PURPOSE OF REPORT

1. This report seeks Council approval to make operative the changes to the City Plan introduced by its decision on Plan Change 32.

EXECUTIVE SUMMARY

2. Plan Change 32 is a Council initiated plan change, which was developed jointly with ECan. It introduces land use controls designed to reduce unnecessary risk to human life and property within the floodplain between the primary and secondary stopbanks on the south side of the Waimakariri River, in the event of a breach of the primary stopbank.

3. The main controls proposed by the plan change include:
   - Making the building of new dwellings and other habitable buildings non-complying activities in areas where the flood risk is highest;
   - Making new dwellings and other habitable buildings restricted discretionary activities in other areas within the floodplain, with conditions requiring raised floor levels;
   - Controlling filling and excavation where these activities could threaten the integrity of the stopbanks, by making filling and excavation a non-complying activity within the existing 100m primary stopbank setback, and a restricted discretionary activity within 50m of the inner side of the secondary stopbank. All new buildings within 50m of the inner side of the secondary stopbank are also a restricted discretionary activity, for the same reasons.

4. Public notification of the plan change in July 2010 attracted 17 submissions. Commissioner David Collins conducted a hearing in August and September 2011. His recommendation that the plan change be approved was adopted by the Council on 22 March 2012. One appeal against the decision was lodged with the Environment Court but this has now been withdrawn.

FINANCIAL IMPLICATIONS

5. There are no direct financial implications.

Do the Recommendations of this Report Align with 2009-19 LTCCP budgets?

6. The recommendation will not impose on the LTCCP budgets.

LEGAL CONSIDERATIONS

Have you considered the legal implications of the issue under consideration?

7. Yes. The recommendation in this report is for the Council to take the procedural step to make operative the changes introduced by its decision on Plan Change 32. The Resource Management Act 1991 requires that, following the closing of the appeal period and the resolution of any appeals, the Council must formally approve the changes to the plan under clause 17 of Schedule 1 before the plan change becomes operative on a date that is nominated in a public notice. This plan change has reached the stage where it can be made operative.
ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS


Do the recommendations of this report support a level of service or project in the 2009-19 LTCCP?

9. Yes. Supports the project of processing plan changes in compliance with statutory processes and time frames.

ALIGNMENT WITH STRATEGIES

Do the recommendations align with the Council’s strategies?

10. Yes. Aligns with the Surface Water Strategy and Draft Climate Change Strategy

CONSULTATION FULFILMENT

11. Approval of changes to the District Plan under clause 17 of Schedule 1 to the Resource Management Act 1991 is a procedural step that does not require consultation.

STAFF RECOMMENDATION

It is recommended that the Council:

(a) Approve, pursuant to clause 17(2) of Schedule 1 to the Resource Management Act 1991, the changes to the District Plan introduced by its decision on Plan Change 32 Waimakariri River Stopbanks Floodplain Land Use Controls.

(b) Authorise the General Manager, Strategy and Planning to determine the date on which the changes introduced by Plan Change 32 become operative.
WAIMAKARIRI RIVER STOPBANK FLOODPLAIN
LAND USE CONTROLS

Explanation

The purpose of Plan Change 32 is to prevent unnecessary risk to human life and property within the Waimakariri Stopbank Floodplain (WSFP) in the event of a primary stopbank breach.

Primarily the controls are aimed at the prevention of new residential units and other habitable buildings within areas where the hazard is greatest, as well as managing all development including filling and excavation in areas where such development could undermine the integrity of the flood protection structures (e.g., within stopbank setbacks) and/or exacerbate flooding effects elsewhere.

The plan change introduces a requirement that all new residential units and other habitable buildings within the WSFP require resource consent. In areas outside those identified as being of the highest hazard, the Council’s discretion will be restricted to flooding issues including whether or not the building floor level is at or above the 0.5% AEP (200 year) flood level plus freeboard. In the high hazard areas, the activity status will be non-complying and Council’s discretion will not be restricted to any particular matter when considering whether to approve or decline the application.

The proposed changes to the City Plan have been designed to have as little effect on existing buildings, structures and land use activity as possible. In recognition of existing land use activity, a suite of exemptions has been included in the proposed plan change for proposed garages and other smaller accessory buildings, as well as for filling and excavation associated with day to day farming activity (including, but not limited to, fencing, planting, track maintenance, cultivation and excavation associated with approved wells).

Background

The Waimakariri River is a steep, braided, gravel-bed river draining a catchment area of

Continued on p.2
Continued from p.1

3566 km\(^2\). Major floods are generated by heavy rainfall in the upper catchment near the main divide. In its lower reaches the river, which occupies part of an extensive alluvial fan, has been artificially confined to a relatively narrow course.

Flood protection works were first established in 1928. Since that time three flood events have breached the primary stopbank system, resulting in inundation of the floodplain between the primary and secondary stopbanks. In each case the breaches occurred at or downstream of the area known as Crossbank.

To improve the level of protection the Canterbury Regional Council (the Regional Council or Environment Canterbury) has commenced the Waimakariri Flood Protection Project. In addition to mitigation measures and enhancements to the existing primary protection system, this project includes construction of new sections of the secondary stopbank to the south of the river and upgrading of existing sections. The project has the purpose of improving flood prevention measures for Christchurch City from breakouts of the Waimakariri River.

Resource consents in relation to this project were sought in 2007 and the Commissioners acting on behalf of the Canterbury Regional Council, Christchurch City Council, and the Selwyn and Waimakariri District Councils issued their final decision on 19 June 2009.

The works for which consents were granted are designed to ensure that flood waters overwhelming the primary flood protection (stopbank) system will enter and be contained within the floodplain between the primary and secondary stopbanks.

An objective of the Waimakariri Flood Protection Project is that flood waters are safely contained and managed within the WSFP and then returned to the main river on the receding flood via the Otukaikino Outlet so as to prevent flows into the built up urban areas of Kaiapoi and Christchurch City. The project involves augmenting the existing series of secondary stopbanks and terraces to improve the level of flood protection.

In arriving at the design flood event, Environment Canterbury modelled two flood flow events (5100 m\(^3\)/s and 6500 m\(^3\)/s). These modelling exercises included assumptions of where breaches of the primary stopbank system may occur and the consequential impact of flooding between the primary and secondary bank alignments. Within each event the modelling indicates the depths and velocity of flooding which would occur prior to and after the improvements planned as part of the Waimakariri Flood Protection Project.

In summary, the modelling undertaken indicates a number of outcomes:

- In the absence of any improvements proposed for the existing stopbank system, much of the WSFP is inundated under both flood flow events;
- Improvements planned for the stopbank network increase depth and duration of flood events in discrete parts of the WSFP;
The effects of the stopbank improvements on channelling flood flows, and consequent increases in depth, speed and duration of floodwaters, vary across the floodplain; and

Regardless of the presence or absence of the secondary stopbank, the WSFP is inundated to depths ranging from 0-1m in the Templars Island area, and up to 3m in the Lower Coutts Island area near the Otukaikino Outlet to the Waimakariri River.

In December 2003 the Christchurch City Council (the City Council) notified Variation 48 to the Proposed City Plan (City Plan). The primary purpose of the Variation was to provide a framework of policies and rules within the City Plan to manage the effects of flooding and inundation within Christchurch City. As notified this Variation included no formal recognition of the WSFP and the potential for flooding to adversely affect human life, property, or other aspects of the environment within the floodplain.

The Regional Council was a submitter to Variation 48 and sought amendments to the City Plan which would control the circumstances where residential units or resort hotels could establish on the WSFP. The Regional Council subsequently appealed the Council’s decisions on Variation 48, which did not include such controls. The Regional Council’s commitment to the Waimakariri Flood Protection Project and the outstanding appeal to Variation 48 have meant that the Christchurch City Council has decided to proceed with the proposed plan change to introduce land use controls within the WSFP.

The Resource Management Act (RMA) defines natural hazard as meaning:

> 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

It is clear that flooding from the Waimakariri River presents a significant natural hazard. Section 31 of the RMA prescribes the functions of territorial authorities. This includes section 31(1)(b), which requires amongst others:

> the control of any actual or potential effects of the use, development or protection of land, including for the purpose of—

(i) the avoidance or mitigation of natural hazards; ...

Presently the City Plan recognises the threat to Christchurch City from flooding of the Waimakariri River at a policy level only. The present rules do not adequately avoid or mitigate the potential adverse effects on life and property within the WSFP in the event of primary stopbank breach. Whilst it is acknowledged that these potential effects will change as a result of the construction of the secondary stopbank project, a significant flooding risk exists within the WSFP today. It is for that reason the Council has decided to proceed with this plan change at this time as opposed to waiting until the completion of the Waimakariri Flood Protection Project/secondary stopbank.
Amend the City Plan as follows:

1. Amend Volume 1 : Chapter 3 The Issues for Christchurch : Section 3.4 Natural Hazards : 3.4.4 Flooding from the rivers, by altering the last paragraph to read as follows:

A further issue relating to flooding is determining the most appropriate flood management techniques. For example, these could include depending on the level of risk, avoiding or avoiding managing further subdivision, filling, excavation and building of flood plains, the use of retention basins, and/or the adoption of more ‘natural’ rather than engineered solutions to waterway management.

2. Amend Volume 1 : Chapter 3 The Issues for Christchurch : Section 3.4 Natural Hazards : 3.4.7 Summary of natural hazard issues, by adding:

   j. the effects of flooding on people and their safety, well-being and property.

3. Amend Volume 1 : Chapter 3 The Issues for Christchurch : Section 3.12 Rural activity : 3.12.5 Flood protection by deleting the last paragraph as follows:

   Management plans are being prepared by the Canterbury Regional Council, assisted by the Council. These will provide a basis for identifying the precise areas that could be affected by flooding and by ponding.

4. Amend Volume 2 : Section 2 Natural Environment : 2.5 Objective : Natural Hazards : Reasons, by altering the second paragraph as follows:

The incidence and potential impacts of these hazards varies widely throughout the City. A major hazard confronting Christchurch is the risk of flooding and inundation, given the location of the City in relation to the flood plain of the Waimakariri River. To mitigate this risk a system of primary stopbanks and secondary stopbanks/terraces is in place along the south side of the Waimakariri River, and will be subject to on-going improvements. The land between the stopbanks is identified as the Waimakariri stopbank floodplain and policies 2.5.1, 2.5.2, 2.5.5 and 2.5.6 developed in recognition of the need to manage risk to people and property. Also of significant risk to Christchurch are the potential effects associated with the projected rates of accelerated sea level rise. The trend towards warmer average global temperatures is expected to result in thermal
expansion of the world's oceans, this is one of a number of factors causing sea levels to rise. Along the coast, rising sea levels will mean that storm events will have a greater potential to cause flooding. Extreme high tides and storm surges at current levels, when superimposed on a higher sea level, may result in increased overtopping of dunes and stopbanks and cause further inundation of low lying areas such as around Brooklands Lagoon and the lower Avon River. Some climate change projections also suggest that the frequency and / or intensity of storms may increase in the future. These factors combined could see urban areas of the City more affected by such hazards than is currently the case. Other hazards, such as fire, can also be described as "natural". The potential hazard of fire is specifically considered under policies relating to the rural areas of the City.

5. Amend Volume 2 : Section 2 Natural Environment : 2.5.1 Policy : Presence of natural hazards by amending the second paragraph of the Explanation and reasons, as follows:

It is not practicable, either through regulation or other means, to provide total security and protection from natural hazards. The protection of life and investment from natural hazards needs to take into account the likely risks as a result of natural hazards that may affect them. In undertaking measures which may involve intervention in the development or subdivision of land, the Council needs to provide a balance between economic and community needs and any proposals for land use controls, particularly where lower risk and the severity of likely impacts to property is apparent, and mitigation measures are effective and environmentally sound. In some areas, such as between the Waimakariri River stopbanks and adjacent to waterways or the coastline, the incidence of risk is extremely high which justifies strong regulation of development. The frequency, or expected "return period" of natural hazards is a primary means of assessing risk, along with the anticipated cost of damage. In the case of hazards associated with climate change these are particularly difficult to predict as they are based on projections for 50 and 100 years under continuously changing conditions. However as more information is gathered and analysed international scientists are more frequently reaching consensus as to what the projected sea levels will be for different carbon and methane emissions and resource development scenarios. The 2001 IPCC (Inter-Government Panel on Climate Change) projections have been adjusted for Canterbury and used to assess the risk and to define the areas within which development will be regulated.

6. Amend Volume 2 : Section 2 Natural Environment : 2.5.2 Policy : Limitations on development, by adding a new sub-section after (b) as follows:

To avoid any increased risk of adverse effects on property, wellbeing and safety from natural hazards by limiting the scale and density of development, which:

(a) is within an area subject to moderate to high risk of damage from natural hazards; or
(b) would result in an increased risk of damage for natural hazards elsewhere.
(c) would adversely affect the functioning of existing flood protection works.

7. Amend Volume 2: Section 2 Natural Environment: 2.5.2 Policy: Limitations on development: Explanation and reasons as follows:

Within the City, particularly the rural part of Christchurch, there are areas subject to relatively high risk from flooding activity, for example between the Waimakariri River stopbanks, the ponding areas of the upper Heathcote River, the Lower Styx River and the Cashmere Stream floodplain. There are also areas within the City subject to erosion hazard, along the coastline, particularly areas near the mouth of the Avon-Heathcote Estuary, and on small areas on the Port Hills where the risk of erosion, rock fall or land slippage is high (as identified in the Council's Hazards Register). In some of these areas it is necessary to prohibit or strongly restrict subdivision and land use development. On flood plains it is appropriate to limit the density of development to a level consistent with minimising the potential impact of hazards on built activities and people and communities. It is also appropriate to control both filling and building within ponding areas and floodplains in order to ensure that the risk of damage to property and adverse effects on wellbeing and safety elsewhere in the catchment is not increased. While mitigation of flood hazards by works (including filling) may be appropriate on a limited scale, the impacts of those works on the natural functioning of flood plains must be recognised.

In some areas of the City there is a need to ensure that development is not allowed to proceed because the cost of protecting it is prohibitive or that protection measures are unlikely to prove effective. Restrictions have been imposed on new development on land in close proximity to and between the stop banks of the Waimakariri River for this reason. In the event of primary stopbank failure and/or overtopping there is a high risk to people and their safety, well-being and property, life and safety and of damage to property close to the stop banks and within the Waimakariri stopbank floodplain. Similarly, it is justified to impose some measure of control over the density of development because this is an effective means of allowing some scope for development of land (for example on flood plains south of within the Waimakariri River stopbank floodplain), while ensuring that the resultant intensity of building development is sufficiently low so as to minimise exposure to damage and unacceptable risk to life and safety should a major flood occur.

In order to mitigate the potential risk of damage from natural hazards various protection works have been constructed, most notably the flood protection works to protect the population of greater Christchurch from floodwaters from the Waimakariri River. The community has invested heavily in this important infrastructure, both in terms of capital costs and the significant effects that would result should these works fail. On that basis it is appropriate to include restrictions on land uses in close proximity that could adversely impact on the on-going functioning of these flood protection works.
(Open Space 3D Zone – refer Policy 2.5.12.5)

8. Amend Volume 2 : Section 2 Natural Environment : 2.5 Objective : Natural hazards : 2.5.5 Policy : Flooding : Explanation and reasons, by:

(a) Adding the word “hazard” into the second sentence as follows:

When flooding occurs there is a significant reduction in the general safety of the community and an increase in the potential for loss of life. The likelihood of these adverse effects occurring generally increases with, amongst other factors, the severity of the flooding event and the density of population living in known flood hazard areas. Accordingly there can be a significant effect from flooding on the social conditions of people and their communities.

(b) Amending the first diagram entitled ‘Land area prone to flooding’ so that the Waimakariri Floodplain shown thereon is removed and replaced with the Waimakariri River stopbank floodplain. Amend key accordingly.
(c) Deleting the second diagram entitled ‘Natural hazards Map 2 – Waimakariri Flood Breakout Floodplain’.

(d) Amending the third sentence of the fourth paragraph as follows:

Areas of the City exposed to a flooding risk that is greater than the remainder of the city have been identified. These areas are generally located alongside the major river systems, within Lansdowne Valley and along the coast. They have been identified on the planning maps as either Flood management areas, ponding areas, or floodplains. It is acknowledged that there are a number of smaller floodplains on tributary waterways. These areas have not been identified on the Planning Maps. Once more detailed information is known about these areas, the Council may choose to notify a variation or a change to the Plan to include additional parts of these waterways.

(e) Delete the reference in brackets at the end of the ‘Explanation and reasons’:

(Open Space 3D Zone – refer Policy 2.5.12)

(f) Add a new paragraph at the end of the Explanation regarding the Clearwater Open Space 3D Zone. This paragraph was previously included in 2.5.12 Policy : Avoid high risk development, which is proposed to be deleted:

The Clearwater Open Space 3D Zone is an example where the exposure to damage and unacceptable risk can be satisfactorily mitigated by requiring buildings or parts of buildings used for residential or resort hotel purposes to be protected from a 1:10000 year flood event, with this level being based on an assumption that the proposed secondary stopbank is in place. Care is also required to ensure the method of protection would not result in any significant increase in natural hazards risk to zones which are adjacent to the Waimakariri River stopbank floodplain.

9. Insert a new Policy 2.5.6 : Waimakariri River stopbank floodplain into Volume 2 : Section 2 Natural Environment under 2.5 Objective : Natural hazards:

2.5.6 Policy : Waimakariri River stopbank floodplain

(a) To manage development between the primary and secondary Waimakariri River stopbanks where the potential for adverse flooding effects can be avoided or mitigated; and

(b) To avoid development in the areas where:

i. The natural hazard presented by floodwaters is high; or

ii. Land use activity can undermine the integrity of the stopbank system and/or exacerbate flood risk elsewhere;
so as to not increase the potential risk to people’s safety, well-being and property.

Explanation and reasons
Flooding from the Waimakariri River poses a significant threat to the City of Christchurch. The primary stopbank network has a minimum design capacity of 4730m³/s. However the braided nature of the river means that the direction, flow, and channel capacity of the river may be affected by the accumulation of gravel or erosion of the riverbanks and stopbanks. Therefore, the potential exists for breakout in lesser events. The velocity of the water at any such break out point is predicted to be such that life could be put at risk.

The secondary stopbank network is made up of both stopbanks and terraces. For the purpose of the City Plan provisions secondary stopbank refers to both physical stopbanks and terraces. One consequence of the improvements to the secondary stopbank network is that should the primary stopbank be breached, then floodwaters would largely be confined to the area between the primary and secondary stopbanks, identified on the planning maps as the Waimakariri River stopbank floodplain. It is significant to note, however, that the risk of flooding within this floodplain exists at present without improvements to the secondary stopbank.

The planning maps identify those areas within the Waimakariri River stopbank floodplain where the risk is greatest. These high hazard areas are where the depth x velocity of floodwaters is ≥ 1. Above this value large emergency vehicles are unable to gain access and there is a significantly increased threat to human life and property.

Additional development controls also apply to areas within 100m of a primary stopbank and 50m of a secondary stopbank. The 100m primary stopbank setback has been set based on the direct risk from high velocity floodwaters in the event of breakout. The reduced setback in relation to the secondary stopbank reflects the lesser risk to human life and property in a breakout scenario. The 50m setback seeks to control land uses that may undermine the integrity of the stopbank system and/or exacerbate flood risk elsewhere.

Within the high hazard areas and the 100m primary stopbank setback development in the form of buildings and earthworks (filling and excavation) should be avoided. Resource consent is also required for activity within 50m of the secondary stopbank to ensure the structural integrity of the stopbank is not compromised. Elsewhere within the floodplain controls on habitable building location and floor height seek to ensure that potential adverse effects resulting from any breach of the primary stopbank can be avoided or mitigated.

It is acknowledged that there are existing activities located within the Waimakariri River stopbank floodplain, and it is not intended that this
policy will unduly restrict existing activities. Therefore a suite of exemptions have been provided in the Rules. The Rules will affect any new development proposals, including significant additions/alterations to existing buildings within the floodplain.

It is also acknowledged that the Open Space 3D (Clearwater) Zone is subject to flood protection provisions that are specific to that zone. Development within this zone is therefore considered to be able to achieve Policy 2.5.6. General City Rules that apply to new development on the Waimakariri River Stopbank Floodplain do not apply within the Open Space 3D (Clearwater) Zone, except that Table 1 following Rule 5.5.4 (filling and excavation on other land) applies.

10. Make consequential amendments required to policy numbering.

11. Amend Volume 2 : Section 2 Natural Environment : 2.5 Objective : Natural hazards : by deleting 2.5.12 Policy : Avoid high risk development.

2.5.12 Policy : Avoid high risk development
To avoid new high risk development in the overflow flood channels of the Waimakariri River.

Explanation and reasons
Flooding from the Waimakariri River is potentially the single greatest flooding threat to urban Christchurch. Significant stopbanks have been constructed on both sides of the river to reduce the risk of flooding. These structures have the capacity, subject to not breaching, to withstand a 0.5% annual exceedence probability flood event. However the braided nature of the river means that the direction, flow, and channel capacity of the river may be affected by the accumulation of gravel. The potential therefore exists for floodwaters from the river to breakout in lesser events. The velocity of the water at any such break out point is predicted to be such that life could be put at risk.

The overflow channels are shown on the map titled 'Natural Hazards Map 2: Waimakariri River Breakout Floodplain' contained within this section of the plan. High risk developments that this policy aims to protect include:
- hospitals and other facilities where life could be put at risk; and
- facilities that process or store large amounts of hazardous substances; and
- technology industries that are particularly susceptible to damage.

It is acknowledged that there are existing activities located within the overflow flood channels. It is not intended that this policy will unduly restrain existing activities, particularly where the zoning provides for future development potential.

The Clearwater Open Space 3D Zone is an example where the exposure to damage and unacceptable risk can be satisfactorily mitigate by requiring
buildings or parts of buildings used for residential or resort hotel purposes to be protected from a 1:10000 year flood event, with this level being based on an assumption that the proposed secondary stopbank is in place. Care is also required to ensure the method of protection would not result in any significant increase in natural hazards risk to zones which are adjacent to the Waimakariri River floodplain. (Variation 48)

12. Amend Volume 2 : Section 2 Natural Environment : 2.5 Objective : Natural hazards : Environmental results anticipated, by adding the words “to high” to the fourth bullet as follows:

- Provision for appropriate development in areas of moderate to high risk, subject to measures being undertaken to mitigate hazards, including the provision of works.

13. Amend Volume 2 : Section 2 Natural Environment : 2.5 Objective : Natural hazards : Implementation by amending the second bullet point as follows:

- General city rules relating to building, filling and excavation both generally and specifically on land adjacent to waterways, within flood management areas, in flood ponding areas, and on the Cashmere Stream floodplain and on the Waimakariri River stopbank floodplain.

14. Amend Volume 3 : Part 1 Definitions, by adding a new definition as follows:

**Habitable building**

Means any building occupied by persons whether for residential use or short term accommodation and includes:

- Residential units;
- Travellers accommodation;
- Hotels; and
- Family flats.

15. Amend Volume 3 : Part 6 Open space zones : 2.3 Community standards : 2.3.7 Setback distance and gradient for excavation – Open Space 3D Zone (Isaac Conservation Park) – Activity Area Q, by adding a new setback provision (d) as follows:

- No excavation shall cut below a surface with a gradient of 3 (horizontal) to 1 (vertical) measured from a point commencing 10 metres from the toe of any existing or consented stopbank (see diagram below).
16. Amend Volume 3: Part 6 Open space zones: 3.0 Assessment matters: 3.2.11 Setback distance and gradient for excavation – Open Space 3D Zone (Isaac Conservation Park) – Activity Area Q, by adding a new assessment matter (g) as follows:

(g) The actual and potential effects on the structural integrity of the stopbank, including those resulting from scour and backwash during a flood event due to a potential increase in waterflow within excavated areas.

17. Amend Volume 3: Part 6 Open space zones: 4.0 Reasons for rules: 4.18 Setback distance and gradient for excavation – Open Space 3D Zone (Isaac Conservation Park) – Activity Area Q, by adding a new third paragraph as follows:

A setback from stopbanks has been included to ensure that the structural integrity is not adversely affected by excavation close to the stopbank foundation. Excavation for mineral extraction adjacent to stopbanks also has the potential to alter flood flow paths, including the creation of backflows and scouring of the stopbank structure during flood events. The setback has been set in accordance with consents granted by both the Canterbury Regional Council and the Christchurch City Council for quarrying activity within the Open Space 3D Zone (Isaac Conservation Park) - Activity Area Q. As a result this setback is reduced from that applying to the balance of the Waimakariri River stopbank floodplain, which has not been through any such consent process.

18. Amend Volume 3: Part 9 General City Rules: 5.0 Filling, excavation and building adjacent to waterways: Guide to using these rules, by inserting the additional steps after Step 10, as follows:

Filling, excavation and building within the Waimakariri River stopbank floodplain

Step 11 Establish whether the location of the activity is shown on the planning maps as being within the Waimakariri River stopbank floodplain.
Step 12  Establish whether the location of the activity is shown on the planning maps as being within a high hazard area, or within 100m of a primary stopbank, or 50m of a secondary stopbank.

Step 13  If so, check the summary table below to determine activity status.

<table>
<thead>
<tr>
<th></th>
<th>Residential Unit or Other Habitable Building</th>
<th>Accessory building</th>
<th>Filling &amp; excavation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within 100m of the primary stopbank</td>
<td>Non-complying</td>
<td>Non-complying</td>
<td>Non-complying</td>
</tr>
<tr>
<td>High hazard</td>
<td>Non-complying</td>
<td>Permitted*</td>
<td>Subject to Table 1 requirements</td>
</tr>
<tr>
<td>Within 50m of the secondary stopbank</td>
<td>Restricted Discretionary</td>
<td>Restricted Discretionary</td>
<td>Restricted Discretionary</td>
</tr>
<tr>
<td>Remainder of the floodplain</td>
<td>Restricted Discretionary</td>
<td>Permitted*</td>
<td>Subject to Table 1 requirements</td>
</tr>
</tbody>
</table>

* Subject to compliance with other rules in the City Plan. (see Clause 5.5.6 for exemptions that may affect the activity status included in the above Table)

All development within the Waimakariri River stopbank floodplain taking place within 100m of the primary stopbank and 50m of the secondary stopbank requires consent. Residential units and other habitable buildings require consent throughout the floodplain. Filling and excavation and accessory buildings beyond 100m of the primary stopbank and 50m from the secondary stopbank are subject to the underlying zone rules.

Step 14  Establish whether any filling, excavation or building is covered by an exemption to the rules as specified in Clause 5.5.6.

Step 15  Establish whether any filling, excavation and/or accessory building permitted by these Rules complies with all other Rules elsewhere in the City Plan.

Filling and building on land that is not adjacent to a waterway or mean high water springs, in ponding areas, on the Cashmere Stream floodplain or within a flood management area and
Excavation on land that is not adjacent to a waterway or mean high water springs, in ponding areas, or on the Cashmere Stream floodplain:

and

Filling and excavation on land not within the Waimakariri River stopbank floodplain:

19. Make consequential numbering changes to the remaining steps (commencing from what is currently Step 13).

20. Amend Volume 3: Part 9 General City Rules: 5.0 Filling, excavation and building adjacent to waterways: 5.1 Statement, by inserting a new second to last paragraph, as follows:

Within the Waimakariri River stopbank floodplain, the erection of, or addition to, residential units and other habitable buildings not falling within the exemptions require consent. In the areas identified as either high hazard or within 100m of the primary stopbank dwellings and other habitable buildings are non-complying activities. This is due to the volume and depth of floodwaters likely to be experienced in such locations, which represent a significant hazard to life and property. Filling, excavation and accessory buildings similarly require consent if undertaken within the setback from either a primary (100m) or secondary (50m) stopbank. Beyond these setbacks the underlying zone rules apply.

21. Amend Volume 3: Part 9 General City Rules: 5.0 Filling, excavation and building adjacent to waterways: 5.1 Statement: Environmental results anticipated, by adding three new results as follows:

(l) Filling, excavation and erection or addition to buildings restricted to areas where the hazard from flooding can be managed.

(m) Avoidance of development in areas where the risk to people, their safety, well-being and property from flooding is high.

(n) Avoidance of development that could undermine the integrity and functioning of flood protection works.

22. Amend Volume 3: Part 9 General City Rules: 5.0 Filling, excavation and building adjacent to waterways, by inserting a new clause 5.5 Rules: Filling, excavation and building within the Waimakariri stopbank floodplain, as follows:

5.5 Rules: Filling, excavation and building within the Waimakariri stopbank floodplain

5.5.1 Reference to other rules

Attention is drawn to the provisions of the zone rules as well as the other General City Rules (including those within Clause 5) that may separately result in an activity being identified as requiring resource consent as a
non-complying, discretionary, restricted discretionary or controlled activity in addition to the provisions of these rules.

5.5.2 Bylaws and other relevant legislation
(a) Attention is drawn to Council bylaws on earthworks that relate to the structural suitability of fill material for engineering works and building.
(b) Attention is drawn to Part I of the Historic Places Act 1993 that states that no work may be undertaken on an archaeological site (whether recorded or unrecorded) until an archaeological authority to destroy, damage or modify a site has been granted by the New Zealand Historic Places Trust in accordance with that Act.
(c) Land use consents, or water or discharge permits may be required by the Canterbury Regional Council under the Waimakariri River Regional Plan or Natural Resources Regional Plan for activities within the beds of lakes or rivers, or in close proximity to them. In addition, the Canterbury Regional Council (Environment Canterbury) is the lead agency for gathering and providing information on flood hazard within the Waimakariri River Stopbank Floodplain (WSFP), and is responsible for the construction and management of the stopbanks. Before undertaking development within the WSFP, particularly within the stopbank setbacks, it is advisable to consult Environment Canterbury.

5.5.3 Application of these rules
(a) The rules relating to excavation and filling referring to Table 1 below are to be applied in accordance with Clause 5.6.1.

5.5.4 Development standards
(a) Any filling or excavation which exceeds any one of the standards relating to the volume of material in column A, the depth specified in columns C or D, or the landslope in column E of Table 1 below, shall be a restricted discretionary activity with the exercise of Council's discretion restricted to the assessment matters set out in clause 5.7.5 below.

The Council shall consult with tangata whenua upon any application being required under these rules for areas containing sites of significance to tangata whenua identified in Part 10, Appendix 3 of these rules.

Applicants should note that all archaeological sites (whether recorded or unrecorded) are protected under the provisions of Part 1 of the Historic Places Act 1993 and no work may be undertaken on a site until an archaeological authority to destroy, damage or modify a site has been granted by the Trust in accordance with that Act.

(b) Any filling or excavation within 50m of a secondary stopbank as shown on the planning maps shall be a restricted discretionary activity, with the Council's discretion restricted to the assessment matters set out in clause 5.7.5 below.
(c) The erection of, or addition to, any accessory building within 50m of a secondary stopbank shall be a restricted discretionary activity, with the Council's discretion restricted to the assessment matters set out in clause 5.7.5 below.

(d) The erection of, or addition to, any residential unit or other habitable building:
   - 100m or greater from a primary stopbank; and
   - outside the high hazard area as shown on the planning maps
shall be a restricted discretionary activity, with the Council's discretion restricted to the assessment matters set out in clause 5.7.5 below.

(see Clause 5.5.6 for exemptions to these development standards).

5.5.5 Critical standards
The following shall be non-complying activities:

(a) Any filling or excavation, which exceeds any one of the standards relating to the volume of material in column B of Table 1 below.
   The Council shall consult with tangata whenua upon any application being required under this rule for areas containing sites of significance to tangata whenua identified in Part 10, Appendix 3 of these rules.

(b) Any excavation or filling within 100 metres of a primary stopbank.

(c) The erection of, or addition to, any accessory building within 100m of a primary stopbank.

(d) The erection of, or addition to, any residential unit or other habitable building within:
   i. 100m of a primary stopbank; or
   ii. a high hazard area as shown on the planning maps.

(see Clause 5.5.6 for exemptions to these critical standards).

5.5.6 Exemptions from development standards set out in Clause 5.5.4 and critical standards in Clause 5.5.5
For the purposes of the following list of exemptions, the time period applicable to filling and excavation in terms of volume shall be interpreted to mean the maximum volumes specified may not be exceeded within any continuous period of ten years.

The rules set out in Clauses 5.5.4 and 5.5.5 above do not apply to:

(a) Quarrying activity within the Open Space 3D Zone (Isaac Conservation Park) Area Q approved by way of land use consent RMA 92012793 issued by the Christchurch City Council as at 20 January 2009;
(b) the erection of unenclosed buildings without floors;
(c) garages and any other accessory buildings of no more than 40m² in area, except in rural zones and the Open Space 3A Zone where the rules set out in Clauses 5.5.4 and 5.5.5 above do not apply to accessory buildings which are of no more than 200m² in area, or to plastic covered tunnel houses;
(d) additions to existing residential units or other habitable buildings or to accessory buildings of a maximum of 25m² in any continuous five year period, except in rural zones and the Open Space 3A Zone where the rules set out in Clauses 5.5.4 and 5.5.5 above do not apply to additions to accessory buildings which are of a maximum of 200m² in any five year period.
(e) additions to existing residential units or other habitable buildings or to accessory buildings that do not increase the area of the building footprint;
(f) filling, excavation or structures associated with the maintenance of flood protection and bank erosion protection works;
(g) any works involving utilities that are permitted by Chapter 9, or the replacement, repair or maintenance of existing utilities, or the maintenance of existing drains or ponds;
(h) post holes for the erection of fences, and post holes for shade cloth structures and tunnel houses;
(i) planting holes for trees and plants;
(j) excavation for any approved wells;
(k) any sitework permitted pursuant to a building consent, excluding accessways;
(l) any filling permitted pursuant to a land use consent granted by the Canterbury Regional Council;
(m) any filling for the maintenance of existing farm tracks and existing farm yards, or the establishment of new farm track and farm yards provided the finished ground level is maintained to within 200mm of the natural ground level;
(n) any filling for the purposes of establishing and maintaining accessways to residential units provided the finished ground level is maintained to within 200mm of the natural ground level, and provided that accessways are constructed so as not to impede the flow of surface water;
(o) filling associated with flood protection on the parts of 50 to 72 Johns Road adjoining the terrace that forms part of the secondary flood protection, provided the filling on any property does not exceed 2,000m³ in total, creates slopes no steeper than one vertical to three horizontal, is constructed according to good engineering practice so as to minimise the possibility of flood scour or diversion, forms a continuous extension to the natural terrace, and does not create any discontinuity of landform at property boundaries.
(p) the maintenance of existing railways, and the re-alignment of the railway at Steam Scene (621 McLeans Island Road, Lot 2 DP 28931) provided such re-alignment does not impede the flow of surface water to a greater extent than the present structure.
(q) the filling of up to 10m³ per site for the purposes of landscaping around residential units in association with domestic gardening;
(r) the maintenance and upgrade of existing roads on legal road, provided that the work does not impede the flow of surface water;
(s) cultivation activities and harvesting of crops;
(t) the application of fertiliser, lime or other plant growth enhancers such as topsoil, bark and trace elements provided the finished ground level is maintained to within 200mm of natural ground level, and provided that such filling is limited to a total volume of not more than 100m³ per ha; and
(u) composting or silage making.
(v) any other filling not covered by the clauses of 9-5.5.6 above, of up to 200mm in depth and not more than 100m³ per ha, provided that filling does not impede the flow of surface water.
(w) any other filling for farming purposes of not more than 100m³ per ha where the finished ground level does not exceed the level of the surrounding land.
(x) any other excavation for farming purposes where the excavated area is subsequently filled so that there is no net effect on flood storage.
(y) development within the Open Space 3D (Clearwater) Zone, except as provided for under Table 1 following Rule 5.5.4 (filling and excavation on other land).

23. Make consequential numbering changes to subsequent Clauses.

24. Amend Volume 3, Part 9 General City Rules : 5.0 Filling, excavation and building adjacent to waterways : 5.5 : Filling and excavation on other land: 5.5.1 Application of these rules, as follows:

(a) The rules within Clause 5.5 are applicable to:
(i) filling and building on land that is not: adjacent to a waterway or mean high water springs; in a ponding area or on the Cashmere Stream floodplain; or within a flood management area; or within the Waimakariri River stopbank floodplain; and
(ii) all excavation on land that is not adjacent to a waterway or mean high water springs, in ponding areas or on the Cashmere Stream floodplain; or within the Waimakariri River stopbank floodplain.

25. Amend Volume 3, Part 9 General City Rules : 5.0 Filling, excavation and building adjacent to waterways : 5.7 Assessment matters for resource consents, by adding a new clause as follows:
5.7.5 Restricted discretionary activity – Filling, excavation and/or building within the Waimakariri River stopbank floodplain

(a) The likely effects of proposed filling, excavation and/or building on the functioning of the Waimakariri River stopbank floodplain during and after flood events, including any likelihood of work undertaken exacerbating inundation, erosion, alluvion or avulsion whether upstream or downstream of the site.
(b) The frequency at which the building or addition is predicted to be inundated by floodwaters and the extent of damage that is likely to occur in such an event.
(c) Whether the floor level of any new building/building addition is above the predicted 0.5% Annual Exceedence Probability (AEP) or 1 in 200 year flood event level with a stopbank breach plus an allowance for freeboard not exceeding 400mm.
(d) Whether the integrity and/or function of either the Primary or Secondary stopbanks will be adversely affected by the method to achieve the floor level set out in (c).
(e) Where relevant, any adverse effects likely on land as a result of tidal influences during flood periods including the potential for exacerbation of those effects with potential sea level rise.
(f) The way in which any building is sited and constructed and its intended use.
(g) Any adverse effects on access for maintenance of flood protection works.
(h) The effectiveness and environmental impact of any measures that may be proposed to mitigate the effects of filling, excavation or building.
(i) The extent to which other properties will be adversely affected as a result of disturbances to surface drainage patterns.
(j) Any benefits associated with flood management, including the provision of public access, or the enhancement of the natural qualities, amenity values or ecology of waterways and wetland areas.
(k) The extent to which development could result in surface water ponding in the event of flooding, and hence and increased risk of birdstrike.

26. Amend Volume 3, Part 9 General City Rules : 5.0 Filling, excavation and building adjacent to waterways : 5.8 Reasons for rules, by adding a new clause as follows:

5.8.4 Filling, excavation and building within the Waimakariri River stopbank floodplain

Filling and excavation of land can result in a number of adverse physical effects, including erosion, subsidence, sedimentation, impacts on the natural drainage pattern (and hence adjoining land), and in some circumstances on sites of ecological value. There are also potential
amenity effects of filling and excavation including dust nuisance, traffic generation (heavy vehicles) and artificial disturbance of the natural land surface.

To deal with these potential effects, controls are included which set threshold levels for excavation and filling based on volumes (per site or land area) and depth of both fill and excavation, beyond which a restricted discretionary activity resource consent is required. Such applications would be assessed in terms of the factors identified above.

However, within a floodplain filling and excavation below these thresholds can adversely impact on the function by impeding flood discharges and/or disturbing drainage patterns thereby exacerbating inundation on adjoining properties. For this reason additional restrictions apply within 100m of a primary stopbank and 50m of a secondary stopbank. Furthermore, filling may have an adverse cumulative impact on the river catchment and could result in an increase flood risk in other parts of the floodplain.

Building activity, particularly buildings intended for human occupation, can exacerbate risk of flood damage to life and property within the floodplain. The of erection or addition to residential units and other habitable buildings within the Waimakariri stopbank floodplain close to the primary stopbank and within high hazard areas is a non-complying activity given the high risk to life and property of deep and/or fast moving floodwaters. In that context avoidance is preferred to mitigation, which is unlikely to prove effective and may contribute to adverse flooding effects elsewhere in the floodplain. The potential effects in relation to the secondary stopbank relate more to potential impacts on structural integrity rather than direct threat to life and property. On that basis a reduced setback of 50m applies to the secondary stopbank, with restricted discretionary consent being required to undertaken activity within this setback distance.

The 100m setback from the Waimakariri River primary stopbank and additional restriction within the identified high hazard area have been imposed to reduce the possibility of loss of life and extensive damage to property in the event of stopbank failure or overtopping. Stopbank failure may result from:

- decreased channel capacity; or
- gravel accumulation; or
- changing river courses; or
- structural damage to the stopbank.

Exemptions from the rules have been provided for small scale works including accessory buildings which will have minor effects, both in the rural and Open Space 3A (McLeans Island) Zones, or where consents have been obtained under other procedures. In the latter case this will include subdivisions (covered under Part 14 of this Plan), buildings approved under the Building Act, and works covered by regional rules where it is desirable to avoid multiple assessment and consent processes. Essential utilities and floodbank protection works are also excluded.
27. Make consequential numbering changes to subsequent Clauses.

28. Amend the Planning Maps, as follows:

Insert amended series B planning maps 3, 7, 8, 9, 10, 14, 15, 16, 17 and 18 to show:

(a) Waimakariri stopbank floodplain (WSFP), being the land between the primary stopbank and secondary stopbank/terrace alignments from McLeans Island in the west to the State Highway 1 Bridge in the east, including:

- Areas identified as high hazard;
- The 50m setback from the secondary stopbank network within the floodplain; and
- The retention of the 100m setback from the primary stopbank within the floodplain.

Amend Planning Map 10B to realign the floodplain edge through the Devondale Estates properties, by providing at least a 10m clearance between the houses and the edge of the floodplain, and amend the 50m setback line accordingly.

Amend the notation for Clearwater 03D Zone in the key to the amended B Planning Maps 3, 7, 8, 9, 10, 14, 15, 16, 17 and 18 to read: “Area exempted from Waimakariri River Stopbank Floodplain flood protection provisions”.

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ATTACHMENT 1 CLAUSE 14 - COUNCIL 28. 3. 2013

Proposed Plan Change 32: Proposed change to City Plan map 9B
Proposed Plan Change 32: Proposed change to City Plan map 15B