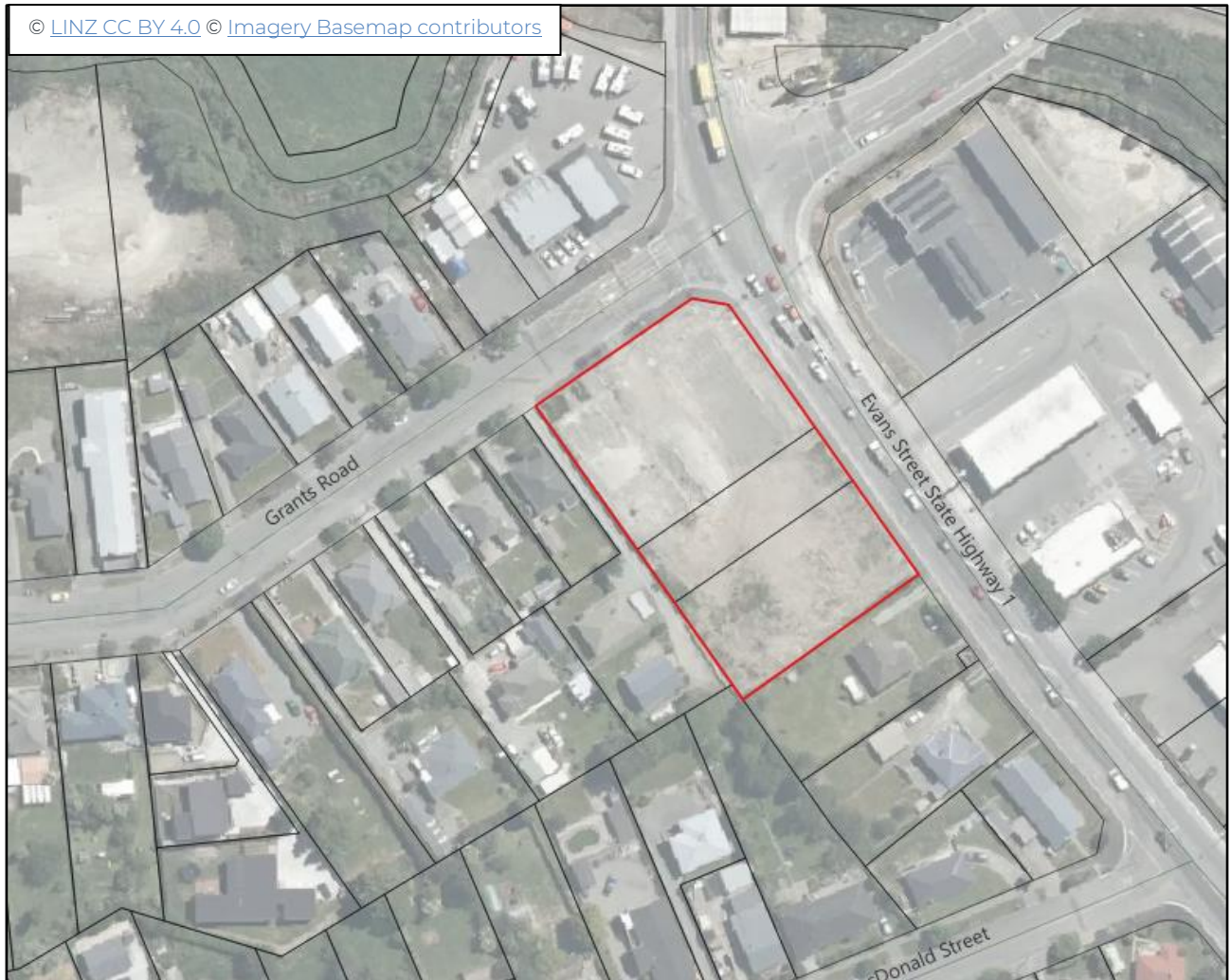


Timaru District Council

Site Specific Flood Risk Assessment

192-208 Evans Street, Timaru



Requested by	TDC Planning Unit
Version	V1.0
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Location	192-208 Evans Street, Timaru 7910

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1. Introduction

The purpose of this Site Specific Flood Assessment (SSFA) document is to provide known flood risk information for the property at 192-208 Evans Street. This document includes specific details related to a building consent application for a commercial development at this site (Figure 1-1). Accordingly, the SSFA outlines the potential impacts of the proposed development on these flood risks.

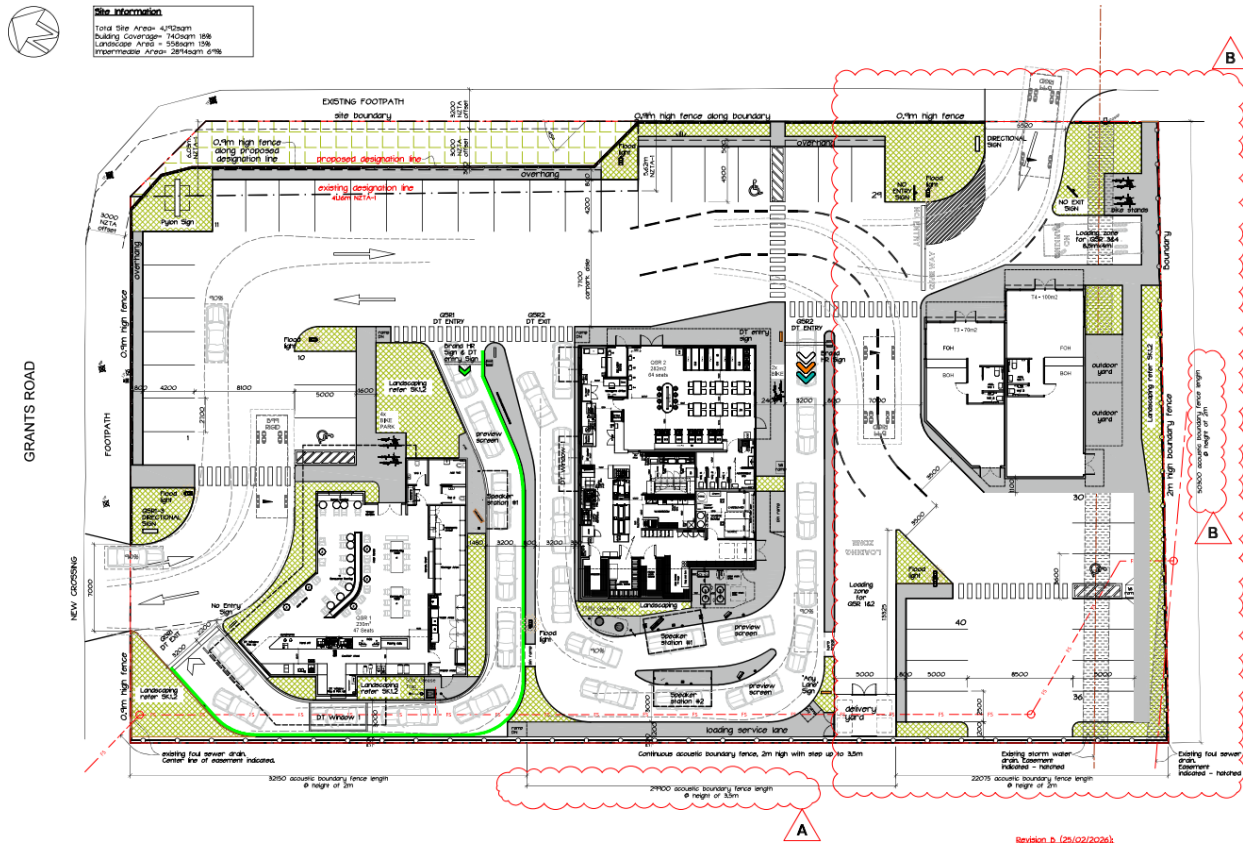


Figure 1-1: Proposed commercial development at 192-208 Evans Street (proposal plan dated 26/02/2026).

Floor levels for the three buildings were provided by the applicant as below:

- QSR 1: RL 4.56 m (NZVD2016) – 4.9 m (Lyttelton Vertical Datum 1937)
- QSR 2: RL 4.36 m (NZVD2016) – 4.7 m (Lyttelton Vertical Datum 1937)
- T3 & T4: RL 4.26 m (NZVD2016) – 4.6 m (Lyttelton Vertical Datum 1937)

The following information was summarised from Environment Canterbury's 5 November 2024 flood assessment (Appendix A):

- Recent improvements to Te Ahi Tarakihi Creek are not expected to significantly reduce flooding at this property during major flood events.
- The property is expected to experience significant flooding across most of the site during a 200-year ARI event, with depths exceeding 1 metre.

SITE-SPECIFIC FLOOD ASSESSMENT

DEFINITION

means an assessment issued by Timaru District Council which specifies:

- a. the flood event risk level for specific land (being either land not subject to flooding in a 0.5% AEP flood event, or land subject to flooding in a 0.5% AEP flood event, or land within a High Hazard area); and*
- b. where a. above identifies that the specific land is subject to flooding in a 0.5% AEP flood event, the minimum finished floor level for any new building or structure (or part thereof) on the specific land to provide at least 300mm freeboard above the flood level in a 0.5% AEP flood event; and*
- c. if the specific land is within 150m of a stopbank, the minimum finished floor level for any new building or structure (or part thereof) on the specific land to avoid risk from a stopbank failure; and*
- d. whether the specific land is located within an overland flow path.*

Please note that the minimum floor level certified under the Proposed District Plan may be different to the floor level required by the Building Act 2004 which must be met in order to obtain a building consent.

Timaru District Council has adopted a 300 mm freeboard, regardless of the event return period (refer to the TDC Infrastructure Design Standard, TDC July 2024¹). This means the Proposed District Plan 0.5% annual exceedance probability (AEP) flood event (plus 300mm freeboard) requirement governs over the requirement that surface water, resulting from a 2% AEP event, shall not enter buildings (New Zealand Building Code Clause E1 Surface Water, 2020).

¹ https://www.timaru.govt.nz/_data/assets/pdf_file/0007/901177/TDC-Infrastructure-Design-Standard-Full-Documents-Version-1.pdf

2. Property Flood Risks

2.1 Flood Assessment Area

Timaru District Council's mapped Flood Assessment Area (under Natural Hazards in the Proposed Timaru District Plan maps) shows that the property at **192-208 Evans Street** is in a **flood assessment area** (Figure 2-1).



Figure 2-1: Mapped Flood Assessment Area.

2.2 Ground Levels

Existing ground levels across 192-208 Evans Street range from 3.45 m to 5.95 m AD (average ground level of 4.33 m AD) (Figure 2-2) (LINZ – Canterbury LiDAR 1m DEM (2020-2025)).

The proposed development plans show that the site will be filled to match the proposed building floor levels (see Section 1). As a full proposed ground surface has not been provided, the proposed ground levels shown in Figure 2-2 are approximate and have been assumed for assessing the potential effects of site filling.

Important note: This ground level data pre-dates any construction works at 192-208 Evans Street.

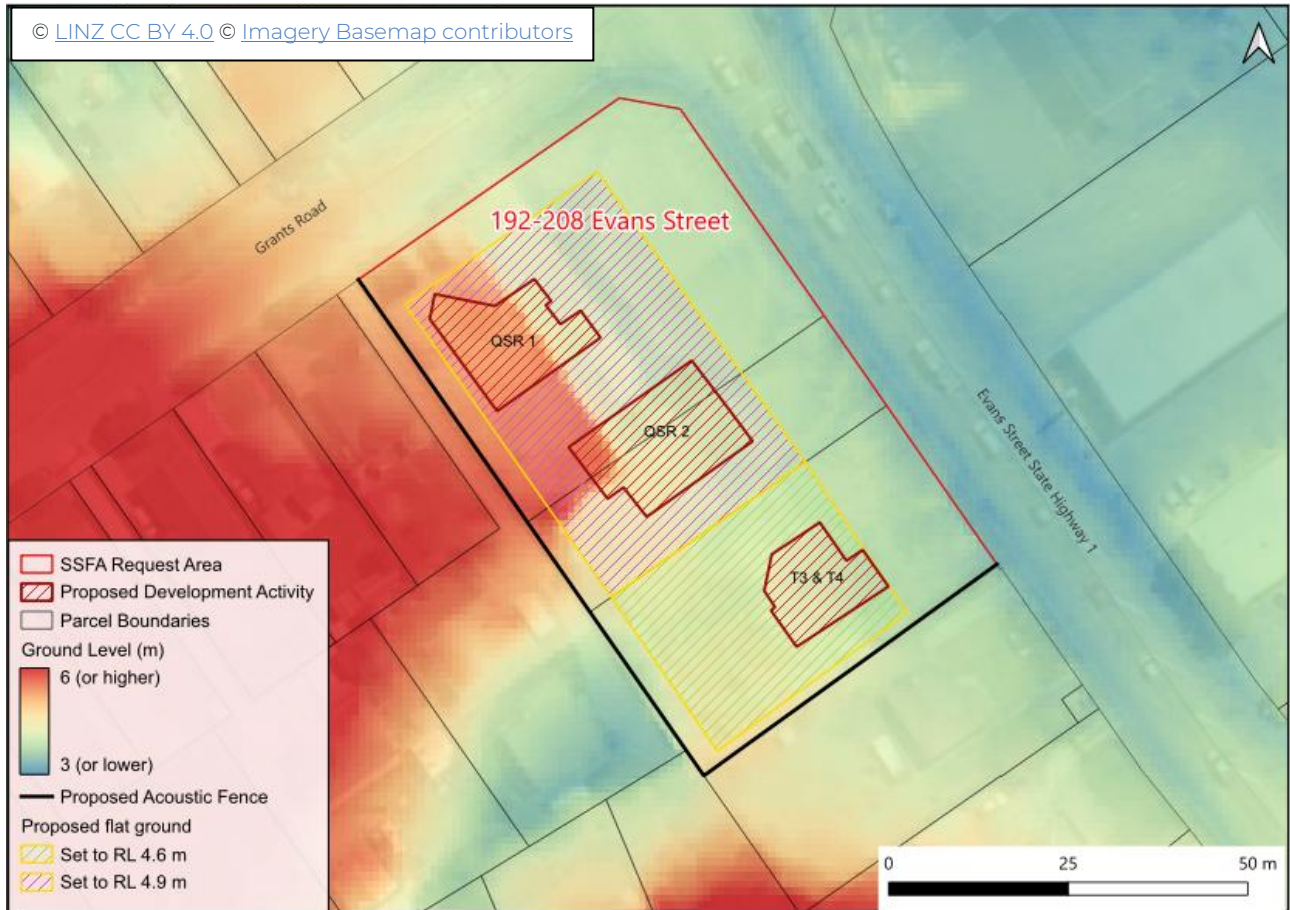


Figure 2-2: Existing and proposed ground levels in metres above datum (Lyttelton Vertical Datum 1937).

2.3 High Hazard Area

Timaru District Council's high hazard mapping shows that the 192-208 Evans Street property is in a high hazard area (Figure 2-3).

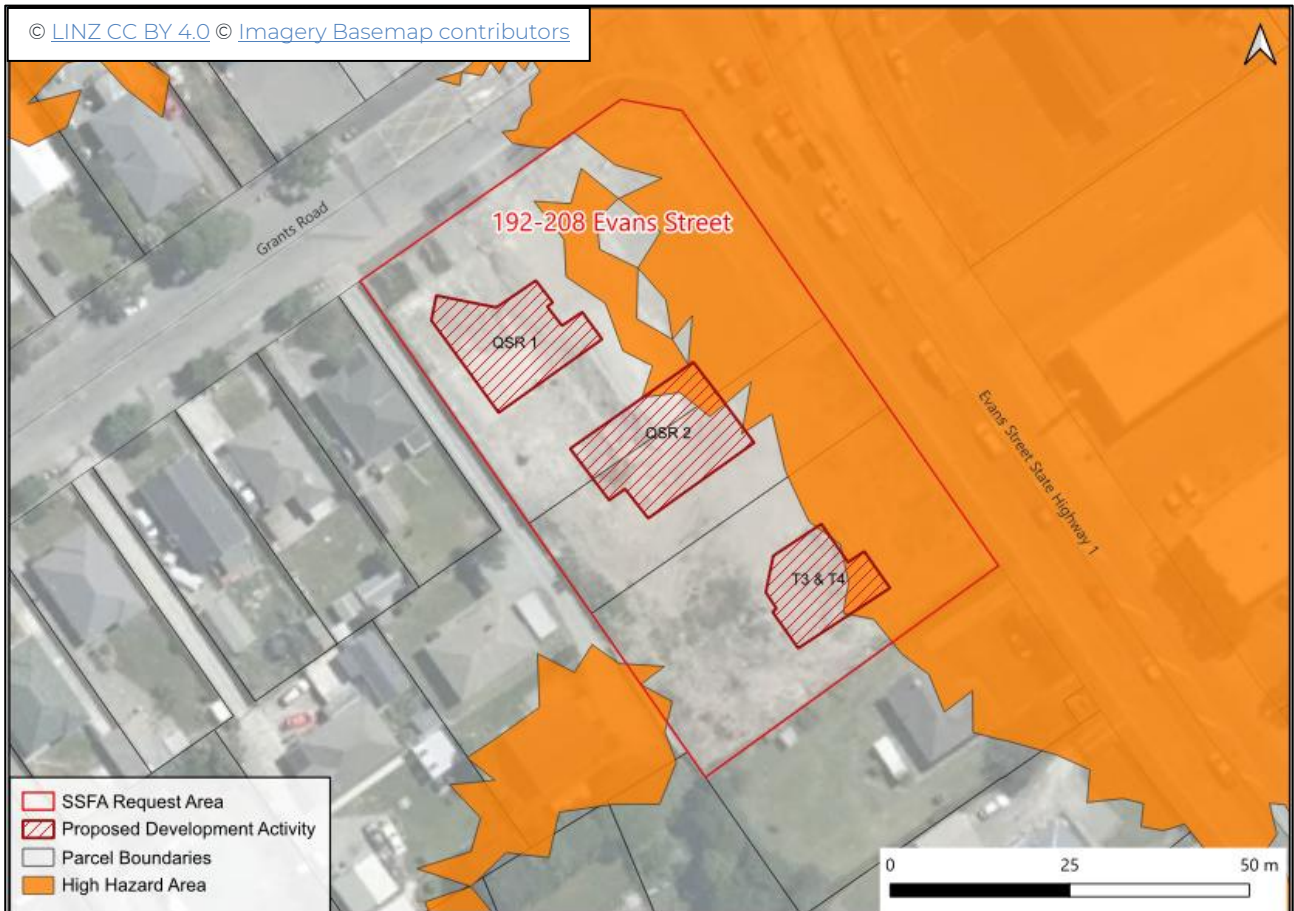


Figure 2-3: Modelled High Hazard Area during 0.2% AEP rainfall event (includes an allowance for climate change).

Note: The Proposed Timaru District Plan defines a High Hazard Area as a flood hazard subject to inundation events where the water depth (metres) x velocity (metres per second) is greater than or equal to 1 or where depths are greater than 1 metre, in a 0.2% annual exceedance probability (AEP) flood event (500-year average recurrence interval).

2.4 Overland Flow Paths

Timaru District Council's overland flow path maps show that the southern side of the 192-208 Evans Street property is located in an overland flow path (Figure 2-4).



Figure 2-4: Mapped overland flow paths – the predicted route along which stormwater flows over land in a rain event.

2.5 Modelled Flood Depths [m]

Timaru District Council's flood modelling information shows that during 0.5% annual exceedance probability (AEP) event (200-year average recurrence interval), the water level across 192-208 Evans Street is predicted to reach a maximum depth of 0.97 m (Figure 2-5). The maximum static water level used for calculating the minimum floor level is 4.75 m AD, taken from the profile shown in Figure 2-6.

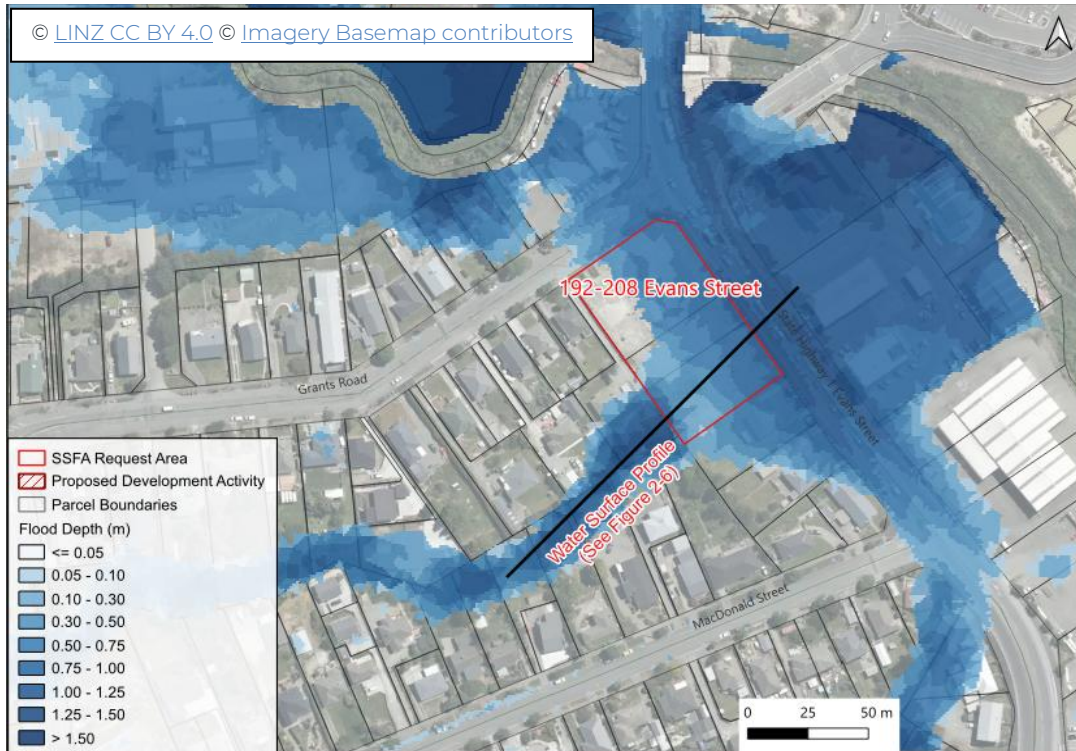


Figure 2-5: Modelled water depths [m] during the 0.5% AEP rainfall event (includes an allowance for climate change). Existing site ground surface created from LINZ – Canterbury LiDAR 1m DEM (2020-2025).

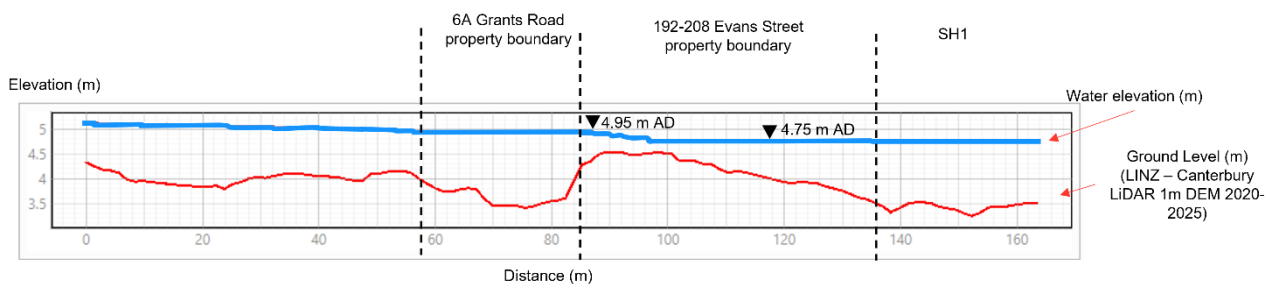


Figure 2-6: Water surface profile

Two scenarios are compared with the existing condition to assess the effects of the proposed development at 192-208 Evans Street.

- **Scenario 1:** Post-development condition with raised ground (section 2.2) and a standard (permeable) fence along the western and southern boundaries.
- **Scenario 2:** Post-development condition with raised ground and a non-permeable acoustic fence along the western and southern boundaries (section 2.2).

The predicted flood depths and levels for Scenario 1 and Scenario 2 at the 192-208 Evans Street property, along with the predicted flood depths at adjacent areas are compared with the existing flood depths and levels for the 0.5% (200-year ARI), 2% (50-year ARI), and 10% AEP (10-year ARI) events.

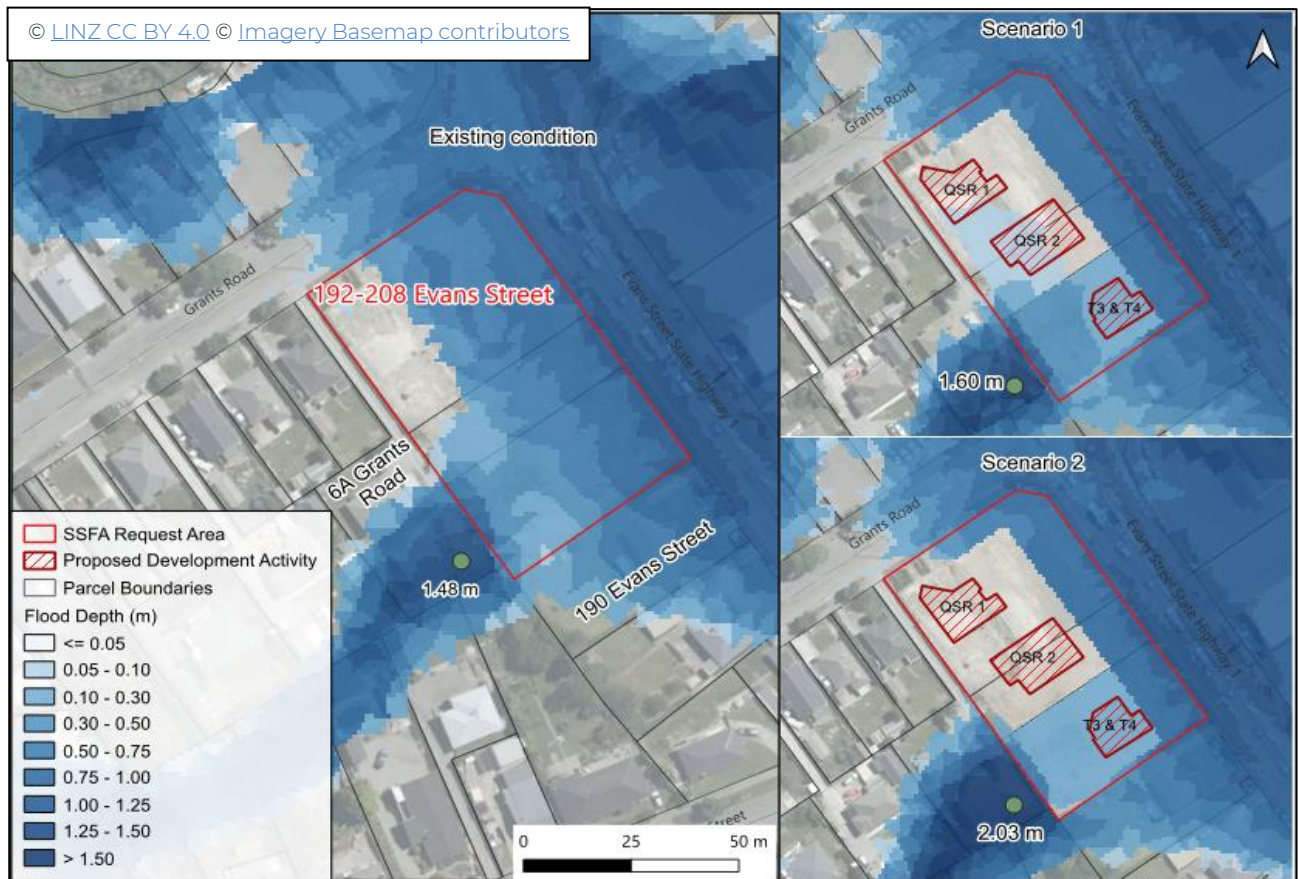


Figure 2-7: Modelled water depths [m] during the 0.5% AEP rainfall event (includes an allowance for climate change), comparing *existing condition* with *Scenario 1* and *Scenario 2*.

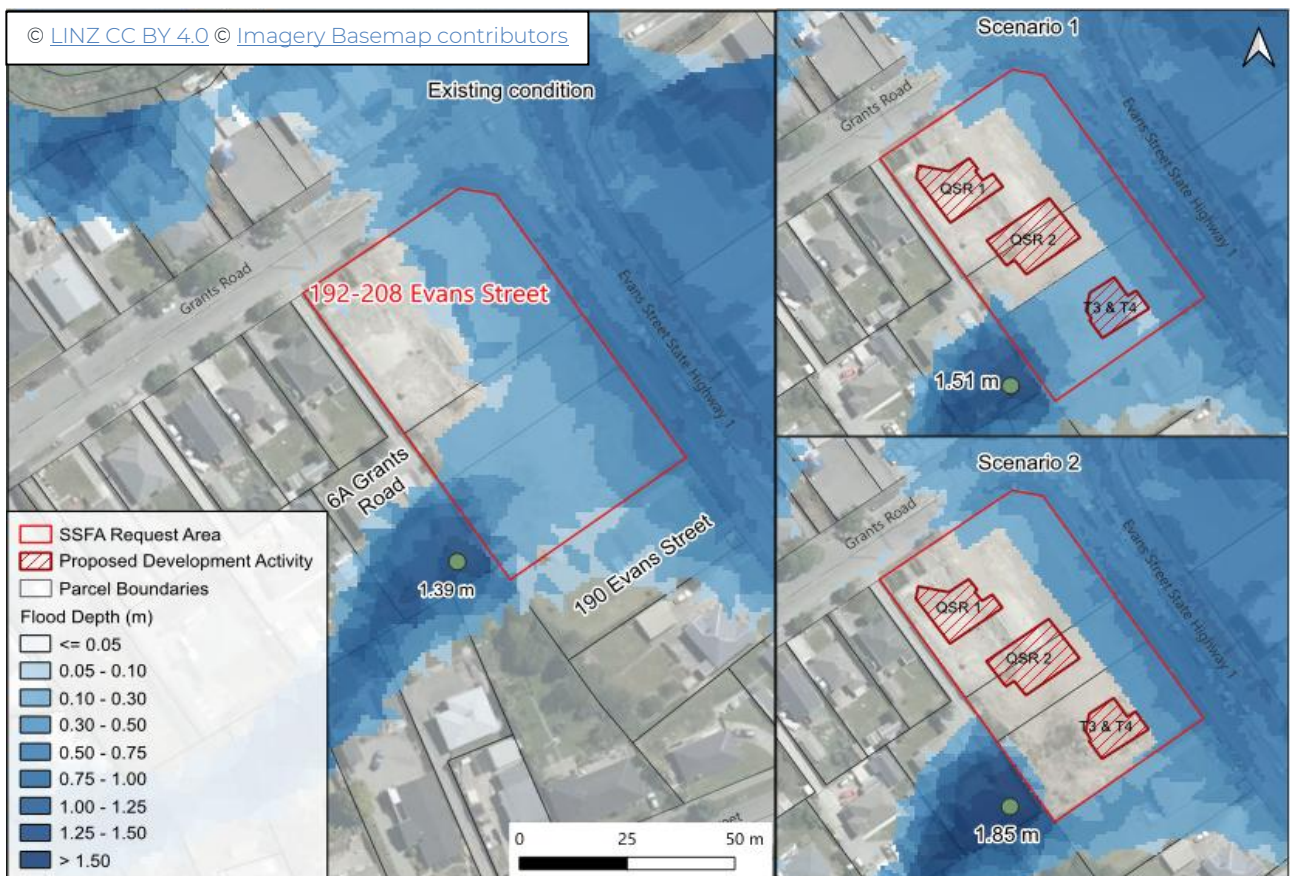


Figure 2-8: Modelled water depths [m] during the 2% AEP rainfall event (includes an allowance for climate change), comparing *existing condition* with *Scenario 1* and *Scenario 2*.

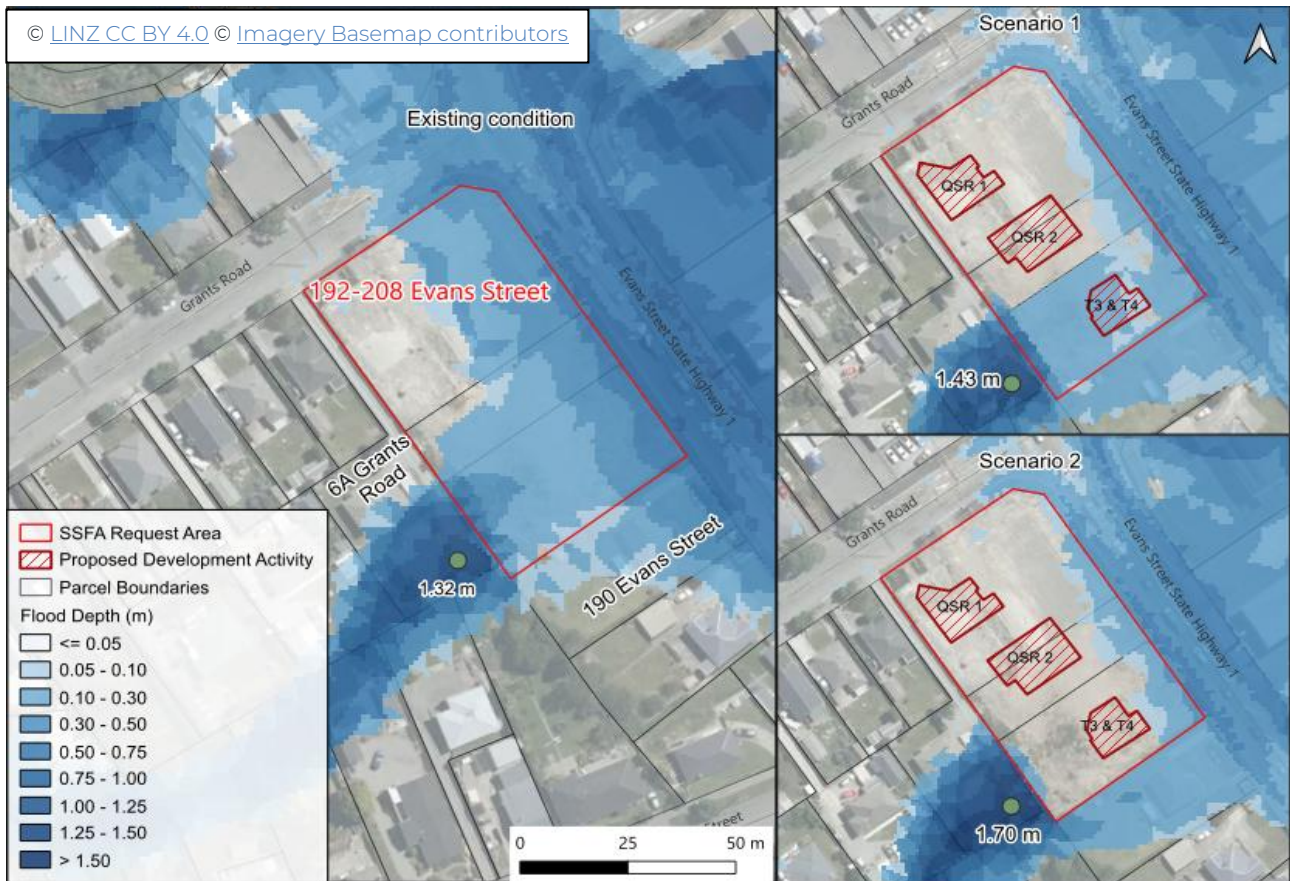


Figure 2-9: Modelled water depths [m] during the 2% AEP rainfall event (without climate change), comparing *existing condition* with *Scenario 1* and *Scenario 2*.



Figure 2-10: Modelled water depths [m] during the 10% AEP rainfall event (without climate change), comparing *existing condition* with *Scenario 1* and *Scenario 2*.

2.6 Modelled Flow Velocities [m/s]

Timaru District Council's flood modelling information shows that during a 0.5% annual exceedance probability (AEP) event (200-year average recurrence interval), the water flow velocity across the 192-208 Evans Street property reaches a maximum of 0.78 m/s under existing conditions (Figure 2-11).



Figure 2-11: Modelled flow velocities [m/s] during the 0.5% AEP rainfall event (includes an allowance for climate change). Existing site ground surface created from LINZ – Canterbury LiDAR 1m DEM (2020-2025).

The predicted water flow velocities for Scenario 1 and Scenario 2 at the 192-208 Evans Street property, along with the predicted water flow velocities at the 190 Evans Street property are compared with the existing water flow velocities for the 0.5% (200-year ARI) as shown in Figure 2-12.



Figure 2-12: Modelled flow velocities [m/s] during the 0.5% AEP rainfall event (includes an allowance for climate change).

2.7 Minimum Floor Level

The minimum floor level for the proposed development area within the 192-208 Evans Street site is 5.05 m AD (Lyttelton Vertical Datum 1937) or 4.71 m AD (NZVD2016). Minimum floor levels have been calculated as per the requirements in Section 1 and the water level information presented in Section 2.5. The proposed floor levels for the QSR 1, QSR 2 and T3 & T4 buildings do not meet this minimum floor level requirement.

2.8 Potential Flood Risk Impacts

The property at 192–208 Evans Street is located at the bottom of one of the main gullies draining to Te Ahi Tarakihi Creek, putting it within a significant overland flow path and subjecting it to considerable flood risk. The proposed building footprints for QSR2 and T3 & T4 intersect the modelled flood extent.

The proposed development (raised ground levels and impermeable acoustic fence) obstructs overland flow and results in a substantial increase in predicted flood levels at the upstream property (6A Grants Road) and diverts overland flow onto the neighbouring property at 190 Evans Street. More detail on these predicted impacts is included below, including a summary table of the predicted peak flood depths at 6A Grants Road for the three scenarios (Table 2-1).

Table 2-1: Summary of peak flood depths at 6A Grants Road for different return periods.

Scenario	0.5% AEP (200-year ARI) with climate change	2% AEP (50-year ARI) with climate change	2% AEP (50-year ARI) without climate change	10% AEP (10-year ARI) without climate change
Existing condition	1.48 m	1.39 m	1.32 m	1.18 m
Scenario 1	1.60 m	1.51 m	1.43 m	1.28 m
Scenario 2	2.03 m	1.85 m	1.70 m	1.41 m
Shown in	Figure 2-7	Figure 2-8	Figure 2-9	Figure 2-10

The impacts of the proposed development are summarised as follows:

- The proposed ground raising and building floor levels are adequate to protect against floor flooding for the development up to the 2% AEP event (with climate change), but only if an impermeable fence is installed to divert overland flow around the property.
- Without the impermeable fence, the two lower buildings are at risk of flood levels entering buildings during events as frequent as the 10% AEP.
- Raising ground levels obstructs overland flow and increases flood risk to the upstream property at 6A Grants Road, with flood depth increases varying from 100 mm (10% AEP event) to 120 mm (0.5% AEP event) (assuming a permeable boundary fence).
- The proposed acoustic fence (assumed to be impermeable) prevents overland flow from passing through the development site. With the fence and raised ground, the predicted 0.5% AEP event flood levels at the 6A Grants Road property are more than 500 mm higher than with a permeable fence and existing ground levels.
- Obstructing overland flow through the development site diverts flow onto the neighbouring property at 190 Evans Street and increases the flood risk there. In the 10% AEP event, no flooding is predicted under existing conditions at 190 Evans Street, but shallow overland flow is predicted with the proposed development. In the 2% AEP event (without climate change), little to no flooding is predicted under existing conditions.

Please note that the hydraulic model has not been validated at an individual site or property level. There may be inaccuracies due to factors such as the ground model not accounting for obstructions (ground terrain models typically exclude buildings/structures and do not accurately represent walls or fences). This means the impact of changes at an individual site scale may not be reliably represented.

3. Summary of Existing Property Flood Risks

Table 3-1 summarises the key information for the existing site condition drafted in this Site-Specific Flood Assessment.

Table 3-1: Summary of key flood risk information

Category	Information
In flood assessment area	Yes
In high hazard area	Yes
In overland flow path	Yes
Maximum modelled flood water depth [0.5% AEP]	0.94 m
Maximum modelled flood water level [0.5% AEP]	4.75 m AD
Maximum modelled flood flow velocity [0.5% AEP]	0.78 m/s
Property ground level from LiDAR	3.45 m to 5.95 m AD
Minimum floor level (calculated as per requirements in Section 1)	5.05 m AD

4. Disclaimer

- 1 This Site-Specific Flood Assessment is valid for 3 years.
- 2 A request for a Site-Specific Flood Assessment is a request for official information under section 10 of the Local Government Official Information and Meetings Act 1987 (LGOIMA). The protections under section 41 of LGOIMA apply to Timaru District Council's provision of information via Site-Specific Flood Assessments.
- 3 The information in this Site-Specific Flood Assessment has been prepared and provided in good faith relying on the best information available at the time this Site-Specific Flood Assessment was prepared.
- 4 Flood risk information for this property may change from time to time as a result of land use changes in the surrounding area, further investigations, or flood model updates.
- 5 Elevation levels are in Lyttelton Vertical Datum 1937 (LVD-37) unless otherwise stated.
- 6 Ground level data used in this Site-Specific Flood Assessment is derived from LINZ Canterbury 1 m LiDAR DEMs (2010, 2018–2019, 2020–2025), Timaru Urban 2020 LiDAR (NZAM, 2020), proposed surfaces at Harvey Norman and The Showgrounds, and manual refinements to the LiDAR. The Timaru Rain on Grid Model Report (WSP, August 2025) explains the combined ground model.
- 7 The flood information in this Site-Specific Flood Assessment has been generated by computer models that have had limited validation against historical storm events, but which rely upon the assumptions and limitations set out in various technical reports that can be provided to the entity requesting this Site-Specific Flood Assessment, on request.
- 8 The maps predict the maximum flood water depth, flood water elevation and flood water flow velocities under the conditions modelled. The modelled maximums must be considered to be indicative and not an absolute limit.

- 9 Overland flow paths are dictated by the topography of an area and do not correlate to a specific probability of a flood occurring. Note that the overland flow path mapping was based on the ground level data available at the time of mapping (2020) at a catchment-wide scale. The mapped overland flow paths have not been validated at an individual site or property level. There may be inaccuracies due to factors such as the ground model not accounting for obstructions (as ground terrain models typically exclude buildings/structures and do not accurately represent walls or fences), and the exclusion of some underground assets (e.g. culverts) from the overland flow path analysis.
- 10 Site-Specific Flood Assessment requestors are strongly advised to consult a suitably qualified professional to interpret and verify the accuracy of the information in this Site-Specific Flood Assessment and to ensure its fitness for any purpose.
- 11 Timaru District Council disclaims any warranty as to the accuracy or completeness of the information used during the preparation of this Site-Specific Flood Assessment, and also the accuracy and completeness of information provided in this Site-Specific Flood Assessment, or its fitness for any purpose.
- 12 Timaru District Council shall not be liable for any error, omission, or inaccuracy of the information in this Site-Specific Flood Assessment, or for any use of, or reliance on, the information provided in the Site-Specific Flood Assessment.
- 13 Timaru District Council reserves the right to update the information used in preparing this Site-Specific Flood Assessment on a regular or ad-hoc basis.
- 14 Use of the information in this Site-Specific Flood Assessment shall be permitted only for the purposes of applying for Timaru District Council consents and no other purpose. Copying, altering, amending, or republishing any of the information in the Site-Specific Flood Assessment shall not be permitted without prior consent from Timaru District Council.
- 15 Any feedback, comment on, and clarification in relation to this Site-Specific Flood Assessment can be made via stormwater@timdc.govt.nz.