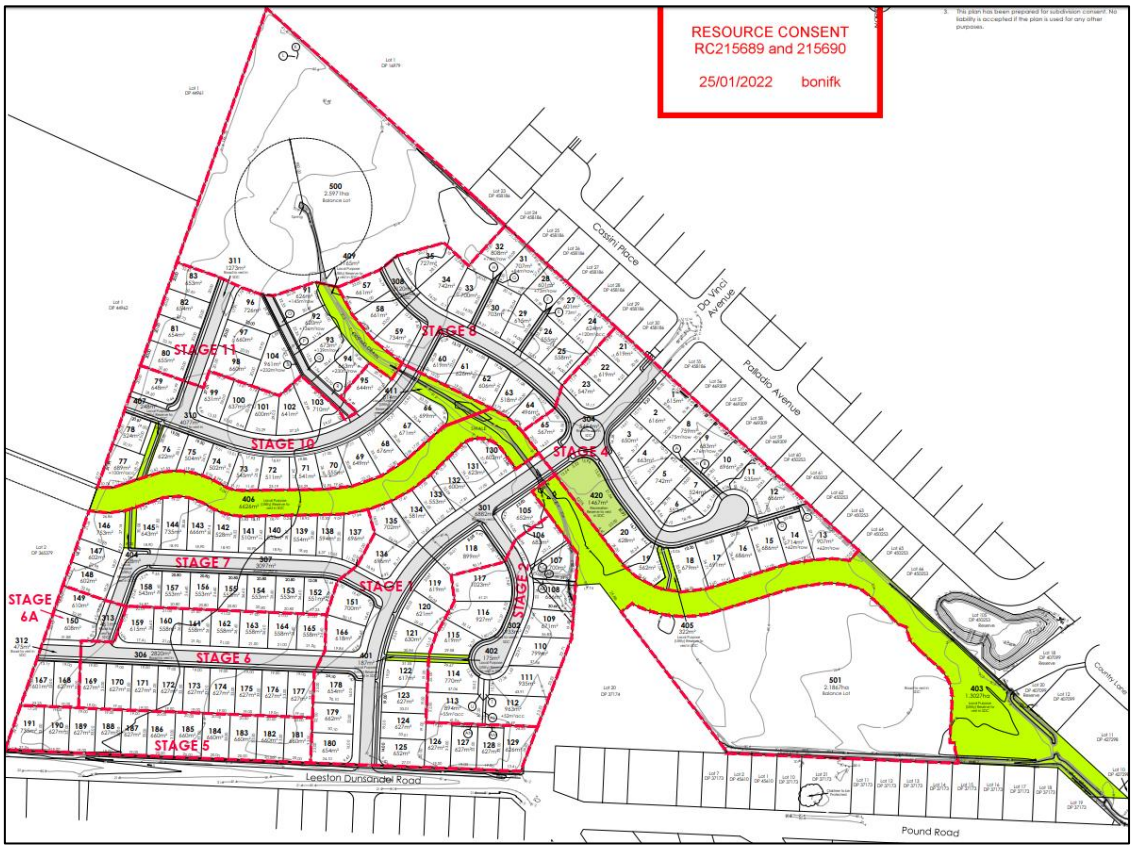

Figure 7: Approved Subdivision Plan for RC215689 and RC215690.

27. The consent holder has proceeded to fulfil some conditions of the SDC land use/subdivision consent, such as the submission of a Remediation Action Plan (Condition 23 of RC215690).

28. FTOTF Limited has also recently obtained the following consents from the Canterbury Regional Council:

a. CRC223750 - To temporarily take and use surface water.

b. CRC223751 - To discharge of construction-phase stormwater to land.

c. CRC223752 - To temporarily take and discharge water for dewatering purposes.

d. CRC223753 - To excavate land over an unconfined or semi-confined aquifer.

e. CRC223754 - To reclaim the bed of a river and to disturb the bed and banks of a river, earthworks and vegetation clearance within a riparian margin.

f. CRC223755 - To permanently divert Spring Drain into the flood bypass.

g. CRC224915 - To discharge water intercepted at the Stormwater Facility to land and surface water.

3.2 60 Leeston Dunsandel Road, Plan Change 62

29. Plan Change 62 (PC62) to the Selwyn District Plan approved the re-zoning of land west of the Leeston Township for residential use. PC62 was made operative on 17 February 2022 and introduced a new Outline Development Plan (ODP) to Selwyn District Plan's Township Volume (Appendix 51). The ODP provides for residential development in accordance with the SDP 'Living 1' and 'Living 2' zone standards (**Figure 8**).

30. The area affected by this re-zoning includes the property at 60 Leeston Dunsandel Road (Lot 2 DP 365379). 60 Leeston Dunsandel Road is now identified as 'Living 1' Zone.

31. The proposed bypass channel, running through the property at 60 Leeston Dunsandel Road, is represented by blue dashed lines within the ODP in Appendix 51 (**Figure 8**). This area is denoted as '*Indicative Stormwater Management Area/Local Drainage Reserve to be confirmed at Subdivision*'.

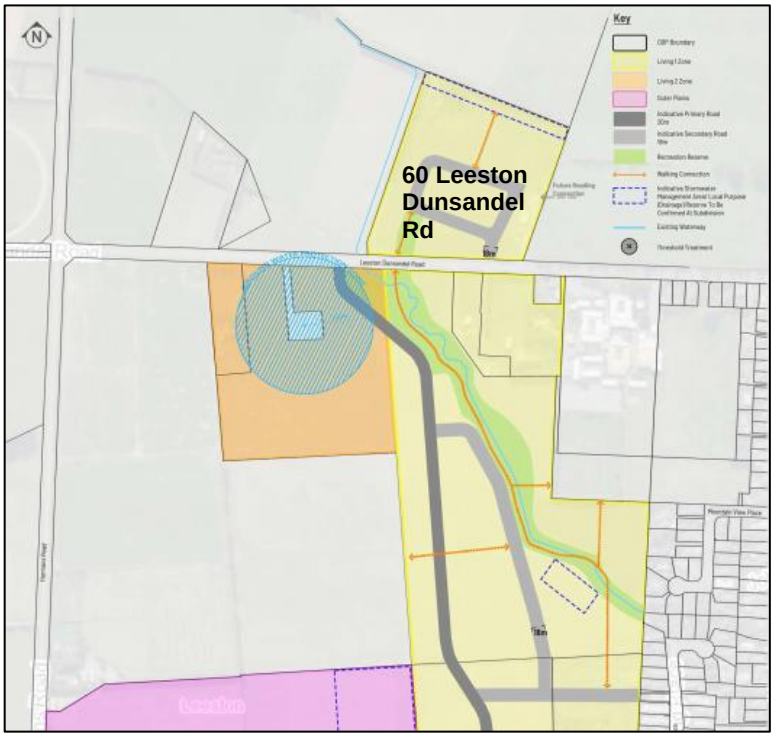

Figure 8: Excerpt from SDP Township Volume Appendix 51: Outline Development Plan – Leeston.

32. Appendix 51 states that '*Leeston Creek and its margins are to be vested to Council as reserve. The reserve should run for the entire length of Leeston Creek within the development site and should be provided with walkways along the Creek and a central play area. Any bridge infrastructure over Leeston Creek shall be designed to avoid adverse effects on the flow of the Leeston Creek*'.

33. The landowner of 60 Leeston Dunsandel Road has recently obtained a land use consent under the NES-CS from SDC (RC225368) to undertake earthworks of contaminated soils. This consent enables disturbance and removal of approximately 300-375m^3 of contaminated soil, to a depth of 200-250mm below ground level, from an area of approximately 1,500m^2. This decision is attached as **Appendix 4** and discussed in more detail in **Section 6**.

4 Description of Proposal

4.1 Overview

34. Selwyn District Council (the Applicant) apply to the Selwyn District Council (SDC), as territorial authority, for:

    a. A land use consent for works associated with the Leeston Stormwater Flood Bypass scheme as a **discretionary activity**, under the Selwyn District Plan (**District Plan**).

    b. A land use consent to undertake soil disturbance and potential removal, as a **controlled activity**, in accordance with **Regulation 9** of the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (**NES-CS**).

35. The Leeston Stormwater Flood Bypass scheme seeks to alleviate flood risk in Leeston and the surrounding area. The scheme seeks to do this by diverting high flows from Leeston Creek, which has been identified as the main source of floodwaters.

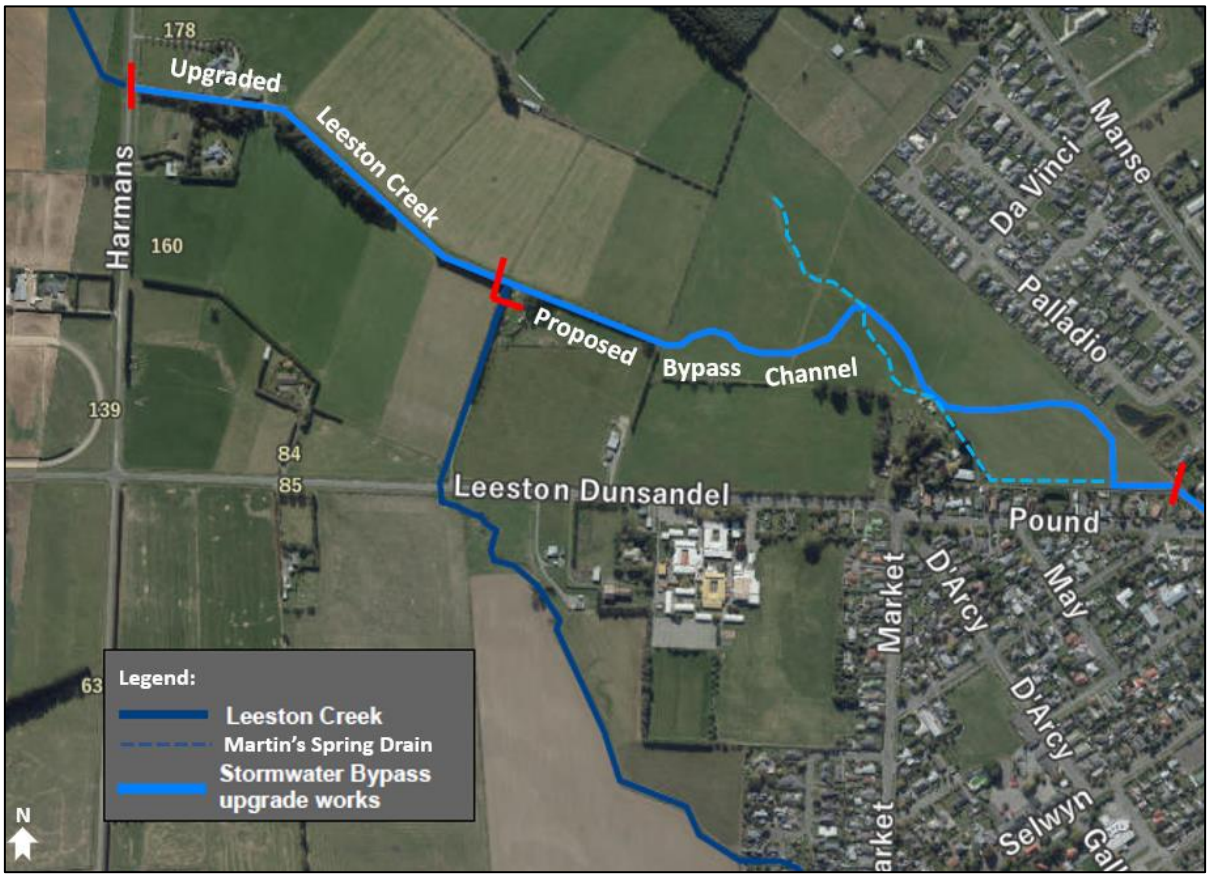

Figure 9: Location of Leeston Creek Upgrade and Proposed Bypass Channel.

36. In summary, the proposed works include:

    a. A new stormwater bypass channel to convey high flows diverted from Leeston Creek to upgraded drainage channels (**Figure 9**).

    b. A new diversion structure at the confluence of Leeston Creek with the stormwater bypass channel.

    c. The widening and deepening of Leeston Creek ('upgrade'), upstream of the new stormwater bypass channel (**Figure 9**).

d. Minor bank raising at localised points adjacent to the existing drainage network, south of Leeston (**Figure 16**).

e. Ongoing maintenance.

4.2 Stormwater Bypass Channel

37. The new stormwater bypass channel is designed to convey high ('excess') flows from Leeston Creek to upgraded drainage channels. The new channel will cross the properties at 60 Leeston Dunsandel Road and 2 Leeston Dunsandel Road before connecting to the existing drainage network at the corner of Pound Road and Cunningham Street (**Figure 10**).

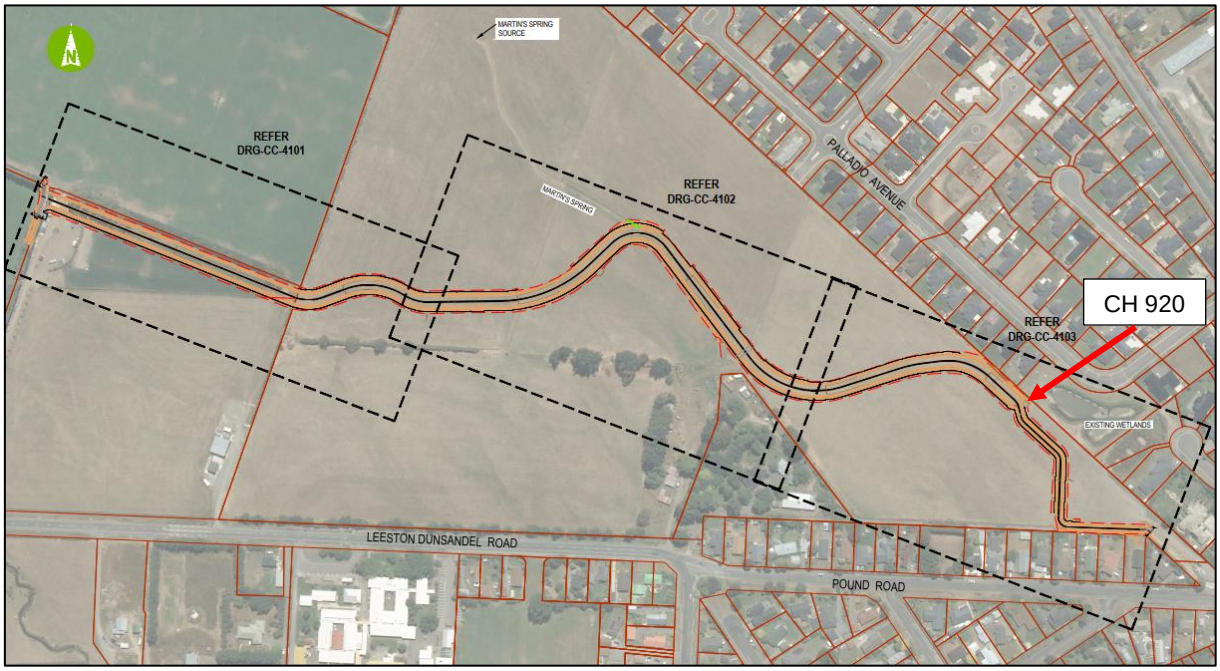

Figure 10: General arrangement of the proposed Stormwater Bypass Channel.

38. The proposed bypass channel has been designed to convey a flow of 3.8m^3 per second, which was a 1% Annual Exceedance Probability (AEP) flood event peak flow at the time of the original modelling in 2006. Based on current standards, the design flow for the bypass is closer to a 1.3% AEP event, as discussed in **Appendix 8**.

39. The bypass channel is approximately 1,100m in length and typical cross sections are provided in **Figure 11 and Figure 12**. The transition between the two provided cross-sections occurs at about Chainage 920 (**Figure 10 above**).

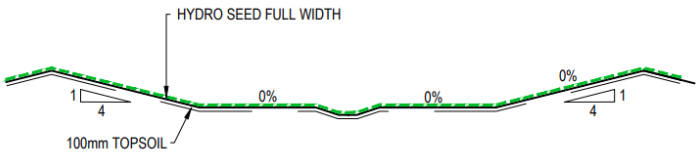

Figure 11: Typical Bypass Cross Section – Main Channel

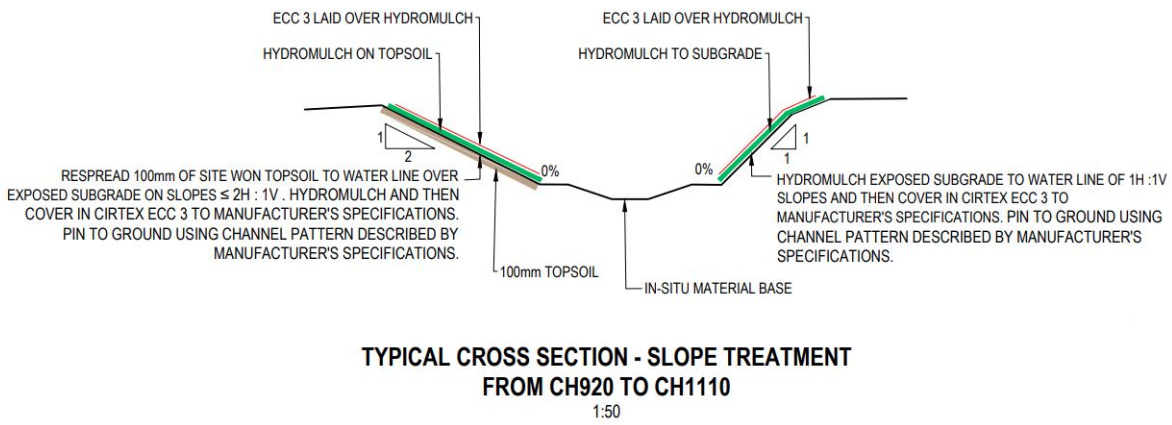

Figure 12: Typical Bypass Cross Section - Downstream Channel.

40. As outlined above, the General Arrangement Plans in **Appendix 2** are proposed to be amended in regard to the property at 60 Leeston Dunsandel Road. These include:

    a. Removing the northern and southern bunds from the final design plans, and

    b. Shifting the alignment of the bypass channel by 3m to the north, and

    c. Reducing the easement width over the bypass to 17m.

41. These drawings may be further refined through the design/construction process.

4.3 Diversion between Leeston Creek and Bypass Channel

42. The upstream (western) section of the new bypass channel will connect to Leeston Creek (**Figure 13)**. The diversion of high flows from Leeston Creek into the bypass channel will be controlled via a new flood control gate.

43. The flood control gate will allow water to continue to flow downstream, along Leeston Creek, at up to 0.6m^3/sec. When flows in the upstream section of Leeston Creek exceed 0.6m^3/sec, water will build up behind the flood control gate and excess flow will be diverted over a new weir wall and into the bypass channel.

44. The new weir acts as the transition between the Leeston Creek and bypass channel. The purpose of the weir is to maintain base flows within Leeston Creek while allowing for diverted flows into the bypass channel. Rock rip rap is proposed to be laid both upstream and downstream of the weir to prevent scouring.

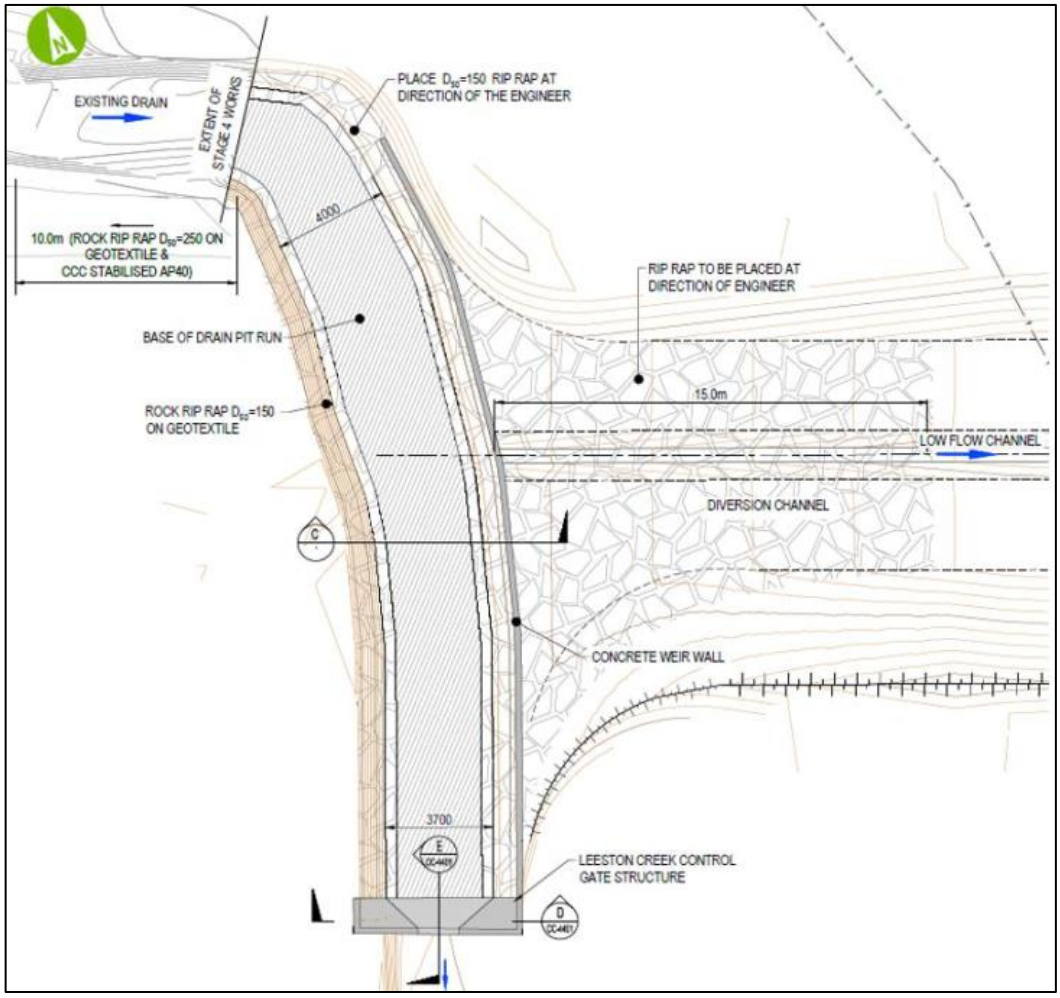

Figure 13: Concept plan of Diversion Structure between Leeston Creek and Stormwater Bypass Channel.

4.4 Leeston Creek Upgrade

45. Leeston Creek, between Harmans Road (west) and 60 Leeston Dunsandel Road (east) is proposed to be upgraded to provide additional capacity for high flows. The section of Leeston Creek, upstream from the proposed bypass channel, is designed to convey the design flow of 3.8m^3/second (**Figure 14**).

46. The works associated with the Leeston Creek upgrade include channel deepening and widening; reforming the batters of banks; and removal and replacement of an existing culvert. Rock rip rap will be installed on either end of the culvert to prevent scouring.

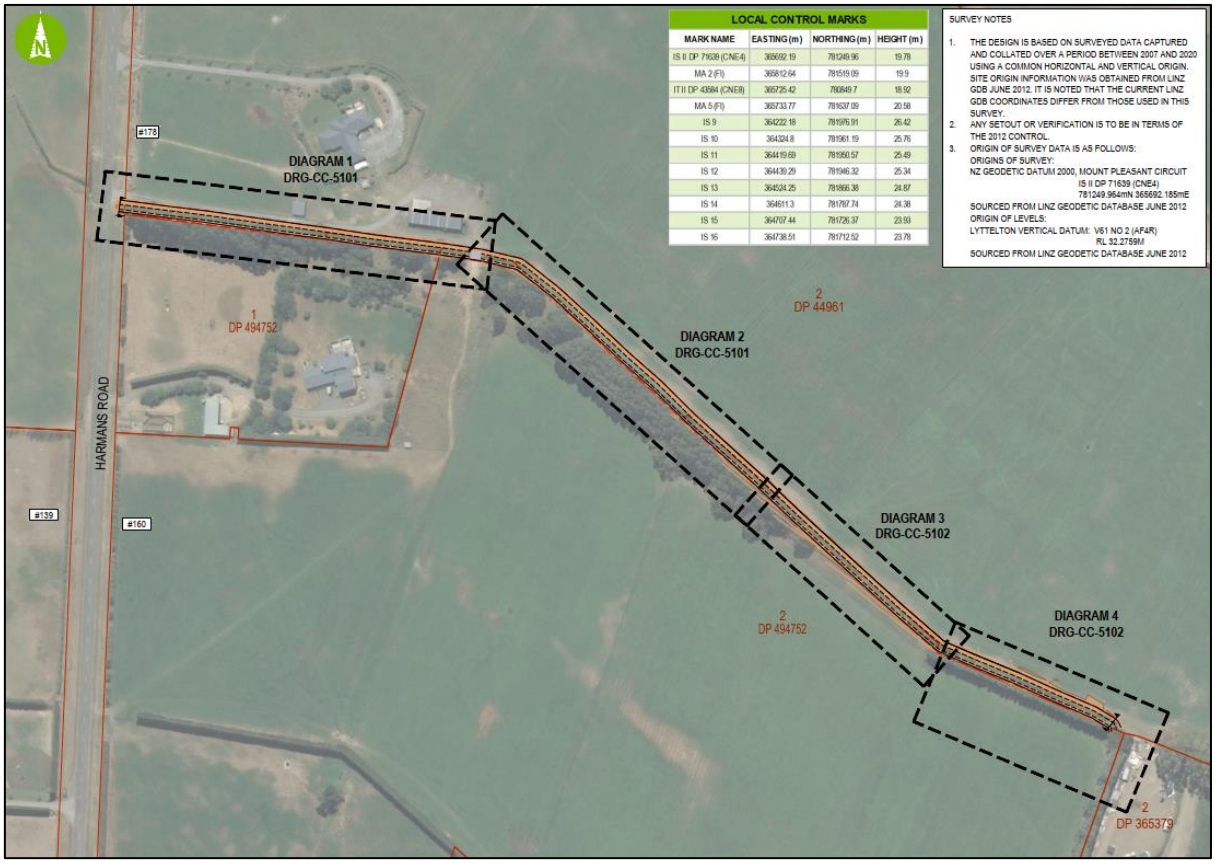

Figure 14: General arrangement of the Leeston Creek Upgrade.

47. The Leeston Creek upgrade extends over a reach of approximately 600m in length and a typical cross section is provided in **Figure 15** below.

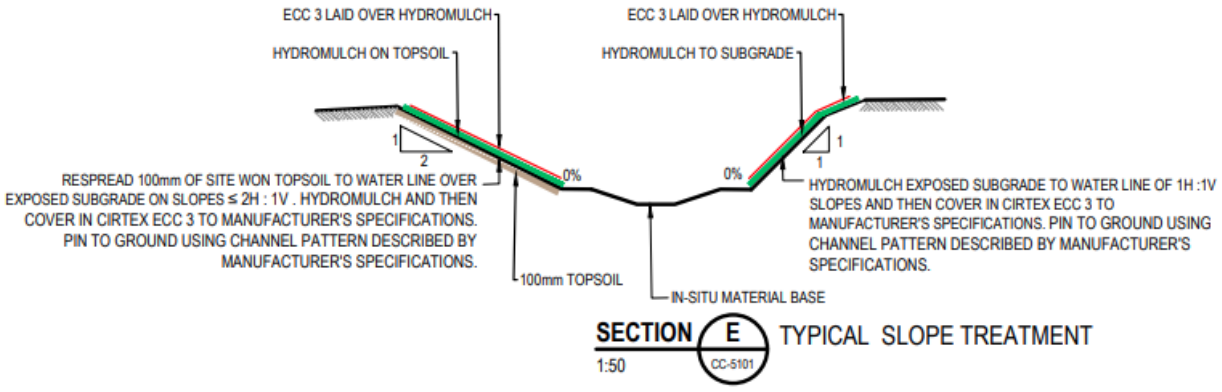

Figure 15: Typical Cross Section – Leeston Creek Upgrade.

4.5 Raising of Bank Heights adjacent to Drainage Network

48. Minor bank raising is proposed at several points adjacent to the existing drainage network south of Leeston (**Figure 16**). Details of the proposed bank increases are included in **Appendix 8.**

49. Increases in bank heights are proposed to accommodate peak flood levels and are generally in locations where overland breakouts may occur due to the land falling away from the drains or historic braid paths.

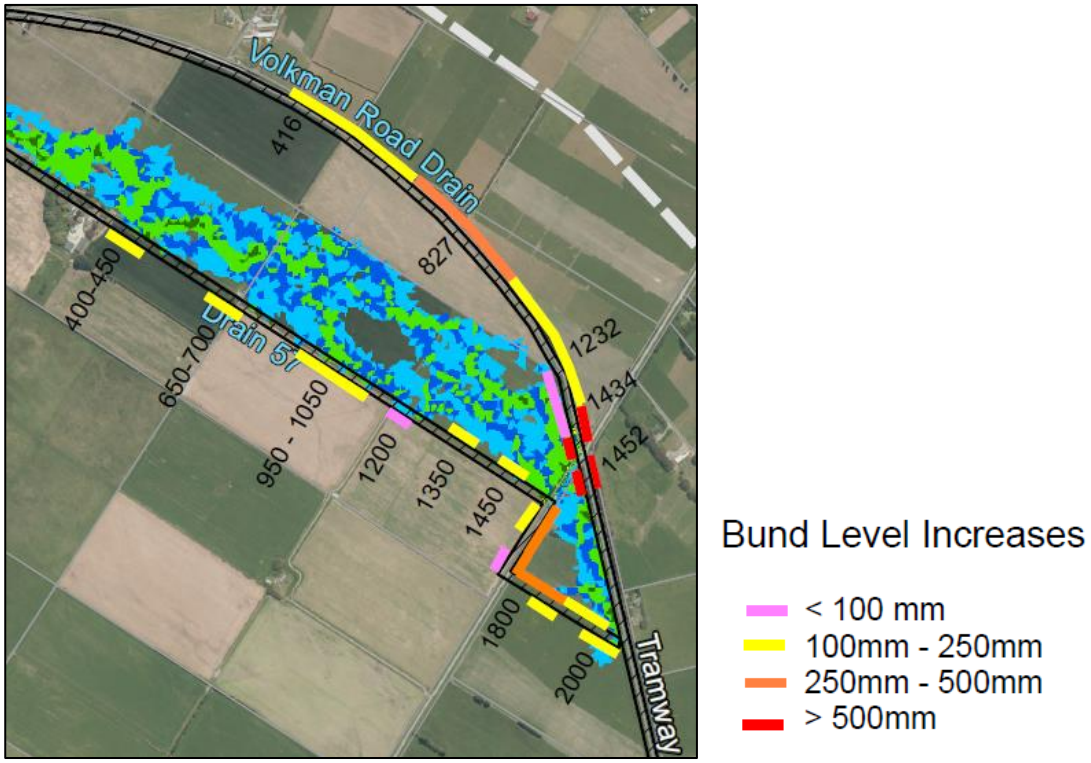

Figure 16: Locations of proposed increases to bank (bund) height

4.6 Scheme - Construction Works

4.6.1 Programme and Timing

50. The commencement of proposed works is dependent on access arrangements and/or land acquisition.

51. The construction of the bypass channel and Leeston Creek upgrade is proposed to take place between September and April to take advantage of the low flow (dry weather) conditions.

52. Given financial budgeting, these construction works could be completed in different financial years. The construction the bypass channel is anticipated to take approximately three months. The upgrade of Leeston Creek is also anticipated to take approximately three months.

53. The construction of the bypass channel will be staged; commencing at the downstream end (east) and progressing upstream (west) towards Leeston Creek. Diverted flows will not be allowed to enter the channel until sufficient stabilisation/grass coverage has been achieved.

54. The Leeston Creek upgrade will also be undertaken in stages, starting from the downstream confluence with the bypass channel (west) and working back towards the Harmans Road culvert (east).

55. Works will be undertaken on weekdays between the hours of 7.30am and 6pm Monday to Friday, and 7.30am and 4pm on Saturday if needed. No works, with the exception of erosion and sediment control/monitoring is proposed outside these hours.

4.6.2 Environmental Management Plan

56. Construction-phase works will be designed and managed in accordance with an Environmental Management Plan (EMP) which will be submitted to the relevant Councils prior to works commencing.

57. The EMP shall include, but not be limited to:

- Roles and responsibilities, including contact details for the site manager.
- Erosion and Sediment Control Plan(s) (ESCP).

- Traffic Management Plan(s) (TMP).
- Protocols for the discovery of archaeological material.
- Protocols for the discovery of unexpected contamination.
- Health and safety protection measures.
- Contingency plans (including use of spill kits)
- Communications plan(s).

58. The ESCP shall be prepared, in accordance with Environment Canterbury's Erosion and Sediment Control Toolbox. This will detail the erosion and sediment control measures including:

    a. Stabilising site access, entrance ways, haul road and any disturbed land;

    b. Staging soil disturbance to minimise excavation areas open at any one time;

    c. Diversion bunds to prevent clean water from entering the construction site and mobilising sediment;

    d. Management of temporary stockpiles;

    e. Dust suppression methods;

    f. Stabilising disturbed areas as soon as practicable following works;

    g. Monitoring weather conditions and the performance of the erosion and sediment control measures.

59. Construction traffic will be managed to comply with Waka Kotahi Transport Agency's Code of Practice for Temporary Traffic Management (CoPTTM) and this traffic management plans shall be submitted to Council for approval prior to on-site works commencing.

4.6.3 Accidental Discovery Protocol

60. The applicant will adhere to the Accidental Discovery Protocol (ADP) from Heritage New Zealand Pouhere Taonga (HNZPH) and the Mahaanui Iwi Management Plan (IMP). Appendix 3 of the IMP sets out the procedures that must be followed if taonga (Māori artefacts), burial sites/kōiwi (human remains), or Māori archaeological sites are accidentally discovered.

61. In the event of any discovery that triggers the Heritage New Zealand Pouhere Taonga Act 2014, the applicant will seek an Archaeological Authority (AA). Copies of the HNZPH and IMP Accidental Discovery Protocol will be included within the EMP and available on-site during construction works.

4.6.4 Vegetation and Fencing

62. The proposed bypass channel and Leeston Creek upgrade may affect existing fences and vegetation within the properties at 178 Harman Road, 60 Leeston Dunsandel Road and 2 Leeston Dunsandel Road. The General Arrangement Plans in **Appendix 2** identify the positions of existing trees relative to Leeston Creek and the Bypass Channel.

63. Trimming, removal and/or replacement of vegetation and fencing will be discussed with respective individual landowners and in accordance with any design requirements. The applicant will engage a suitably qualified and experienced arborist to undertake any tree trimming, removal and/or monitor works within the rootzone of existing trees to be retained.

64. Any fencing that is proposed to cross the bypass (i.e. at the legal property boundaries) will be designed to give way under load from storm flow.

4.6.5 Completion of Works

65. On the completion of works, all disturbed areas outside the bed of Leeston Creek will be stabilised (i.e. topsoiled and re-grassed as a minimum).

66. The proposed stormwater bypass channel is proposed to be grassed to stabilise soils and enable efficient conveyance of floodwaters. The design engineers have commented the growth height and size of mature plants has the potential to reduce the capacity of the drain

67. There is greater availability for planting on the margins of the bypass channel within 60 Leeston Dunsandel Road. The easement width of 17m could allow for a 1.5m to 2m planting strip to either side.

68. This corridor width associated with the upgraded section of Leeston Creek within 178 Harmans Road is however, significantly narrower, at 5m to 7m in width. This limits the ability for new planting, however existing landscaping/trees will be retained where appropriate, following discussions with relevant landowners.

69. The Creek is fenced on either side and has a farm track running along the northern side – see site visit photo below looking from Harmans Road. Large eucalyptus trees are located along the southern side of the creek in this location. The land adjoining this part of the Leeston Creek is zoned Rural and will continue to be used for this use.

70. Diverted flows will not be allowed to enter the newly constructed channel until sufficient grass coverage has been achieved.

71. The final topography will be very similar to that of the surrounding land with the exception of the widened section of Leeston Creek and new bypass channel infrastructure.

72. Excavated soil, where unable to be reused, and any other waste material shall be removed from site and disposed of to an appropriate facility.

4.7 Ongoing inspections and maintenance

73. The maintenance of the drainage network has a significant influence on carrying capacity and associated flood risk. Maintenance of utilities is enabled as a permitted activity by the Selwyn District Plan and has also been addressed within regional permits/consents to the Canterbury Regional Council.

74. However, given the layers of consents, including the Selwyn District Council Stormwater and Drainage Bylaw 2018, the applicant has volunteered two consent conditions:

75. Firstly Leeston Creek, the bypass channel and associated drainage network comprising Drain 57, Drain 58, Beethams Road Drain, Volckman Road Drain and Tramway Reserve Road Drain shall be inspected on a six-monthly basis and maintained as required to ensure they are clear from all obstructions and maintain a free, unimpeded flow of water.

76. Secondly, the applicant shall, in consultation with relevant land owners, prepare a Maintenance Plan outlining how the drainage network will be maintained. The Maintenance Plan shall include:

    a. details of who will hold responsibility for long-term maintenance of the drainage network and the organisational structure which will support this process;

    b. a programme for regular maintenance and inspection of the drainage network, including culverts and vegetation;

    c. a programme for post storm inspection and maintenance; and

    d. general inspection checklists for all aspects of the drainage network based on best practice guidance.

5 Description of Site and Surrounds

77. Leeston is located approximately 40km southwest of Christchurch, between Lake Ellesmere and the Rakaia River. Leeston Creek originates on farmland north-west of Leeston and converges with the township's stormwater network.

78. Selwyn District Council (SDC) own and operate the existing stormwater network servicing Leeston. This stormwater network, described in detail within the ECAN consent application CRC186175, predominantly consists of piped reticulation with some swales, kerb and channel, and open drains.

79. The township network discharges to the east and south of Leeston which comprises Drain 57, Drain 58, Beethams Road Drain, Volckman Road Drain and Tramway Reserve Road Drain. This network eventually discharges to Te Waihora/Lake Ellesmere.

80. Leeston Creek is a spring-fed, ephemeral waterway; the springs are located to the north of Websters Road with Leeston Creek flowing in a south-east direction, through a series of modified channels and culverts under both Harmans Road and Leeston Dunsandel Road. Leeston Creek continues south past Ellesmere College before entering the Leeston township between Mountain View Place and Spring Place.

81. The Leeston Creek upgrade is located within the property at 178 Harmans Road. This site is characterised by rural land use and includes a residential dwelling and accessory buildings in the western portion of the site adjacent to Harmans Road. An existing culvert enables access across Leeston Creek between these buildings and the southern portion of this property.

82. The Record of Title for 178 Harmans Road (**Appendix 1**) identifies a right to drain water marked 'B' in favour of the Selwyn District Council (**Figure 17**). This appears to encompass the southern section of Leeston Creek before it flows south under Leeston Dunsandel Road.

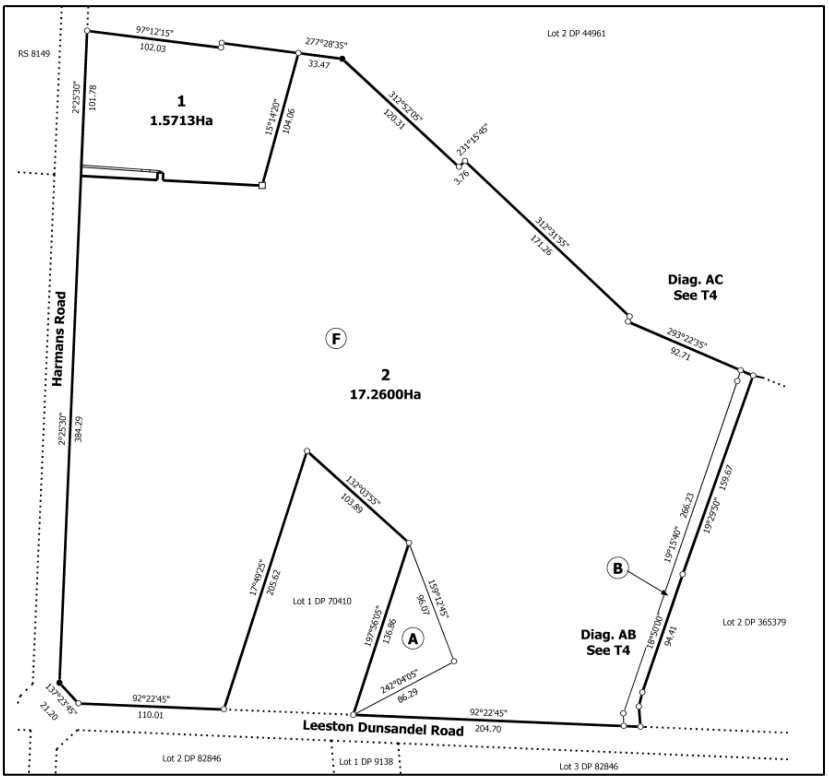

Figure 17: Excerpt from Title Plan for 178 Harmans Road (Appendix 1).

83. In this area, the vegetation adjacent to Leeston Creek predominantly comprises exotic trees (i.e. pine and eucalyptus) grown into shelterbelts, with some other species, such as gorse, also present. Mature

trees are also present along the legal boundary between 178 Harmans Road and 60 Leeston Dunsandel Road.

84. Existing dwellings adjacent to 178 Harmans Road, also rural-zoned, are located at 160 Harmans Road, 190 Harmans Road and 84 Leeston Dunsandel Road.

85. The proposed bypass channel is located within the properties at 60 Leeston Dunsandel Road and 2 Leeston Dunsandel Road. These properties have been used for agricultural/pastoral purposes but are now intended for residential subdivision, discussed in **Section 3**.

86. 60 Leeston Dunsandel Road has previously contained two contractors yards; one in the north-west and on in the east of this property. The eastern area includes multiple industrial-style sheds. The remainder of the site is vacant of structures and in pasture. This property has two vehicle crossings to Leeston Dunsandel Road. The Record of Title for 60 Leeston Dunsandel Road (**Appendix 1**) identifies a right (in gross) to drain water over part marked 'C' in favour of the Selwyn District Council (**Figure 18**). Again, this appears to relate to Leeston Creek.

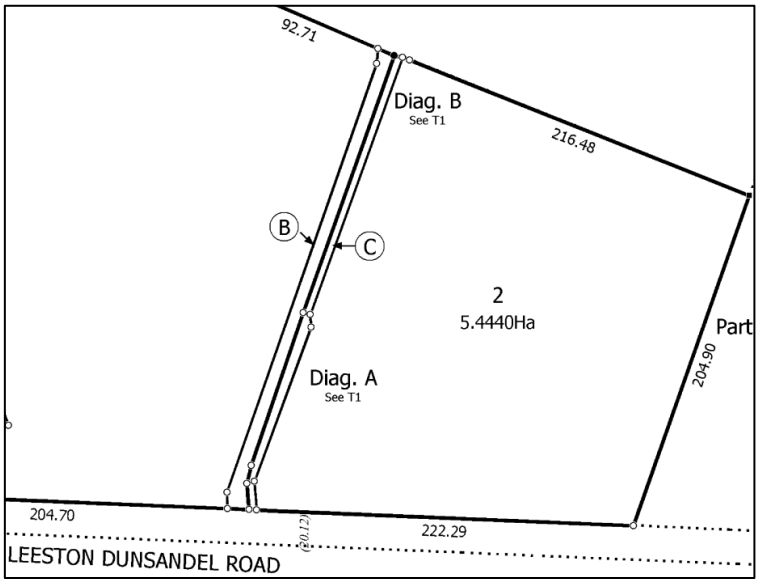

Figure 18: Excerpt from Title Plan for 60 Leeston Dunsandel Road (Appendix 1).

87. 2 Leeston Dunsandel Road is predominantly used for pastoral grazing. A former woolshed, workshop and storage buildings are located in the southern, central portion of the property. This property is bounded by Leeston Dunsandel Road and residential properties to the south, newer residential subdivision and stormwater facility to the north-east/east, and rural-zoned land to the north-west.

88. A row of trees extends along the Leeston Dunsandel Road frontage; other vegetation within the site comprises trees and hedgerows that are sporadically located along internal fence lines and external boundaries.

89. Martins Spring is located within the north-west corner of 2 Leeston Dunsandel Road and feeds Martins Spring Drain. Martins Spring Drain discharges to Dunsandel Drain at the northern boundary of 43 Pound Road.

90. There are no sites of cultural, heritage or archaeological significance identified in the vicinity of the works under the Mahaanui Iwi Management Plan (IMP) or relevant district and regional planning documents. The nearest 'listed' site of archaeological significance is M36/257, located north-east of the proposed area of works (**Figure 19**).

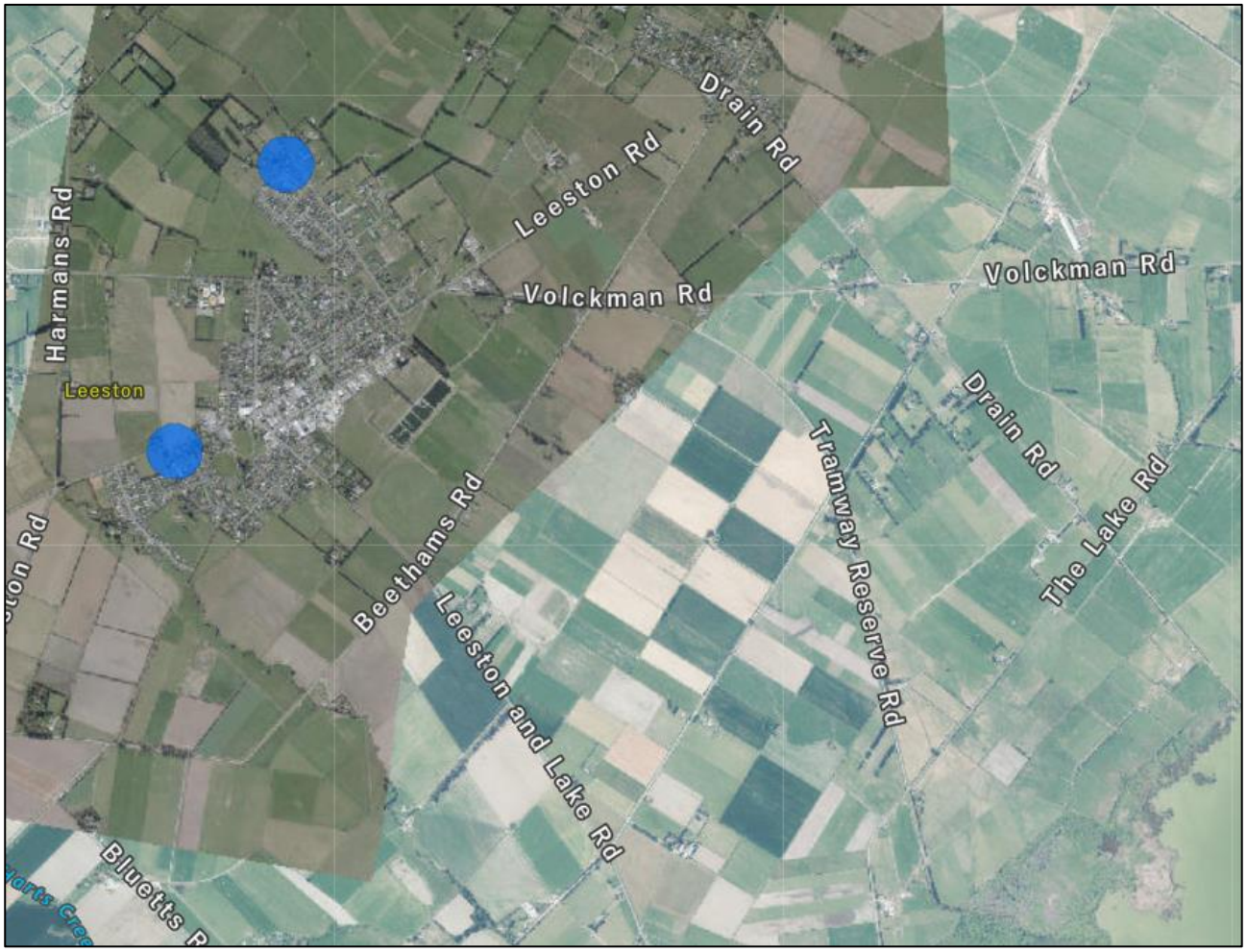

Figure 19: Canterbury Maps 'New Zealand Archaeological Sites' layer.

6 National Environmental Standard for Assessing and Managing Contaminants in Soil to protect Human Health (NES-CS)

91. The NES-CS contains regulations for assessing and managing the actual or potential adverse effects of contaminants in soil on human health from subdivision, land-use change, soil disturbance, soil sampling, and removing fuel storage systems and outlines the process for confirming whether or not a site may be contaminated.

92. The NES-CS applies to any 'piece of land' on which a 'HAIL' activity or industry is being undertaken, has been undertaken or is more likely than not to have been undertaken.

93. The Listed Land Use Register (LLUR) administered by the Canterbury Regional Council has been reviewed for those properties affected by the proposed works. These LLUR property statements are included in **Appendix 5** and summarised below in relation to each site (described west to east).

6.1 178 Harmans Road

94. No HAIL activities are identified as having occurred on this site.

6.2 60 Leeston Dunsandel Road

95. Momentum Environmental Ltd (MEL) (formally Malloch Environmental) have prepared a Preliminary Site Investigation (PSI), Detailed Site Investigation (DSI) and a supplementary DSI and Remediation Action Plan (RAP) for 60 Leeston Dunsandel Road.

96. The MEL investigations identified two areas of the site at risk of soil contamination associated with chemical and fuel storage due to apparent use as contractor's yards. 'Contractors Yard B' is located in the north-western corner of this property and is approximately 1.1 ha in area (**Figure 20**). This area intersects with the proposed bypass channel (**Appendix 2**).

Figure 20: Contractors Yard B - SDC Land Use Consent RC225368.

97. Soil sampling results identified arsenic and chromium contamination exceeding the Residential 10% produce Soil Guideline Values (SGVs) within Contractors Yard B. The contaminated soils are estimated to be present in an area of approximately 1,500m^2 and up to a depth of 200 – 250mm.

98. The supplementary DSI by MEL notes that the risk to human health from the identified contaminants is moderate to high and recommends that the contaminated soils are remediated prior to the development of the site for residential use. The report states that remediation by excavation and disposal to an authorised facility is considered to be the most viable remediation option for this site, and recommends that following remediation, a Site Validation Report be required to be produced and provided to Selwyn District Council and Environment Canterbury.

99. The landowner for 60 Leeston Dunsandel Road has obtained a land use consent from SDC (RC225368) to excavate and remove approximately 300-375m^3 of contaminated soils under the NES-CS. This land use consent was granted on 14 June 2022, subject to a number of conditions (**Appendix 4)**.

100. Remedial work has now taken place; contaminated soils have been excavated and disposed off-site as documented within a Site Validation Report (SVL) prepared by MEL (**Appendix 4**). The SVR identifies that contaminant levels within the remediated areas remain elevated above expected background values but are below Residential Guideline Values. The ECAN LLUR Statement for 60 Leeston Dunsandel Road has been updated to reflect this finding (**Appendix 5**).

6.3 2 Leeston Dunsandel Road

101. Bell Consulting prepared a Preliminary Site Investigation (PSI) for 2 Leeston Dunsandel Road in 2013. Davis Ogilvie subsequently prepared a Detailed Site Investigation (DSI) in October 2021 with EHS Support New Zealand preparing a Remediation Action Plan (RAP) in November 2021.

102. These investigations identified HAIL activities having occurred within 2 Leeston Dunsandel Road but **outside** the area proposed for the bypass channel (**Figure 21)**.

Figure 21: Except from Detailed Site Investigation from Davis Oglivie 2021.

6.4 Proposed Bypass Channel and 60 Leeston Dunsandel Road

103. The proposed bypass channel may intersect with an area of approximately 3,842m^2 within the site at 60 Leeston Dunsandel Road. This is based on the 17m wide strip of land allocated to this infrastructure which appears to extend approximately 226m in length (based on the northern boundary on the Record of Title in **Appendix 1**).

104. The maximum volume of earthworks associated with the construction of the bypass channel within the property at 60 Leeston Dunsandel Road is estimated at approximately 2,500m^3. The maximum depth of cut within this section is approximately 1.2m.

105. The applicant engaged Louise Wilson, a suitably qualified and experienced environmental Consultant (SQEP) at Collaborations, to assess the information available for the proposal and 60 Leeston Dunsandel Road in August 2022. Ms Wilson has since reviewed the MEL SVR and identifies that the remediation works undertaken by MEL have suitably addressed the known contamination on site. This is discussed further in the AEE below.

6.5 Assessment against Regulations

106. The proposed earthworks within 60 Leeston Dunsandel Road, where contaminant levels within the remediated areas remain elevated above expected background values but below Residential Guideline Values, means that the proposal will not meet the following aspects of Regulation 8(3) of the NES-CS:

- The volume of soil disturbance on the piece of land will exceed 25m^3 per 500m^2 (clause c).
- The volume of soil removed from the piece of land will exceed 5m^3 per 500m^2 (clause d.ii.).

- The duration of the activity must be no longer than two months (clause f).

107. The remainder of the standards within Regulation 8(3) will be met by the proposal.

108. The proposal is subject to Regulation 9(1)(a) as a detailed site investigation (DSI) of the piece of land does exist and remediation has occurred such that soil contamination does not exceed the guideline values for residential land use.

109. On this basis, the proposal requires consent as a **controlled** activity under Regulation 9 of the NES-CS as a detailed site investigation (DSI) of the piece of land exists and any residual soil contamination does not exceed the guideline values for residential land use but is above naturally occurring background levels.

110. The applicant will adopt procedures regarding the discovery of unexpected soil contamination which shall be included in the Environment Management Plan and consent conditions volunteered to this effect. This is discussed in more detail in **Section 11.3.1**.

7 Selwyn District Plan (SDP)

7.1 Introduction

111. The Selwyn District Plan (SDP) became fully operative in May 2016. The SDP will eventually be replaced by the Proposed Selwyn District Plan (PSDP).

112. The Proposed Selwyn District Plan (PSDP) was publicly notified on 5 October 2020 and is currently progressing through the hearings process on a chapter by chapter basis. SDC maintain an online list of those PSDP rules that have legal effect (s86B of the RMA) or are to be treated as operative (s86F).

7.2 Zoning and Overlays

113. The SDP zoning applying to Leeston and the surrounding area is shown in **Figure 22**. The SDP zoning relative to the proposed bypass and Leeston Creek upgrade is included in **Table 2**. There are no overlays applying to these properties.

Address	Legal Description	SDP Zoning
178 Harmans Road	Lot 2 DP 494752 & Lot 2 DP 44961	Rural Outer Plains (OP)
60 Leeston Dunsandel Road	Lot 2 DP 365379	Living 1 (L1)
2 Leeston Dunsandel Road	Part Lot 3 DP 33419	Living XA (LXA)

Table 2: SDP Zoning relative to Bypass Channel and Leeston Creek upgrade

114. Harmans Road is classed as a 'Local Road' under the SDP, whilst Leeston Dunsandel Road is classed as an 'Arterial Road'.

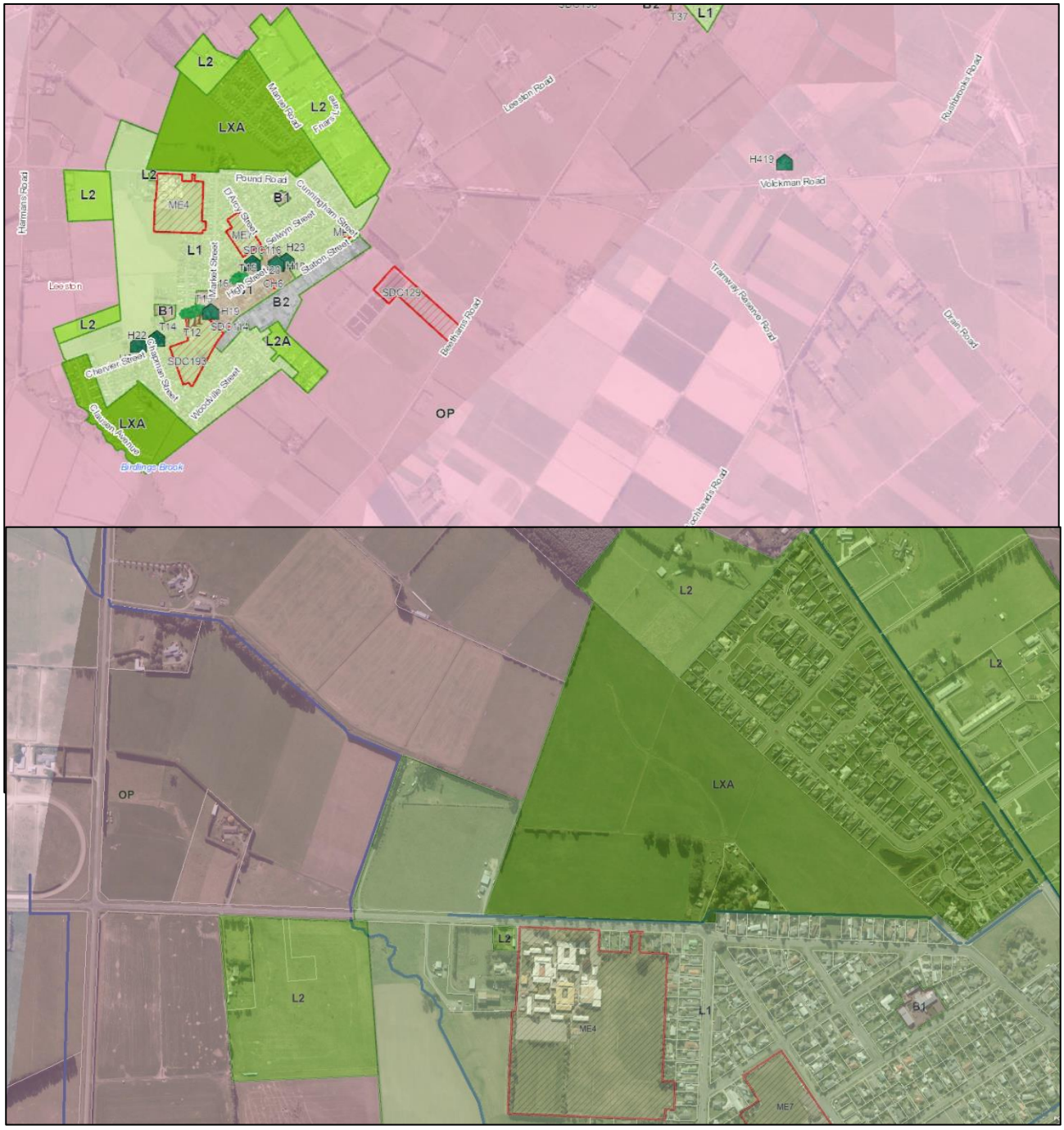

Figure 22: SDP Zoning.

7.3 Relevant Definitions

115. The SDP definitions are contained within the Township and Rural Volumes. Those relevant to this proposal include:

a) ***Utility**: includes the use of any structure, building or land for any of the following purposes:[…]*
(d) The conveyance, storage, treatment or distribution of water for supply, including (but not limited to) irrigation and stockwater;
(e) The drainage, reticulation or treatment of stormwater, waste water or sewage;
(g) Work to mitigate potential natural hazards, including (but not limited to) stopbanks, groynes and gabions […]

b) ***Waterbody**: means fresh water or geothermal water in a river, lake, stream, pond (but excluding any artificial pond), wetland, or aquifer, or any part thereof that is not located within the coastal marine area.*

116. On the basis of above:

a. Leeston Creek is defined as a '*waterbody*'.

b. The proposed bypass channel and structures associated with the Leeston drainage network are defined as a '*utilities*'[6].

7.4 Rule Assessment and Activity Status

117. The area of works traverse both Rural and Living zones and therefore rules in both the Rural and Township Volumes of the SDP are applicable.

118. A compliance assessment against the relevant SDP rules is contained in **Appendix 7**. This assessment also identifies those components of the proposal which are permitted by the Plan. Non-compliances with the SDP are summarised in **Table 3** below:

Rule	Reason for non-compliance	Activity status
Rural Volume		
Part C1 - Earthworks		
Rule 1.7.1.1: The earthworks are set back at least 20m from the edge of any waterbody (excluding aquifers):	Earthworks will be undertaken within 20m of the edge of Leeston Creek.	**Discretionary activity** within an unnumbered rule below 1.7.5.1 in SDP.
Township Volume		
Part C2 – Living Zone Earthworks		
Rule 2.1.1.4: Earthworks do not occur and material from earthworks is not deposited within: (b) 10m of any other waterbody (excluding aquifers).	Earthworks will be undertaken within 10m of the edge of Leeston Creek and Martins Spring Drain.	**Discretionary activity** under Rule 2.1.8.2.
Rule 2.1.1.6: Any earthworks has: (a) a volume of not more than 2,000m^3 per project;	The proposed earthworks located in the Living Zone is estimated at a total volume of approximately 16,980m^3.	**Discretionary activity** under Rule 2.1.8.2.
Part C6 – Utilities		
Rule 6.6.1: Any utility building **or other structure** shall be a permitted activity if it is sited in accordance with the following setbacks: 6.6.1.2 Not less than 10m from the edge of any other waterbody (excluding aquifers).	Utility structures will be located within 10m of the edge of Leeston Creek and Martins Spring Drain.	**Discretionary activity** under Rule 6.6.2.

Table 3: SDP Non-compliances

119. Overall, the proposal requires a land use consent as a **discretionary** activity under the Selwyn District Plan.

8 Proposed Selwyn District Plan (PSDP)

8.1 Introduction

120. The notified provisions of the Proposed Selwyn District Plan (PSDP) relevant to the proposal are discussed below. The objectives and policies of the PSDP are assessed in **Section 13.3.**

[6] *This is consistent with the definitions applied under land use consent RC205351 to upgrade the capacity of the existing drainage channels to the south of the Leeston township.*

8.2 Zoning and Overlays

121. The notified PSDP zoning applying to Leeston and the surrounding area is shown in **Figure 23**. The PSDP zoning relative to the proposed bypass channel and Leeston Creek upgrade is outlined in **Table 4.** The Notified Zoning Maps do not take account of the recently approved Plan Change 62 (PC62).

Address	Legal Description	PSDP Zoning
178 Harmans Road	Lot 2 DP 494752 & Lot 2 DP 44961	General Rural Zone (GRUZ)
60 Leeston Dunsandel Road	Lot 2 DP 365379	General Rural Zone (GRUZ) – Western slither. Large Lot Residential Zone (LLRZ) – Remainder.
2 Leeston Dunsandel Road	Part Lot 3 DP 33419	Low Density Residential Zone (LRZ)

Table 4: PSDP Zoning relative to Bypass Channel and Leeston Creek upgrade.

122. The following overlays are proposed to apply to area of the bypass channel and Leeston Creek upgrade:

a. Plains Flood Management Overlay.

b. Liquefaction Damage Unlikely Overlay.

c. GRUZ only; Ecosystems and Indigenous Biodiversity Management Overlay (EIB): Canterbury Plains.

d. GRUZ only; Rural Density: East Plains/Te Waihora ki Waimakariri Control Area.

e. GRUZ only; Urban Growth Overlay.

f. Development Area DEV-LE1.

123. The Notified PSDP does not identify any sites of cultural significance (including silent files) or listed heritage items in the vicinity of the site.

124. Harmans Road is classed as a ‘Local Road’, whilst Leeston Dunsandel Road is classed as an ‘Arterial Road’.

Figure 23: PSDP Zoning.

8.3 Relevant Definitions

125. The relevant PSDP definitions include:

(a) ***Important Infrastructure:*** *Those necessary facilities, services, and installations which are critical or of significance to either New Zealand, Canterbury, or Selwyn. This may include but are not limited to: […]*
h. Public and community land drainage infrastructure
i. Public and community stormwater infrastructure

(b) ***Natural Hazard Mitigation Works:*** *Any work or structure intended to prevent or control the effects of a natural hazard, including coastal hazards. It includes, but is not limited to:*
a. defences against water
Note: the definition of 'Natural Hazard' is the same as s2 of the RMA[7] and includes flooding.

(c) ***Defence Against Water:*** *Any structure or equipment, including any bund, weir, spillway, floodgate, bank, stopbank, retaining wall, rock or erosion protection structure, groyne, vegetation (including anchored tree protection) or reservoir, that is designed to have the effect of stopping, diverting, controlling, restricting or otherwise regulating the flow, energy or spread of water, including floodwaters, within, into or out of a water body, artificial watercourse, or artificial lake, for the purposes of flood mitigation.*

(d) ***Water Body****: Has the same meaning as in section 2 of the RMA; means fresh water or geothermal water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area.*

126. On the basis of above:

a. Leeston Creek is defined as a '*water body'*.

b. The proposed works are defined as '*Natural Hazard Mitigation Works*' and involve the upgrade and establishment of '*Important Infrastructure'*.

c. The proposed structures associated with Natural Hazard Mitigation Works are defined as '*Defence Against Water'*.

8.4 Rule Assessment and Activity Status

127. The proposal does not trigger non-compliances with any PSDP rules that have legal effect or are to be treated as operative.

128. **Notified Rule EI-R26** (Artificial Waterways and Associated Structures) permits '*the establishment of a new, or the expansion, maintenance, or repair of an existing artificial waterway or associated structure (including outfall structures, water storage, conveyance of water for stock or irrigation, and land drainage purposes) by a network utility operator' subject to 'maintaining existing access to adjoining properties*'.

9 Summary of Resource Consents Required

129. Based on the assessment against the relevant planning framework, the proposal requires:

a. A land use consent as a **discretionary** activity under the Selwyn District Plan (**SDP**) in accordance with the following non-compliances:

Rural Volume

[7] S2 of the RMA defines '*natural hazard means 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'.*

- Rule 1.7.5.1 – Earthworks
    - Earthworks will be undertaken within 20m of the edge of Leeston Creek, a waterbody.

Township Volume

- Rule 2.1.8.2 – Earthworks
    - Earthworks will be undertaken within 10m of the edge of Leeston Creek and Martins Spring Drain.
    - The proposed volume of earthworks in the Living Zone exceeds 2,000m^3.
- Rule 6.6.2 – Utilities
    - Utility structures will be located within 10m of the edge of Leeston Creek and Martins Spring Drain.

b. A land use consent as a **controlled activity** under **Regulation 9 of** the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (**NES-CS**).

130. The proposal **does not** trigger the requirement for a land use consent under the Proposed Selwyn District Plan (PSDP).

131. Overall, resource consent is required as a **discretionary** activity.

10 Statutory Framework

10.1 Part 2 of the RMA

Part 2 of the RMA sets out the purpose and principles of the Act, being "to promote the sustainable management of natural and physical resources". 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.

132. Section 6 of the RMA sets out matters of national importance while section 7 requires particular regard to be had to 'other matters'. The section 6 and 7 matters of relevance to this application are considered to be:

6(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development

6(h) the management of significant risks from natural hazards.

7(aa) the ethic of stewardship.

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

7(c) the maintenance and enhancement of amenity values.

7(d) intrinsic values of ecosystems.

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

133. The above section 6 and 7 matters are considered in the context of the relevant objectives and policies of the Canterbury Regional Policy Statement, operative Selwyn District Plan and Proposed Selwyn District Plan in **Section 13** of this application. That assessment relies on the outcomes of the effects assessment in **Section 11**.

134. Section 8 requires the principles of the Treaty of Waitangi to be taken into account. There are no known cultural values associated with Leeston Creek, however an assessment of the cultural framework applying to the Canterbury region and Te Waihora catchment is considered in **Section 14.114.1** below.

10.2 Section 104 of the RMA

135. Section 104 of the RMA provides the statutory requirements for the assessment of the application and sets out those matters that Councils must have regard to when considering the application.

136. Relevant matters for the assessment of this application include:

- *Any actual or potential effects on the environment of allowing the activity (section 104(1)(a));*
- *The relevant objectives, policies, rules and other provisions of national environmental standards, other regulation, national policy statements, regional policy statements (proposed and operative), proposed plans and plans (section 104(1)(b)); and*
- *Any other matter that the Council considers relevant and reasonably necessary to determine the application (section 104(1)(c)).*

137. The potential effects of the proposed activity are assessed in **Section 11** (section 104(1)(a))**.** These effects have been considered in the context of those components that are **permitted** (see **Appendix 7**) by the Selwyn District Plan (section 104(2)).

138. The relevant objectives and policies of the Canterbury Regional Policy Statement, operative Selwyn District Plan and Proposed Selwyn District Plan) are assessed in **Section 13** (section 104(1)(b)).

139. The Mahaanui Iwi Management Plan (MIMP), as an other relevant matter, is assessed in **Section 14.1** of this application (section 104(1)(c)).

140. The overall activity status of this application is discretionary, and thus section 104B of the RMA is relevant. Under s104B, the Council may grant or refuse an application for a discretionary activity, and if it grants the application, may impose appropriate conditions in accordance with section 108. The applicant has volunteered a suite of consent conditions in **Section 12**, for consideration by the territorial authority.

11 Assessment of Effects on the Environment

11.1 Introduction

141. Based on the assessment in **Appendix 7** and non-compliances identified in **Section 9**, the proposal requires consent as a **discretionary activity.**

142. Given the nature of the activity for which resource consent is being sought, and the matters that trigger the need to seek the land use consents, the assessment of effects covers the following matters:

- Construction-phase effects (including contaminated soils);

- Effects on visual amenity and character;
- Effects on land drainage and flooding;
- Effects on Ngāi Tahu values;
- Effects on ecological values; and
- Positive effects.

143. In accordance with *Tasti Products v Auckland Council*[8], the objectives and policies contained in a plan or proposed plan are relevant to both the notification and substantive assessment. The objectives and policies relevant to this proposal and assessment of effects on the environment are outlined in **Section 13** of this AEE.

11.2 The Environment

144. Prior to assessing the activity, it is important to determine the 'environment' within which the actual and potential effects of allowing the activity are assessed.

145. The leading statement on what constitutes the "environment" is the Court of Appeal's decision in *Queenstown Lakes District Council v Hawthorn Estate Limited*[9]. In Hawthorn, the Court held that:

    a. [84] "… *In our view, the word "environment" embraces the future state of the environment as it may be modified by the utilisation of rights to carry out a permitted activity under a District Plan. It also includes the environment as it might be modified by the implementation of resource consents which have been granted at the time a particular application is considered, where it appears likely that those resource consents will be implemented."*

146. The 'environment' relevant to this application is therefore considered to comprise the following:

    a. The existing environment, described in **Section 5** above.

    b. The operative consents approved for the Leeston Stormwater Flood Bypass scheme, described in **Section 2** above.

    c. The approved district and regional council consents for 2 and 60 Leeston Dunsandel Road, described in **Section 3** and appended to this application. These appear likely to be implemented.

    d. Future activities which are permitted by the Selwyn District Plan.

11.3 Construction Effects

147. Potential construction-related effects can include; discharge of contaminants to land, water and air (sediment runoff and dust), and amenity effects associated with noise, vibration and traffic.

148. As outlined in **Section 4.6** above, construction works shall be carried out in accordance with an Environmental Management Plan (EMP). This EMP will include:

    a. Roles and responsibilities, including contact details for the site manager.

    b. Erosion and Sediment Control Plan(s) (ESCP).

    c. Dust Management Plan.

[8] *Tasti Products Limited v Auckland Council* [2016] NZHC 1673.
[9] *Queenstown-Lakes District Council v Hawthorn Estate Ltd (2006) 12 ELRNZ 299; [2006] NZRMA 424 (CA).*

d. Traffic Management Plan(s) (TMP).

e. Protocols for the discovery of archaeological material.

f. Protocols for the discovery of unexpected contamination.

g. Health and safety protection measures.

h. Contingency plans (including use of spill kits).

149. Erosion and Sediment Control (ESC) measures will be designed and implemented by the appointed contractor to manage the effects of earthworks, and the associated discharge of sediment, for the duration of the proposal. These measures will be in accordance with the Canterbury Regional Council Erosion and Sediment Control toolbox and likely to include:

a. Stabilising site access, entrance ways, haul road;

b. Staging soil disturbance to minimise excavation areas open at any one time;

c. Stabilising disturbed areas as soon as practicable following works;

d. Avoiding stockpiling near waterways and drains;

e. Preventing vegetation or debris from entering the waterway;

f. Monitoring weather conditions and the performance of the erosion and sediment control measures during and following the completion of works.

150. ESC measures will be particularly important in the riparian margins of Leeston Creek where there is a higher risk of discharging sediment to this waterbody.

151. A significant mitigating factor is the timing of the works with the construction of the bypass channel and Leeston Creek upgrade proposed to take place between September and April to take advantage of the low flow (dry weather) conditions.

152. The works will also be staged; the bypass channel construction will commence at the downstream end and progress towards Leeston Creek at the upstream end. Diverted flows will not be allowed to enter the newly constructed channel until sufficient stabilisation and grass coverage has been achieved. The Leeston Creek upgrade will also start from the downstream confluence with the bypass channel and work back towards the Harmans Road culvert.

153. Refuelling of vehicles and equipment will not take place in proximity of the waterbodies to prevent contaminants from entering into the waterways. Contingency measures, such as the use of spill kits, will be incorporated into the EMP.

154. Turning to amenity effects on the general public, the works associated with Leeston Creek and the bypass channel will generally be well set back from public roads. This reduces the ability for the general public to view or be affected by the construction work; with sensitivity decreasing with distance. The works will be undertaken in accordance with the temporary Traffic Management Plan to minimise any construction-related traffic effects such as additional movements, disruption/closures to public roads.

155. With respect to amenity effects on other property owners/occupiers, there are several dwellings on rural-zoned land proximate to the Leeston Creek upgrade works. These include 84 Leeston Dunsandel Road and 160 and 178 Harman Road. There is, however, a higher proportion of residential dwellings, within the Leeston urban area, proximate to the proposed bypass channel works.

156. Any adverse amenity effects are sought to be managed and minimised where possible by:

a. Limiting working hours to between 7am to 7pm on weekdays with limited hours on Saturday (if required).

b. Construction noise being managed to comply with the relevant Construction Noise Standards in NZS 6803:1999.

c. Achieving adequate setbacks for any temporary stockpiles, warming up machinery (such conditions were included on the Karumata Oaks land use consent (RC215690) and have been volunteered for consistency (**Section 12)**.

d. Implementing a communications plan and reporting procedures within the EMP.

157. The applicant is yet to confirm how/if the physical construction of the Leeston Bypass scheme will be integrated with the construction of Karumata Oaks; this will depend on a number of matters including project timing/consent conditions, contractual obligations.

158. Overall, any adverse construction-related effects are sought to be managed and minimised where possible, in accordance with the volunteered conditions of consent. Such effects are therefore considered to be **less than minor** and acceptable.

11.3.1 Management of contaminated soils

159. The earthworks for the bypass channel will involve the disturbance and removal of soil within 60 Leeston Dunsandel Road where some areas has been identified to contain contaminants at levels above naturally occurring background levels but below Residential Guideline Values.

160. As outlined above, the applicant engaged Louise Wilson to review the DSI and SVR undertaken for 60 Leeston Dunsandel Road. Ms Wilson has advised that:

a. *The remediation works covered the spatial areas that had been identified as contaminated (above Residential 10% Produce guideline values) in the previous investigations undertaken by MEL.*

b. *Excavation was on average 150-250mm below ground level (bgl) but extended to a maximum depth of 500mm bgl in one location. This confirmed that, as per their remediation plan, soil was screened on site using a hand held XRF and excavation continued until the remaining soil did not contain concentrations > Residential 10% Produce guideline values.*

c. *Lab results from site validation sampling confirm that concentrations of contaminants in the remaining soils are all <u>below</u> Residential 10% Produce, Commercial/Industrial Worker and Ecological receptor guideline values.*

    i. *This is important as it means MEL oversaw that the contaminated areas were excavated until the base of contamination was reached.*
    ii. *This also suggests that it's <u>unlikely</u> that contamination will be discovered at depth when excavating the Leeston Bypass to approx. 1m bgl.*

d. *Some elevations of heavy metals slightly above naturally occurring background values remain in soil in the remediated areas, meaning the remaining soil should not be assumed to meet Cleanfill criteria.*

e. *Therefore if SDC are planning to dispose of any excavated material offsite, it would be prudent to do some sampling and analysis prior to excavation work (or of soil stockpiled on site once excavated) so that an appropriate disposal location can be confirmed (e.g. possibly Controlled or Managed Fill, or if results in the Bypass location (surface soils to 1m bgl) are ≤ background values then it may meet Cleanfill criteria).*

f. *Overall, it is considered that the remediation works undertaken by MEL have suitably addressed the <u>known</u> contamination on site and that this reduces the risk of contamination being found during the Leeston Bypass site work.*

g. *SDC should still work under an appropriate Environmental Management Plan that sets out the procedures if accidental discovery of contamination occurs during site work.*

h. *As stated above, due to HAIL site status, any soil that is planned to be removed from the site should be sampled and analysed for heavy metals to confirm an appropriate offsite disposal location.*

161. The EMP shall be also submitted to Selwyn District Council for certification prior to works commencing and once certified, implemented for the duration of works.

162. Consent conditions have been volunteered to capture Ms Wilson's advice (**Section 12)** with an EMP to be submitted to Selwyn District Council (consent authority) for certification prior to works commencing .

163. Based on the above, any potential effects on human health from the proposed earthworks will be managed and minimised, with works undertaken in accordance with an Environmental Management Plan (EMP).

11.4 Effects on Visual Amenity

164. Potential visual amenity effects arising from the operational phase are required to be considered within the context of the 'environment' (**Section 11.2**). This is particularly important for the land surrounding the new bypass channel. Whilst this is currently used for pastoral/rural purposes, it has been zoned for and/or consented for residential use (2 and 60 Leeston Dunsandel Road) (**Section 3**).

165. Turning firstly to Leeston Creek widening and deepening works, the cross-sections in Appendix 2 provide comparisons between the existing surface ('pre-project') and design surface ('post-project') (**Figure 24**). A typical cross section is provided in **Figure 15** above.

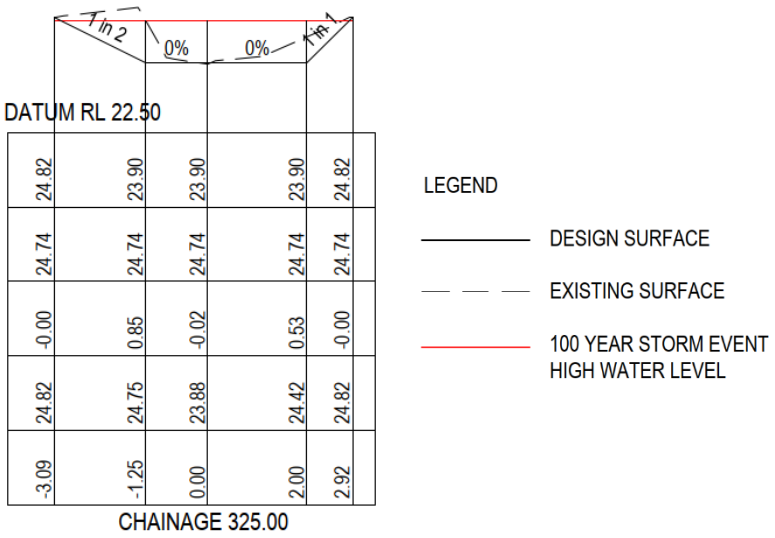

Figure 24: Cross-Section example from General Arrangement Plans (Appendix 2).

166. Leeston Creek itself is already highly modified and subject to ongoing maintenance. Further modification of the banks is therefore not inconsistent with the existing and anticipated character within this rural setting.

167. The existing bed and banks of Leeston Creek are already generally located at a lower level than the surrounding land. The widening and deepening of this feature, will not be readily noticeable as distance increase from this waterway. Such visual change will also be more readily absorbed following the establishment of grass on the batter slopes/banks, retaining visual consistency with the surrounding pastoral land use.

168. Excepting the existing dwellings at 160 Harmans Road and 178 Harmans Road, the Creek is well set back from other dwellings in the vicinity of the works.

169. The existing trees on the southern side of Leeston Creek, between 160 Harmans Road and 178 Harmans Road, will be retained. An arborist will be during works within the root zones of these trees to monitor and avoid effects on their health.

170. The new culvert across Leeston Creek will replace an existing culvert in the same location. As the new structure is embedded in the Creek, with the trafficable surface raised slightly above the height of the surrounding land, any adverse visual effects associated with the replacement of an existing structure are considered to be negligible.

171. Based on these matters, any adverse visual effects of the Leeston Creek upgrade are considered to be **less than minor**.

172. The new flood gate, weir wall and rip rap at the confluence of Leeston Creek with the bypass channel will result in greater modification, and therefore visual change. As indicated by the General Arrangement Plans in **Appendix 2**, some trees are required to be removed; again this will be discussed with the relevant landowner and arborist engaged for any works.

173. The diversion area is well set back from public roads and existing dwellings; that at 84 Leeston Dunsandel Road is located over 250m away. Given this setback, and that most of the infrastructure (rip rap, concrete weir wall etc.) will be installed at or below existing ground levels, this ability to view these features will increase with distance.

174. It is recognised that 60 Leeston Dunsandel Road has been rezoned for residential use, which could place dwellings in closer proximity to the diversion than currently exists. The integration of the subdivision with the bypass channel will be framed by the Outline Development Plan (**Figure 8)** and determined as part of any future subdivision consent/stormwater engineering design approval process. A consent had not been received by SDC at the time of preparing this application and in lieu of this, no further assessment can be made with respect to any new dwellings.

175. The new bypass channel, as new feature within this environment, has the potential to be more visually prominent than the Leeston Creek upgrade. 2 Leeston Dunsandel Road will, however, be subject to significant modification as the new subdivision is developed (Karumata Oaks). The bypass channel, which is integrated with the subdivision, is therefore likely to be visually read as part of this larger scale change.

176. Stormwater infrastructure is a common feature within newer residential subdivisions (there is already an existing stormwater facility to the east). Like Leeston Creek, the final profile of the channel is situated at lower level than the surrounding land. The establishment of grass within the channel will assist in visual integration with the wider area.

177. It is also noted that matters such as boundary fences, provision of ongoing access to the channel, additional planting etc, are yet to be confirmed. These matters are dependent on the forthcoming stormwater engineering approval process and/or any private covenants/consent notices imposed by the subdivision developer.

178. Based on these matters, any adverse visual effects of the bypass channel and diversion are considered to be **less than minor**.

11.5 Effects on Land Drainage and Flooding

179. A Summary of the Stormwater Flood Modelling and Assessment associated with the Leeston Stormwater Flood Bypass scheme is included in **Appendix 8**. The Appendices to this Summary collate the relevant supporting, technical information and are to be read in full.

180. The findings of **Appendix 8** are summarised below.

11.5.1 Existing Scenario

181. The flood modelling associated with the existing, 'pre-project' scenario indicates that:

    a. Leeston Creek overtops its banks north of Leeston township and the excess floodwater crosses Leeston Dunsandel Road and flows along roads and overland flow paths through residential properties.

    b. Within the township, Leeston Creek has insufficient capacity and overtops at multiple locations resulting in significant flooding in properties south of Leeston Creek.

    c. A significant breakout occurs to the east of Manse Road Drain which inundates multiple residential lots.

    d. There is significant flooding south of the township which is predominantly through farmland.

182. The pre-project flood model indicates that a total of approximately 63 hectares of land, spanning 512 individual sections within the Leeston urban area are impacted by flooding in a design event.

11.5.2 Post-Project

183. The flood modelling associated with the 'post project' scenario incorporating the completed and proposed works, indicates that:

    a. The redirecting of flows via the stormwater bypass channel will eliminate major breakouts from Leeston Creek and Manse Road Drain in a design event.

    b. It will however increase flow through the High Street culverts to Drain 58, Drain 57 and Volckman Road Drain. This may increase risk of overtopping of the Beethams Road culvert and flood breakout in the upper reach of the Volckman Road Drain.

    c. Six properties are identified as potentially experiencing an increase of more than 20mm in flooding in a design event, compared with the pre-project condition, including:

        - 483 Volckman Road
        - 143 Lochheads Road
        - 159 Beethams Road/206 Lochheads Road
        - 1171 The Lake Road/1247 The Lake Road

184. The comparisons between the pre and post project flood models are shown in **Figure 25** and **Figure 26** below (see **Appendix 8**).

185. The post-project flood model indicates that a total of approximately 15 hectares of land, spanning 115 individual sections within the Leeston urban area are impacted by flooding in a design event. This is a reduction of 48 hectares of land and 397 individual properties from the pre-project condition.

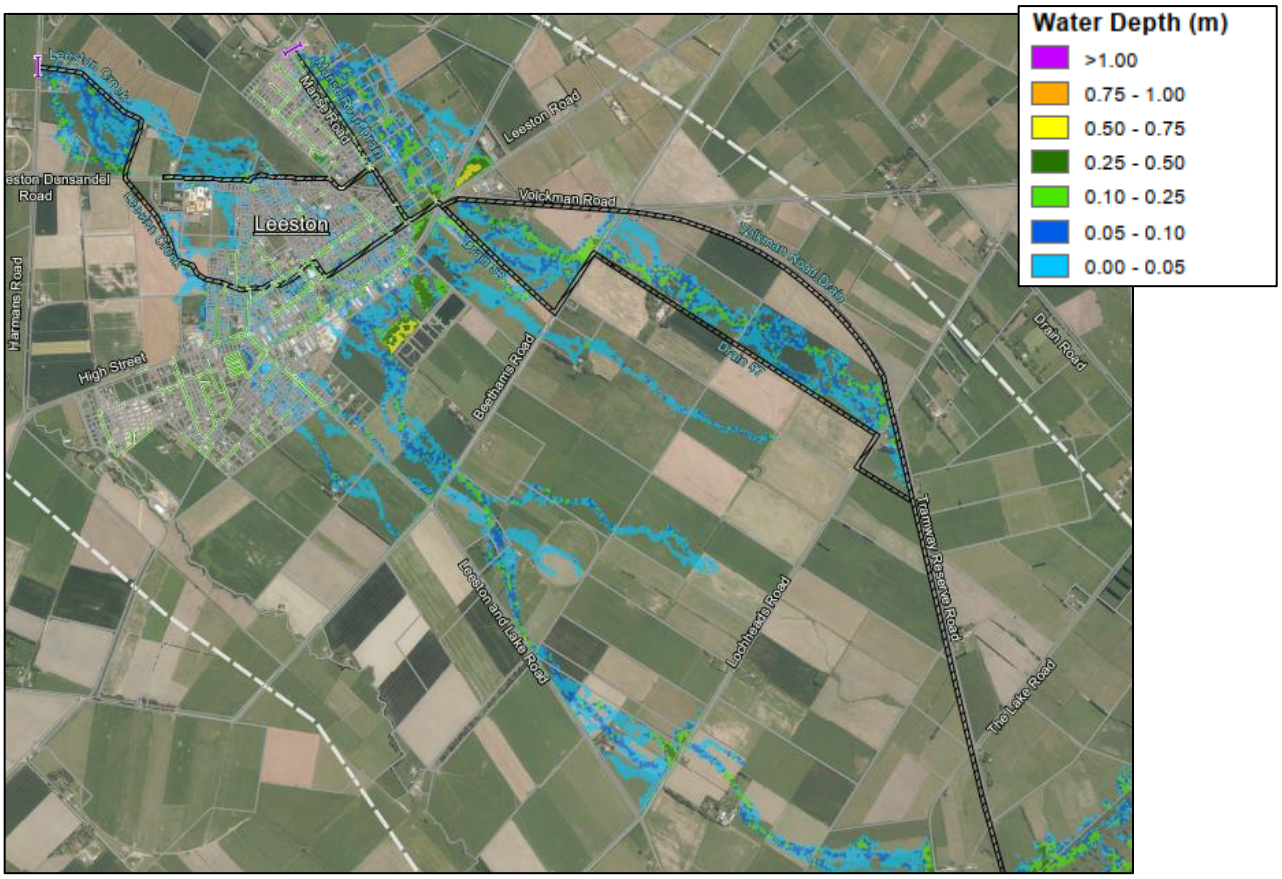

Figure 25: Existing Scenario - Peak Flood Depth and Inundation Extent.

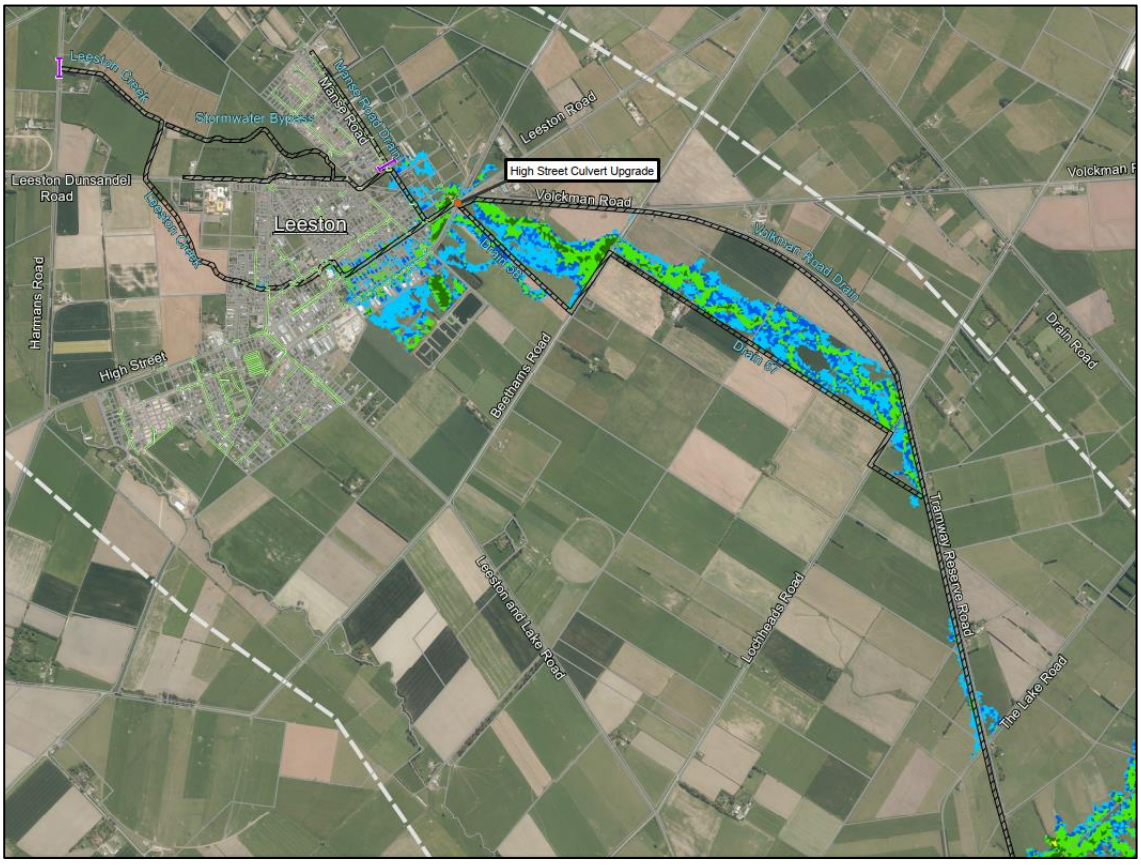

Figure 26: Post Project Scenario - Peak Flood Depth and Inundation Extent.

186. Importantly, the Modelling and Floor Level analysis in **Appendix 8** identifies that inhabited structures will maintain their freeboards (height difference between finished floor level and flood level).

187. However, the modelling does show other potential impacts, including increased flooding extents and depths for the rural zoned properties that adjoin the scheme to the south of Leeston.

188. To determine effects on the rural land, the design engineers, Aurecon, have developed significance criteria; flooding effects are considered less than minor when:

    a. flooding extents are increased by less than 10%,

    b. flooding depth increases are less than 100mm, and

    c. flood water drainage time remains largely unchanged.

189. A flood depth of less than 300mm on rural-zoned land was considered likely to be passable by farm vehicles and livestock, whereas deeper flows would likely hinder access.

190. The changes in flooding effects on the following rural zoned properties are described more fully in **Appendix 8** and summarised in **Table 5** below:

    a. 483 Volckman Road

    b. 143 Lochheads Road

    c. 159 Beethams Road/206 Lochheads Road

    d. 1171 The Lake Road/1247 The Lake Road

Table 5: Summary of the changes in flood effects on rural zoned properties.

	Pre vs Post Project Flooding effects
483 Volckman Road	• The flooded area reduces by 4.8% from 187,904m^2 to 178,720m^2. • The maximum flood depth increases by 57 mm from 468 mm to 525 mm. • The average flood depth increases by 36 mm from 66 mm to 102 mm. • Once active flow has ceased, modelling shows no significant differences in drain time.
143 Lochheads Road	• The flooded area increases by 88% from 12,096m^2 to 22,832m^2. • The maximum flood depth increases by 67 mm from 534 mm to 601 mm. • The average flood depth increases by 6 mm from 68 mm to 94 mm. • Once active flow has ceased, modelling shows no significant differences in drain time.
159 Beethams Road/ 206 Lochheads Road	• The flooded area increases by approximately 2.8%. • The flood depth increases by 85 mm along the overland flow path north of Drain 57 with the majority affected by increase of less than 50 mm. • Flood water drainage times remain unchanged with modelling showing that active flow across the site ceases within 7 hours pre and post implementation of the stormwater bypass channel. • Surface water at 159 Beethams Road/206 Lochheads Road readily flows to Drain 57. Once the water level in the Drain 57 recedes, the floodwaters across the land will readily drain. In the modelled (6 hour) flood event, the duration of inundation for this area is approximately 7 hours, after which the majority of the land will not have any ponded water.

1171 The Lake Road/ **1247 The Lake Road**	• The flooding area reduces by 81% from 109,168m^2 to 20,320m^2 (due to the removal of a large flow path across the southern portion of the site). • The maximum flood depth reduces by 172 mm from 493 mm to 321 mm. • The average flood depth increases by 2 mm from 53 mm to 55 mm. • Once active flow has ceased, modelling shows significantly reduced drain time.

191. The changes in flooding effects between the pre-project condition and post-project model requires further consultation with the owners/occupiers of these six properties who have been identified by the consent authority as affected parties.

192. The applicant will undertake this consultation with affected parties, alongside formal notification through the resource consent process.

11.5.3 Conclusion on flooding effects

193. Overall, the proposed Leeston Stormwater Flood Bypass and Leeston Creek upgrade will significantly reduce flood risk to property and people in a **design event**.

194. The area affected by flooding is modelled to reduce from approximately 63 hectares to 15 hectares. The number of individual sections impacted by flooding is reduced from 512 to 115 sections. This reduction, and mitigation of a natural hazard, is a significant positive effect arising from the proposal.

195. As outlined above, there are also some changes in flooding effects which warrants further consultation with affected parties.

196. It is important to note that even with the proposed flood bypass, there is a wider risk of flooding to Leeston and the surrounding area from overland flows and sources beyond that of the Leeston Creek sub-catchment.

197. Lastly, ongoing maintenance of the existing drainage network, including the new infrastructure, is important for mitigating effects of flooding to both rural and residential zoned properties. Consent conditions have been volunteered to this effect.

11.6 Effects on Ngāi Tahu values

198. There are no sites of cultural significance identified in the vicinity of the proposed works in the district and regional planning documents, including the Mahaanui Iwi Management Plan (IMP). However the Leeston drainage network eventually discharges to Te Waihora/Lake Ellesmere, a nationally significant wetland with important cultural, natural, historic and recreational values.

199. To this end, feedback has been sought and received from Mahaanui Kurataiao Ltd on behalf of Ngāi Tūāhuriri Rūnanga and Te Taumutu Rūnanga. This Cultural Advice Report is included in **Appendix 10** and includes a number of recommendations.

200. Relevant matters have already been incorporated in the regional consents included in **Appendix 10**, but it is noted that the applicant has confirmed that:

    a. An Accidental Discovery Protocol, consistent with Appendix 3 in the Mahaanui Iwi Management Plan will be incorporated within the Environmental Management Plan (EMP).

    b. An Erosion and Sediment Control Plan, in accordance with Environment Canterbury's Erosion and Sediment Control Guidelines will be incorporated within the EMP.

    c. Native plantings will be incorporated where possible above the modelled 100-year flood level. A condition of consent has been included outlining that the works shall occur in accordance with the Indicative Planting Plan provided by the applicant (file reference: C23C/130512).

d. Any earthworks near waterways will have appropriate measures in place to avoid contaminants entering waterways and will be managed in accordance with the EMP.

e. No indigenous vegetation is proposed to be removed.

f. Works are proposed to be undertaken between September and April inclusive. This is to time works to periods of lower rainfall and groundwater.

g. Fish passage will be provided for.

201. The applicant seeks that any conditions on the land use consent are consistent with these recommendations, and those of the regional consent package.

11.7 Effects on ecological values

202. Ecological values have been considered by the Canterbury Regional Council consents (**Appendix 9**); CRC having jurisdiction over the bed of rivers, including Leeston Creek. This assessment is not sought to be repeated but it is noted that:

a. 'Excess' flows in Leeston Creek will only be diverted through the bypass channel if they exceed $0.6m^3$/sec.

b. A 'base flow' of $0.6m^3$ along the original Leeston Creek route will be enabled.

203. During works, erosion and sediment control will be adopted in order to protect existing values attributed to Leeston Creek. The construction works will also be undertaken over a dry period and staged in sections to reduce the potential for erosion and sedimentation.

204. After the works, the riparian zone of Leeston Creek will be re-grassed and maintained in accordance with its rural use.

11.8 Positive effects

205. The proposal, as natural hazard mitigation, will reduce the intensity and frequency of flood events in Leeston township and the surrounding area, discussed in detail in **Section 11.5** above. This reduces risk to people's health and safety and property from such flood events, which is a significant positive effect.

206. The mitigation of an existing natural hazard may facilitate planned and/or future development within Leeston, although such proposals will still be subject to the relevant Regional and District planning framework.

11.9 Conclusion on Effects

207. The potential effects associated with the activities that trigger the need to seek resource consents include; construction effects; effects on visual amenity, effects on land drainage and flooding, effects on ecological values, and effects on Ngāi Tahu values.

208. Any adverse construction-related, visual amenity, cultural and ecological effects are concluded to be effectively managed and mitigated, such that they are considered to be less than minor and acceptable.

209. There are also significant, positive effects associated with the alleviation of flood risk for many areas in and surrounding Leeston. These positive effects need to be weighed against potential adverse effects, such as an increase in flood depth on some properties in a design event.

12 Volunteered Consent Conditions

210. The following conditions are proposed by the applicant in response to the effects discussed in the preceding assessment. These conditions follow a chronological sequence and are separated into subheadings on the basis of the effects they are seeking to manage/mitigate.

211. The applicant requests the opportunity to review any draft consent conditions prior to finalisation by Council.

212. As outlined above, the applicant is also required to adhere to the conditions of the regional consents included in **Appendix 9.** Should these conditions also be extended to the land use consent, then the applicant request that consistency is achieved wherever possible.

General

1. Except as required by subsequent conditions, the proposal shall proceed in accordance with the information and plans submitted with the application. The Approved Consent Documentation has been entered into Council records as RCxxxxxx (# pages).

   Advice note: *Prior to any works within private property, the consent holder shall obtain all necessary property access agreements from the property owner, including in accordance with the Public Works Act and Local Government Act, as relevant.*

Environmental Management Plan

2. Prior to commencing on-site works, the consent holder shall prepare an Environmental Management Plan (EMP) which shall include but not limited to:
   a) General Details
      - List of all consents and permits by government agencies.
      - Hours of activity.
      - Identification of an Environmental Representative onsite who will be responsible for ensuring compliance with this EMP. This section shall include the name and mobile number of the Environmental Representative.

   b) Erosion and Sediment Control Plan(s) (ESCP)
   c) Traffic Management Plan (s).
   d) Protocols for the discovery of archaeological material (in accordance with Heritage New Zealand Pouhere Taonga and the Mahaanui Iwi Management Plan (IMP) Accidental Discovery Protocol).
   e) Protocols for the discovery of unexpected contamination.
   f) Health and safety protection measures.
   g) Contingency plans (including use of spill kits).
   h) Communication plans.

   This plan shall be submitted to Council, attention compliance@selwyn.govt.nz, for acceptance no later than 10 working days prior to works commencing.

3. All construction work shall be carried out in accordance with the Environmental Management Plan (EMP) certified by **Condition x** above.

Construction Noise and Hours of Activity

4. No construction work, other than maintenance of erosion and sediment control measures, shall be undertaken on Sundays, Public Holidays or outside the hours of 7am to 7pm Monday to Friday and 7.30am to 4pm on Saturday, subject to prior approval being given to Council's Monitoring Officer no later than noon of the last working day before the scheduled work.

5. Construction noise shall be managed to comply with the relevant requirements of NZS 6803:1999 Acoustics – Construction Noise (see applicable Table on Page 11 of this standard).

6. No construction machinery shall be warmed up within 50 metres of any occupied property in a Living zone, or of any occupied dwelling in a Rural zone.

7. All contractor site facilities shall be located at least 50 metres from any occupied property in a Living zone, or any occupied dwelling in a Rural zone.

Traffic Management

8. All works on site shall be subject to a Traffic Management Plan (TMP) prepared by a suitably qualified person and approved by the relevant Road Controlling Authority. The TMP must comply with the Waka Kotahi NZTA Code of Practice for Temporary Traffic Management (CoPTTM) and the relevant Road Controlling Authority's Local Operating Procedures.

Discovery of Archaeological Material

9. In the event of the discovery/disturbance of any archaeological material or sites, including taonga (treasured artefacts) and kōiwi tangata (human remains), the consent holder shall immediately:
   a) Cease earthmoving operations in the affected area of the site; and
   b) Advise appropriate agencies of the disturbance., including Heritage New Zealand Pouhere Taonga and the local Mana Whenua.

Management of Contaminated Soils

10. Any soils removed from the site during the course of the remediation process shall be disposed of to a facility authorised to accept the material. The consent holder shall submit evidence (i.e. weighbridge receipts) of the disposal of surplus soils from the site to an authorised facility to the Team leader Compliance, Selwyn District Council within 5 working days following completion of the earthworks.

11. In the event that soils are found to have visible staining, odours and / or other conditions that indicate soil contamination different from that identified by the DSI, then work shall cease until a Suitably Qualified and Experienced Practitioner (SQEP) engaged by the consent holder has assessed the matter and advised of the appropriate remediation and/or disposal options for these soils.

12. A SQEP shall prepare a Site Validation Report (SVR) on behalf of the consent holder in accordance with the current edition of Contaminated Land Management Guideline No. 1 – Reporting on Contaminated Sites in New Zealand, Ministry for the Environment, to report on whether the remediated area is now suitable for the intended land use. The SVR shall include but not be limited to:
    a) Details of the project works completed
    b) A site plan showing the location and volume of the completed earthworks and drawing of the 'as built' state of the site;
    c) Documentation of any incidents and how they were resolved
    d) The results of sampling undertaken
    e) Records of the disposal of material

    The report shall be submitted to Council, attention compliance@selwyn.govt.nz, no later than 3 months following completion of the earthworks.

Tree protection during works

13. The consent holder shall appoint a suitably experienced and qualified Arborist, to monitor and supervise all earthworks located within the root zones of existing trees to be retained.

Completion of works

14. On the completion of each earthworked section, exposed areas not occupied by the stormwater infrastructure shall be topsoiled (where required) and stabilised by re-grassing (except as part of any proposed landscaping) as soon as practicable.

15. Excavated soil, where unable to be reused, and any other waste material shall be removed from site at the completion of works and disposed of to an appropriate facility.

Maintenance of Drain Network

16. Leeston Creek, the bypass channel and associated drainage network comprising Drain 57, Drain 58, Beethams Road Drain, Volckman Road Drain and Tramway Reserve Road Drain shall be

inspected on a six-monthly basis and maintained as required to ensure they are clear from all obstructions and maintain a free, unimpeded flow of water.

17. The consent holder shall prepare a Maintenance Plan outlining how the drainage network detailed in Condition x above is to be maintained to ensure that adverse flooding effects are minimised. The plan shall include:
    a) details of who will hold responsibility for long-term maintenance of the drainage network and the organisational structure which will support this process;
    b) a programme for regular maintenance and inspection of the drainage network, including culverts and vegetation;
    c) a programme for post storm inspection and maintenance; and
    d) general inspection checklists for all aspects of the drainage network based on best practice guidance.

    This plan shall be submitted to Council, attention compliance@selwyn.govt.nz, for acceptance no later than 10 working days prior to works commencing.

13 Assessment of Objectives and Policies

13.1 Canterbury Regional Policy Statement

213. The Canterbury Regional Policy Statement (CRPS) provides an overview of the resource management issues in the region and the regulatory framework to achieve integrated management of natural and physical resources, including directions for provisions in district and regional plans.

214. The CRPS definitions relevant to the proposal include:

Definition term	Meaning
Critical Infrastructure	Infrastructure necessary to provide services which, if interrupted, would have a serious effect on the communities within the Region or a wider population, and which would require immediate reinstatement. This includes any structures that support, protect or form part of critical infrastructure. Critical infrastructure includes: 6. Stormwater and sewage disposal systems
Regionally significant infrastructure	Regionally significant infrastructure is: 9. Community Land Drainage 15. Infrastructure defined as 'strategic infrastructure' in this regional policy statement. Note: For the avoidance of doubt, this infrastructure is also referred to as 'infrastructure that is regionally significant'.
Essential structures	Structures that support or form part of: 5. a flood-protection work or facility; 6. water containment, flow or diversion infrastructure; 8. a drainage or sewerage system; or 9. the infrastructure forming parts of other network utilities. This includes any structures that support essential infrastructure.

215. The CRPS objectives and policies relevant to the proposal are assessed in **Table 6** below.

Table 6: Assessment of CRPS objectives and policies.

Relevant Objective/Policy	Comment in relation to Proposal
Chapter 5 - Land Use and Infrastructure	
Objective 5.2.2 - Integration of land-use and regionally significant infrastructure: 1. To recognise the benefits of enabling people and communities to provide for their social, economic and cultural well-being and health and safety and to provide for infrastructure that is regionally significant	The proposal involves the establishment, operation and ongoing maintenance of existing and new infrastructure to reduce the amount of flood and stormwater travelling through the existing constrained network within Leeston. This will reduce the potential adverse effects

to the extent that it promotes sustainable management in accordance with the RMA. 2. To achieve patterns and sequencing of land-use with regionally significant infrastructure in the wider region so that: a. adverse effects resulting from the development or operation of regionally significant infrastructure are avoided, remedied or mitigated as fully as practicable.	of flooding affecting people and property which is a risk to health and safety. The proposal seeks to avoid any adverse effects on significant natural and physical resources. Other adverse effects on the environment are sought to be appropriately controlled and minimised. The CRPS envisages that any new development will be integrated with Leeston stormwater infrastructure. Karumata Oaks is required, by way of subdivision consent conditions, to be integrated with the new Leeston Stormwater Bypass Channel. The outline development plan for 60 Leeston Dunsandel Road also accounts for the position of the bypass channel.
Policy 5.3.2 Development Conditions Enable development including regionally significant infrastructure which: 1. ensure that adverse effects are avoided, remedied or mitigated, including where these would compromise or foreclose: a. existing or consented regionally significant infrastructure 2. avoid or mitigate: a. natural and other hazards, or land uses that would likely result in increases in the frequency and/or severity of hazards; and 3. integrate with: a. the efficient and effective provision, maintenance or upgrade of infrastructure. […]	
Policy 5.3.6 Sewerage, stormwater and potable water infrastructure: 2. enable sewerage, stormwater and potable water infrastructure to be developed and used, provided that, as a result of its location and design: a. the adverse effects on significant natural and physical resources are avoided, or where this is not practicable, mitigated; and b. other adverse effects on the environment are appropriately controlled.	
Policy 5.3.9 Regionally significant infrastructure: 2. provide for the continuation of existing infrastructure, including its maintenance and operation, without prejudice to any future decision that may be required for the ongoing operation or expansion of that infrastructure; and 3. provide for the expansion of existing infrastructure and development of new infrastructure, while: a. recognising the logistical, technical or operational constraints of this infrastructure and any need to locate activities where a natural or physical resource base exists; b. avoiding any adverse effects on significant natural and physical resources and cultural values and where this is not practicable, remedying or mitigating them, and appropriately controlling other adverse effects on the environment; and c. when determining any proposal within a sensitive environment (including any environment the subject of section 6 of the RMA), requiring that alternative sites, routes, methods and design of all components and associated structures are considered so that the proposal satisfies sections 5(2)(a) – (c) as fully as is practicable.	
Chapter 10 - Beds Of Rivers And Lakes and Their Riparian Zones	

As activities in the bed of Leeston Creek are within the jurisdiction of the Canterbury Regional Council, this assessment focuses on the riparian zones only.	
Objective 10.2.1 Provision for activities in beds and riparian zones and protection and enhancement of bed and riparian zone values Enable subdivision, use and development of river and lake beds and their riparian zones while protecting all significant values of those areas, and enhancing those values in appropriate locations.	Leeston Creek is being widened and deepened (as per the CRC suite of consents) to increase the flood carrying capacity of this waterway. The proposal has been designed to protect the stability, performance and operation of essential structures as well as erosion and scouring of the Creek and it's margins. The riparian zone of Leeston Creek will be re-grassed as a minimum and maintained in accordance with its rural use. No significant adverse effects on the values of these riparian zones are anticipated. This does not preclude riparian plantings from occurring in the future however these would need to be designed/established with consideration to any effects on carrying capacity and discussions with the relevant landowners.
Objective 10.2.2 Maintenance of flood-carrying capacity of rivers To maintain the flood-carrying capacity of rivers.	
Objective 10.2.3 Protection of essential structures Protection of the stability, performance and operation of essential structures from activities in river and lake beds and on their banks or margins.	
Policy 10.3.1 Activities in river and lake beds and their riparian zones To provide for activities in river and lake beds and their riparian zones, including the planting and removal of vegetation and the removal of bed material, while: 1. recognising the implications of the activity on the whole catchment; 2. ensuring that significant bed and riparian zone values are maintained or enhanced; or 3. avoiding significant adverse effects on the values of those beds and their riparian zones, unless they are necessary for the maintenance, operation, upgrade, and repair of essential structures, or for the prevention of losses from floods, in which case significant adverse effects should be mitigated or remedied.	
Policy 10.3.3 Management for flood control and protecting essential structures To manage activities in river and lake beds and their banks or margins to: 1. avoid or, where this is not practicable, to remedy or mitigate adverse effects on vegetation that controls flood flows or protects river banks or lake margins from erosion; and 2. avoid adverse effects on the stability, performance, operation, maintenance, upgrade and repair of essential structures that are located in, on, under or over a river or lade bed or its bank or margin.	
Policy 10.3.4 Removal of vegetation and bed material from river beds To manage the use and removal of vegetation and bed material in river beds and their margins to ensure: 1. the maintenance of flood-carrying capacity of rivers 2. the protection of essential structures; and 3. erosion control and prevention. provided its management does not adversely affect: a. the instream and other values of the beds including habitat and associated ecosystems; or b. the stability, performance, operation and maintenance, upgrade and repair of essential structures.	
Chapter 11 – Natural Hazards	

Objective 11.2.2 Adverse effects from hazard mitigation are avoided or mitigated Adverse effects on people, property, infrastructure and the environment resulting from methods used to manage natural hazards are avoided or, where avoidance is not possible, mitigated.	The proposal is to avoid and minimise flood hazard within Leeston. The infrastructure has been designed in accordance with modelled flood events and will be operated, inspected and maintained in accordance with existing protocols and a forthcoming maintenance plan. This infrastructure is designed to maintain, as far as practicable, its integrity and function during a design flood event. Maintenance of access to the flood bypass channel and Leeston Creek will be sought and subject of forthcoming discussion with property owners.
Policy 11.3.4 Critical infrastructure […] In relation to all areas, critical infrastructure must be designed to maintain, as far as practicable, its integrity and function during natural hazard events.	
Policy 11.3.7 Physical mitigation works New physical works to mitigate natural hazards will be acceptable only where: 1. the natural hazard risk cannot reasonably be avoided; and 2. any adverse effects of those works on the natural and built environment and on the cultural values of Ngāi Tahu, are avoided, remedied or mitigated. Alternatives to physical works, such as the relocation, removal or abandonment of existing structures should be considered. Where physical mitigation works or structures are developed or maintained by local authorities, impediments to accessing those structures for maintenance purposes will be avoided.	

216. On the basis of the above assessment, the proposal is considered to be consistent with the Canterbury Regional Policy Statement.

13.2 Selwyn District Plan (SDP)

217. The SDP objectives and policies relevant to the proposal are assessed in **Table 7** below. The relevant definitions are already identified in **Section 7.3** above. The objectives and policies of both the Rural and Township Volumes are relevant, noting some of these provisions seek the same outcomes.

Table 7: Assessment of SDP Objectives and Policies.

Relevant Objective/Policy	Comment in relation to Proposal
B1 - Natural Resources	
Land and Soil	
Rural Objective B1.1.1 Adverse effects of activities on the District's land and soil resources are avoided, remedied or mitigated.	The effects of the proposal on land and soil resources have been discussed in **Section 11** above. The proposal will seek to reuse soil where possible however given the volume of excavation, and potential contaminants within 60 Leeston Dunsandel Road, this will not all be suitable for reuse. In these instances, excess soil will be removed offsite. At the completion of works, exposed areas not covered by infrastructure, will be stabilised (topsoiled and re-grassed).
Rural Policy B1.1.7 Avoid removing large quantities of topsoil from sites unless: The site will be covered in hardstanding; or The topsoil will be replaced and the site replanted when the activity ceases.	
Water	
Rural Objective B1.3.2 To protect and enhance the vegetation, habitat values, ecosystem processes and amenity values of waterbodies and their riparian margins, their role in maintaining water quality and their significant landscape values.	Amenity values along Leeston Creek will be maintained, consistent with its rural land use. Leeston Creek currently runs through privately-owned property and legal public access not proposed to be enabled by the works.

Rural Objective B1.3.3 Protect and enhance the amenity values along waterbodies.	Construction management protocols will be in place to prevent the introduction of weeds. Leeston Creek is not identified as a trout or salmon habitat.
Rural Policy B1.3.8 Ensure any earthworks, flood protection works, structures or trees that must be located in riparian margins, or access by stock to riparian margins: • Allow legal public access along the waterbody where appropriate if such access exists, or is desirable for recreation or Mahinga Kai; and • Take precautions to prevent the introduction of weeds into areas where they are not already present; and • Mitigate any adverse effects on the natural character of the waterbody; and • Avoid adverse effects on trout and salmon habitats.	
Township Objective B1.2.2 Activities on land and the surface of water in Selwyn District: • Do not adversely affect ground or surface water resources; • Do not adversely affect waahi tapu or waahi taonga; • Maintain or enhance the ecological and habitat values of waterbodies and their margins; • Maintain or enhance the water quality and ecological values of sites of mahinga kai (food gathering); and • Promote public access along rivers and streams, where appropriate.	The activities associated with the proposal will not adversely affect the values identified in Township Objective B1.2.2. Waahi tapu or waahi taonga are not identified to be present in the vicinity of the works within the planning framework. The Leeston Creek upgrade is not located within residential-zoned land and therefore those aspects relating to public access are not relevant. Works on the margins of this creek will however be appropriately managed to prevent erosion and sediment discharges.
Township Policy B1.2.7 Minimise any potential risk of adverse effects on water quality or bank stability from earthworks; structures; hazardous substances; waste disposal; or tree planting or harvesting in close proximity to waterbodies	
B2 – Physical Resources **Utilities**	
Rural Objective B2.2.1 Utilities are recognised as essential tools for people's economic and social well-being, and to mitigate effects of other activities, on the environment.	The proposal involves the establishment and ongoing maintenance of stormwater infrastructure, as a 'utility'. This utility is essential for alleviating flood risk which impacts on people's health and safety. The effects on amenity values during and following the works have been discussed in **Section 11.3 and 11.4** above. These effects will be managed and minimised where possible, in accordance with the volunteered conditions of consent.
Rural Objective B2.2.2 and Township Objective B2.2.3 The provision of utilities where any adverse effects on the environment and on people's health, safety and wellbeing is managed having regard to the scale, appearance, location and operational requirements of utilities.	
Township Policy B2.2.4 Ensure provision is made for the ongoing maintenance and repair of utilities which do not vest in the Council, and that the users of these utilities are informed of any responsibility they have for ongoing maintenance or repair.	The applicant will prepare a maintenance plan, including consultation with relevant landowners.
Township Policy B2.2.5 Avoid potential 'reverse sensitivity' effects of activities on the efficient development, use and maintenance of utilities.	The bypass channel is required to pass through pastoral land which will be developed for new residential subdivisions. This bypass channel is identified within the Karumata Oaks Subdivision and Land Use consent documents as well as the Outline

	Development Plan incorporating 60 Leeston Dunsandel Road.
Township Policy B2.2.7 Ensure any adverse effects of utilities on or near waterbodies, or on any ecological, heritage, cultural, recreational, aesthetic or amenity values of the waterbody, are avoided, remedied or mitigated.	The proposal will maintain amenity values within and along Leeston Creek. As discussed above, this creek has been highly modified in the past.
B3 – Health Safety and Values **Natural Hazards**	
Township Objective B3.1.1 Ensure activities do not lead to or intensify the effects of natural hazards.	The proposal has a significant positive effect in reducing flooding within the Leeston urban area from approximately 63 hectares to 15 hectares in a design event. The number of individual sections impacted by flooding is modelled to be reduced from 512 to 115 sections. The potential loss of life or damage to property from natural hazards is therefore significantly reduced. It may however increase the flood depth experienced by some properties south of Leeston, intensifying this effect. The applicant intends to undertake consultation with these parties.
Township Objective B3.1.2 Ensure potential loss of life or damage to property from natural hazards is mitigated.	
Township Objective B3.1.3 Ensure methods to mitigate natural hazards do not create or exacerbate adverse effects on other people or the environment.	
Township Policy B3.1.2 Avoid allowing new residential or business development in areas known to be vulnerable to a natural hazard, unless any potential risk of loss of life or damage to property is adequately mitigated.	*Information only* *This policy is more relevant to future residential development adjoining the proposed bypass channel.*
Township Policy B3.1.6 Ensure any measures proposed to mitigate a potential natural hazard: • Do not lead to or intensify a potential natural hazard elsewhere; and • That any other adverse effects on the environment are avoided, remedied or mitigated.	The proposal mitigates an existing natural hazard however the bypass creates a slightly increased flood risk to some properties south of Leeston in a design event. The applicant intends to undertake consultation with these parties. Other adverse effects on the environment are sought to be managed and minimised where possible.
Township Policy B3.1.7 Ensure any new residential or business development does not adversely affect the efficiency of the District's land drainage system or the risk of flooding from waterbodies.	*Information only* *This policy is more relevant to future residential development adjoining the proposed bypass channel.*
Quality of the Environment	
Dust **Township Policy B3.4.14 and Rural Policy 3.4.16** Avoid nuisance effects caused by dust from stockpiled material or construction work in Living or Business zones.	Any dust effects will be avoided through appropriate erosion and sediment control. Water suppression methods may also be employed when required (i.e., in windy conditions), though need to avoid sedimentation of waterbodies.
Temporary Activities **Township Policy B3.4.41 and Rural Policy B3.4.23** Provide for temporary activities or those that are necessary for construction purposes, provided associated short term adverse effects on the environment are appropriately managed.	The construction-phase earthworks are temporary and limited in duration. Any adverse effects, where unable to be avoided, are considered to be less than minor and acceptable.

218. Based on the above discussion, which also has regard to the assessment of effects in **Section 11,** the proposal is concluded to be broadly consistent with the relevant provisions of the Selwyn District Plan.

13.3 Proposed Selwyn District Plan (PSDP)

219. The PSDP objectives and policies relevant to the proposal are assessed in **Table 8** below. The relevant definitions are already identified in **Section 8.3** above.

Table 8: Assessment of PSDP Objectives and Policies

Relevant Objective/Policy	Comment in relation to Proposal
General District Wide Matters	
EW-O1: Earthworks are undertaken in a manner that limits adverse effects on the surrounding environment. **EW-P3:** Manage earthworks to limit erosion, inundation or siltation so that it does not impede the functioning of natural biological and physical processes. **EW-P4:** Require that during and on completion of earthworks any visual impact, loss of privacy, dust nuisance, and shading from earthworks does not detract from the amenity values and quality of the environment.	The earthworks will be undertaken in accordance with an EMP which will include Erosion and Sediment Control Plans. There may some adverse amenity effects associated with the construction-phase works which are unavoidable, however these will be managed and minimised where possible.
NOISE-O1: The health and wellbeing of people and communities and their amenity values are protected from significant levels of noise. **NOISE-P1:** Manage noise effects by setting: a. Maximum noise limits to reflect the character and amenity of each zone; b. Limits on the location, frequency, and duration of specific activities that generate noise; c. A vibration standard.	The construction works will be managed to comply with the construction noise standards and consent conditions volunteered to this effect.
Natural Hazards	
NH-O2: Important infrastructure and land transport infrastructure is only located within areas of significant natural hazard risk where there is no reasonable alternative and the important infrastructure or land transport infrastructure is designed so as not to exacerbate natural hazard risk to people and property. **NH-O3:** Methods to mitigate natural hazards do not create or exacerbate adverse effects on other people, property, infrastructure, or the environment. **NH-P4:** Natural hazard mitigation works shall consider: 1. approaches to risk management that reduce the need for physical works and similar engineering interventions; 2. the nature of the natural hazard risk and how it might change over at least a 100-year timeframe, including the expected effects of climate change; 3. the potential for adverse effects on indigenous biodiversity, Ngāi Tahu cultural values, or sites of historic heritage or geological value; 4. identification of and a plan for transition mechanisms and timeframes for moving to more sustainable approaches; and	The infrastructure is required to be located adjacent to Leeston Creek; the main source of floodwaters. The proposal has been designed to reduce flood risk, however some rural-zoned properties to the south may experience an increase in flood depth in a design event. The proposal, in proceeding from preliminary design to detailed design, has considered a number of different mitigation options. Climate change, in terms of increases in rainfall depth, has also been factored into this process. The potential effects, both adverse and positive, has been explored through this process, and discussed above. The physical works, as deemed necessary, have been designed and will be undertaken in order to minimise adverse effects on the environment.

5. the physical works necessary to ensure that the form and location of any structure is designed to minimise adverse effects on the environment.	
Energy and Infrastructure	
EI-O1: Important infrastructure is: 1. efficient, effective, and resilient, and 2. provides and distributes essential and secure services as part of local, regional, or national networks, including in emergencies; and 3. integrates with urban development and land uses throughout the district; and **4.** enables people and communities to provide for their wellbeing.	The infrastructure has been designed in accordance with modelled flood events and will be operated, inspected and maintained in accordance with existing protocols and a forthcoming maintenance plan. This infrastructure is designed to maintain, as far as practicable, its integrity and function during a design flood event. It will also be integrated with rural land use (Leeston Creek upgrade) as well as new urban development.
EI-O2: Important infrastructure is located, designed, and operated to manage adverse effects on the physical and natural environment.	
EI-O3: The operation and security of important infrastructure is not compromised by other activities.	
EI-P1: Recognise the benefits and national, regional, and local importance of important infrastructure by: 1. enabling the operation, maintenance, and removal of existing important infrastructure throughout the District; 2. providing for replacement and upgrades, including new technologies, to network utilities, and the development of new network utilities. 3. providing for the functions and responsibilities of network utilities as lifeline utilities during an emergency. **4.** acknowledging that important infrastructure can have a functional need or operational need to locate in a particular area, including areas with high natural, visual amenity, or cultural value.	There are significant positive effects associated with this infrastructure which is important for Leeston and the surrounding area. The PSDP currently proposes to permit '*the establishment of a new, or the expansion, maintenance, or repair of an existing artificial waterway or associated structure (including outfall structures, water storage, conveyance of water for stock or irrigation, and land drainage purposes) by a network utility operator*' (Rule EI-R26).
EI-P2: Minimise the adverse effects of important infrastructure, and renewable electricity generation on the physical and natural environment by: 1. encouraging the co-location of structures and facilities where efficient and practicable. 2. locating, designing and operating development while minimising the effects on, the amenity values of the surrounding environment, public access and the health and safety of people. 3. limiting the presence and effects of development within Outstanding Natural Landscapes, Visual Amenity Landscapes, areas of significant indigenous vegetation and habitats of indigenous fauna, sites of historic heritage and site and areas of significance to Māori to those which: a. are recognised as important infrastructure; and b. can demonstrate an operational or functional requirement for the location; and c. can demonstrate through site, route or method selection the minimisation of effects on the environment; and	As outlined above, the proposal has been designed to minimise effects on, the amenity values of the surrounding environment, public access and the health and safety of people.

d. integrate design measures and management methods to mitigate adverse effects. 4. requiring restoration of indigenous biodiversity and habitat following construction in areas of areas of significant indigenous vegetation and habitats of indigenous fauna, and the on-going monitoring of that restoration. 5. considering biodiversity off-setting or compensation where the loss of significant indigenous vegetation cannot be restored and significant habitats of indigenous fauna or wetlands cannot be fully mitigated where the adverse effects cannot be avoided or remedied. 6. Using the substantial upgrade of important infrastructure and renewable electricity generation as an opportunity to reduce existing adverse effects.	
EI-P4: Manage the adverse effects from the construction and operation of important infrastructure, and renewable electricity generation including noise, and vibration by requiring compliance with standards and regulations.	There may some adverse amenity effects associated with the construction-phase works which are unavoidable, however these will be managed and minimised where possible.

220. The PSDP objectives and policies follow the same themes within the SDP, assessed in the preceding section. The same conclusions are therefore reached with respect to the relevant PSDP objectives and policies.

221. Overall the proposal is considered to be broadly consistent with the relevant objectives and policies of the PSDP.

14 Other Matters

14.1 Mahaanui Iwi Management Plan (MIMP)

222. The Mahaanui Iwi Management Plan 2013 (MIMP) is a Mana Whenua Planning document that is a values-based policy framework to protect and enhance Ngai Tahu values; to ensure taonga and resources are recognised and protected in decision making. The MIMP has the mandate of the six Papatipu Rūnanga and is endorsed by Te Rūnanga o Ngāi Tahu.

223. Leeston is located within the 'Te Waihora' catchment identified on Map 23 of the IMP and within the takiwā of Te Taumutu Rūnanga. Leeston is the nearest town to Taumutu/Ngāti Moki Marae.

224. The Leeston drainage network eventually discharges to Te Waihora/Lake Ellesmere, a nationally significant wetland with important cultural, natural, historic and recreational values. Te Waihora is significant to Te Rūnanga O Ngāi Tahu, as a tribal taonga, a major mahinga kai and as a source of mana; the Ngāi Tahu Claims Settlement 1998 returned ownership of the lake bed to Ngāi Tahu. Te Taumutu Rūnanga hold manawhenua over this area.

225. The Te Waihora Co-Governance Group[10] of Te Rūnanga o Ngāi Tahu, the Canterbury Regional Council, Selwyn District Council, Christchurch City Council, and the Department of Conservation share responsibility for Te Waihora and the wider Te Waihora catchment.

226. A preliminary assessment of the IMP policies considered to be most relevant to this proposal is provided in

227. **Table** 9 below, based on the technical results contained within this AEE.

[10] *Te Waihora CoGovernance website accessed 24 October 2023: https://tewaihora.org/*

Table 9: Assessment of IMP Objectives and Policies

Relevant Objective/Policy	Comment in relation to Proposal
Ranginui	
Objective 1 and Policy 1.1 To protect the mauri of air from adverse effects associated with discharge to air activities.	The construction phase earthworks will adhere to an erosion and sediment control plan (ESCP) which will include a description of dust mitigation to be used and details of best practicable options to be applied to mitigate dust. This ESCP will be submitted to Council prior to works commencing. Any discharge of contaminants (dust) will therefore be managed and minimised.
Wai Māori	
Objective 3 Water and land are managed as interrelated resources embracing the practice of Ki Uta Ki Tai, which recognises the connection between land, groundwater, surface water and coastal waters.	Leeston Creek currently runs through rural-zoned land and has been subject to a high level of modification. The proposal, in widening and deepening this channel, will result in additional modification. It is proposed to re-grass the new banks and riparian margins of this waterway; consistent with the existing waterway and the ongoing rural land use present at 178 Harmans Road. The proposal will not enable stock access to this waterbody. During the construction works, erosion and sediment control measures will be employed to minimise the potential for discharges to this waterbody. There are no known sites of significance within the area of proposed works, nor is there any indigenous vegetation.
Objective 7 All waterways have healthy, functioning riparian zones and are protected from inappropriate activities, including stock access.	
Policy WM12.9 To require that any river works activity that results in the loss or damage of riparian vegetation includes measures to replace or restore vegetation, with appropriate indigenous species.	
Policy WM12.12 To require that any plantings associated with flood protection works is undertaken using indigenous species.	
Policy WM12.13 To require that any structure, essential or otherwise, in the bed or margin of a waterway (e.g. floodgate) supports and enables passage for migratory indigenous fish species and does not compromise any associated kōhanga.	
Policy WM14.1 To require that drains are managed as natural waterways and are subject to the same policies, objectives, rules and methods that protect Ngāi Tahu values associated with freshwater, including: (a) Inclusion of drains within catchment management plans and farm management plans; (b) Riparian margins are protected and planted; (c) Stock access is prohibited; (d) Maintenance methods are appropriate to (e) maintaining riparian edges and fish passage; and (f) Drain cleaning requires a resource consent.	
Papatūānuku	
Policy P10.1 The management of contaminated land must recognise and provide for specific cultural issues, including: (a) The location of contaminated sites; (b) The nature of the contamination; (c) The potential for leaching and run-off; (d) Proposed land use changes; and	The proposed bypass channel will intersect with areas which have identified soil contaminants above naturally occurring background levels but below Residential 10% Produce guideline values, Earthworks within these areas will be managed in accordance with an Environmental Management Plan (EMP). A Site Validation Report (SVR) will also be provided to Council at completion of works.

(e) Proposed remediation or mitigation work.	
Policy P11.1 To assess proposals for earthworks with particular regard to: (a) Potential effects on wāhi tapu and wāhi taonga, known and unknown; (b) Potential effects on waterways, wetlands and waipuna; (c) Potential effects on indigenous biodiversity; (d) Potential effects on natural landforms and features, including ridge lines; (e) Proposed erosion and sediment control measures; and (f) Rehabilitation and remediation plans following earthworks.	Works will be undertaken in accordance with the accidental discovery protocol in Appendix 3 of the MIMP should cultural material be encountered unexpectedly. Erosion and sediment control measures will also be employed. No adverse effects on cultural sites are anticipated. Erosion and sediment control measures will be implemented to prevent run off. Sediment control measures will be undertaken during construction phase works and following rehabilitation until the site is stabilised and grass growth is successful. Consent conditions have been volunteered to this effect.
Policy P11.9 To require stringent and enforceable controls on land use and earthworks activities as part of the resource consent process, to protect waterways and waterbodies from sedimentation, including but not limited to: (a) The use of buffer zones; (b) Minimising the extent of land cleared and left bare at any given time; and (c) Capture of run-off, and sediment control.	
Te Waihora	
Objective 6 The relationship between land use, groundwater, surface water and Te Waihora is recognised and provided for according to the principle of Ki Uta Ki Tai.	The reduced risk of flooding, and potential for Leeston Creek to overtop its banks, will assist in improving water quality within this waterway. Whilst the riparian margins are proposed to be re-grassed at this stage, the proposal does not preclude the potential for additional planting in the future.
Objective 8 The cultural health of lowland waterways is restored, through the restoration of water quality and quantity and riparian margins.	

228. Cultural advice has since been received from Mahaanui Kurataiao Ltd on behalf of Ngāi Tūāhuriri Rūnanga and Te Taumutu Rūnanga and is included in **Appendix 10**. This report includes an assessment of these objectives also. Cultural effects are discussed in more detail within **Section 11.6**.

15 Notification/Consultation

229. Sections 95A to 95E of the RMA outline the decision process to be followed by consent authorities in deciding the notification pathway, and identifying affected persons, for applications in accordance with the RMA.

230. Section 95A outlines the steps to be followed when deciding whether or not to publicly notify an application. An assessment of the relevant provisions of section 95A finds:

- The applicant has not requested public notification (section 95A(3)(a)) and the requirements of section 95A(3)(b) and (c) do not apply (Step 1).
- The application requires consent as a discretionary activity overall and public notification is not precluded (section 95A(5)) (Step 2)).
- No special circumstances exist that warrant public notification of the application (section 95A(9)) (Step 4).

231. Although public notification is not required, section 95A(9)(b) requires the provisions of section 95B to be assessed to determine whether or not limited notification is required. An assessment of the relevant provisions of section 95B finds:

- This application does not affect any of the groups or persons listed under section 95B(2) (Step 1);
- The application is not one where limited notification is precluded under the criteria outlined in section 95B(6) (Step 2);
- Section 95B(7) does not apply to this application.
- The change in potential flooding effects is likely to affect some properties to the south of Leeston (discussed in **Section 11.5**). The consent authority has identified six properties as being 'affected persons' as per a request for written approval (Step 3); and
- Special circumstances do not apply that warrant notification to other parties not already identified (section 95B(10)) (Step 4).

232. Based on the above assessment, public notification of this application is not required. However, limited notification is necessary due to the change in flooding effects on the rural-zoned properties to the south of Leeston.

233. The applicant proposes to further engage with these parties; this will be concurrent with the formal limited notification process.

16 Conclusion

234. Selwyn District Council (the applicant) seeks land use consent from Selwyn District Council (territorial authority) for works associated with the establishment, operation and maintenance of the Leeston Stormwater Flood Bypass scheme.

235. The scheme involves the diversion of high flood water flows within Leeston Creek through a new stormwater bypass channel to upgraded drainage channels. Leeston Creek, upstream of the proposed bypass channel, is also proposed to be upgraded to provide additional capacity for high flows.

236. The activity requires land use consent as an overall **discretionary** activity under the Selwyn District Plan (**SDP**) and National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (**NES-CS**).

237. The potential effects associated with the activities that trigger the need to seek resource consents include construction effects; effects on human health from potentially contaminated soils, effects on visual amenity, effects on land drainage and flooding, effects on ecological values, and effects on Ngāi Tahu values. These potential effects are assessed in **Section 11** of this application.

238. The conclusion identifies that there are significant positive effects associated with the mitigation of a flood hazard. Once operational, the proposed infrastructure will reduce the intensity and frequency of flood events in Leeston township and the surrounding area. This reduces the health and safety risk to people, and potential damage to property associated from such flood events.

239. These positive effects need to be balanced against potential adverse effects such as the increase in modelled flood depth to some rural-zoned properties south of Leeston.

240. In addition, the activities associated with this application are also broadly consistent with, and therefore not contrary to, the policy framework of the relevant statutory planning documents developed under the RMA (**Section 13**).

241. The proposal has also considered the Mahaanui Iwi Management Plan as a relevant matter under s.104(1)(c) (**Section 14.1**).

242. Overall, given the reason for the proposal and management and mitigation measures proposed, the proposal provides for the sustainable management of the area's land and water resources and therefore is in accordance with the purpose and principles of Part 2 of the RMA.