SECOND GENERATION DISTRICT PLAN

Proposal to change the activity status of natural hazards sensitive activities in the North Taieri (Gordon Road) Floodway

Section 32 Report

March 2023

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1 INTRODUCTION

1. This report provides a summary of the evaluation undertaken by Dunedin City Council (DCC) of proposed changes to the hazard overlay zone and the activity status of natural hazards sensitive activities in the Gordon Road Floodway, in relation to an appeal by the Otago Regional Council (ORC) on the Second Generation Dunedin City District Plan (2GP). This assessment is required by Section 32AA of the Resource Management Act 1991 (RMA).
2. The proposal being assessed is to apply a Hazards 1A (flood) Overlay Zone to some or all of the Gordon Road Floodway, consistent with the ORC's appeal. Those wishing to make submissions on the change proposal should restrict their submission to this topic. Matters that are considered to be outside of the scope of the appeal by ORC will not be considered further.
3. This report is structured as follows:

    - Background: The 2GP framework for managing natural hazards such as flooding, background to the Lower Taieri Flood Protection Scheme, ORC's submission and appeal on the activity status of sensitive activities in the Gordon Road Floodway.
    - Key resource management issues: Recent modelling of the flood risk in the Gordon Road Floodway
    - Proposed change: Outline of the proposed change to a Hazard 1A (Flood) Overlay Zone and implications for new natural hazards sensitive activities.
    - Evaluation of proposed changes: Evaluation against key objectives and policies of the 2GP
    - Statutory considerations: Evaluation against other relevant planning documents
    - Summary of background documents and research

1.1 Background

1.1.1 Management of natural hazards in the 2GP

4. Dunedin is vulnerable to a range of natural hazards including flooding from rivers, resulting from extreme weather events. Under the RMA, the DCC is responsible for managing land-use to avoid or mitigate the actual or potential effects of natural hazards and is also required to consider the effects of climate change.
5. The 2GP sets up a framework for managing activities based on their sensitivity to hazards, with consideration of the likelihood and consequences of natural hazards and identification of areas that are at risk from different natural hazards. Section 11 of the 2GP outlines the approach taken and identifies how risk has been classified. Risk is defined in the 2GP as meaning the likelihood of a natural hazard event occurring, in combination with the potential adverse consequences of that event.

6. Dunedin's hazard prone areas are managed through eight overlay zones and two mapped areas (swales and dune systems). Three of the overlay zones relate to flooding, with Hazard 1A and Hazard 1 (flood) overlay zones indicating that an area is considered high risk. A Hazard 2 (flood) overlay zone is considered a moderate risk and has less restrictive rules associated with it. A Hazard 3 (flood) overlay zone is considered low risk and only affects earthworks thresholds. Swale mapped areas form part of the natural drainage system on the Taieri Plain and act to convey floodwater away from development. There are restrictions on buildings and structures within a swale mapped area. Section 11.1 of the 2GP contains further explanation of how hazards are assessed.
7. Natural hazards sensitive activities and natural hazards potentially sensitive activities are managed through rules that apply in flood hazard overlay zones. A 'natural hazards sensitive activity' is defined in the 2GP as a land use activity:
    - …where people are regularly present and often in a vulnerable state because they sleep there, require medical treatment, or require extra assistance to evacuate; and/or
    - which may create a significant public health issue if damaged as a result of a natural hazard event.
8. Natural hazards sensitive activities include residential activities, hospitals, schools, landfills and cemeteries.
9. Natural hazards potentially sensitive activities are activities:
    - where people are regularly present and buildings are routinely required to carry out the activity but people are not usually in a vulnerable state; and
    - which are unlikely to create a significant public health issue in a natural hazard event
10. These include various commercial, industrial, community and leisure and major facilities activities, such as the airport and campus.
11. In the Hazard 1A (flood) Overlay Zone, natural hazards sensitive activities are prohibited. In the Hazard 1 (flood) Overlay zone, these activities are non-complying.
12. The Gordon Road Floodway is currently subject to a Hazard 1 (flood) Overlay Zone.

1.1.2 Lower Taieri Flood Protection Scheme

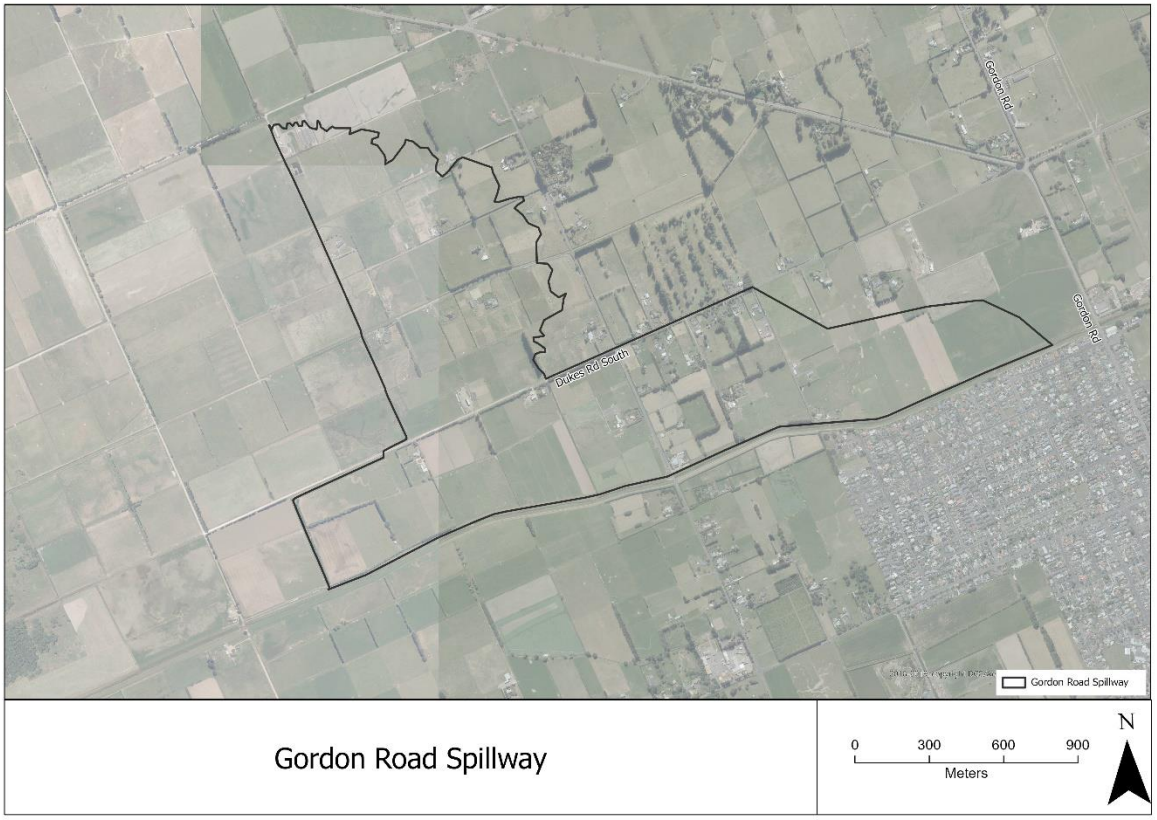

Figure 1: Gordon Road Floodway

13. The Gordon Road Floodway (floodway) (Figure 1) is part of the Lower Taieri Flood Protection Scheme, which includes channels, floodbanks, ponding areas, and spillways. The scheme is designed to mitigate flood risk from the Silver Stream for the Mosgiel urban area by allowing spilling into the floodway area over the Gordon Road Spillway (spillway), which is a lowered section of the true right Silver Stream floodbank. The spillway and floodway are important components of the flood protection scheme. The Lower Taieri Flood Protection Scheme and the operation of the Gordon Road Floodway are described in more detail in the affidavit of Dr Jean-Luc Payan to the Environment Court detailed at the end of this report.

14. The Gordon Road Floodway is a flat area with a slight gradient from the north-east to the south-west, with the Silver Stream running along its southern boundary. As shown in Figure 2, at the western boundary there is a cut-off stop bank which is the boundary of the East Taieri Upper Pond, an area designed to fill when the Taieri River overflows. The floodway boundary to the north and east have been calculated using modelling and observed flood events to predict the likely extent of flood waters.

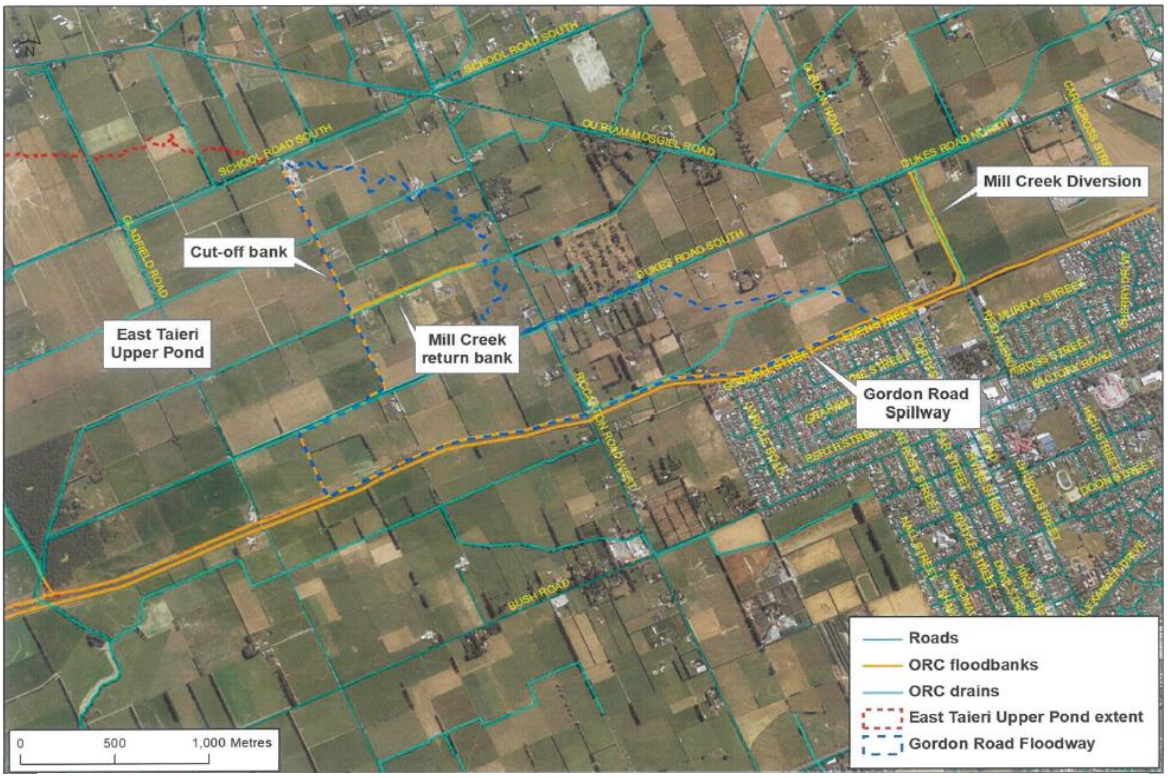

Figure 2: Lower Taieri Flood Protection Scheme and the East Taieri Drainage Scheme in the vicinity of the Gordon Road Floodway

15. Properties in the floodway flood when the spillway operates if there are prolonged heavy rain events or if the East Taieri Upper Pond and M4 drain[1] are at capacity. There are culverts in the cut-off bank through to the East Taieri Upper Pond that close once a certain level of water is reached in the East Taieri Upper Pond. Floodwaters from the Silver Stream then pond in the floodway, behind the cut-off bank.

1.1.3 ORC designation and Flood Protection Management Bylaw

16. The floodway is within the designation for the Otago Regional Council – Lower Taieri Flood Protection Scheme (D217) in the 2GP.

17. The designation is described in the 2GP (Appendix A1.4.18) as:

> Lower Taieri Flood Protection Scheme - includes all works, structures, facilities, devices and appliances associated with the scheme and all activities relating to the scheme including construction, operation, maintenance, repair, reconstruction, extension modification and replacement.

[1] The M4 drain is part of the ORC's scheduled drainage network. It feeds into the Silver Stream in the eastern part of the Gordon Road Floodway. See the affidavit of Michelle Mifflin for further details 06.-ENV-2018-CHC-290-Affidavit-of-M-Mifflin-sworn.pdf (dunedin.govt.nz).

18. The designation enables the ORC to undertake the work outlined above. It also requires a person to obtain the written consent of ORC prior to undertake any activity that would prevent or hinder work to which the designation relates.

19. Some properties within the floodway are also subject to the ORC Flood Protection Management Bylaw[2]. Part of 257 Gordon Road, 101 Dukes Road and 115 Dukes Road are subject to the 'Floodways' requirements in section 3.3 of the bylaw. A number of activities require approval from the ORC in these areas, including the construction of any structure, planting of trees and shrubs, earthworks or any other obstruction.

20. Parts of 255 Riccarton Road East, 209 Dukes Rd South and 269 Dukes Rd South are subject to the 'Defences against water and Excavation sensitive areas' requirements in section 3.2 of the bylaw. Approval is required for various activities on or adjacent to a defence against water, and for earthworks involving excavation within an excavation sensitive area.

21. There are also a number of scheduled drains and overland flood paths in the floodway that require approval for activities on or adjacent to them (see section 3.1 of the bylaw).

1.1.4 Existing land use in the Floodway

22. The floodway includes approximately 327 ha of privately owned land. There are 41 existing sites (properties) within the spillway area, of which 34 have residential activity established on them. Of the seven properties without established residential activity, two extend outside the floodway into areas subject to a Hazard 2 (flood) overlay, which is a less restrictive overlay than Hazard 1. All the remaining properties are below the minimum site size for residential activity within the underlying rural zone (25 ha)[3]. Residential activity on 'undersized sites' is a non-complying activity, with policies in the 2GP that strongly discourage granting consent except in very narrow circumstances.

23. The land is predominantly used for farming, with some rural residential type activity. There are approximately 100 buildings, including houses, farm buildings and sheds within the floodway. The area is zoned Rural Taieri Plains.

24. Figure 3 shows existing property boundaries and the location of existing buildings within the floodway; red shapes being residential buildings and pink shapes non-residential buildings.

[2] https://www.orc.govt.nz/media/13363/flood-protection-mgmt-bylaw-n2022.pdf
[3] Rule 16.5.2.1.g

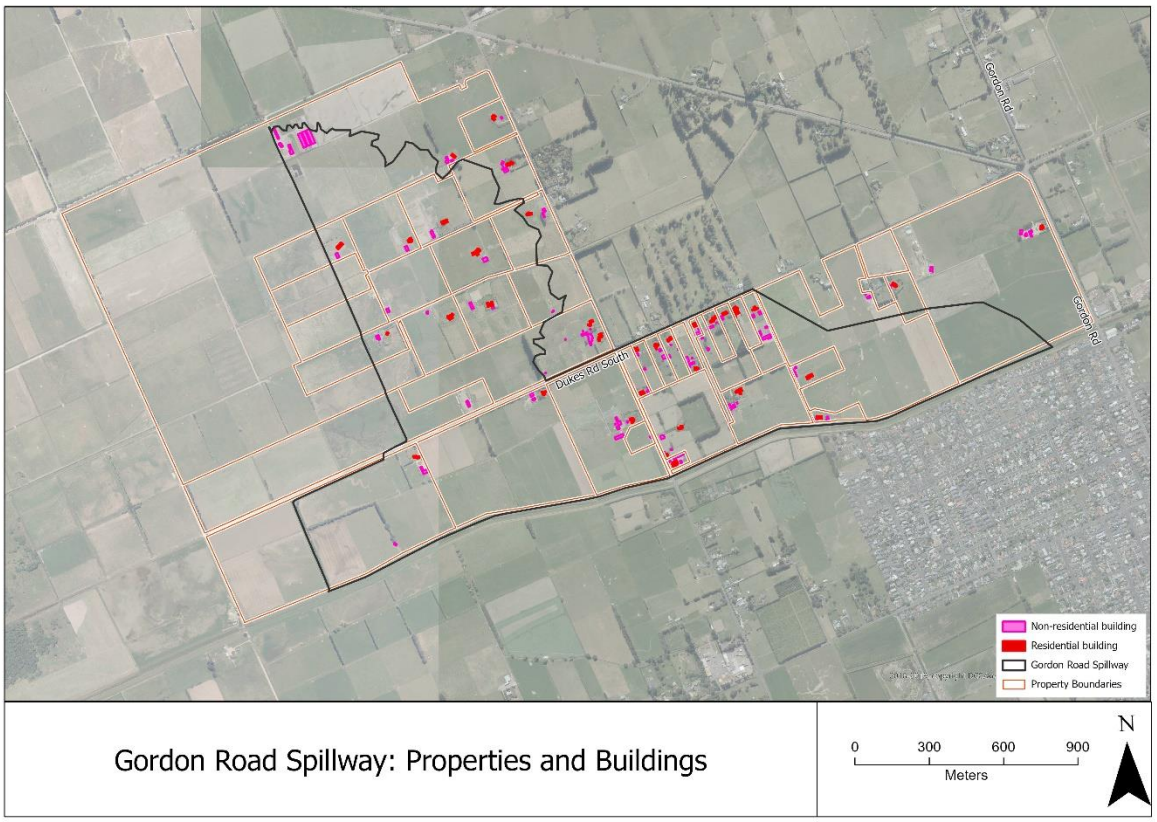

Figure 3: Location of buildings and property boundaries within the Gordon Road Floodway

1.1.5 ORC submission on the activity status of sensitive activities in areas of high risk

25. Under the notified 2GP, the activity status of natural hazards sensitive activities within areas assessed as being of high risk (identified through a Hazard 1 (flood) Overlay Zone) was non-complying.

26. Resource consent is required to undertake a non-complying activity, and they may be granted or declined on a case by case basis. The RMA restricts the ability of a consent authority to grant consent to situations where the effects are no more than minor, or the activity is not contrary to the objectives and policies of the District Plan. However, even if an application meets one of these tests, consent can still be declined. If the consent is granted, conditions can be imposed on any matters that the DCC considers necessary to address effects on the environment.

27. Otago Regional Council submitted on the 2GP seeking that 'sensitive activities'[4] be prohibited in part of the Hazard 1 (Flood) Overlay Zone. The Gordon Road Floodway was included in this request. A prohibited activity status means that no resource consent applications for the activity may be applied for and none may be granted.

28. The 2GP Natural Hazards Hearing Panel directed the ORC and DCC to undertake expert witness conferencing to discuss the activity status for particular areas of the Hazard 1

[4] Later renamed 'natural hazards sensitive activities'

(Flood) Overlay Zone. The Panel accepted the amendments recommended in the Expert Witness Conference Statement and in its decision[5] introduced a new Hazard 1A (Flood) Overlay Zone for four of the areas submitted on, including the East Taieri Upper Pond to the west of the floodway. In these areas, natural hazards sensitive activities are prohibited activities. However, no agreement was reached between experts on the activity status for the Gordon Road Floodway area, and the Hearing Panel's decision retained the Hazard 1 (flood) Overlay Zone over the Gordon Road Floodway area.

1.1.6 ORC's appeal

29. The ORC appealed the decision in relation to the hazard overlay zone for the Gordon Road Floodway, requesting that natural hazard sensitive activities within the floodway be prohibited.

30. Prohibited activity status could be achieved by applying the Hazard 1A (flood) Overlay Zone to the area.

2 KEY RESOURCE MANAGEMENT ISSUE

31. The key issue that the change sought through the appeal addresses is the risk to new or expanded natural hazard sensitive activities establishing in the floodway.

2.1.1 History of flooding and flood risk in the area

32. The Gordon Road Spillway has operated several times since 2006. With climate change being predicted to increase the frequency and severity of rainfall events, it will in turn increase the likelihood of the spillway operating and water entering the floodway[6]. A significant flood occurred in 2017, estimated to be a 30 to 40 year flood event[7] (2.5% AEP), which caused flooding to properties in the area. Some properties were reported to have water in excess of 1.5m deep through their dwellings[8].

33. Spilled water within the floodway tends to spread out over a wide area. Recent hydraulic modelling undertaken for ORC[9], indicates that in a 1% Annual Exceedance Probability (AEP) event (an event that has a 1% chance of occurring in any year) [10] the depth of floodwater within the floodway is expected to range between less than 0.5m to over 3m, and the velocity is expected to range between 0.5 and 1m/s. These depths and velocities exceed those modelled (and observed) during the 2017 flood. These depths and velocities pose a hazard to people, stock, vehicles buildings and roads. Flows in the Silver Stream can rise quickly, leaving a limited ability for residents and

[5] Natural Hazards Decision of Hearings Panel Proposed Second Generation Dunedin City District Plan. 7 November 2018
[6] Affidavit of Dr Jean-Luc Payan to the Environment Court 05.-ENV-2018-CHC-290-Affidavit-of-Dr-J-L-Payan-sworn.pdf (dunedin.govt.nz)
[7] Affidavit of Michelle Mifflin 06.-ENV-2018-CHC-290-Affidavit-of-M-Mifflin-sworn.pdf (dunedin.govt.nz)
[8] Affidavit of Matthew Alley, Manager for Emergency Management Otago 07.-ENV-2018-CHC-290-Affidavit-of-M-Alley-sworn.pdf (dunedin.govt.nz)
[9] Bloxam, Burnett & Oliver, 2022
[10] The 1% AEP event is commonly used when assessing flood hazard. It is also consistent with the general level of protection provided by the Lower Taieri Flood Protection in the area (excluding the Gordon Road floodway)

emergency services to plan a response once the spillway is operative. Early flood preparation is usually required for residents in the floodway, well before flows reach the threshold for the spillway to operate. Precautionary evacuation is also usually considered by emergency services in response to a heavy rainfall event[11].

34. This modelling has been used to generate a flood hazard categories map for the 1% AEP event, categorising the floodway and surrounding area into hazard vulnerability categories, from H1 to H6. These are described as follows:

H1	Generally safe for vehicles, people and buildings
H2	Unsafe for small vehicles
H3	Unsafe for vehicles, children and the elderly
H4	Unsafe for vehicles and people
H5	Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust buildings subject to failure
H6	Unsafe for vehicles and people. All building types considered vulnerable to failure

35. The hazard categories are shown in Figure 2 as the blue, green and yellow areas.

36. As shown in Figure 4, in a 1% AEP event, significant parts of the floodway will have water depths and velocities that are unsafe for vehicles, children and the elderly (H3 or greater), with parts unsafe for people and which may cause structural damage to buildings (H4 and H5). Parts of the floodway (to the east) are assessed as being generally safe for people (H1) in a 1% AEP event. It is also noted that the depth, velocity and extent of flooding locally can be influenced by local features such as embankments, fences, shelterbelts and buildings, which can impede or divert flows.

[11] Affidavit of Dr Jean-Luc Payan to the Environment Court 05.-ENV-2018-CHC-290-Affidavit-of-Dr-J-L-Payan-sworn.pdf (dunedin.govt.nz)

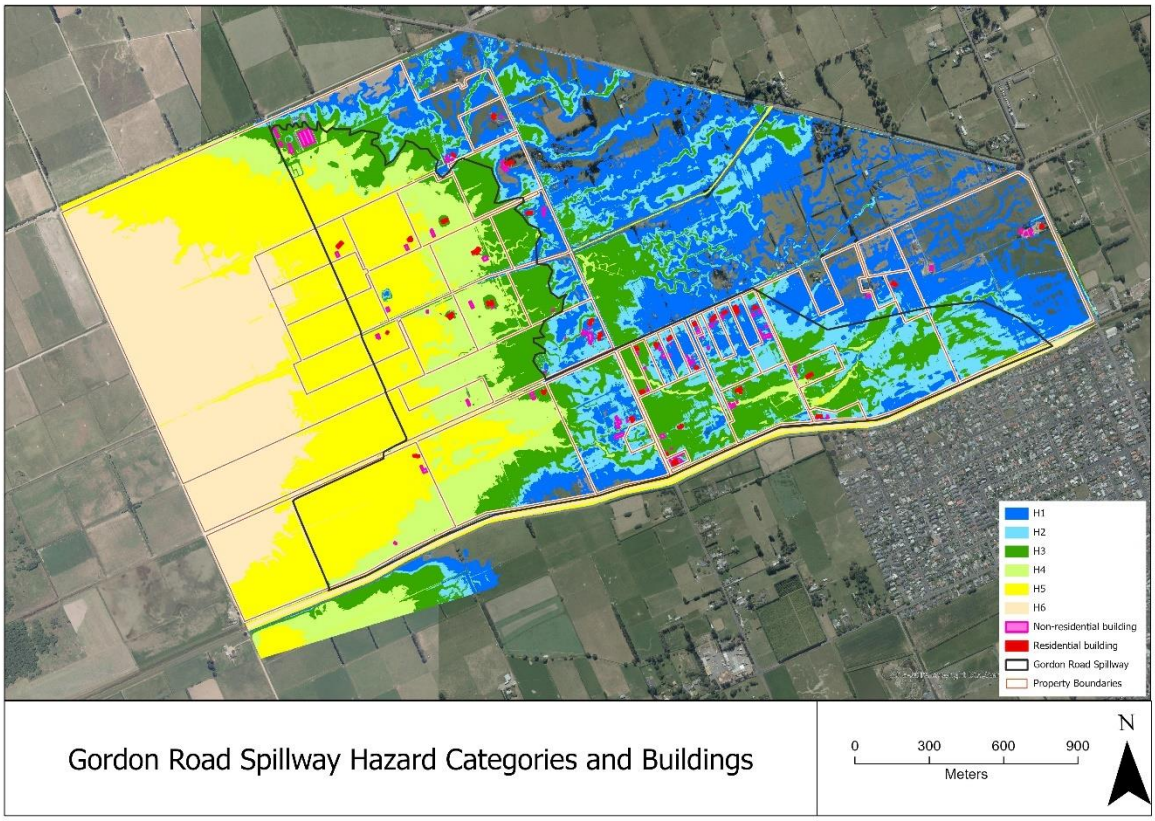

Figure 4: Gordon Road Floodway showing flood hazard categories H1 – H5, and location of buildings

37. It is noted that the scenarios modelled used present day climate data. That is, no provision has been made for the effects on climate change on rainfall. The peer review of the modelling[12] recommended that in terms of hazard planning, the effects of climate change on 100 year flows should be considered. DCC understands that this means that what is considered to be a 1% AEP using the current rainfall and flow dataset may become a more frequent event in future, if climate change results in an increase in rainfall intensity or duration. In the future, a 1% AEP event may generate higher flows and increased overland flows than suggested by the current modelling. However, this may not result in significantly larger volumes spilling over the spillway due to the capacity of the Silver Stream channel upstream.

3 PROPOSED CHANGE

38. The ORC appeal seeks that that natural hazard sensitive activities are prohibited in the Gordon Road Floodway.

39. The position of both ORC and DCC is that the Hazard 1A (flood) Overlay Zone should apply to some or all of the area, replacing the existing Hazard 1 (flood) Overlay Zone.

[12] Tonkin + Taylor 2022. North Taieri flood hazard: Silver Stream modelling review

40. Applying a Hazard 1A Overlay Zone would mean that natural hazard sensitive activities such as new residential activities would be prohibited. Natural hazards potentially sensitive activities would continue to be non-complying.

3.1.1 Effect of the proposed change on landowners and residents in the floodway

41. The key effect on landowners and residents is that natural hazard sensitive activities would be prohibited rather than non-complying. This means that resource consent to undertake a new or expanded natural hazard sensitive activity cannot be applied for or granted. Prohibited activities would include residential activities.

42. Existing residential activities are able to continue as 'existing use rights' under Section 10 of the RMA. Section 10 of the RMA allows land to be used in a way that contravenes a rule in a district plan if the land use was lawfully established before the rule became operative or the proposed plan was notified, the effects of the land use are the same or similar in character, intensity and scale to those which existed before the rule became operative or the proposed plan was notified, the land use that contravenes the rule has not been discontinued for a continuous period of more than 12 months after the rule because operative or the proposed plan was notified, and there is no extension or alteration of a building which increases the degree to which the building fails to comply with a plan rule.

43. In practice, this means that a lawfully established residential activity (that is, living in an existing house) can continue. However, if any changes are proposed to the house, an assessment of whether existing use rights can be relied upon (or if the activity is prohibited) would be required. A minor change to a residential building that does not increase the 'scale and intensity' of the residential use or increase the degree of non-compliance with any performance standards in the plan (for example, height or setback restrictions), would be likely to be able to rely on existing use rights. However, a decision would need to be made on a case by case basis.

44. The rules relating to new or extended buildings that are not used for residential use (or for other natural hazards sensitive activities), such as sheds or farm buildings, would not change. These are permitted activities (subject to meeting performance standards such as a height limit) if they create no more than 60m^2 of floor area within a two calendar-year period. If they exceed this limit, they are a restricted discretionary activity and resource consent is required[13].

45. Farming would continue to be a permitted activity (subject to meeting any performance standards) as is not classified as a natural hazards sensitive or potentially sensitive activity under the 2GP.

[13] See Rule 16.3.6

4 EVALUATION OF OPTIONS

46. Section 32(1)(b) requires that a proposed change (in this case a change sought through an appeal) is assessed to determine whether it is the most appropriate way to achieve the objectives of the plan.

47. There are three alternative options.

    - Option 1 is to include the entire floodway area (see Figure 1) in the Hazard 1A overlay (ORC's appeal position)
    - Option 2 is to include some of the floodway area within the Hazard 1A overlay
    - Option 3 is the status quo, all the floodway remains in the Hazard 1 overlay

4.1 Relevant 2GP objectives and policies

48. The 2GP strategic objective most relevant to the management of natural hazards sensitive activities in the Gordon Road Floodway is Objective 2.2.1. This is implemented by a number of policies, the most relevant being policies 2.2.1.3 and 2.2.1.6. These are set out below:

    Objective 2.2.1

    The risk to people, communities, and property from natural hazards, and from the potential effects of climate change on natural hazards, is no more than low.

    Policy 2.2.1.3

    Identify areas with risk from terrestrial flooding and include these as follows:

    a. in the Hazard 1A (flood) Overlay Zone, include areas that are part of a flood protection scheme which have a crucial role in the conveyance or storage of floodwater where there may be a high risk to people and property and of transference or exacerbation of risk elsewhere;

    b. in the Hazard 1 (flood) Overlay Zone, include areas that have a crucial role in the conveyance or storage of floodwater where there may be a high risk to people and property and of transference or exacerbation of risk elsewhere, but where prohibited activity status is not seen as appropriate;

    c…

    Policy 2.2.1.6

    Manage the risk posed by natural hazards, so that it is no more than low, including through rules that:

    a. change the activity status of activities based on the sensitivity of the activity and the level of risk associated with an identified hazard overlay zone;
    b. use performance standards on permitted and restricted discretionary activities, wherever appropriate;
    c. provide for natural hazard mitigation activities where appropriate; and

d. manage subdivision in a way that considers future land use and development.

49. The key difference between the existing Hazard 1 (flood) overlay zone and the proposed Hazard 1A (flood) overlay zone is that the Hazard 1 overlay should be applied where the Hazard 1A overlay is 'not seen as appropriate'.

50. No specific guidance is given in the 2GP as to what is 'appropriate, but it can be interpreted to mean 'appropriate' in terms of the objectives of the plan, based on the general use of this term in section 32(1)(b) of the RMA.

51. The Natural Hazards section of the 2GP also contains a relevant objective and policies:

Objective 11.2.1

Land use and development is located and designed in a way that ensures that the risk from natural hazards, and from the potential effects of climate change on natural hazards, is no more than low, in the short to long term.

52. This objective is implemented through policies 11.2.1.1-11.2.1.15, with policies 11.2.1.1 and 11.2.1.2 being of most relevance to this proposal:

Policy 11.2.1.1

In the Hazard 1 (flood) Overlay Zone, avoid natural hazards sensitive activities and natural hazards potentially sensitive activities unless:

a. the risk from natural hazards is avoided, or is no more than low; and

b. the activity has a critical operational need to locate within the Hazard 1 (flood) Overlay Zone and locating outside it is not practicable.

Policy 11.2.1.2

In the Hazard 1A (flood) Overlay Zone, avoid natural hazards sensitive activities.

53. Policy 11.2.1.1 sets up a non-complying activity status for natural hazards sensitive activities and natural hazards potentially sensitive activities in the Hazard 1 (flood) Overlay Zone, while Policy 11.2.1.2 sets up a prohibited activity status in the Hazard 1A (flood) Overlay Zone.

54. Policy 11.2.1.1 indicates that consent should not granted unless either the risk of natural hazards is avoided or is no more than low, or an activity has a critical 'operational need' to locate within the Hazard 2 (flood) overlay. Operational need is defined in the 2GP as 'The need for a proposal or activity to traverse, locate or operate in a particular environment because of technical, logistical or operational characteristics or constraints'.

4.2 Assessment

55. On the basis of current modelling, significant areas of the floodway pose a high risk to people (H3 and above). In these areas, allowing additional hazards sensitive activities would increase the number of people vulnerable to flooding events; the potential

extent of any civil defence evacuation or rescue operation; and risk of damage to associated buildings, structures and infrastructure.

56. Areas identified as H1 and H2 have a lower hazard threat, with no identified risk to people (although small vehicles are at risk in H2 areas). However, land uses in these areas may potentially become isolated, if access routes are subject to flooding.

57. Section 32(2) requires an assessment of the costs and benefits of the effects anticipated from the proposal. The potential costs to landowners and occupiers of inclusion of some or all of the area within the Hazard 1A overlay include:

- A need to rely on existing use rights for residential activity, which will impact on future expansion of dwellings and may be affected by any land use or development activities that breach plan rules or relies on any an existing resource consent that would need to be replaced. This will limit the future use of the properties. Whether existing use rights can be relied upon when further development is proposed needs to be determined on a case by case basis, reducing certainty for landowners in the area as to what can and can't be undertaken.

- Inability to erect a dwelling on the seven unoccupied sites. It is noted that two of these sites[14] extend beyond the floodway into areas that are within a Hazard 2 (flood) overlay zone. Residential activity in these areas is restricted discretionary activity if the performance standard for density is met, so if a new residential activity (dwelling) is planned there may be an opportunity to locate it outside the floodway. All the remaining properties (and one of the above properties) are below the minimum site size for residential activity with the underlying rural zone. As discussed in section 1.1.4, residential activity on these sites is a non-complying activity due to breaching the density rule. Gaining resource consent would be challenging, even setting aside the implications of the hazard overlay.

  Given this, the impact on the ability to construct new dwellings in the future is considered to be low.

- Potential impact on property values. The extent of any reduction in property values that might result from the change is unknown. While the flood risk will not change in practice (and is presumably already accounted for in property values), the prohibited status for new or expanded residential activity may reduce the value of properties within the Hazard 1A overlay.

58. Benefits include:

- Within the Hazard 1A overlay, there is certainty that the level of residential use, and therefore people (and associated buildings, vehicles and infrastructure) at risk, will not increase. While the non-complying activity status under the Hazard 1 overlay represents a high bar for applications to

[14] 101 Dukes Road South and 323 Riccarton Road West

meet, there is still a pathway for consents to be granted in certain circumstances. For example, while it might be possible to make a case to a Hearing Panel that elevating a building above floodwater level meets the policy test of 'the risk from natural hazards is no more than low'; in a flood event, the presence of additional people in the area will require additional consideration by civil defence and emergency services to warn occupants and confirm they are safe, the risk that people are caught outside the house in rising floodwaters increases, and there will be additional buildings, structures and infrastructure which may suffer damage during an event. Prohibiting new residential activities removes this risk.

59. Other considerations include:

    - Impact on insurance premiums. Information known to DCC in relation to natural hazards is required be included in Land Information Memorandums[15]. This information will therefore be available to insurance companies should they wish to seek it, regardless of whether the hazard overlay changes for the area. However, there may be additional impacts on insurance that are not yet understood.
    - Consistency with other Hazard 1A areas. Hydraulic modelling is available that characterises the depth and velocity of flood waters, but no hazard classification has been undertaken for other Hazard 1A areas to date.

60. Considering these benefits and costs, Option 3 is not considered to be appropriate and would not give effect to the 2GP objectives, due to the risk to people and property, particularly in the higher flood category areas. However, no conclusion is made in relation to the relative preference between options 1 and 2. This will be done once feedback has been received from landowners and occupiers. Relevant matters to consider in terms of whether any area should be excluded from the Hazard 1A overlay include flood risk and access during times of flooding. Even if the flood risk in any area is assessed as low, the ability for occupants and emergency staff to leave and access the area must also be considered.

61. In summary, rezoning some or all of the land to Hazard 1A overlay zone is the most efficient and effective way of achieving objectives 2.2.1 and 11.2.1 because it would restrict further establishment of sensitive activities on land that is at particularly high risk of flooding, thereby reducing the economic and social costs of natural hazards.

62. The primary cost of applying a Hazard 1A overlay is the need to rely on existing use rights for residential activity, with the associated uncertainty as to whether development can be undertaken.

4.3 Risk of acting or not acting

63. Section 32(4)(b) requires an evaluation of the risk of acting or not acting if there is uncertain or insufficient information. The information on which the options are

[15] Local Government Official Information and Meetings Act 1987, section 44A

assessed is modelling information, undertaken using best practice techniques. The modelling has been peer reviewed and found to be appropriate. While modelling can only give a prediction of future effects, this does not make it uncertain. The modelling undertaken can be relied on to inform the assessment of options.

64. However, the modelling does not account for any future increases in rainfall, and therefore river flows, due to climate change. This introduces a degree of uncertainty that effects may exceed those predicted in a 1% AEP event. The magnitude of any change in effects is not known. Given this, it is appropriate to take a precautionary approach.

4.4 Statutory Considerations

4.4.1 Resource Management Act 1991

65. Under section 74(1) of the RMA, district plans must be prepared in accordance with the provisions of Part 2. The purpose of the RMA, as stated in Section 5, is the sustainable management of natural and physical resources to meet the reasonably foreseeable needs of future generations, which enables people and communities to provide for their social, economic, and cultural wellbeing while safeguarding the environment.

66. Section 6 of the RMA sets out matters of national importance including 'the management of significant risks from natural hazards' (s6(h)).

67. Section 7 of the RMA lists matters to which local authorities should have particular regard, including the effects of climate change.

68. Section 31(1)(b)(i) states that territorial authorities have the function of the control of any actual or potential effects of the use, development, or protection of land for the purpose of the avoidance or mitigation of natural hazards.

69. Regional councils have a similar function under Section 30(1)(c)(iv), and to address this overlap, the Regional Policy Statement (RPS) is required to specify the respective roles of regional councils and territorial authorities for the control of the use of land, with regard to natural hazards or particular natural hazards (section 62(1)(i)).

70. Accordingly, subject to the division of responsibility specified in the RPS, DCC must control land use to avoid or mitigate natural hazards.

4.4.2 Regional Policy Statements

71. A district plan must give effect to a regional policy statement; and when preparing or changing a district plan, regard must be had to any proposed regional policy statement. There are two relevant regional policy statements for the Otago region.

Partially operative Otago Regional Policy Statement

72. **Objective 4.1** of the partially operative Otago Regional Policy Statement is:

> Risks that natural hazards pose to Otago's communities are minimised.

73. This is supported by several policies. Of relevance to the change proposal are:

Policy 4.1.5 Natural hazard risk

Manage natural hazard risk to people, property and communities, with particular regard to all of the following:

a) The risk posed, considering the likelihood and consequences of natural hazard events;

b) The implications of residual risk;

c) The community's tolerance of that risk, now and in the future, including the community's ability and willingness to prepare for and adapt to that risk, and respond to an event;

d) Sensitivity of activities to risk;

e) The need to encourage system resilience;

f) The social costs of recovery

Policy 4.1.6 Minimising increase in natural hazard risk

Minimise natural hazard risk to people, communities, property and other aspects of the environment by:

a) Avoiding activities that result in significant risk from natural hazard;

b) Enabling activities that result in no or low residual risk from natural hazard;

c) Avoiding activities that increase risk in areas potentially affected by coastal hazards over at least the next 100 years;

d) Encouraging the location of infrastructure away from areas of hazard risk where practicable;

e) Minimising any other risk from natural hazard.

Policy 4.1.8 Precautionary approach to natural hazard risk

Where natural hazard risk to people and communities is uncertain or unknown, but potentially significant or irreversible, apply a precautionary approach to identifying, assessing and managing that risk.

Policy 4.1.9 Protecting features and systems that provide hazard mitigation

Avoid, remedy or mitigate adverse effects on natural or modified features and systems, that contribute to mitigating the effects of both natural hazards and climate change.

74. **Objective 4.2** is:

Otago's communities are prepared for and able to adapt to the effects of climate change.

75. This is supported by **Policy 4.2.2 Climate change**, which reads:

Ensure Otago's people and communities are able to mitigate and adapt to the effects of climate change, over no less than 100 years, by all of the following:

a) Taking into account the effects of climate change, including by using the best relevant climate change data;

b) Applying a precautionary approach when assessing and managing the effects of climate change where there is scientific uncertainty and potentially significant or irreversible effects;

c) Encouraging activities that assist to reduce or mitigate the effects of climate change.

d) Encouraging system resilience.

76. The partially operative RPS policies take an approach of minimising risk. Taking a more restrictive approach to new or expanded natural hazards sensitive activities through use of the Hazard 1A overlay will better achieve minimisation of risk. Taking a precautionary approach given that increased rainfall from climate change has not been accounted for in the modelling is consistent with these provisions.

The proposed Otago Regional Policy Statement

77. The proposed Otago Regional Policy Statement was notified in 2021 and submissions on the non-freshwater parts are currently being heard. As it is at a relatively early stage of the process, where there is any inconsistency with the provisions in the partially operative RPS, more weight should be given to the latter document.

78. **Objective HAZ–NH–O1 – Natural hazards** is that:

Levels of risk to people, communities and property from natural hazards within Otago do not exceed a tolerable level.

79. **HAZ–NH–P2 – Risk assessments** is to:

Assess the level of natural hazard risk by determining a range of natural hazard event scenarios and their potential consequences in accordance with the criteria set out within APP6.

80. APP6 sets out a detailed methodology for assessing natural hazard risk.

81. **HAZ–NH–P3 – New activities** is that:

Once the level of natural hazard risk associated with an activity has been determined in accordance with HAZ–NH–P2, manage new activities to achieve the following outcomes:

1. when the natural hazard risk is significant, the activity is avoided,
2. when the natural hazard risk is tolerable, manage the level of risk so that it does not become significant, and

3. when the natural hazard risk is acceptable, maintain the level of risk.

82. **HAZ–NH–P4 – Existing activities** is to:

    Reduce existing natural hazard risk by:

    1. encouraging activities that reduce risk, or reduce community vulnerability,
    2. restricting activities that increase risk, or increase community vulnerability,
    3. managing existing land uses within areas of significant risk to people and communities,
    4. …
    5. …
    6. …

83. **HAZ–NH–P6 – Protecting features and systems that provide hazard mitigation** is:

    Protect natural or modified features and systems that contribute to mitigating the effects of natural hazards and climate change.

84. The floodway is part of the Lower Taieri Flood Protection Scheme, designed to mitigate the risk of flooding in Mosgiel. Additional natural hazards sensitive activities in the floodway could potentially affect the operation of the scheme. These can be managed under the designation and the ORC bylaw.

85. The proposed RPS takes an approach of ensuring that risks are tolerable, and seeks to avoid new activities where the natural hazard risk is significant and manage existing activities within areas of significant risk. Application of a Hazard 1A overlay to the area (options 1 and 2) will achieve this outcome.

4.4.3 Dunedin Spatial Plan (September 2012)

86. Dunedin Towards 2050 - A Spatial Plan for Dunedin provides a strategic direction for Council. Objective ESR 5 (relating to an environmentally sustainable and resilient city) is that:

    The threats posed by natural disasters and climate change are reduced.

87. Policy (a) under this strategic objective is to 'Discourage development in areas subject to, or potentially subject to instability, severe flooding or tidal inundation in future.'

88. All options align with this strategic objective; however, options 1 and 2 are more certain to achieve it.

4.5 Summary of background documents and research

89. The ORC and DCC have overlapping functions under the RMA in relation to natural hazards. Both the ORC and the DCC hold information on natural hazards in Dunedin.

The ORC has an online Natural Hazards Database[16], which is publicly accessible; while the DCC has a Hazard Information Management System (HIMS), formerly known as the Hazard Register. Hazards information held by the DCC can be requested[17]. In addition, the ORC has considerable expertise in the field of natural hazards and both agencies have civil defence responsibilities.

90. The following reports provide useful background information:

- *Hydraulic Support for Silver Stream and Gordon Road Floodway Modelling* (Bloxam, Burnett & Oliver, 2022). This report describes the hydraulic modelling carried out to assess the flood hazard for the Gordon Road Floodway.
- *North Taieri flood hazard: Silver Stream modelling review* (Tonkin and Taylor, 2022). A review of the hydrological modelling and flood hazard assessment undertaken by Bloxam, Burnett & Oliver for the Gordon Road Floodway.

91. The following affidavits from hydrological, engineering and planning experts, provided to the Environment Court in December 2022 in support of a request to undertake further consultation with landowners within the floodway, provide further background information on flood hazard and management within the floodway. These reports and affidavits are available here: Gordon Road Floodway Consultation - Dunedin City Council

- Affidavit of Dr Jean-Luc Payan
- Affidavit of Michelle Mifflin
- Affidavit of Matthew Alley
- Affidavit of Bikesh Shrestha
- Affidavit of Tom Bassett
- Affidavit of Gary Bayne
- Affidavit of Paul Freeland

[16] Otago Natural Hazards Database (orc.govt.nz)
[17] Hazard information - Dunedin City Council