

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of 44 Gresham Street, Geraldine Proposed Subdivision Consent to the Timaru District Plan

STATEMENT OF EVIDENCE OF SELWYN CHANG

on behalf of **YEDO INVESTMENTS LTD**

INTRODUCTION

1. My full name is Selwyn Chang. I am a Chartered Professional Engineer and the Principal Civil Engineer (Timaru Lead) at Davis Ogilvie (Aoraki) Ltd, based in Timaru.
2. I have over 20 years of civil engineering experience, specialising in infrastructure planning, land development engineering, stormwater management, and the design and delivery of water, wastewater, and roading infrastructure for residential developments.
3. I have been engaged by Yedo Investments Limited to undertake the engineering infrastructure assessment for the proposed subdivision and rural residential development at 44 Gresham Street, Geraldine.
4. My involvement in this project includes:
 - Preparing the Stormwater Management Plan for the development;
 - Preparing the Engineering Servicing Memorandum addressing water supply, wastewater and stormwater servicing;
 - Undertaking engineering review of stormwater quantity and quality modelling;
 - Coordinating engineering investigations including geotechnical and ecological assessments;
 - Reviewing submissions received on the resource consent application relating to engineering matters.
5. I am familiar with the site, the proposed development, the relevant engineering assessments, and the submissions lodged on the application.

QUALIFICATIONS AND EXPERIENCE

6. I hold a Bachelor of Engineering in Civil Engineering from the University of Canterbury (2004).
7. I am a Chartered Professional Engineer (CPEng) and a Chartered Member of Engineering New Zealand (CMEngNZ), with an accredited practice field in three-waters engineering.
8. My expertise includes:
 - Civil engineering infrastructure network planning and detailed design for land development and subdivision projects;
 - Development of stormwater management strategies, including stormwater management areas (SMAs), for greenfield developments;
 - Identifying and addressing civil engineering constraints associated with development, and developing practical mitigation solutions; and
 - Preparation of technical civil engineering assessments, reports, and supporting documentation for planning, resource consent, and engineering approval processes.

9. I have prepared the stormwater and engineering servicing assessments for the proposal, including the Stormwater Management Plan dated July 2025.
10. In preparing this evidence I have also reviewed the Environment Canterbury flood hazard advice, the Integrated Transport Assessment (ITA) prepared by Abley dated 31 August 2025, the relevant application plans and the submissions received.
11. Where I refer to traffic generation, access layout and intersection treatment, I do so in reliance on the Abley ITA.

CODE OF CONDUCT

12. I confirm I have read and understand the Environment Court Code of Conduct for Expert Witnesses (2023).
13. I confirm the evidence I provide is within my area of expertise, and I have not omitted any material facts that could affect my conclusions.

SCOPE OF EVIDENCE

14. My evidence addresses engineering and infrastructure matters associated with the proposed subdivision at 44 Gresham Street, Geraldine including:
 - Site context and servicing overview
 - Water supply servicing
 - Wastewater servicing
 - Stormwater management
 - Flood and natural hazard considerations
 - Construction considerations
 - Responses to submitter concerns relating to engineering matters
15. My evidence does not address planning relief, rezoning rationale, urban design, or ecology, except where these interact with stormwater engineering.

SITE CONTEXT AND FLOOD HAZARD

16. The site is located at 44 Gresham Street, Geraldine with an area of approximately 17.41 hectares.
17. The site is currently a greenfield rural property located on the western edge of Geraldine and is bound to the south by the Grande Vue Golf Course.
18. The property is defined by two main rolling ridges, with a natural drainage depression (i.e gully) traversing the centre of the property between each ridge.

19. These natural drainage features form an important component of the proposed stormwater management approach.

ECan's Flood Hazard Assessment (3 July 2023)

20. ECan identifies:

- Potential source of flooding is from local stormwater runoff following periods of heavy or prolonged rainfall.
- Given the proposed site topography, any such flooding is likely to be limited to areas of low ground where the location of the gully is.
- The gully through the centre of the proposed site may contain significant runoff in extreme rainfalls.
- To mitigate any potential impact on downstream neighbours of the increased built development, runoff in the gully should not be significantly increased from pre-development levels.
- Gully flows should not be redirected to leave the site at a different location to what it would do normally.
- The flooding at the proposed site can be described as low risk.
- Nominal freeboard be applied to finished floor levels (standard practice); and
- Overland flow paths be preserved (addressed in the engineering design).

21. Flood hazard risk is low and is not preventing development, and all relevant flood issues can be readily addressed through standard engineering methods.

STORMWATER SERVICING

22. There is no public gravity stormwater reticulation in the vicinity of the site. Existing runoff drains naturally by topography via the site's drainage depressions / gullies toward Geraldine Downs Creek.

23. The proposed stormwater management approach has been developed in alignment with the site's natural drainage patterns and receiving environment.

24. Approved Stormwater Management Plan and ECAN discharge consent have been obtained for the site (CRC260266).

25. The approved stormwater management strategy incorporates:

- Source control measures
- Stormwater treatment
- Stormwater attenuation
- Controlled discharge to Geraldine Downs Creek.

26. Stormwater will be managed using a combination of:
- On-site detention tanks for each allotment
 - Stormwater detention ponds
 - Swales
27. Each allotment will include a minimum 10 m³ rainwater detention tank with a restricted outlet sized in general accordance with Timaru District Council Acceptable Solutions or Christchurch City Council installation detention tank guidelines. This ensures post-development runoff does not exceed pre-development discharge rates.
28. Stormwater from roads and shared infrastructure will be attenuated via detention ponds, with the system designed to maintain post-development flows at or below pre-development levels.
29. The stormwater system is designed to manage rainfall events up to the 2% AEP (50-year return period), 24-hour duration storm event, consistent with accepted engineering practice for greenfield developments in New Zealand.
30. This design standard provides an appropriate balance between resilience, flood risk management, and practical design, ensuring no increase in downstream flooding effects.
31. Additional resilience is provided through secondary overland flow paths and on-site detention measures to manage exceedance events.
32. For events exceeding design capacity, runoff will be conveyed via defined overland flow paths and natural gullies toward the Geraldine Downs Creek tributary system.
33. These measures ensure that exceedance flows are safely managed without adverse effects on surrounding properties or the receiving environment.
34. The stormwater system has been modelled using Sanitary and Storm Analysis (SSA) modelling, which confirms that the proposed attenuation measures effectively manage stormwater flows across the development catchments.
35. The Stormwater Management Plan demonstrates that, following mixing, discharges comply with LWRP Schedule 5 water quality limits.
36. The proposed stormwater infrastructure located within the public road and reserve areas, including the stormwater detention ponds, swales, and associated conveyance systems, is intended to be vested to Timaru District Council upon completion of the subdivision development.
37. Once vested, these assets will form part of Council's public stormwater network and will be maintained and operated in accordance with Council's asset management and infrastructure maintenance programmes, ensuring the long-term performance and reliability of the stormwater management system.
38. Overall, the proposed stormwater management system represents a robust, consented design that aligns with low impact design principles, best practice, and all relevant regulatory requirements.

WATER SUPPLY SERVICING

39. Water supply to the proposed development at 44 Gresham Street can be provided via connection to the existing Timaru District Council reticulated water supply network.
40. There are several feasible servicing options available to supply the site, including:
 - Extension of the existing watermain from Darby Street utilising the Hewling Street pump station;
 - Connection to the existing watermain in Huffey Street; or
 - Connection to the existing watermain in Gresham Street.
41. The preferred servicing option identified by Council is the extension from Darby Street utilising the Hewling Street Pump Station, which aligns with Council's wider network servicing strategy and provides an efficient and reliable supply and firefighting capability to the development.
42. Hydraulic modelling previously undertaken confirms that the network, with minor upgrades where required, is capable of supplying the development while maintaining the required level of service, including firefighting flows and operating pressures.
43. It is acknowledged that achieving the required firefighting flows and pressures in accordance with SNZ PAS 4509 may require additional measures in localised high elevation areas of the site.
44. This can be readily addressed through standard engineering solutions, including localised network upgrades, installation of a booster pump station, or provision of on-site firefighting water storage, ensuring compliance with Council and Fire and Emergency New Zealand requirements.
45. The internal water supply network within the subdivision will be designed in accordance with Timaru District Council Infrastructure Design Guidelines and NZS 4404 and will be configured to meet the required levels of service for both domestic supply and firefighting.
46. The final water supply servicing arrangement, including pipe sizing and network configuration, will be confirmed during the detailed engineering design stage in consultation with Timaru District Council.
47. Upon completion of the subdivision, the water supply infrastructure within road reserves will be vested to Timaru District Council, becoming part of the public water supply network and maintained by Council.
48. The proposal is capable of being appropriately serviced in engineering terms, subject to detailed engineering design, Council approval and appropriate consent conditions.
49. I do not identify any in principle engineering impediment to the proposal proceeding.

WASTEWATER SERVICING

50. Wastewater from the proposed development at 44 Gresham Street can be serviced via connection to the existing Timaru District Council reticulated wastewater network.

51. Wastewater servicing will be provided through a predominantly gravity reticulation system, with private low-pressure systems utilised where required to service parts of the development where gravity system cannot be achieved.
52. The proposed wastewater network will discharge to the existing Council reticulation in Gresham Street and Huffey Street.
53. Timaru District Council has confirmed that there are no capacity constraints within the downstream wastewater network to accommodate the proposed development.
54. While minor surcharging has been identified within parts of the existing network during peak storm events, this is not attributable to the proposed development and is within the expected operational performance of the system.
55. The internal wastewater network will be designed in accordance with Timaru District Council Infrastructure Design Guidelines and NZS 4404, ensuring appropriate levels of service and operational performance.
56. The final network layout, pipe sizing, and any required pump systems will be confirmed at the detailed engineering design stage in consultation with Timaru District Council.
57. The wastewater infrastructure located within road reserves will be constructed to Council standards and will be vested to Timaru District Council upon completion of the subdivision.
58. Once vested, the infrastructure will form part of the Council's public wastewater network and will be maintained and operated by Council.
59. Overall, the site can be adequately serviced by Council's wastewater network, with servicing requirements able to be fully achieved through detailed design.

ROADING

60. The proposed development will be accessed via Gresham Street and Huffey Street, with an internal road network designed to provide safe and efficient connectivity throughout the site.
61. The internal road layout has been designed to form a legible and connected network, providing access to all allotments and accommodating pedestrian and vehicle movements in accordance with Council standards.
62. The roading design will be undertaken in accordance with Timaru District Council Infrastructure Design Guidelines, NZS 4404, and relevant Austroads guidance, ensuring appropriate road geometry, sight distances, manoeuvring and safety outcomes.
63. In relation to emergency access, the proposed roading layout including any identified Right of Way requiring emergency access will be designed in accordance with Timaru District Council standards, NZS 4404 and Designer guide to Firefighting Operations: Emergency Vehicle Access Guides F5-O2, which provide for appropriate road widths, turning movements, gradient and access suitable for emergency service vehicles.

64. These matters will be addressed through detailed engineering design which includes any necessary road intersection upgrades as part of the engineering approval process.
65. The proposed development includes provision for a public road to be vested to Timaru District Council, which will form part of the local transport network and be maintained by Council upon completion.
66. Overall, the proposed roading and access arrangements are appropriate for the scale and nature of the development, and there are no transportation or connectivity constraints that would prevent the development from proceeding.

CONSTRUCTION-PHASE STORMWATER

67. An ECAN discharge consent (CRC260266) has been approved for the site, which sets out the conditions to be met during the construction phase to manage stormwater.
68. During the construction phase, there is potential for temporary adverse effects associated with sediment-laden runoff and earthworks activities.
69. These effects will be appropriately managed through the implementation of a Dust, Erosion and Sediment Control Plan (DESCP), which will be prepared as part of the detailed design and construction process.
70. The DESCPC will be developed in accordance with Environment Canterbury's Erosion and Sediment Control Guidelines.
71. These measures are standard practice for subdivision developments and are effective in minimising sediment discharge and protecting downstream receiving environments, including Geraldine Downs Creek.
72. These matters are typically addressed through resource consent conditions and construction management processes, and do not present a constraint to the development.

RESPONSE TO SECTION 42A REPORT

73. I recommend that Advice Note under Section 13 Recommended Conditions No. 9 (Transfer of Consent) be removed, as routine maintenance activities, including grass mowing and sump debris clearance, fall under the responsibility of Council rather than the applicant.
74. I seek clarification on Condition No. 17, 19, 33 and 35, specifically how the proposed \$3,000 connection fees for water and wastewater connections have been derived.
75. I recommend that Condition No. 22 and 37 that the stormwater attenuation design period for each lot shall be designed to a 1 in 50-year return period 24hr duration to align with the approved stormwater management plan.
76. I recommend that Condition No. 25 be amended to require Lot 25 to obtain flood hazard certification to address finished floor levels and associated flood risk. This approach

aligns with Council's current processes for managing development within identified flood-prone areas.

RESPONSE TO SUBMISSIONS

Stormwater and Downstream Effects - (Submission – Bruce and Rosa Allan, Joanne Drake, Holbrook Trust, Satandra Singh)

77. Submitters have raised concerns regarding the performance of the proposed stormwater pond, including potential for leakage, overflow, and effects on downstream properties.
78. These matters have been assessed as part of the approved ECAN discharge consent (CRC260266).
79. The consented stormwater management system has been designed to ensure that post-development runoff does not exceed pre-development flow rates, through the use of on-site detention tanks, stormwater detention ponds, and controlled discharge to the natural gully and Geraldine Downs Creek.
80. Stormwater ponds will be subject to detailed engineering design, including outlet control, freeboard, and bund stability design, and will require approval from Council and Environment Canterbury.
81. The proposal also provides an exceedance response for storm events beyond the primary design standard, with secondary flows directed by defined overland flow paths and gullies.
82. In addition, the ponds and associated stormwater infrastructures will be vested to Timaru District Council, ensuring ongoing maintenance and management.
83. These concerns can be appropriately managed through standard engineering design and consent conditions.

Construction Effects and Runoff - (Submission – earthworks, runoff, and noise concerns) – Joanne Drake, Peter Johnston, Peter Mark Johnston

84. Submitters have raised concerns regarding earthworks, construction runoff, and potential effects on downhill properties during construction.
85. A Dust, Erosion and Sediment Control Plan (DESCP) will be implemented in accordance with Environment Canterbury guidelines, incorporating standard erosion and sediment control measures.
86. These measures are specifically designed to ensure that sediment runoff is contained within the site and does not adversely affect downstream properties, including during rainfall events.
87. Construction-related effects are not unusual, are short-term in nature, and can be effectively managed through standard construction practices and consent conditions.
88. Existing services will be identified and protected during construction, with any required relocation or reinstatement undertaken to ensure continuity of service.

Roading and Traffic Safety - (Submission – Gresham Street / Huffey Street intersection and driveway access) – Joanne Drake

89. Submitters have raised concerns regarding traffic safety, including visibility at the Gresham Street and Huffey Street intersection and driveway access constraints.
90. Detailed design will include assessment of sight distances, intersection performance, and access arrangements, with any required improvements implemented in consultation with Timaru District Council.

Emergency Services and Firefighting Requirements - (Submission – Fire and Emergency New Zealand)

91. Fire and Emergency New Zealand (FENZ) have raised matters relating to emergency services access and provision of firefighting water supply.
92. In relation to emergency access any identified Right of Way requiring emergency access will be designed in accordance with Timaru District Council standards, NZS 4404 and Designer guide to Firefighting Operations: Emergency Vehicle Access Guides F5-O2, which provide for appropriate road widths, turning movements, gradient and access suitable for emergency service vehicles.
93. In relation to firefighting water supply, it is acknowledged that achieving the required flows and pressures in accordance with SNZ PAS 4509 may require additional measures in localised high elevation areas of the development.
94. In my opinion, the matters raised by FENZ are anticipated engineering considerations rather than constraints and can be appropriately addressed to ensure compliance with relevant firefighting and emergency service requirements.

Water Services – (Submission - Peter Mark Johnston)

95. I confirm that the proposed development will not affect this arrangement, and continuity of supply will be maintained throughout construction and following completion of the works.

CONCLUSION

96. For the reasons set out above, I consider the proposal can be appropriately serviced by water, wastewater, stormwater and roading infrastructure, with servicing to be implemented through detailed engineering design and Council approval processes.
97. In particular, the key stormwater and flood-related matters have been comprehensively assessed through the July 2025 Stormwater Management Plan, which supported the granting of the ECAN discharge consent for the development.
98. The consented design incorporates attenuation and treatment measures to ensure that post-development discharge does not exceed pre-development flow rates, while also providing defined secondary flow paths for exceedance events.
99. Overall, I do not identify any engineering issues that would preclude the proposal from proceeding.