BEFORE THE ENVIRONMENT COURT
AT CHRISTCHURCH

ENV NO.

UNDER	the Resource Management Act 1991 (*RMA*)
IN THE MATTER	of an appeal under Clause 14, Schedule 1 of the RMA
BETWEEN	**MATTHEW BURROUGHS BROUGHAN**
	– Appellant -
A N D	**MARLBOROUGH DISTRICT COUNCIL**
	– Respondent –

NOTICE OF APPEAL

Dated this 8th day of May 2020

SOLICITOR ACTING FOR THE APPELLANT: **M J RADICH**

FIRM OF SOLICITORS: RADICH LAW
21 BELLS ROAD
P.O. BOX 842
BLENHEIM

TELEPHONE: (03) 577 8450
FACSIMILE: (03) 577 8451

8 May 2020

041114-2

To: The Registrar
Environment Court
CHRISTCHURCH

1. I, Matthew Burroughs Broughan, appeal against part of the decision of the Respondent, Marlborough District Council (*Council*), on the proposed Marlborough Environment Plan (*Plan*).

2. I made a submission (number 229.1) on the part of the Plan which I am now appealing.

3. I received notice of the decision on 21 February 2020, with the tracked changes version of the Plan made available on 3 March 2020. The Environment Court has subsequently issued a Minute granting an extension of the date any appeals should be lodged by.

4. I am not a trade competitor for the purposes of Section 308D of the RMA.

5. The land affected and which was subject of my submission is that land contained in Lot 3 DP 419233 held in Record of Title 473702 (*Affected Land*).

6. The part of the Plan that I am appealing against is the extent of mapping of the Affected Land in **Volume 4, Overlay Maps, Flood Hazard Area 24** (*Flood Hazard Overlay*).

7. The reasons for the appeal are as follows:

   (a) Council has taken a conservative approach where flooding details are incomplete and has identified the Affected Land and all land West of the Tuamarina River as being within Level R flood risk (a residual risk area) due to a historic flood event that occurred in 1983 from a stopbank failure. Council has not, however, consistently applied this approach and the Flood Hazard Overlay does not reflect the actual extent of the floodwaters from the event (areas of land to the East of State Highway 1 which were also affected by the flooding are not subject to the Flood Hazard Overlay). Changes to flood hazard overlays in the Plan should be withheld until Council has adequate information to make an informed decision and can accurately apply the Flood Hazard Overlay to all areas commonly subject to flooding within the Marlborough region.

(b) The Affected Land is a residential property situated on an elevated area in the terrain above the flood hazard effect levels and was not previously subject to any flood hazard overlays.

(c) The Flood Hazard Overlay has the potential to cause adverse social and economic effects on affected landowners in terms of increased insurance premiums, reduced property values and adverse social perception within the Marlborough region.

(d) Council has not considered reasonable planning alternatives to the Flood Hazard Overlay. Affected landowners will be subject to prejudice where a consistent approach has not been applied.

Relief Sought

8. I seek the following relief:

(a) The Flood Hazard Overlay be removed.

(b) That such other relief as is appropriate be granted.

(c) The costs of this process.

9. The following documents are **attached** to this Notice:

(a) A copy of our original Submission.

(b) A copy of Council's decision which relates to the part of the Plan to which this Appeal relates together with the relevant Flood Hazard Overlay Map.

(c) A list of names and addresses of the persons to be served with a copy of this Notice.

DATED this 8th day of May 2020

M J Radich
on behalf of the Appellant

THIS Notice of Appeal is filed by **MIRIAM JOAN RADICH** Solicitor for the Appellant whose address for service is at the offices of Radich Law, 21 Bells Road, Blenheim, email miriam@radichlaw.co.nz.

Documents for service on the Appellant may be left at that address for service or may be:

(a) Posted to the solicitor at P O Box 842, Blenheim, 7240; or

(b) Transmitted to the solicitor by facsimile to (03) 577 8451.

Advice to Recipients of Copy of Notice

How to become a party to proceedings

You may be a party to the appeal if you lodge a notice of your wish to be a party to the proceedings (in Form 33) with the Environment Court within 30 working days after this notice was lodged with the Environment Court.

You may apply to the Environment Court under Section 281 of the Resource Management Act 1991 for a waiver of the above timing requirements (see Form 38).

Advice

If you have any questions about this notice, contact the Environment Court Unit of the Department of Courts in Christchurch.

List of Names and Addresses to be served:

1. Marlborough District Council
   Seymour Street
   BLENHEIM

   By email: kaye.mcilveney@marlborough.govt.nz

Marlborough Environment Plan Submissions

Matthew Broughan

Provision

Volume 4 Overlay Maps Flood Hazard Area 24

Submission

There is a proposed change to zone our property ?Property Number 534667 LOT 3 DP 419233? along with neighbouring properties to a Level 4 Flood Zone, the most severe category, which I do not believe is an accurate amendment. Flooding is not common in this area. I understand that there was a severe flood here over 30 years ago, however, looking at the MDC River level graphs for the Wairau River, indicates that this may be a 1 in 100 year type of flood. When we built our property 7 years ago, we had to build 6 metre's above river level as per the marker at Barnett's Stopbank, which would put us well above any flood water that would come into the area. Looking at the Flood Zone Overlay Map, I see that many areas in North West Marlborough, which commonly flood, have only been marked as Zone 2 ? Moderate?, which doesn't seem consistent with the zoning for Tua Marina. My main concern is that insurances for our area may be affected should this become a Severe Flood Zone.

Decision Requested

That the zoning be reconsidered.

Marlborough Resource Management Regulations 2003

Form 5 Submission on publically notified proposal for policy statement or plan, change or variation

Clause 6 of Schedule 1, Resource Management Act 1991

To Marlborough District Council

Submitter Name: Matthew Broughan

Date: 31/08/2016

Address for service:

38 Kaituna-Tuamarina Road
RD 3
Blenheim 7273

Telephone: 035705158

Mobile: 021550867

Email:
matt@liquidaction.co.nz

Submitter Number: 228

I wish to be heard in support of my submission.

If others make a similar submission, I will consider presenting a joint case with them at a hearing.

Resource Management Plan

- I could not gain an advantage in trade competition through this submission.
- I am not directly affected by an effect of the subject matter of the submission that-

  (a) adversely affects the environment; and
  (b) does not relate to trade competition or the effects of trade competition

Submission Point: 229.1

The specific provisions of the proposal that my submission relates to are:

Volume: Volume 4
Chapter: Overlay Maps
Provision: Flood Hazard Area 24

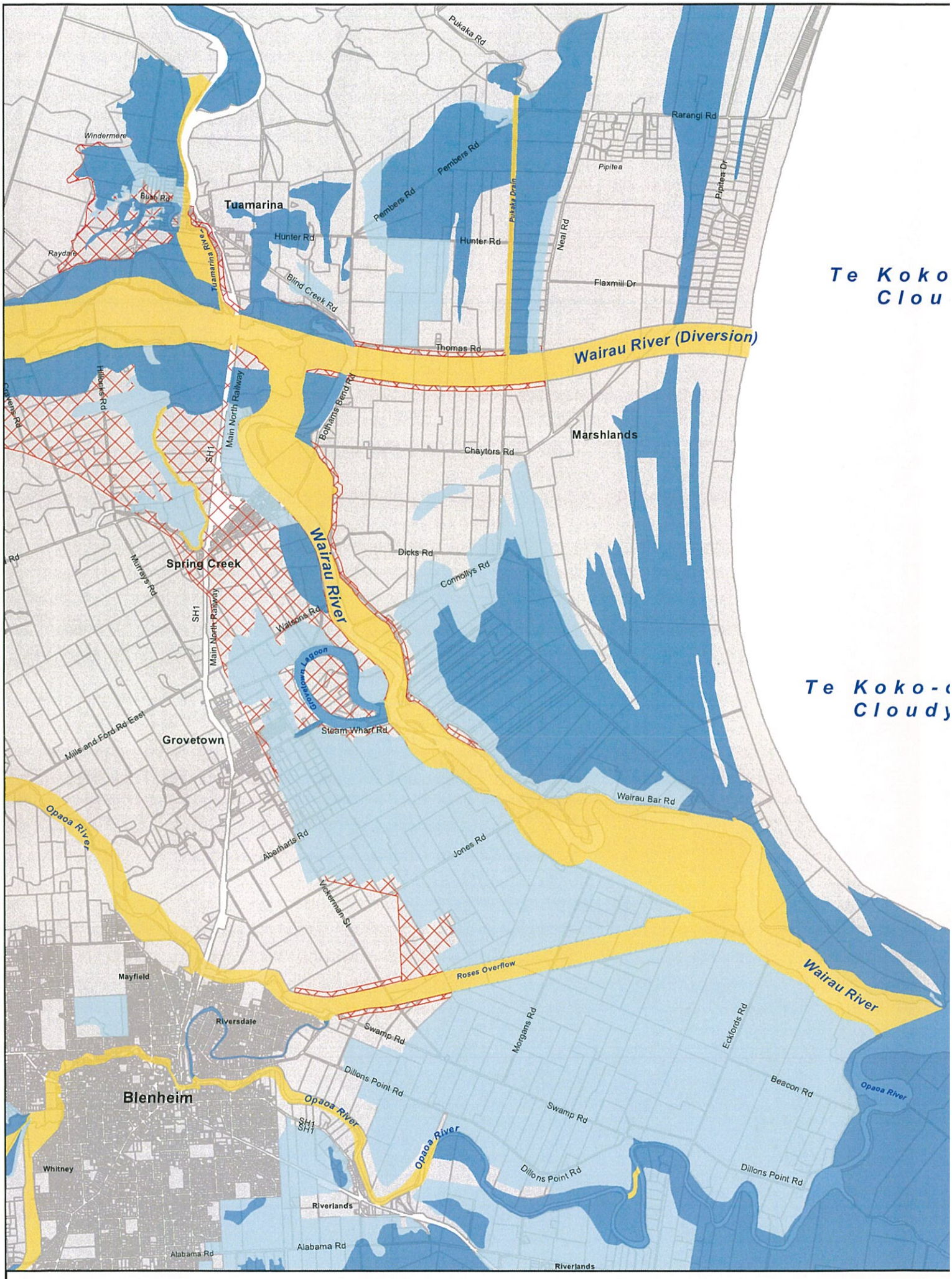
I Oppose the specified provisions

My submission is:

There is a proposed change to zone our property ?Property Number 534667 LOT 3 DP 419233? along with neighbouring properties to a Level 4 Flood Zone, the most severe category, which I do not believe is an accurate amendment. Flooding is not common in this area. I understand that there was a severe flood here over 30 years ago, however, looking at the MDC River level graphs for the Wairau River, indicates that this may be a 1 in 100 year type of flood. When we built our property 7 years ago, we had to build 6 metre's above river level as per the marker at Barnett's Stopbank, which would put us well above any flood water that would come into the area. Looking at the Flood Zone Overlay Map, I see that many areas in North West Marlborough, which commonly flood, have only been marked as Zone 2 ?Moderate?, which doesn't seem consistent with the zoning for Tua Marina. My main concern is that insurances for our area may be affected should this become a Severe Flood Zone.

I seek the following decision from the local authority:

That the zoning be reconsidered.



Date: 20/02/2020

MARLBOROUGH DISTRICT COUNCIL

Legend

Flood Hazard

Level 1 | Level 2 | Level 3 | Level R | Land Parcel

Flood Hazard Areas

N

24

1:50,000

MARLBOROUGH DISTRICT COUNCIL

Proposed Marlborough Environment Plan

Topic 9: Natural Hazards

Hearing dates:	28 – 29 and 31 May 2018
S42A Report Writer:	Paul Whyte, Gavin Cooper and Laddie Kuta
Conflicts of Interest:	None
Interim decision:	Yes

(Note: A list of conflicts of interest which arose during the process are available to view on the Marlborough District Council Website)

List of Abbreviations

LIDAR	Light Detection and Ranging
MDC	Marlborough District Council
MSRMP	Marlborough Sounds Resource Management Plan
NESPF	National Environmental Standards for Plantation Forestry
NPSET	National Policy Statements for Electricity Transmission
PMEP	Proposed Marlborough Environment Plan
RMA	Resource Management Act 1991
S42A Report	Section 42A Report
WARMP	Wairau/Awatere Resource Management Plan

Submitter abbreviations

KiwiRail	KiwiRail Holdings Limited
NFL	Nelson Forests Limited
NZTA	New Zealand Transport Agency
Te Ātiawa	Te Ātiawa o Te Waka-a-Māui

Structure of Decisions

1. It is important that the topic decision is read as a whole together with the tracked change version of the Plan. The decision on each topic contains the reasons for the Panel's decisions. These comprise either adoption of the reasoning and recommendations of the original Section 42A Report or the replies to evidence, or a specific reasoning by the Panel[1].

2. The tracked change version of the relevant PMEP provisions forms an integral part of the decision. The source of the change in terms of the topic that the subject matter was dealt with is clearly identified in the track changes version of the plan. This records all amendments (additions and deletions) to the notified PMEP provisions made by the Panel.

3. Where the PMEP provisions **remain as notified**, it is because:

   (a) The Panel has decided to retain the provision as notified for reasons set out in this decision; or

   (b) The Panel adopted the reasoning and recommendation of the Section 42A Report Writer to retain the provision as notified as recommended in the Reply to Evidence; or

   (c) The Panel adopted the reasoning and recommendation of the Section 42A Report to retain the provision as notified in the original Section 42A report.

4. Where there is a **change to a provision** within the plan it is because:

   (a) The Panel has amended a provision for reasons set out in this decision in response to a submission point which the Section 42A report writer(s) does not recommend in their reports; or

   (b) The Panel adopted the reasoning and recommendation of the Section 42A Report Writer to change the provision to that recommended in the Reply to Evidence; or

   (c) The Panel adopted the reasoning and recommendation of the Section 42A Report Writer to change the provision to that recommended in the original Section 42A report; or

[1] (The only exception to that approach relates to the Noise section of the Nuisance topic where the reasoning and recommendations in the responses to Minutes 54 and 59 may have been adopted, rather than the reasoning and recommendations in the Section 42A Report or the Reply to Evidence report. The reasons for that difference in that topic are dealt with in detail at the commencement of the Noise section of the Nuisance topic decision. In respect of that topic the approach to understanding of the individual submission point decisions addressed in paragraphs 13.3 to 13.5 below should be adjusted accordingly to apply references to the Section 42A Report and/or Reply to Evidence in those paragraphs as being references to the responses to Minutes 54 & 59 for that Nuisance topic.)

(d) A consequential change has been necessary following on from a decision in either a), b) or c).

5. Where there is a **different recommendation** between the Section 42A Report and the Reply to Evidence (i.e., the recommendation by the Section 42A report writer(s) has changed as a result of hearing the evidence of submitters), unless the Panel decision specifically adopts the original report's reasoning and recommendations, the reasoning and recommendations in the (later) reply to evidence has been adopted and it must be taken to prevail.

6. There are limited circumstances where the Panel has taken the opportunity to give effect to national policy statements or implement national environmental standards. Where this occurs the relevant decision clearly sets out the nature of the change and the reason for the change.

7. Finally, there are limited circumstances where the Panel has decided that **alternative relief** is more appropriate than that requested by the submitters, but still within the scope of the relief sought. This is recorded in the Panel's decision.

Natural Hazards

8. This chapter of the PMEP addresses a range of natural hazard issues that can arise in Marlborough. Amongst the range of natural hazards covered in Chapter 11, Volume 1, of the PMEP are particularly those arising from risk of inundation from floods and the consequences of land instability, either as a result of earthquake, landslip or tunnel gully erosion.

Statutory setting

9. The statutory definition of a natural hazard contained in the RMA is:

> '**natural hazard** means any atmospheric or earth or water related occurrence (including earthquake, tsunami, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire, or flooding) the action of which adversely affects or may adversely affect human life, property, or other aspects of the environment'

10. The statutory scene is set in the RMA by Part 2, in particular s 6(h), and by the associated sections 30 and 31 as to the functions of regional and territorial authorities.

11. Section 6 (h) provides that the Council must recognise and provide for the following as a matter of national importance:

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

12. Section 30 (1)(c)(iv) as to regional council functions makes provision for one function being:

> *(c) the control of the use of land for the purpose of—*
>
> *(iv) the avoidance or mitigation of natural hazards:*

13. In addition to that basic task, other relevant functions in planning terms are stipulated in ss.30 (1)(a) and (b):

> *(a) the establishment, implementation, and review of objectives, policies, and methods to achieve integrated management of the natural and physical resources of the region:*
>
> *(b) the preparation of objectives and policies in relation to any actual or potential effects of the use, development, or protection of land which are of regional significance: ...*

14. Another subsection in s.30 as to infrastructure planning, which in some circumstances can have some relevance to this topic, is found at s.30(1)(gb):

> *(gb) the strategic integration of infrastructure with land use through objectives, policies, and methods:*

15. For territorial authorities in s 31 there are in effect 'mirror' provisions to those found in s.30 for regional authorities. The most direct 'mirror' image for s 30(1)(c)(iv) as to the mitigation or avoidance of natural hazards is found in s 31 (1)(b)(i). It provides that one of the functions of a territorial authority is:

> *(b) 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;...*

16. Subsections 31(a) and (aa) of the RMA, (which effectively mirror the provisions in s 30 (1) (a) and (b) for regional councils), include for territorial authority functions such as:

> *(a) the establishment, implementation, and review of objectives, policies, and methods to achieve integrated management of the effects of the use, development, or protection of land and associated natural and physical resources of the district:*
>
> *(aa) the establishment, implementation, and review of objectives, policies, and methods to ensure that there is sufficient development capacity in respect of housing and business land to meet the expected demands of the district:*

17. Finally, s 35(5) (j) of the RMA requires that each local authority is to keep the following records:

> *(j) records of natural hazards to the extent that the local authority considers appropriate for the effective discharge of its functions; and ...*

18. The application of ss 6 (h), 30 & 31, and s 35 of the RMA by a unitary authority will inevitably result in the identification of natural hazard areas through its resource management plan. It comes as no surprise then that the PMEP, in conjunction with the identification process of natural hazards through mapping, also proposes policies, rules and maps restricting built development and certain other relevant activities in those identified areas.

19. Such provisions were always likely to lead to submissions from affected landowners as to asserted unreasonableness, unfairness and/or 'unnecessary' restriction on activities.

Summary of principal PMEP Policies the subject of submissions

20. Objective 11.1 encapsulates the overall precautionary approach in the Plan to reduce the risk of effects of natural hazards:

Objective 11.1

Reduce the risks to life, property and regionally significant infrastructure from natural hazards.

21. That Objective is achieved through policies, mapping and associated rules identifying those areas of risk, and requiring the avoiding of infrastructure and other built development in those areas identified as being at risk. Policy 11.1.1 gives effect to that identification process:

> *Policy 11.1.1 – Establish the extent of land subject to flooding, liquefaction and tunnel gully erosion and identify this land within the Marlborough Environment Plan as a hazard overlay.*

22. In terms of the significance of risk, and consequent effects, a very obvious hazard risk exists in relation to the largest river in the district – the Wairau. Its associated floodplains have become the centre of the major population bases in Marlborough and constitute the base of major economic resources such as the viticulture industry.

23. However, Marlborough also has a considerable number of other large and smaller rivers and streams, many of which in extreme rainfall events potentially give rise to a risk of inundation and flood damage, placing people and/or infrastructure and property at risk.

24. Another major issue with significant potential property and infrastructure damage consequences, but to a degree human life risk also, can be the consequences of land instability. That issue has particular significance in the Marlborough Sounds where the soils are commonly unstable and erosion prone. However, another area of major concern is located in the southern Wairau Dry Hills where loessial soil conditions can result in major tunnel gully under-runners potentially undermining infrastructure and built development.

25. Another major natural hazard risk in Marlborough addressed in the PMEP arises from potential instability as a result of earthquake damage and particularly resultant liquefaction, although limited submissions on this issue were received.

26. Finally, at the other end of the climatic scale, Marlborough experiences recurrent drought or very dry summers in the course of which the natural hazard of fire can loom requiring rules or planning maps to avoid or restrict built development in potentially exposed locations.

27. The principal measures utilised in the PMEP to respond to these identifiable potential natural hazards include planning maps such as the Flood Protection zones and Flood Hazard Overlays. Related rules are also used in the PMEP restricting activities in areas where inundation from

flood events, or damage from land instability or fire, is sought to be avoided or mitigated; or where riverbed and stopbank protection measures are required.

28. Flood risk identification and its precise extent in many localities caused significant submission reaction. The PMEP's identification system of flood risk adopts four separate levels of increasing hazard numbered from 1-4 as described in Policy 11.1.9:

> *Policy 11.1.9 – Establish a hierarchy of flood risk as follows:*
>
> *(a) Level 1: Land that suffers flooding of shallow, low velocity water in a flood event with an annual recurrence interval of 1 in 50 years;*
>
> *(b) Level 2: Land that suffers flooding but the depth/velocity of the flooding is not well understood, or cannot easily be expressed relative to natural ground level, in a flood event with an annual recurrence interval of 1 in 50 years, or land within 8 metres of any lake, river or wetland;*
>
> *(c) Level 3: Land that suffers flooding of deep, fast flowing water in a flood event with an annual recurrence interval of 1 in 50 years, or land in the bed of any lake or river or in any wetland; and*
>
> *(d) Level 4: Land that has the potential to suffer flooding of deep, fast flowing water in an extreme flood event that overwhelms stopbanks and other constructed flood defences.*

29. Policy 11.1.8 in a general policy statement requires avoidance of location of habitable structures where they or their associated wastewater management systems could be damaged by inundation. More particularly focused policies in 11.1.10 then provide for three differing levels of control of habitable structures and/or mitigation measures of the level of risk as it increases in seriousness of outcome for the first three risk levels:

> *Policy 11.1.10 – Control the erection and placement of houses and other habitable structures within areas subject to a flood hazard overlay, and reduce the risks to life and property by:*
>
> *(a) establishing minimum floor levels for houses and other habitable structures subject to a Level 1 flood risk, set at least 450 mm above the natural ground level as measured at any point of the building footprint. The building footprint includes any associated on-site wastewater management system;*
>
> *(b) requiring houses and other habitable structures subject to a Level 2 flood risk to be subject to evaluation of the flooding hazard and effective mitigation actions; and*

(c) avoiding houses and other habitable structures in locations where they will be subject to a Level 3 flood risk.

30. However, because of the potentially devastating consequences of stopbank protection being overwhelmed in a major flood event, Policy 11.1.11 adopts a straight out avoidance approach to any structures, whether habitable or not, in Level 4 risk areas:

> *Policy 11.1.11 – Avoid locating intensive residential, commercial or industrial developments on land subject to a Level 4 flood risk.*

31. The issue of protection of floodways is also addressed by setting a range of levels in floodway protection zones, based in this case on annual recurrence intervals (ARIs). Varying measures by policy and rule provisions ensure developments and gravel removal activities do not impinge on the essential task of ensuring the flood flows are able to be carried within the protection works or natural banks as much as possible. The policy setting those ARI interval levels is Policy 11.1.4:

> *Policy 11.1.4 – Establish and maintain floodway capacities for Marlborough's rivers to the following standards:*
>
> *(a) to an annual recurrence interval of 1 in 100 years for major rivers on the Wairau River floodplain (below the confluence with the Waihopai River);*
>
> *(b) to an annual recurrence interval of 1 in 50 years for the Waitohi and Waikawa Rivers; and*
>
> *(c) to an annual recurrence interval of 1 in 50 years for rivers and drainage channels that provide for urban stormwater disposal.*

32. Major issues arising from the submission/hearing process on this chapter included submissions on the following matters:

- The impacts on potential development of land affected by Floodway zones and Flood Hazard overlays.
- The impacts on potential activities arising from rules protecting open floodways in riverbeds and stopbank protection works.
- As part of the previous issue, perceived unreasonableness or unfairness on landowners as a result of the precautionary approach taken to the return frequency and severity of flood risk
- Impacts of rules on potential infrastructure development and maintenance activities to protect that infrastructure.

- Impacts of rules restricting gravel extraction or other in-channel or riverbed works and drainage system.
- Impacts of the mapping approach to loessial soils and related tunnel gully risk and restrictions related to those issues.
- Mapping of areas prone to liquefaction.
- Identification of earthquake induced geotechnical risks
- Buffer requirements to reduce fire risk between activities.

Submissions Summary

33. We set out below a summary of those areas where the most significant submission involvement occurred either in written submissions or more particularly by appearances at the hearings. The summary focuses on the policy approach, but in addition many of the issues raised rules or methods or maps in the PMEP which are intended to give effect to those policy approaches.

34. The more detailed consideration of particular submission points which follows later in this chapter of our decision makes plain whether a map, policy, rule or method is being addressed.

Flood protection issues

- The largest group of submitters were from the 'Tuamarina pocket' area to the north of the lower Wairau where in the major 1983 flood event the stopbanks had been breached and large areas inundated.
- In a number of other locations the detail of the risk level or its aereal extent in mapping was challenged.
- Also raised were the return frequencies utilised in the policies directly addressing the restrictions on location of housing and other built structures in Floodway zones and Flood Hazard Overlays.

River Protection issues

- Policies such as Policy 11.1.4, because of the impacts of inundation, adopt a conservative approach, to the return frequency analysis underlying the spatial mapping to ensure floodway channels are maintained clear of obstruction were also the subject of some submission.
- Policies 11.1.3 and 11.1.5 as to the need to provide for and maintain the integrity of flood protection and mitigation works drew submission as to their impact on the ground on certain properties nearby. Those policies seek to avoid potential adverse effects of activities on those works either directly, or in some cases, if nearby. Again the approach

to that protection is conservative in the PMEP because of the significance of widespread potential adverse consequences if those protection works are breached.

- Policies 11.1.6 and 11.1.7 drew limited numbers of submissions about the restrictions imposed on in-channel or riverbed works and gravel extraction.
- The issue of controls on methods of clearance of sediment from drainage systems on the lower Wairau Plain and in the roading network also drew submission.

Protection of river works infrastructure

- In some locations the consequences of policies designed to protect Council assets providing flood protection were the subject of submission.

Provision for maintenance and development of nationally and regionally, and even locally significant infrastructure

- A number of submissions asserted the PMEP made inadequate provision for these activities which for cost or practical reasons were commonly located in or through floodway zones.

Tunnel gully erosion

- Policies such as 11.1.19 and 11.1.21 as to restrictions on development of land which were the subject of tunnel gully erosion because of loessial soils also drew submission response.

Fire risk issues

- Buffer requirements in Policy 11.1.22 were the subject of some submissions.

Issues arising from restrictive rules in respect of natural hazards

- A considerable number of submissions addressed matters of detail in respect of rules restricting structures or activities in Flood Hazard areas, Floodways and other areas recognised or identified as being potentially affected by natural hazards.

Section 42A Report

35. The submissions on planning aspects of Chapter 11, Volume 1 were comprehensively reported on by Mr Paul Whyte a very experienced planner. His reports particularly provided the policy analysis and consideration of restrictions contained in the rules and methods.

36. Given the heavy emphasis in submissions received on the impacts of the Floodway zones and Flood Hazard Overlays, and the necessity for each of those to be considered in detail by an expert river engineer on site, pursuant to s42A RMA the, Council had also sought a report from Mr Laddie Kuta, an experienced hydraulic engineer. As considerable detailed work was necessary to support Mr Kuta and affected submitters with matters such as consultation for

site access and potential on-ground mapping and rule application issues, Mr Gavin Cooper, another experienced planner, worked closely with Mr Kuta on those detailed Overlay map issues. They provided jointly written reports as to those issues before and at the end of the hearing.

37. Their initial joint Section 42A Report included a helpful appendix which detailed their site inspections and pre-hearing contacts with submitters and contained relevant detailed maps. They also provided a further detailed report at the end of the hearing on matters and evidence advanced in those hearings. The Panel was considerably assisted by their Reply to Evidence report being supplemented by further detailed mapping addressing changes they recommended after hearing the materials provided by submitters.

38. The evidence available to the Panel from Mr Kuta was able to be objectively assessed in quite some detail as to on-ground mapping outcomes. That was due to the fact that he was assisted by a considerable resource of aerial photography and other historical survey material held by the Council of flood or immediate post-flood events in Marlborough which ranged over many decades. All of that material is held in Flood Hazard Atlas compiled by Council and held at the Council offices.

39. In the Lower Wairau floodplain that objective photographic evidence was able to be supplemented in an even more detailed manner by the availability and application of LIDAR aerial surveying, conducted by Council in 2014 and 2016, which enabled contour mapping at a very fine level of +/- 60 mm accuracy within the entire Tuamarina Pocket area. (LIDAR stands for *Light Detection and Ranging.* It is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth from the laser emitter.) That degree of precision enabled even finer movements to be recommended as to the Floodway Zone boundaries and Flood Hazard Overlay levels in response to submitter concerns.

Interim decision

40. In the course of its deliberations on this Natural Hazards topic the Panel considered a submission by Marlborough District Council seeking extra Floodway zonings for a number of smaller catchments, which had not been sought by oversight in the PMEP as notified.

41. The Panel concluded that the relief sought for new zoning by use of the submission process by the Council's river engineering section could not be lawfully provided for, as there would not be proper opportunity to consult with potentially affected landowners, which is a required preliminary step in the First Schedule to the RMA.

42. However, as the subject matter was plainly important in the public interest in terms of potential flood protection measures, the Panel made the decision to depart from its general approach that interim decisions would not be issued. The reasons for doing so were twofold.

43. First, so that Marlborough District Council was aware at as early a stage as possible of the Panel's view of the jurisdictional barrier without having to wait for final decisions to be issued probably a year later.

44. Secondly, so that earlier notice of that outcome would enable Council to embark upon the necessary consultation process for a possible proposed Plan Variation encompassing any such new proposed floodway zonings, (which Variation might be able to be melded in at some time with the PMEP processes.)

45. An interim decision to achieve those ends was accordingly issued on 10 July 2018.[2]

Consideration of detailed submission points of significance

Earthquake geotechnical issues

Policy 11.1.21 – Locate new structures and works to:

(a) avoid them being damaged from the adverse effects of land instability; and

(b) avoid any increase in the adverse effects of slope instability that the structure or work may cause.

46. A submission was made by D. Miller[3] with impressively dramatic illustrations of the topographic impacts of earthquake effects on steep ridges. Mr Miller has longstanding geotechnical experience and he was concerned that the PMEP should have strengthened policies and methods to address those risks. The report writer, in his Reply to Evidence, responded only by drawing attention to the fact that Method 11.M.9 records that Council has established minimum geotechnical reporting standards.

47. Transpower also made a submission on Policy 11.1.21 which sought that it be amended to except regionally significant infrastructure where its location was constrained by operational requirements.

Section 42A Report

48. The report suggested that the exception sought by the Transpower submission appeared to be worded on the basis of a misunderstanding of the intent of the policy, which was not directed

[2] Interim Decision of the MEP Hearing Panel as to Marlborough District Council's submissions seeking the inclusion of further Floodway zoning in the PMEP

[3] Don Miller (238.1)

at the location of infrastructure, but rather to endeavour to ensure infrastructure was not affected from the adverse effects of land instability.

Consideration

49. The Panel was impressed by the demonstrations and descriptions given by Mr Miller of earthquake risks, and enhanced risk exposure on steep ridgelines particularly by reference to overseas experiences.

50. The policy framework requires the location of new structures to 'avoid' damage from adverse effects of land instability and given recent case law, that is a powerful direction in policy terms. It enables and requires a detailed geotechnical assessment where those risks are elevated by slope and potential slope failure. As the Section 42A Report emphasised, Method 11.M.9 also records that minimum requirements for reporting of geotechnical investigations have been adopted. It provides:

> *11.M.9 Geotechnical reporting standards*
> *The Council has established minimum requirements for the reporting of geotechnical investigations. These identify the expectations for geotechnical investigations and the reporting of those investigations. They also set out the reliance that the Council places on the information provided in geotechnical reports so that this is understood and appreciated.*

51. The level of detail required for geotechnical investigations is not readily transferred into rules and/or wording of standards in resource management plans. The use of strong policies and recognition of standards is the most effective way of addressing the issue. The Panel considers the present policy 11.1.21 coupled with Method 11.M.9 provides the policy strength required and the flexibility needed to upgrade standards as those standards or practices are developed or enhanced over time.

52. As to the Transpower proposed exception wording the Panel agrees with the S42A Report view that the first part (a) of Policy 11.1.21 is not aimed at preventing or restricting the location of infrastructure such as that utilised by Transpower but rather at ensuring the location of infrastructure takes into account adverse effects from land movement which could occur which might damage the proposed infrastructure. This can be made clear by introducing a specific recognition of that factor as a new subclause (b) to Policy 11.1.21 with an appropriate addition to the explanation.

53. However, the second part of the notified version of (b) of Policy 11.1.21 is aimed at ensuring that location of infrastructure avoids ***any increase in risk*** of adverse effects of slope instability, and the Panel does not agree that infrastructure should be exempt from such a requirement.

54. Transpower is concerned that 'avoidance' might frustrate the ability to mitigate risk in a situation where it has no practical alternative, for example in Sounds steep hill country, than to place infrastructure on steep slopes.

55. We have emphasised, though, that the phrase used in Policy 11.1.21 (b) is unusual in that it requires the avoidance of *'any increase in risk'* rather than simply requiring avoidance of any risk of slope instability. The use of that phrase implies a level of risk may exist. The aim of the policy is to ensure any infrastructure built does not increase that level of risk. In the Panel's view that does leave room for an infrastructure provider to mitigate risk in its design in such a manner that it can demonstrate that it has not increased risk of slope instability.

Decision

56. In the language required by the RMA technically the Miller submission has to be rejected, but in doing so the Panel wishes to record its gratitude to Mr Miller for emphasising an important issue and to recognise the force of the points he was making.

57. The Transpower submission is accepted in part.

58. Policy 11.1.21 is amended to read:

Policy 11.1.21 – Locate new structures and works to:

(a) avoid them being damaged from the adverse effects of land instability; ~~and~~ or

(b) in the case of the National Grid, avoid them being damaged from the adverse effects of land instability, or where they cannot be avoided, must be mitigated to the extent that it is practicable to do so; and

~~(b)~~ (c) avoid any increase in the adverse effects of slope instability that the structure or work may cause.

Marlborough is characterised by steep terrain and in some locations, unstable geology. Combined with the potential for intense rainfall events, these factors create the potential for slope instability. Examples historically include rock/debris slumps, debris slides or flows, coastal erosion and tunnel gully erosion in various parts of the District. Establishing residential, commercial or industrial development or infrastructure supporting that development or linking our communities in locations prone to land instability will lead to unsustainable outcomes. This policy requires new structures and works to be located in environments that avoid adverse

effects caused by land instability. It also addresses the situation of a structure or work exacerbating those adverse effects. It is recognised that the National Grid cannot always be located to avoid all damage from the adverse effects of land instability and therefore this policy allows for the adverse effects of land instability on the National Grid to be mitigated to the extent practicable, where the effects cannot be avoided. The policy will primarily be implemented through the zoning of land and the scale/intensity of activity that the zone rules enable. However, the policy can also be applied in a resource consent context when an assessment of environmental effects for the structure or work identifies a risk of land instability. This includes subdivision undertaken to enable more intensive use of the land. A safe and stable building platform will have to be established for the subdivision of land in certain environments.

Forestry setback issue

Policy 11.1.22

Require a buffer between dwellings, ancillary structures and land used for commercial forestry.

59. The explanation to 11.1.22 states:

To reduce the risk of fire in rural environments, a setback distance will be imposed to restrict the proximity of:

(a) houses and ancillary structures to existing plantations of commercial forestry; and

(b) new plantations of commercial forestry to existing dwellings and other habitable structures. ...

60. Buffer requirements required by Policy 11.1.22 as to setbacks for housing and associated structures from existing planted forestry, and for the planting of new forestry plantations in relation to adjacent existing dwellings or their associated structures, were the subject of some submissions.

61. However, the NESPF 2017 has imposed provisions which supersede the PMEP at law as to the setback for plantings from dwellings which is now fixed by regulation 14 of the NESPF regulations at a maximum of 40 metres. The Panel noted that the council had already completed an alignment process in respect of the notified PMEP rules. However, this policy had not been addressed through that alignment exercise. To ensure consistency between the PMEP policy and the NESPF the Panel is required to also align Policy 11.1.22(b) and this is reflected in the decision.

62. That means that in the alignment process Policy 11.1.22 (b) of the notified PMEP which would have enabled a larger distance was removed to ensure no greater restriction could be imposed on such new plantings. This is because Policy 11.1.22 (b) of the notified PMEP would have required a setback rule for new forestry planting which is an activity covered by the NESPF.

63. The PMEP by contrast still retains a setback from an existing plantation forest for the building of new dwellings and associated structures. The height of plantation trees can exceed 40 metres and provision has to be made for safety reasons to allow for spark throw from falling burning trees, as well as generous room for firefighting vehicles to have safe access corridors while avoiding fallen burning trees. Rule 3.2.17 in the Rural Environment zone (which is similarly reflected in other zones where dwellings may be erected) requires a setback for all those reasons of 100m.

64. The Panel consider it to be unwise in the extreme to reduce that distance and that 100m is the minimum safe distance that a dwelling should ever be from a forest.

65. As a result of the NESPF what the Panel regards as an unsafe buffer setback of only 40 m is imposed by a statutory regulation for planting of new plantation forestry next to an adjacent existing dwelling. However, for the reverse activity of building a new dwelling next to an existing plantation forest a setback of 100m is required by the PMEP.

66. Because of the legal situation the Panel can do nothing about that outcome, except to adhere in the PMEP to a safe and realistic setback distance, and to point out in this decision the glaring nature of the inconsistency.

67. In doing so the Panel wishes to express its amazement that a modern statutory regulation should allow such a potential hazard to life and dwellings and their associated structures to arise in the event of fire in a forest adjacent to dwellings. The increased risk to dwellings from severe dry conditions, which are currently expected to become recurrent in Marlborough from climate change, was graphically illustrated in the 2018/2019 summer in the fires in nearby Nelson forests.

Decision

68. Submissions seeking changes to Policy 11.1.22 are rejected, but it is noted that as a consequence of the alignment process required to comply with the NESPF 2017 Policy 11.1.22(b) has must be removed from the PMEP. Policy 11.1.22 as a consequence will read:

11.1.22 - To reduce the risk of fire in rural environments, a setback distance will be imposed to restrict the proximity of houses and ancillary structures to existing plantations of plantation forestry.

Policy 11.1.11

Tuamarina pocket mapping

69. A primary concern of submitters[4] in relation to the PMEP's treatment of properties in the Tuamarina pocket arose from the provisions of Policy 11.1.11. It provides:

> *Policy 11.1.11 – Avoid locating intensive residential, commercial or industrial developments on land subject to a Level 4 flood risk.*

70. Because almost all of the pocket area to the west of the Tuamarina River was identified as being within Level 4 Flood Hazard Area the effects of Policy 11.1.11 were seen as devastating on the ability to use properties to their maximum potential and hence on property values. They sought the deletion of Level 4 as it affected their properties and various submitters sought varying relief as to other hazard levels. The Policy was asserted also to be too broad-brush in approach not taking into account the reality of the existence of small elevated areas in the terrain which it was said were above historic flood levels. Another major driver of the submissions was the fact that prior consultation had not occurred with landowners at Tuamarina as to the detailed effect and extent of the Level 4 Flood Hazard Overlay.

71. The basic approach of submitters was to argue that while they accepted the logic of a progression of hazard identification from natural events increasing in adverse effect from Level 1 through to Level 3; Level 4 was not a true progression as its effects only came into play in the event there was catastrophic failure of protective works. With some force to the logic of their argument they asserted that on that basis all urban areas protected by river protection works, (which would include much of Blenheim itself), should be subject to the same Level 4 Flood Hazard Overlay. They pointed out, again with some compelling logic, that the land at Tuamarina to the east of SH 1 was also subject to serious deep, fast and powerful flooding in 1983 yet the Level 4 Overlay had not been imposed east of SH 1.

Section 42A Report

72. On the issue of lack of detailed consultation with Tuamarina landowners, that omission was accepted as being a fact in the Reply to Evidence. However, the Reply to Evidence did make the point that the identification of the Tuamarina Pocket as being flood prone was not a

[4] R Light (129.1), M Broughan (229.1), J Broughan (327.1), A Tyson (182.1), D & R Mundy (34.1), S Butler (385.1) and R Parkes(324.2)

planning surprise. It has been identified as such in Policy 11.2.5 of the Operative Wairau/Awatere Resource Management Plan. The difference in policy treatment between the two plans is that in the PMEP the policy directive is to 'avoid' development in the Level 4 Overlay area, whereas in the WARMP the policy directive was worded as being at the lesser level of a 'limit' on development. That policy in the WARMP stated:

> *Policy 2.5 Limit any further residential development of Tuamarina township, and Tuamarina pocket in particular, because of flood hazard.*

73. In support of the increased level of policy direction in Policy 11.1.1 of the PMEP the approach in the Section 42A reports was to make reference to the facts that clear incontrovertible photographic evidence existed from the major 1939, 1983, 1998 and 2009 flood events which showed widespread deep inundation in the pocket area. Particularly in 1983 the concern arose not only from the extent of flooding, but in the event of stopbank failure as occurred in that major flood, the dangerous depth and often speed of the floodwaters.

74. The Panel's understanding of the effect of the Section 42A Report writers' description of the Tuamarina pocket area was that it was effectively an area naturally subject to flooding at the confluence of the Wairau and Tuamarina rivers which was 'fortified' against flood hazard by the stopbank protective works. That term was used in the Reply to Evidence because the pocket area was surrounded by protective works on its north, east and south sides, with hills to the west.

75. The Reply to Evidence report informed the Panel that the base assessment utilised detailed photographic records of the 1998 flood which was assessed as a rainfall equivalent to 2% AEP event or a 1:50 year return event for the Tuamarina pocket. The maximum flood level that produced was 5.75m which was the base for the Level 1 Flood Hazard Overlay. The Level 2 Flood Hazard level was assessed by arriving at a level of 5.6m by reducing the height of the Level 1 Flood Hazard by 150 mm as the Building Code requires floor levels to be at least 150 mm above the lowest point on a property. That level of 5.6 m was transposed onto the LIDAR data set to define the transition between the shallow Level 1 flood and the unknown depth Level 2 flood. The report writers were adamant there was sufficient information available for that to be done with accuracy.

76. There was no contrasting objective aerial photography or other contouring work offered to the Panel during the hearing process.

77. The Reply to Evidence report also stressed that the protected 2% Annual Exceedance Probability (AEP) of 5.75 m could be overtopped at a flood level of 7m as a result of damage

from flooding as in 1983, damage consequent on an earthquake, debris or log jams in the Tuamarina River causing overtopping, and/or failure of pumping stations. In addition if a flood event hits the soffit of the main Wairau bridge, either because of massive flood volumes or debris dam build-ups on the bridge support structures, again overtopping becomes a serious risk. All of those were said to be realistic potential threats.

78. As to the more generic issue of why the Level 4 overlay existed here and not in a widespread manner in Blenheim a number of points were made. The first of those was simply the colossal volume of a potential overtopping flood event in the large Wairau River as compared to the much smaller Taylor River flows. Added to that was the reality that in the event of catastrophic failure of protective works, for whatever reason, the natural paleo flood relief channels still exist, and were taken into account in identifying where the consequent flood hazard areas would be adversely affected in a serious manner. The 1983 events painted that outcome graphically at the Tuamarina pocket.

79. It was frankly conceded in the Reply to Evidence that there was indeed logic to the submitters' point that land east of SH 1 should also have been subject to the Level 4 overlay, but the point was made that that omission did not mean the Overlay was invalid in the pocket area. The Panel took it this implied the omission needed to be corrected either by plan change or in the next plan review.

80. However, reference was also made to the LIDAR technology which at Tuamarina enabled much more precision in locating overlay boundaries as to flood hazard effects levels than had been used in the initial PMEP preparation, which was based predominantly on photographic and flood volume evidence and consequent depth analysis.

81. As a consequence of site visits by Mr Kuta and Mr Cooper and discussions with landowners, and, most importantly, the application of the LIDAR survey work, significant changes were proposed in the Section 42A Report. However, those changes recommended by the Section 42A Report, while welcomed by the affected submitters, did not satisfy all their concerns.

Consideration

82. It is important to commence our consideration of this group of submissions from landowners in the Tuamarina pocket by saying that the different planning consequences of the Level 4 Overlay are so significant that we agree with the report writers in the Reply to Evidence that in an ideal world more may have been able to be done by way of earlier consultation with individual landowners affected.

83. However, the Panel also accepts that at a plan preparation stage councils generally would face a massive and unrealistic task if they tried to consult widely on an individual property owner basis on the effects of changes contained in a proposed plan. Quite often out of necessity, consultation at plan preparation stage, particularly as to the detail of zoning or overlay maps and their effects, in part has to devolve down to the Plan notification and submission response processes. The Panel believes that by and large that process has worked for submitters in this case, where those submissions have resulted in considerable detailed on-ground reconsideration, and as a consequence of submitter input more finely drawn recommendations being able to be made by the Section 42A Report writers to the Panel.

84. The use of the term 'fortified' to describe the Tuamarina pocket area is considered by the Panel to be very apt for this low-lying area of land, because the 'pocket' is surrounded by protective works on its north, east and south sides, with hills to the west. The Panel also accepts the point strongly made in the Section 42A reports that the flood risk from the major Wairau catchment is of a massively greater magnitude than the flood risk posed in Blenheim by flood events from the much more confined Taylor River catchment. The consequence of the combination of those two factors is a potential depth of ponding in major floods in the Tuamarina pocket which is unusually severe. Added to that is the concerning increased severe risk to property and life in the event of protective works failures, because of the speed and volume of the immense flows that can occur in the Wairau River for 1:100 year events such as the 1983 flood in the order of 5,500 cumecs.

85. A comparison of relevance is that the Taylor River produces in a 1:100 year event a flow rate of 170 cumecs. In each case a 10% spill might be expected – the comparison then being an uncontrolled flow of 17 cumecs in the Taylor River area and 550 cumecs in the Lower Wairau. The Section 42A Report described the consequences of an overtopping in Blenheim as being "a few streets acting as lakes, some houses and garages flooding and wet feet in certain lower lying areas, exciting, but manageable." By contrast the description of effects at the Tuamarina pocket is of floodwater that was "fast, deep and it would be sitting in these areas until floodgates could open again." The Panel accepts those descriptions as being accurate on the photographic and other descriptive evidence.

86. Additionally, the Panel notes that the PMEP in Policy 11.1.13 draws attention to the fact that risks to life and property are greater in rural environments, the reasons being particularly outlined in the first paragraph of the explanation to that policy:

Policy 11.1.13 – Recognise that the risk to life and property during flood events is greater in rural environments.

Isolation of properties affects the ability of the Council and Civil Defence to provide an emergency response in the event of flooding. The greater the distance of flooded properties from Blenheim (the location of the Emergency Operations Centre) and other towns, the longer it will take to respond to the flooding, especially in the event of large scale or District-wide events. Some communities are proactively preparing readiness plans in recognition of the additional risks created by isolation.

87. The Panel notes the submission by Federated Farmers (425.92) challenging the wording of this policy but agrees with the original Section 42A Report observation by Mr Whyte that minor amendments to capture the points made in the explanation would clarify the reasons for the policy and his recommendation to that effect (at paragraph 99) is adopted by the Panel.

88. However, on the general points at issue underlying the Flood Hazard Overlay purposes, the Panel did not hear any evidence from submitters which detracted in any way from the general analysis contained in the Section 42A reports. That was so both as to the underlying nature of the level of risk from major flood events in the Wairau River, and as to the potential consequences in the event of a failure of protective works such as occurred in 1983. Accordingly the Panel upholds that evidence provided by the Section 42A reports as to the serious nature of those risks and the general underlying reasons why the Flood Overlays have been applied in the Tuamarina Pocket area.

89. As to the point made by the Tuamarina pocket submitters in respect of the land to the east of SH 1 the Panel is in full agreement. That is a serious omission in the PMEP which the Panel unfortunately has no jurisdiction to address in its present process because no submission requested that the Level 4 Flood Hazard Overlay apply to that land. We do, however, suggest to Council that it reconsider the boundaries of the overlay applying in the event of catastrophic failure of protective works in this Tuamarina area as part of its next plan change process – that reconsideration would accord with the policy thrust underlying the second alternative in Policy 1.1.16 (b):

Policy 11.1.16 – Refine the boundaries of flood hazard overlays in response to:

(a) changes to levels of protection provided by flood defences and other flood mitigation/management works; or

(b) new observations of flood events or more detailed assessment of the flood hazard; or

(c) changes in catchment hydrology due to land use change or climate change; or

(d) changes in flood hydraulics due to channel aggradation or erosion, vegetation growth within the floodway or sea level rise.

90. The submitters' evidence and/or planning related submissions were also persuasive in two other significant respects.

91. The first of those was in relation to the points made about the unfairness of utilising a nomenclature of Level 4 for the overlay map and in Policy 11.1.9 which made that level appear to be part of a progression of flood levels, i.e. that Overlay Level 4 was applying to flood events which were larger than those described in Level 3. We are in agreement with the submitters that the use of a consecutive numeral approach in the policy and related overlay numbering carries that connotation, and further, that that is not accurate.

92. What Level 4 is identifying is the consequences of catastrophic failure of protective works, regardless of the size or volume of flood. Moreover, Levels 1 to 3 are identifying flood levels which will naturally occur in increasing depths despite the existence of the protective works, whereas Level 4 is identifying land protected by river protection works but which is placed at serious hazard risk if those works fail.

93. For those reasons we accept the recommendation in the Reply to Evidence from Mr Whyte that the use of the word 'residual' is more appropriate to differentiate the risk being guarded against in the Level 4 Overlay, from the progression of flood levels involved in Levels 1 to 3. That is best reflected by a separate policy wording using Policy 11.1.9 (d) as a separate policy and amending references to Level 4 throughout the PMEP to refer to 'residual flood hazard areas', 'residual risk areas' or 'residual risk' as appropriate for the text. We set out below the consequence of that in our decision on the title to the overlay map of Level 4, and for Policy 11.1.9 (d) and related Policy 11.1.11.

94. The second aspect where submitter evidence was persuasive with the Panel was in relation to the omission of recognition of elevated areas within the pocket area. That evidence meant that those areas either needed a lesser level of flood overlay identification, or in some limited localities even total removal of the overlays. It became obvious after the hearing that that evidence had also been persuasive with the Section 42A Report writers. Their reply to the submitter evidence addressed a number of changes of benefit to submitters after further on-site discussions, and reconsideration of the detail of the most recent LIDAR survey materials.

95. The Panel has considered each of those recommendations in detail and agrees with them as it was satisfied on the level of accuracy able to be achieved by application of the LIDAR dataset, coupled with extensive aerial photography from the 1998 flood in particular, that the

amended overlay delineations recommended were accurate. (The Broughan submission[5] provides scope for those mapping amendments as it sought a review of the Overlay as it applied to the Tuamarina pocket.)

Decision

96. Policy 11.1.9 is amended to read:

Policy 11.1.9 – Establish a hierarchy of flood risk (Levels 1 to 3) as follows:

(a) Level 1: Land that suffers flooding of shallow, low velocity water in a flood event with an annual recurrence interval of 1 in 50 years;

(b) Level 2: Land that suffers flooding but the depth/velocity of the flooding is not well understood, or cannot easily be expressed relative to natural ground level, in a flood event with an annual recurrence interval of 1 in 50 years, or land within 8 metres of any lake, river or wetland;

(c) Level 3: Land that suffers flooding of deep, fast flowing water in a flood event with an annual recurrence interval of 1 in 50 years, or land in the bed of any lake or river or in any wetland; and

~~*(d) Level 4: Land that has the potential to suffer flooding of deep, fast flowing water in an extreme flood event that overwhelms stopbanks and other constructed flood defences.*~~

Through a combination of historical records and modelling, the Council has been able to characterise the nature of likely flood events. The different flood hazard levels in the policy ~~(in terms of depth and velocity)~~ reflect the potential severity of flooding (in terms of depth and velocity). Flood risk increases from Level 1 to Level 34, creating a hierarchy of flood risk. The hierarchy allows the management of flooding to be specifically tailored to reflect the risk. In other words, avoiding or mitigating a Level 1 flood risk requires a different response to avoiding or mitigating a Level 34 flood risk. ~~This is~~ The different responses to the levels are reflected in subsequent policies. The three ~~four~~ levels of flood risk will each be represented by separate flood hazard overlays. An annual recurrence interval of 50 years has been used as the relevant measure of flood risk as it reflects the standard specified in the New Zealand Building Code for managing flood risk to buildings. Level 2 and Level 3 also include land within or in close proximity to lakes, rivers and wetlands. This is because this land has a greater potential to be flooded. It also ensures that the risk of flooding is managed where no historical records

[5] (229.1)

exist or where no modelling has been undertaken. ~~Level 4 is an extreme flood event and is rarer than a flood with an annual recurrence interval of 1 in 100 years.~~

97. Policy 11.1.11 is amended to read:

Policy 11.1.11 – ~~Avoid locating intensive residential, commercial or industrial developments on land subject to a Level 4 flood risk.~~ Identify land that has the potential to experience flooding of deep, fast flowing water in an extreme flood event that overwhelms stopbanks and other constructed flood defences as residual risk areas (Level R) and avoid locating intensive residential, commercial or industrial developments on land subject to a Level R flood risk.

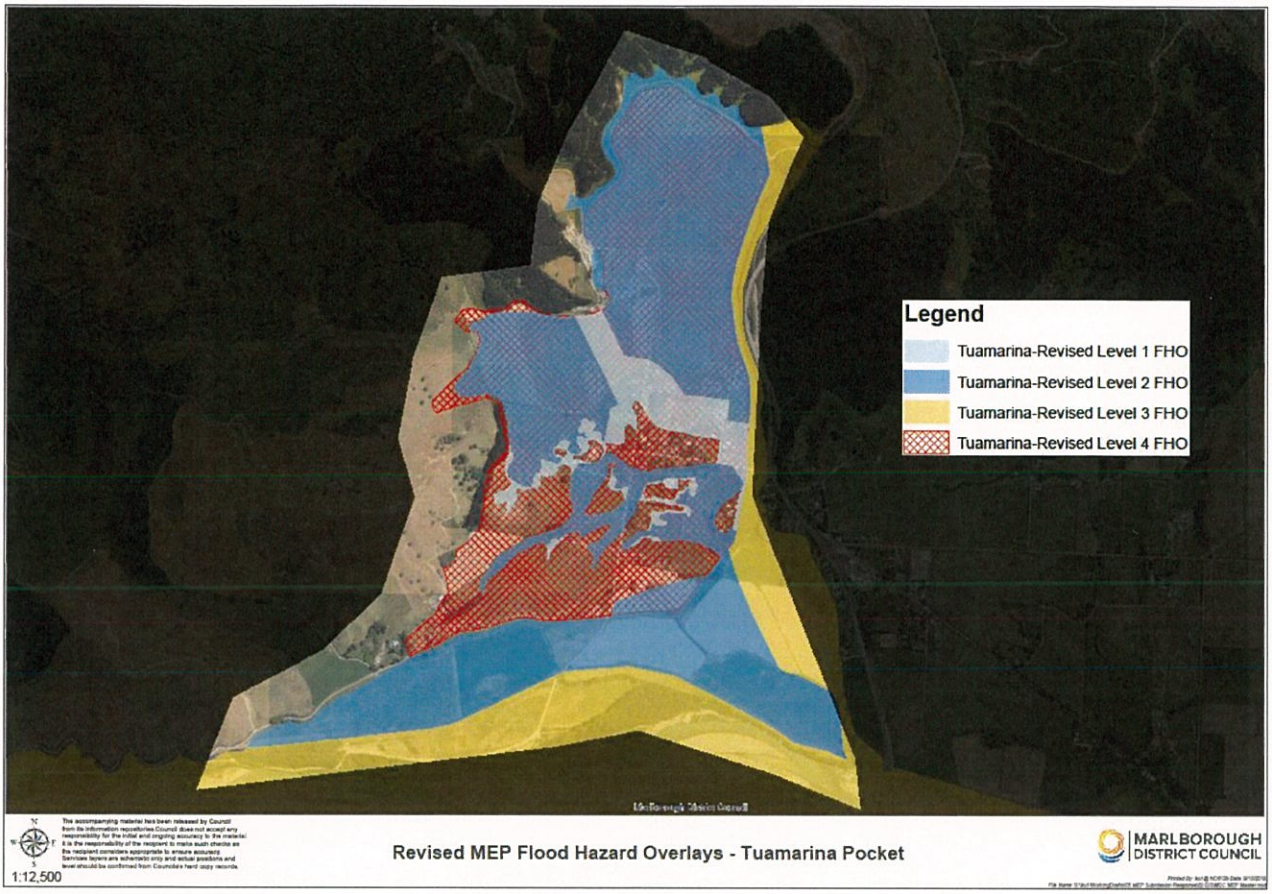
It is possible that areas protected by flood defences will experience extraordinary flood events that exceed the annual recurrence intervals specified in Policy 11.1.4 and subsequently overwhelm stop banks or other flood defences. In some areas, this will result in a sudden occurrence of deep, fast flowing waters that could endanger life, property and regionally significant infrastructure. Although such an event has a very low probability of occurring in any given year, the adverse effects could be catastrophic if intensive development is allowed to occur in these areas.

The Council has considered this and has signalled through this policy that it would be inappropriate to allow any future commercial, industrial or multi-lot residential developments to occur in areas subject to a Level R4 flood risk. Level R indicates an extreme flood event that breaches flood protection works and is rarer than a flood with an annual recurrence interval of 1 in 100 years.

This policy applies to the rezoning of land that would facilitate these developments or to resource consent applications for subdivision or development. While there are not any specific rules that apply to the Level R overlay ~~In the case of~~ resource consent applications for residential subdivision and development and other intensive activities will be assessed against this policy. T~~t~~he threshold for the application of the policy is the creation or development of lots less than one hectare. The density of development where lots are in excess of one hectare is considered an acceptable risk given the probability of flood breakout occurring.

98. The Flood Hazard Areas overlay maps are amended by replacing the references to 'Level 4' with 'Level R'.

99. The hazard overlay mapping for the Tuamarina Pocket area is amended as set out in the response to the Panel's Minute 39 and as shown below:



100. Policy 11.1.13 and explanatory statement are amended to read:

> *Policy 11.1.13 – Recognise that the risk to life and property during flood events ~~is~~ may be greater in rural environments given longer response times.*
>
> *...*
>
> *The potential increase in flood risk caused by locating development in rural areas needs to be taken into account by individuals when purchasing properties. The Council can also recognise this issue when planning for residential growth in Marlborough. Consolidation of growth in and around existing urban areas will facilitate effective responses to flood events. This matter, along with other rezoning considerations needs to be taken into account when considering the rezoning of land in rural environments to provide for residential, commercial or industrial developments.*

Flood Hazard Overlay Level Two impact

101. The combination of Policies 11.1.8 and 11.1.10 (a) and (b) were the subject of a submission by Mr. T. Offen[6] which was agreed with by the s42A report writer and by the Panel for basically the same reason but the Panel preferred a slight difference in wording to that recommended. The issue can be dealt with succinctly.

102. Policy 11.1.8 provides:

> *Policy 11.1.8 – Unless provided for by Policy 11.1.10(a), avoid locating houses and other habitable structures, including associated on-site wastewater management systems, where they could be inundated or otherwise damaged by flood events.*

103. Mr Offen made the valid point that on its face that wording appears to only allow for development solely in circumstances allowed for by Policy 11.1.10(a) set out below which only relates to Flood Hazard Level 1 land building development options. His submission drew attention to the fact that the wording of Policy 11.1.8 failed to refer to the fact that Policy 11.1.10(b) actually enabled other options for Flood Hazard Level 2 as well.

104. It provides as follows:

> *Policy 11.1.10 – Control the erection and placement of houses and other habitable structures within areas subject to a flood hazard overlay, and reduce the risks to life and property by:*
>
> *(a)* ...
>
> *(b)* *requiring houses and other habitable structures subject to a Level 2 flood risk to be subject to evaluation of the flooding hazard and effective mitigation actions; and ...*

105. The Section 42A report writer agreed with that submission and recommended at paragraph 98 of the original report that all that was required to overcome the issue was an additional wording added to the explanatory statement to Policy 11.1.8 drawing attention to Policy 11.1.10(b).

Consideration

106. With one minor word change to we agree with the addition of the recommended sentence at the end of the explanatory statement to Policy 11.1.8. The word change is from 'justify' to 'enable'.

[6] (151.3)

Decision

107. Insert a new additional sentence at the end of the explanatory statement to Policy 11.1.8 as follows:

... *In addition, Policy 11.1.10(b) requires an evaluation to establish the nature of the flood hazard in the Level 2 risk area. The results of the evaluation may enable locating a house or other habitable structure in this risk area.*

108. The exception recognises that Policy 11.1.10(a) provides a means of mitigating the adverse effects of flooding by establishing minimum floor levels. In addition, Policy 11.1.10 (b) enables an evaluation to establish the nature of the flood hazard in the Level 2 risk area. The results of the evaluation may enable locating a house or other habitable structure in this risk area.

Hazard Overlay and Floodway mapping in other locations not in the Tuamarina Pocket

109. In a number of other locations submissions were received from various property owners in the following situations as to the need for closer reconsideration of mapped Flood Hazard Levels or Floodway Zone boundaries.

110. Those submissions included submissions in respect of properties owned by:

- S & D Groome, T Offen and A Harvey all at Clova Bay, Pelorus Sound mapped on Map 4 & 6;[7]
- S Parkes located at Queen Charlotte Drive Linkwater mapped on Map 13;[8]
- Raeburn Property Partnership at Waikakaho valley mapped on Map 23;[9]
- CG & WA Tozer immediately adjacent to the Wairau River on its southern side in the lower Rapaura/Spring Creek area mapped on Map 23 (acceptance of this submission would necessitate a consequential change to the adjoining property to the west);[10]
- KJ, JS & JA Timms, P Wilhelmus and Ormond Aquaculture located at Wairau Valley on the southern side of the river west of the township mapped on Map 28;[11]
- Tim and Franzi Trust located at Riverlands by Cob Cottage Road mapped on Map 33;[12]
- CG & WA Tozer immediately adjacent to the Wairau River on its southern side in the lower Rapaura/Spring Creek area mapped on Map 149; and finally,[13]
- M Tschepp and J Park located in the Waihopai Valley and mapped on Map 169.[14]

[7] S & D Groome (344.1 & 350.1), T Offen (151.1 & 151.5) and A Harvey (388.1)
[8] (339.28)
[9] (1084.7)
[10] (319.17)
[11] KJ, JS & JA Timms (475.2), P Wilhelmus and Ormond Aquaculture (1035.4)
[12] (353.1)
[13] (319.4)

- M Patrick located at 8 Market Street, Picton and mapped on Map 34.[15]

Section 42A Report

111. In each of those cases the Section 42A report and/or Reply to Evidence report detailed the reconsideration carried out by Mr Kuta after discussions on-site with the submitters. The reports detailed the changes suggested to be made and the reasons for those changes. The Panel, after its consideration of the evidence from submitters, was persuaded to amend the maps in the case of the submitters listed above.

Consideration

112. However, as to the extent of the changes in each case, the Panel has accepted the expert evidence and assessment of Mr Kuta and has agreed with his recommendations in each case for the reasons outlined in either the original report and/or the response to evidence. The Panel did not receive countervailing expert evidence to a level of detail which either rebutted or undermined the detailed recommendations made by Mr Kuta in each case.

113. Another reason why this discussion has been included in the Panel's decision is particularly because in the case of the Tozer submission, the amendments recommended have the effect of changing the Floodway Hazard extent on the adjoining properties to the west.

114. However, the Panel considers that the relatively small adjustments recommended to be made can be regarded as reasonably within the scope of the relief sought in the Clive Tozer submission, because that submission was seeking mapping changes based on water levels. It is obvious and logical that water levels will not be restricted in their effects by title boundary lines. Moreover, the Panel considers that the effects of the change sought is beneficial for the adjoining property owners in that it removes areas from the more restrictive planning treatment of the lands, and so the changes are not at all prejudicial to the respective landowners' interests. In short the result of the amendments approved by the Panel is to lessen the PMEP impact on the affected land not to increase it.

115. A map provided by Mr Kuta in response to Minute 39 showed minor consequences to other properties that the Panel accepts because the effect of the consequential changes is less restrictive for the properties affected. A number of other submissions made seeking amendments to Floodway mapping or Flood Hazard Level mapping were not accepted on reconsideration by Mr Kuta for the reasons he set out in the Section 42A Report. The Panel has carefully considered each of those submissions.

---

[14] (631.42)
[15] (434.1)

116. One submitter who did appear was Timberlink Limited. It sought removal of the Floodway zoning affecting a long elongated slither of land in the Taylor River area in Blenheim on which it conducts some of its activities, particularly involving the storage of timber or vehicle movements related to that activity. The land is leased from the Council and the lease enables the storage of timber.

117. The Panel's view of that request was that removal of the Floodway zoning at that location was inappropriate in terms of potential high flood levels which can inundate that land in major flood events as Mr Kuta stressed. The Panel's decision cannot of course affect the terms of the lease, but the Panel notes the lease does not enable either side not to abide by other statutorily based legal obligations. The Panel also noted the lease has only a relatively limited number of years to run. Its renewal or otherwise, and on what terms, can be reconsidered at that time.

118. Other issues of significance included a submission by G Hutchings[16] which sought removal of the Flood Hazard Level 2 Overlay on a property adjacent to the Waikawa Stream. Mr Hutchings did not appear at the hearing. Removal at one location obviously has potential implications for other properties affected up or down stream from the submitter's property. The Section 42A Report drew the Panel's attention to the fact that the Council was undertaking a detailed hydraulic analysis of the Waikawa Floodway which would also include with greater certainty the detailed design flood level around the Hutchings property.

119. The Panel is of the view that protection of this floodway is of major importance to its safe functioning as it protects many properties downstream from the submitter and that a conservative approach is warranted until the detailed broader hydraulic analysis has been carried out. Once that has been completed a plan change can be carried out with design levels having more precision. For those reasons the submission is rejected.

120. A not dissimilar situation arose in respect of the submission by the NZ Institute of Surveyors seeking to remove Flood Hazard Level 1 mapping on the lower terraces immediately north of Renwick.

121. The Section 42A Report stated that major flood protection upgrade works were planned to be carried out in the 2019/2020 year but until they were complete that it was premature to remove the Flood Hazard Overlay. The Panel was well aware that this area has been the subject of flood risk exposure which is the very reason the flood protection upgrade works are planned to be carried out. Once those works have been completed then a plan change process

[16] Grant Hutchings (48.1)

can be undertaken to reflect the detailed final outcome of the protection provided by those works. The Panel will recommend to Council that that planning process follows on the completion of the physical works.

122. The Panel recommends that once upstream upgrade flood protection works have been completed, increasing protection for the lower terraces north of Renwick, that Council embark on a detailed flood risk analysis and accompanying plan change proposal to amend the Flood Hazard Level 1 mapped area.

Decision

123. The Timberlink submission is rejected.

124. Amend flood hazard overlay maps 4, 6, 13, 18, 23, 24, 28 and 33 to reflect the maps provided in the Section 42A Report.

125. The Floodway Zone is amended as shown on the Section 42A Report in respect of Map 34 (Michael Patrick Limited), Map 169 (Tschepp and Park) and Map 149 (Tozer).

126. As a consequence to the changes to Mr Patrick's property on Map 34, the overlay over the adjoining property to the south is also amended.

127. As a consequence to the changes to Mr Tozer's property on Map 149, the overlay over the adjoining property to the west is also amended.

Liquefaction mapping detail

Policy 11.1.17

Avoid locating residential, commercial or industrial developments on Rural Environment or Rural Living zoned land on the Wairau Plain east of State Highway 1/Redwood Street, unless remediation methods are to be used to reduce the level of liquefaction risk to an acceptable level.

128. The potential liquefaction hazard posed in an earthquake prone area such as Marlborough with population bases and related built development on an alluvial plain was demonstrated graphically in the Christchurch 2010 and 2011 earthquakes. That risk is addressed in the PMEP in Policy 11.1.17:

> *Policy 11.1.17 – Avoid locating residential, commercial or industrial developments on Rural Environment or Rural Living zoned land on the Wairau Plain east of State Highway 1/Redwood Street, unless remediation methods are to be used to reduce the level of liquefaction risk to an acceptable level.*

129. Levide Capital Limited in its submission sought that there be accurate mapping of the Dillons Point Formation soil type subject to liquefaction risk so that planning rules could be applied to proposed developments in that area.

Section 42A Report

130. The Section 42A Report did not recommend any change to the PMEP because it considered the area of the Dillons Point Formation was sufficiently described in the explanatory statement to Policy 11.1.17. Where relevant at the end of the first paragraph the explanatory statement says:

> *... Land underlain by the "Dillons Point Formation" on the Wairau Plain has an elevated risk of liquefaction. The Dillons Point formation is marine sediment deposited on the eastern margin of the Plain by previous marine processes and consists of grains of small and relatively uniform particle size. These characteristics, combined with high groundwater levels, are conducive to liquefaction. The western extent of the Dillons Point formation (at a thickness that represents a significant liquefaction risk) is approximately State Highway 1 and Redwood Street.*

131. In the Reply to Evidence report, Mr Whyte amended the original recommendation to suggest an addition to the explanatory statement at the end of the first paragraph to state:

> *The northern and southern extent is generally the Richmond Ranges and the Wither Hills respectively.*

Consideration

132. The Panel agrees essentially with the submitter's concern that some more accuracy of aerial extent is needed as to the northern, and southern boundaries of the Dillons Point Formation soil type. The western boundary description is sufficient and as the explanation speaks of marine sediment on the eastern 'margin of the plain' that addresses the eastern boundary as being the sea.

133. The Panel agrees with the Reply to Evidence report that closer definition needs to be achieved to north and south by amendment to the wording of the explanatory statement. However, based on the local knowledge of some Panel members, there is some concern at the report writer's final suggestion. Whilst technically it is possible to suggest that the ranges to the north may still lie within a description of the 'Richmond Ranges', that terminology is commonly utilised for the ranges to the west of the Kaituna Valley, or at most to the west of the Tuamarina Valley.

Decision

134. To avoid ambiguity or uncertainty, the explanatory statement for Policy 11.1.17 is amended by the addition of the following sentence at the end of the first paragraph:

... The western extent of the Dillons Point formation (at a thickness that represents a significant liquefaction risk) is approximately State Highway 1 and Redwood Street. The northern and southern extent is generally the foothills of the ranges to the north and south of the Wairau Plain.

Sediment removal from Lower Wairau drainage system

135. The drainage system in the Lower Wairau Plain is a prime example of a method utilised to avoid or reduce flood hazard risk. Those systems, and the means of maintaining them by removal of sediment build-up, were the subject of submissions by the Marlborough District Council[17]. The size and scope of the network was made clear when the Panel was advised that there are a total of 254 identified channels in the Drainage Network, and the extent of the Drainage Network which potentially comprised a watercourse was approximately 150km long.

136. The MDC submission sought permitted activity status for the repetitive maintenance activities of sediment and invasive weed removal. MDC Rivers Section stressed that its activities were of regional significance, and related to publicly owned assets in the drainage system involved and its associated drains and culverts. It also stressed that the sediment removal activity was intermittent and limited in duration concluding that as a consequence the effects of the sediment removal were small, but the benefits were large in avoiding or reducing flood hazard risk to adjoining properties.

137. In respect of the MDC request, the Section 42A Report[18] recommended a new rule making provision for the weed removal on a broad basis. The Panel on its initial consideration issued Minute 30 seeking further information as follows. That minute describes the nature of the Panel's concerns:

> 3. *The MEP Hearing Panel (the Panel) noted that the rule would allow for sediment to be removed from any "drain" included in the Drainage Channel Network (as identified in the relevant overlay map in Volume 4 of the Proposed Marlborough Environment Plan).*
> 4. *The Panel recognises that for many drains, sediment removal is probably necessary to maintain channel efficiency and therefore the drainage function.*

[17] (91.63)
[18] Section 42A Report, page 333

5. *However, the Panel also notes that the Drainage Channel Network might also consist of rivers, some of which may support instream ecological values. Spring Creek is probably a notable example.*
6. *The Panel would like to be informed as to whether there are rivers that form part of the Drainage Channel Network within which the removal of sediment, in accordance with the recommended rule and standards, would have the potential to cause a significant adverse effect on instream ecology? If the answer to that question is yes, then the Panel requests that these rivers be specifically identified.*
7. *The Panel notes that one of the recommended standards restricts sediment removal when the depth of water is greater than 2 metres. This may provide appropriate protection for rivers, so the standard should be taken into account when answering the two questions above.*

138. The response provided to that minute came from Mr Peter Hamill the Council officer in charge of its Environmental Science and Monitoring (ESM) team. He reported that the ESM team and the Rivers Section of the Council have different views over which watercourses in the Drainage Network are rivers under the RMA or artificial drainage channels.

139. The Panel considers that it does not need to make a definitive ruling on that knotty issue. Rather its focus has to be on the potential 'cost' in effects terms of the introduction of the proposed permitted activity rule. Mr Hamill's response reached a similar conclusion[19].

140. He also drew the Panel's attention to a 2016 NIWA report on the ecological state of waterways in the Lower Wairau Plain which he summarised as follows:

11. *In 2016 a follow up assessment of watercourses on the Wairau Plain (attached) was conducted by NIWA to determine and changes over time. The report shows that in general there has been a general deterioration in the ecological condition of the watercourses since 2002. The 2016 report also stated that the ecological values of watercourses on the Wairau Plains were limited by modified channels, heavy siltation and excessive in-channel vegetation dominated by invasive weeds.*

141. Amongst the species affected by weed and sediment removal were giant kokopu, which are rarely found in Marlborough, and very large numbers of eels – mainly shortfinned.

142. The invasive weed issue the Panel was told is addressed about every 10 years, and sediment removal has to be particularly carefully addressed for reasons described below[20]:

[19] Mr P Hamill, Response to Minute 30 of the Hearing Panel, para 7-10.

12. *The Drainage Network almost entirely made up of watercourses that form through the interception of groundwater and have very small flat catchment areas. As a result the sedimentation that enters the system is not coming from erosion of hills and mid slope failures, but from bankside collapse and inputs from subsurface drainage. This means that the volumes of sediment that end up in the waterways are of relatively small volumes.*

13. *The removal of sediment from the Drainage Network needs to be managed very carefully to ensure that the channels are not deepened any more than they currently are. If the channels are deepened it means that more ground water is intercepted which in turn reduces aquifer pressures. A deeper channel also increases the risk of bank collapse starting the whole cycle of the need for sediment removal again.*

143. Once again the Panel was informed that to avoid undue bank collapse sediment removal in the drainage system was only carried out every ten years.

Consideration

144. This is not an easy issue. The removal of sediment and invasive weed species are of major importance to the proper functioning of the waterways contained in the drainage network in physical and ecological terms, and the physical functioning is crucial to reduce or avoid natural hazard flood risk to properties. Policy 14.1.10 recognises those realities:

> *Policy 14.1.10 – Control water levels in the Marlborough District Council-administered drainage network by removing surplus water from the soils of the Lower Wairau Plain to enable primary production activities to continue.*
>
> *This policy signals that the Council intends to continue to maintain its drainage network as a means of allowing landowners and resource users to continue accessing the productive capacity of the soil resources of the Lower Wairau Plain. This will require the active control of water levels within the drainage network and the maintenance of drains, small rivers and infrastructure (e.g. pumps, flood gates) that make up the network.*

145. However, it is plain that the removal processes for both weed and sediment themselves have significant effects which warrant a conservative approach to their management.

[20] Mr P Hamill, Response to Minute 30 of the Hearing Panel, para 12-13

146. The Panel has decided the request for permitted activity status should be rejected, but that an addition should be made to the explanatory statement to Policy 14.1.10. That is needed to explain the ecological sensitivity of the drainage network environment and that that sensitivity requires long-term resource consent conditions to be in place so as to ensure management of the sediment and weed removal activities is appropriately controlled. The detail of such controls, and the possible need to vary them as improvements in management techniques are developed, is not seen as being able to be flexibly provided by standards in a resource management plan which would require cumbersome plan change processes to vary.

Decision

147. The request for a permitted activity rule is rejected but the Panel directs that the following sentences are added as an additional paragraph at the end of the explanatory statement to Policy 14.1.10:

However, the ecological sensitivity of the drainage network environment is such that long-term resource consent conditions need to be in place so as to ensure management of the sediment and weed removal activities is appropriately controlled. There will over time be likely to be a need to vary those conditions of consents as improvements in management techniques are developed.

Sediment removal from culverts and roadside drains

148. At a different scale and in widely differing circumstances roadside drains and culverts also serve a very useful purpose in avoiding flood risk on the surface of roads and adjacent properties.

149. NZTA in its submissions[21] similarly sought permitted activity status for sediment removal. It stressed that its system of culverts and drains were of both regional and national significance in reducing or avoiding flood hazard risk to adjoining properties whilst protecting the safety of road users by removing flood hazard risk from road surfaces. NZTA also stressed the public ownership of the assets and the entity controlling the activities.

150. Its submissions sought permitted activity status for those repetitive maintenance activities of sediment removal. They also stressed that the sediment removal activity was intermittent and limited in duration, and again NZTA asserted that as a consequence the effects of the sediment removal were small, but the benefits were large in avoiding or reducing flood hazard risk to road surfaces and to adjoining properties.

[21] New Zealand Transport Agency (1002.129 & 130)

151. The Section 42A Report pointed out that the rules in the notified PMEP only allowed this activity in beds of rivers and lakes and otherwise drew attention to Rule 2.82 which enables maintenance of existing structures.

152. NZTA responded at the hearing by asserting that many of their roadside drains would be within the RMA definition of 'rivers' and therefore it proposed the wording of a new enabling rule. The Reply to Evidence report expressed concerns the rule proposed by NZTA would enable other parties other than NZTA to have permitted activity status – the inference being that could lead potentially to uncontrolled activities with adverse downstream effects. That report also drew attention to the possibility of 'global resource consents' to meet the need.

Consideration

153. The Panel shares the concerns expressed in the Reply to Evidence. It also recognises, though, that there is a major public value in the proposed activities.

154. The Panel takes the view, however, that the most practicable response is not a rule and associated standards in the PMEP but rather long term 'global' consents being sought by NZTA to carry out those activities. Those consents can have a designed suite of appropriate conditions coupled with a detailed management plan.

155. Once again, as was the case with its decision on the MDC drainage network request, there is a desirable level of flexibility available using that approach. It enables relatively ready variation of conditions as techniques develop over time, rather than the cumbersome plan change process and the limitations inherent in rules and standards which have to be crafted as being available to all and which struggle to provide the level of precision needed in management techniques.

Decision

156. The submission requests of NZTA on this issue are rejected.

Works in riverbeds & floodway channels

157. Considerable submission input occurred, particularly from utility operators, in respect of the policies and rules in respect of maintaining clear floodways and riverbeds.

158. One of the more intriguing submissions received was that of Jet Boating NZ Inc[22] which sought provision of a permitted activity status for 'minor' works to enable jet boat activities and events. The Jet Boating NZ Inc representatives who appeared explained that the Association had relatively few events which did not warrant the cost and complexity of repetitive resource

[22] (64.1 & 612.1)

consent applications to prepare courses for jet boating events. They had relatively low membership numbers to bear what they saw as being unnecessary resource consent compliance costs. They drew attention to similar provisions in the Tasman Resource Management Plan. They generally emphasised, both in their written materials and orally, that the works they undertake are only 'minor' in nature, and that the channel formations or diversions they create are restored after each event – hence their assertion of 'minor' effect. Te Ātiawa filed a submission in opposition opposing the relief sought.

159. The Section 42A Report and Reply to Evidence queried whether the activities involved could really be categorised as being minor. The Panel had identified that point particularly in their questioning of the nature of works proposed. The response was that the works would only occur at most 3-4 times a year, and would not involve any greater movement of riverbed materials than could be achieved by a ten tonne digger in about 4 hours.

160. The Panel was not re-assured by that response. In the Panel's view any significant disturbance of that magnitude, or other possibly lesser diversions of natural flow paths in a river bed, have potential adverse effects from sediment movement and ecological disturbance if nothing else which, depending on location, may well have effects which could be considerably more than minor. The alternative would be for the Jet Boating NZ Inc to apply for a long term consent in which it could detail precise locations, predicted effects, sediment control and restoration measures proposed, and a suite of proposed conditions to ensure effects were indeed able to be considered as being 'minor'.

Decision

161. That the submissions are rejected.

Policy 11.1.7

Mitigate the adverse effects of gravel extraction on ecological and recreational values, water clarity and bank stability by: (a) – (b)

162. Policy 11.1.7 as to the mitigation of effects of gravel extraction provides:

> *Policy 11.1.7 – Mitigate the adverse effects of gravel extraction on ecological and recreational values, water clarity and bank stability by:*
>
> *(a) avoiding, where practicable, extraction from the wet bed of any river;*
>
> *(b) placing limits on:*
>
> *(i) the timing of operations (especially to avoid bird nesting);*
>
> *(ii) the method of extraction;*
>
> *(iii) the location of the extraction and access to the location;*

(iv) the amount of gravel that can be extracted; and

(v) the length of time over which the extraction can occur.

163. A number of submissions were made seeking inclusion of other factors in Policy 11.1.7 to be considered. The Panel accepted the recommendation and reasoning of the Section 42A Report at paragraphs 83-85 which included a reference to mitigating effects on irrigation water intakes. The one exception related to the request by Burkhart Fisheries and others[23] that reference is made in the policy to effects on 'fisheries resources'. That was recommended for acceptance by the Section 42A Report but it is regarded by the Panel as being unnecessary as the effects of sedimentation arising from gravel extraction on fish species will be able to be addressed as part of the consideration of 'ecological values'.

Decision

164. Policy 11.1.7 is amended to read:

Policy 11.1.7 – Mitigate the adverse effects of gravel extraction on <u>irrigation water intakes</u>, ecological, and recreational values, water clarity and bank stability by: ...

Rule 2.7.8 and Standard 2.9.8

Minor upgrading in, on, or under the bed of a lake or river of the following utilities:

(a) transmission line existing at 9 June 2016;

(b) telecommunication or radio communication facility existing at 9 June 2016.

165. Rule 2.7.8 was recommended to be amended at page 32 of the Section 42A Report in response to various submissions. The Panel agreed with the reasons for deleting unnecessary references to dates which have now passed, but the Section 42A Report and the Reply to Evidence only made that recommendation in relation to sub-clause (a) whereas the Panel is of the view that sub-clause (b) needs similar amendment for the same reasons. Furthermore the request of Transpower[24] to include reference to 'and associated cables' was recommended at paragraph 265 of the Section 42A Report but omitted from the recommended wording at page 5 of Mr Whyte's Reply to Evidence. The Panel agrees with the Section 42A Report at para 265.

Decision

166. Rule 2.7.8 is amended as follows:

2.7.8. <u>Maintenance, replacement and</u> ~~M~~minor upgrading in, on, or under the bed of a lake or river of the following utilities:

[23] Burkhart Fisheries Limited and Lanfar Holdings (4) Limited (610.6), PauaMAC 7 Industry Association Incorporated (1038.8) and Legacy Fishing Limited (906.9)

[24] (1198.43)

(a) National Grid transmission line ~~existing at 9 June 2016~~ and associated cables;

(b) telecommunication or radio communication facility ~~existing at 9 June 2016~~.

167. Standard 2.9.8 has the same consequential amendments.

Standard 2.9.1.3

There must be no significant change to the external appearance of the structure. Painting a structure is not a significant change for the purposes of this Standard.

168. The report writer's recommendation in relation to this standard was accepted by the Panel but the Panel has decided to slightly reword the recommendation provided in the Section 42A Report.

Decision

169. Rule 2.9.1.3 is amended to read:

2.9.1.3 - There must be no significant change to the external appearance of the structure to the extent that the basic character and integrity of the structure is affected. Painting a structure is not a significant change for the purposes of this Standard

Standard 2.9.1.4

No greater than 10% of the cross-sectional area of the lakebed or riverbed must be disturbed.

170. A number of submitters[25] sought changes to clarify the area of riverbed involved and the Section 42A Report recommended a change to include after the word 'area' the phrase '(length and width), as measured from bank to bank,'. The Panel believes that an alternative phrasing achieves the clarity required with respect to rivers: 'in the active channel of a river at the time that the works are undertaken'. Further clarity is achieved by separating the standard for a lake and for a river.

Decision

171. Standard 2.9.1.4 is amended as follows:

2.9.1.4. With the exception of culverts, n~~N~~o greater than 10% of the cross-sectional area of the lakebed must be disturbed and no greater than 10% of the cross-sectional area in the active channel of a river at the time that the works are undertaken must be disturbed.

Standards 2.9.2.3 and 2.9.2.4

Permitted activity standards for rock protection structures

172. Submissions were lodged by Federated Farmers seeking deletion of two standards 2.9.2.3 and 2.9.2.4 on the basis that the word 'may' was used which is not apposite for a standard. The

[25] Federated Farmers (425.456), PC Hemphill (648.37) and NFL (990.29) and NZTA (1002.121)

Section 42A Report agreed that word was not appropriate for a standard which should not allow for discretion, but the report made the point that the subject matter of the two standards should be retained with more appropriate wording. As the submission sought deletion, amendment falls within the scope of that relief.

173. The Panel agreed with that approach but was not comfortable with the recommended wording. The decision below sets out the wording the Panel has approved for these two standards.

Decision

174. The submission is accepted to the extent that the wording in standards 2.9.2.3 and 2.9.2.4 are amended to read respectively:

2.9.2.3 Rock ~~may be used for protecting~~ is permitted in the protection of existing structures.

2.9.2.4 Rock from damaged or redundant structures ~~may~~ is permitted to be recovered from the lakebed or riverbed.

New Methods

Standards protecting nationally and regionally significant infrastructure

175. Submissions by KiwiRail[26] and NZTA in a further submission and by Transpower[27] sought various rules to protect their infrastructure and proposed various rules or standards to that effect, particularly in relation to drainage works. The Section 42A Report at pages 39 & 40 assessed some of the amendments as being a rather blunt tool which would make maintenance or development of the drainage network difficult as one example. The rule proposed by KiwiRail for example would in effect create a buffer zone for the rail corridor.

176. Transpower had requested recognition in the PMEP policies of the Electricity (Hazards from Trees) Regulations 2003 so as to protect the Grid, (and similar requests were made in other submissions on other PMEP Plan provisions.)

177. Understandably in each case the various submitters stressed the importance of protection of their infrastructure as being of national or regional significance.

Consideration

178. The Panel did not consider that protection of nationally or regionally significant infrastructure requires policy provision for additional rule or standard protection in the Natural Hazards

[26] (873.96)
[27] (1198.51)

chapter beyond what was available elsewhere in the PMEP, save that the Panel did recognise that two major potential impacts needed to be considered - which are now addressed below.

179. The first of the potential impacts on infrastructure which was considered to require a different approach arose from the need to give effect to Policies 10 & 11 of the NPSET. Those policies require Councils to ensure rules and activities do not impact through reverse sensitivity on the operation, maintenance, upgrading and development of the electricity transmission network. The PMEP as amended by the Panel's decisions recognises the importance of a buffer zone for protection of the National Grid Yard.

180. Those Regulations as to hazards to electricity lines from trees have statutory effect and bind all persons already as a matter of law. In the Panel's view nothing more is required by the PMEP than to draw attention to the existence of the regulations – they do not need to be incorporated by specific reference in the PMEP operative provisions. That is most readily achieved by a new Information Method in the Plan.

181. A new method 4.M.11 designed to ensure that outcome is achieved, is worded as follows, (and that response is common to all submissions on the PMEP seeking those Regulations to be incorporated):

> *4.M.11 The Electricity (Hazards from Trees) Regulations 2003 were introduced in recognition that trees need to be kept at a safe distance from electricity lines for public safety and to protect electricity supply. The Regulations define safe separation distances between trees and powerlines, specify who is responsible for ensuring clearances are maintained and place potential liability on the tree owner in some circumstances if any damage or accident occurs when trees touch powerlines. Further information on Electricity (Hazards from Trees) Regulations 2003 is provided via the Transpower New Zealand Ltd and Marlborough Lines websites*

182. The second consideration was to address arguments by KiwiRail that in a similar manner the PMEP should ensure the rail network was not affected unreasonably in an adverse manner from reverse sensitivity. In that regard, it sought particularly that sufficient room for reasonable access was available on adjacent properties for necessary maintenance of structures on those properties without impinging on the rail corridor. In both rural and urban areas decisions on other submissions have recognised the need for a relatively narrow corridor of 1.5 m for that purpose.

183. In summary, the Panel preferred that the issues of integration of infrastructure with other development or activities were addressed by consultative methods. The aim is that integration

of infrastructure and public asset protection and maintenance was put in place in a manner which enabled works to be developed or conducted by using integrated approaches between the broader community and the affected infrastructure operators. The recommendations then in the original report and at page 15 of the report in response to the evidence are not accepted in full. Instead Methods 11.M.7 and 11.M.15 are to be amended as set out in the decision below.

Decision

184. The submissions seeking additional provisions protecting various aspects of infrastructure are only accepted to the extent of the amendments to Methods 11.M.7 and 11.M.15 below, as well as the insertion of the new Method 4.M.11 below:

11.M.7 Council activities

Maintain flood defences and other flood mitigation works to provide protection from flood events as set out in a Council Asset Management Plan. Policies 11.1.3 and 11.1.4 provide guidance as to when the Council will actively manage flood hazards through such intervention and the standards to which protection will be provided. The Asset Management Plan will be prepared in consultation with Marlborough's tangata whenua iwi, relevant utility operators (particularly KiwiRail and NZTA), affected landowners and the community.

The Council may utilise the emergency provisions provided under Section 330 of the RMA to respond to foreseeable or actual hazard events in order to achieve Objective 11.1

The Council will continue to maintain soil conservation works within the Wither Hills Soil Conservation Reserve in accordance with Rivers and Land Drainage Asset Management Plan.

11.M.15 Gravel Management Strategy

Using the information gathered through Method 11.M.14, the Council will determine the sustainable yield of gravel from Marlborough rivers on an ongoing basis. The allowable annual extraction is recorded in the Gravel Management Strategy. The Strategy is used to guide the processing of gravel permit applications. The Gravel Management Strategy is incorporated into the MEP by reference. The Gravel Management Strategy will be prepared in consultation with Marlborough's tangata whenua iwi, relevant utility operators (particularly KiwiRail and NZTA), affected landowners and the community.

4.M.11 Electricity (Hazards from Trees) Regulations 2003

The Electricity (Hazards from Trees) Regulations 2003 were introduced in recognition that trees need to be kept at a safe distance from electricity lines for public safety and to protect electricity supply. The Regulations define safe separation distances between trees and

powerlines, specify who is responsible for ensuring clearances are maintained and place potential liability on the tree owner in some circumstances if any damage or accident occurs when trees touch powerlines. Further information on Electricity (Hazards from Trees) Regulations 2003 is provided via the Transpower New Zealand Ltd and Marlborough Lines websites

Standards for Structures adjacent to afforested areas or in Floodways or Flood Hazard areas

185. In the Rural Environment Zone and to a lesser extent in the Coastal Environment Zone rules there are a series of standards applicable to the location of structures in afforested areas or in Floodways or Flood Hazard areas. There was varying submission support and opposition (detailed at pages 43-44 of the original S42A report.) There was particular submission support for buffer areas from afforested boundaries for residential buildings with Federated Farmers seeking exclusion of pump sheds from the application of those rules in those areas. Other submitters sought exclusion from the operation of those rules in relation to growing structures such as grape trellising.

186. A particular exemption was sought by Mr T Offen because his property in the Coastal Environment Zone had recently been through the subdivision consent approval process as a result of which conditions were imposed to address flood hazard mitigation measures sufficiently to enable a subdivision consent to issue.

187. The Section 42A Report proposed various amendments at page 44 only some of which were accepted by the Panel.

Consideration

188. The Panel was generally accepting of the submissions and evidence stressing that pump sheds were unlikely to be structures capable of causing major diversions in flow or other barriers to flow. Similarly in terms of buffer distances to forestry, the existence of pump sheds would not pose any risk to human life from fires, or be likely to obstruct access for fire-fighting.

189. However, the Panel was concerned at the prospect of flood breakouts tearing out structures for grape growing and what impediment or diversionary effect to flood flows that might lead to so it issued Minute 31 to Council's Rivers Section Manager, Mr Geoff Dick, for response. In summary his response was that vineyard structures should not be located in Floodway zoned areas or in Flood Hazard Level 3 areas but otherwise were not able to be described as a significant risk in Level 2 areas. A part of his views, which essentially summarised his response, follows:

4(ii)(d) In my opinion, outside formal managed Floodways/Floodway Zones, the risks to the wider community of not requiring resource consent for structures in Level 2 Flood Hazard areas is small. The same cannot be said for buildings or similar flood vulnerable structures where Council has an obligation to ensure Building Act requirements in relation to flood damage are met.

190. With the benefit of that guidance the Panel concluded that the submission relief sought could be met by various amendments to the relevant rules as set out in the decision below.

191. Finally, in respect of the submission by Mr Offen it is not reasonable for a recent detailed consideration of flood levels to be affected by the PMEP's more general standards. That is best dealt with for his property, or any similar property, by a separate scheduling of properties exempt for those reasons in an appendix in Volume 3 for the Coastal Environment Zone.

192. For that purpose it will be necessary for the new appendix to be inserted in the PMEP entitled 'Properties exempt from flood hazard requirements under Standard 4.2.1.13'. That appendix will then be able to be populated with subdivision consents where detailed flood hazard assessments have been conducted and the consent granted on conditions which have taken into account those flood hazards.

Decision

193. The submissions on these issues are accepted in part to the extent that the relevant rules in any zone are amended as follows:

3.2.1.7. A habitable structure or accessory building (other than a pump shed) must have a fire safety setback of at least 100m from any existing commercial forestry or carbon sequestration forestry on any adjacent land under different ownership.

3.2.1.15. A building or structure that has the potential to divert water must not be erected within a Level 2 Flood Hazard Area provided that the following buildings or structures are exempt:

(a) Post and wire stock and boundary fences

(b) viticultural support structures

(c) structures which are both less than 6m^2 in area and less than 2m in height; and

(d) masts, poles, radio and telephone aerials less than 6m above mean ground level

3.2.1.16 A building or structure must not be erected within a Level 3 Flood Hazard Area provided that the following buildings or structure are exempt:

(a) post and wire stock and boundary fences,

(b) structures which are both less than 6m^2 in area and less than 2m in height; and

(c) masts, poles, radio and telephone aerials less than 6m above mean ground level.

3.3.10.3. There must be no carbon sequestration forestry planting within 100m of a habitable structure or accessory building (other than a pump shed) located on any adjacent land under different ownership.

4.2.1.6. A habitable structure or accessory building (other than a pump shed) must have a fire safety setback of at least 100m from any existing commercial forestry or carbon sequestration forestry on any adjacent land under different ownership

4.2.1.13 A building or structure that has the potential to divert water must not be erected within a Level 2 Flood Hazard Area provided that the following buildings or structures are exempt:

(a) Post and wire stock and boundary fences;

(b) viticultural support structures;

(c) structures which are both less than 6m^2 in area and less than 2m in height;

(d) masts, poles, radio and telephone aerials less than 6m above mean ground level; and

(e) buildings and structures on those properties scheduled in Appendix 22

4.2.1.14 A building or structure must not be erected within a Level 3 Flood Hazard Area provided that the following buildings or structure are exempt:

(d) post and wire stock and boundary fences;

(e) structures which are both less than 6m^2 in area and less than 2m in height; and

(f) masts, poles, radio and telephone aerials less than 6m above mean ground level.

19.2.1.8 A building or structure that has the potential to divert water must not be erected within a Level 2 Flood Hazard Area provided that the following buildings or structures are exempt:

(a) Post and wire stock and boundary fences

(b) viticultural support structures

(c) structures which are both less than 6m^2 in area and less than 2m in height; and

(d) masts, poles, radio and telephone aerials less than 6m above mean ground level

19.2.1.9. A building or structure must not be erected within a Level 3 Flood Hazard Area *provided that the following buildings or structure are exempt:*

(a) post and wire stock and boundary fences,

(b) *structures which are both less than 6m^2 in area and less than 2m in height; and*

(c) *masts, poles, radio and telephone aerials less than 6m above mean ground level.*

194. A new Appendix 22 is inserted in Volume 3 of the PMEP entitled 'Properties exempt from flood hazard requirements under Standard 4.2.1.13'.

195. The Offen property described as within title identifiers 631325 to 631332 (inclusive) Marlborough Land Registration District and subject to Consent Notice 10549755.4 registered against such titles is to be inserted in the new Appendix 22.

Rules 21.3.11.1 and 21.3.12.3

Removal of aquatic weeds

196. Submissions were made by Marlborough District Council in respect of a range of rules relating to this issue to achieve more satisfactory working outcomes Most led to recommendations as to amendments and reasoning supporting them in the Section 42A Report which the Panel accepted and do not need repetition here.

197. As notified those provisions provide standards for weed removal as follows:

> *21.3.11.1. Crack willow must not be planted on any floodway, except for the Wairau River downstream of the Wye River confluence.*
>
> *21.3.12.3. The excavator must not enter flowing water.*

198. However, in respect of rules 21.3.11.1 and 21.3.12.3 the Panel preferred different wording to that recommended. The Council submission sought deletion of Rule 21.3.11.1 and the Section 42A Report agreed as the Biosecurity Act 1993 covered the crack willow situation.

199. In respect of Rule 21.3.12.3 the Council sought addition of the words "where possible" and the Section 42A Report recommended 'where practical' to achieve more certainty for a standard.

200. The report writer at paragraph 406 recommended acceptance of a submission by MDC that this rule be deleted because the Biosecurity Act prohibited the sale and propagation of crack willow and so the rule was unnecessary. The Panel acknowledged that legislative position but felt it was informative to the public that the plan providing guidance on resource management issues in Marlborough should reinforce that restriction.

Decision

201. Rules 21.3.11.1 and 21.3.12.3 are amended as follows:

> *21.3.11.1. Crack willow must not be planted on any floodway, ~~except for the Wairau River downstream of the Wye River confluence.~~*

21.3.12.3. The excavator must not enter flowing water unless there is no practical alternative.

Rule 2.7

Permitted Activities

Section 42A Report

202. This submission was addressed in the Topic 9 Section 42A Report at para 159, as follows:

> *KMS Mining Ltd (1269.1 and .2) requests small –scale suction dredging where engines are no more than 7 kilowatts power be included as a permitted activity. Given that there is no analysis of potential effects potential effects and there is no suggested standards I recommend that the submission is rejected at this time.*

203. Unfortunately for what otherwise was a very carefully prepared and considered report, it can only be said that in respect of this particular submission there has been an oversight of the attachments and content of the submission as it did indeed propose detailed standards. The report was correct, though, in the statement that there was very limited if any analysis of potential effects.

204. The request for relief in the submission requested a new permitted activity rule with the following standards:

> *Add new standards to support new permitted activity:*
> *2.9.0. Small-scale suction dredging where engines are no more than 7 kilowatts power.*
> *2.9.0.1 (a) The internal diameter of the nozzle does not exceed 150mm; and*
> *(b) The mining activity is not carried out within 20 metres of any structure which has foundations in the river bed, or any ford or pipeline; and*
> *(c) The activity does not cause any flooding or erosion; and*
> *(d) No refuelling is carried out while the dredge is within the wet bed of the river; and*
> *(e) The area dredged lies within the wet bed of the river, and no material is removed from within or under the banks of the river; and*
> *(f) No suction dredge is operated within 50 metres of another dredge; and*
> *(g) No explosives or earthmoving machinery apart from the dredge is used to move material in the river bed; and*
> *(h) Any rocks moved to allow suction dredging to occur are returned as close as possible to the site from which they were removed; and*
> *(i) There is no conspicuous change in the colour or visual clarity of the water body beyond a distance of 100 metres downstream of the point of discharge; and*
> *(j) No lawful take of water is adversely affected as a result of the bed disturbance; and*

(k) No dredging is to take place between the dates 1st May and 30th September to protect fish spawning; and

(l) Dredging is only to be carried out between the times of 7.00am and 7.00pm on any day with noise levels not exceeding 85dBL.

205. Unfortunately the attachments to the submission included a statement that the submitter was likely to be overseas at the time of the hearing and as a result no appearance occurred.

206. As a consequence the Panel only had before it the material in the submission and its attachments. Those included some generalised correspondence from West Coast Regional Council on the Crown Minerals fees review 2016 Discussion Document, examples of Plan provisions from the Tasman, and Otago and West Coast regional plans, and some detailed correspondence as to Wakamarina river access and Fish and Game spawning season concerns in that river.

207. As expressed in the submission the permitted activity status requested was very broad being as follows:

2.7.0. Small-scale suction dredging where engines are no more than 7 kilowatts power.

208. Issues raised by the proposal include the volumes of sediment likely to be disturbed, gravel volumes involved and their physical movement effects on the natural bed of the river and/or the amenity attributes of the river, the volumes of water diverted, noise and visual impacts on other recreational river users, potential impacts on Marlborough's tangata whenua cultural values, and impacts on indigenous fauna and ecosystems.

209. Other major concerns are how the potential number of such dredges could be controlled if permitted activity status was provided as sought, and the rivers or streams in which that status was sought to be applied. It was noted by the Panel that in the example provisions provided by the submission, that a number of water bodies were excluded in those other regions from the permitted activity provisions. Plainly those Councils had concerns as to adverse effects in some rivers if the permitted activity status was provided generally, as is sought in this submission.

210. While the proposed provisions seek to limit effects by limiting the size of the power source and nozzle diameter, the volumes able to be moved and the disturbance created will still be capable of being significant, and increased in potential adverse effects if more than one pump was active.

211. The Panel did not consider that it had sufficient information on most of those issues to form a reasoned decision on whether permitted activity status on the standards proposed would

safeguard the natural quality values which it is required to protect in terms of s 6 (a), (c) and (e) and s 7 (c), (d) and (f) of the Resource Management Act 1991.

Decision

212. The relief requested of a new permitted activity status rule with associated standards is rejected.

[New] Standard 2.13.1.5

213. Transpower (1198.51) requested that a new standard be included to protect the National Grid as follows:

2.13.1.x Within the National Grid Yard:

(a) the activity, and associated works must maintain compliance with the New Zealand Electrical Code of Practice (NZECP34:2001) at all times; and

(b) vegetation planting shall be undertaken to ensure that plants are selected and managed to achieve compliance with the Electricity (Hazards from Trees) Regulations 2003.

214. In addition it sought that the rules for Drainage Channel Network activities be amended as a consequence to make any activity not complying with this new standard a non-complying activity.

Section 42A Report

215. The report writer pointed out that in fact both of the sub-clauses of the new proposed standard were matters which already carried a mandatory status without being in the Plan, but nonetheless he recommended sub-clause (a) should be included to give effect to the NPSET, but with the requested (b) being an Advice Note only.

216. The report writer pointed out that the consistent approach in the PMEP is not to use non-complying status, so he recommended that the request to amend the relevant rule was not accepted.

Consideration

217. In other topic decisions the Panel has concluded that it is unnecessary and not helpful for the Plan to incorporate by reference other statutory documents which have their own statutory effect. That being the case here the inclusion in the Plan of these proposed new standards is not necessary to protect the National Grid as it is already protected by the mandatory nature of compliance being independently required by other statutory instruments. The proposed new standard would add nothing to the mandatory nature of those other instruments. That

being the case, it is unnecessary to incorporate them in the Plan by reference to them as standards in the manner requested.

218. As that is the Panel's conclusion, the issue of a non-complying status rule drops away. (However, the Panel would not have accepted that status was required in any case.)

Decision

219. The requests by Transpower for a new standard 2.13.1.5 incorporating reference to the NZ Electrical Code of Practice and the Electricity (Hazards from Trees) Regulations 2003, and for an amendment to the relevant rule to make non-compliance with that new standard a non-complying activity, are rejected.

11. Natural Hazards

Introduction

A natural hazard is defined in the Resource Management Act 1991 (RMA) as any atmospheric, earth or water related occurrence that may adversely affect human life, property or other aspects of the environment. They include earthquake, tsunami, liquefaction, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire and flooding. On their own, natural processes do not constitute a hazard; they only become hazardous when they adversely affect human lives, property and infrastructure.

Marlborough is characterised by its physical contrasts. The diversity of landscape, climatic conditions and coastline, combined with dynamic geological forces mean that most of the hazards described above can be experienced in Marlborough. The only exceptions are volcanic and geothermal hazards.

Civil defence emergency management in New Zealand is based on four principles – reduction, readiness, response and recovery. The Marlborough Civil Defence Emergency Management Plan (CDEMP) provides strategic direction for the effective and efficient management of all hazards in the District. The CDEMP details the frameworks for readiness, response and recovery. A risk assessment of all likely hazards and consequences is identified in the CDEMP. Earthquakes are identified as having an extreme risk rating, flooding and wildfire have a high risk rating, while coastal erosion and tsunami have a low risk profile.

The Council can act to reduce the risk of natural hazards adversely affecting life, property and regionally significant infrastructure. Using its functions under the RMA to control the use of land to avoid or mitigate natural hazards, the Council can influence the location and management of new developments to ensure that they are not subject to unreasonable risk. Other land uses may adversely affect hazard mitigation works and these can be similarly controlled to ensure that the integrity of the works is not compromised.

Issue 11A – Natural hazards in Marlborough, particularly flooding, earthquakes and land instability, have the potential to cause loss of life and significant damage to property and regionally significant infrastructure.

Marlborough is subject to a wide range of naturally occurring hazards. Earthquakes, tsunamis, land instability, severe rainfall, flooding, wind, drought, fire, hail and snowfall can occur in Marlborough. From experience, the two most potentially damaging natural hazards in Marlborough are major floods in the Wairau River catchment and high magnitude earthquakes from the rupture of a fault. However, the likelihood of any of these hazards occurring in any given year varies significantly. Similarly, the consequences of any natural hazard will depend on the nature, size and location of the hazard event and the land use in the area.

Flooding has been the most regular natural hazard experienced in Marlborough. Historically it has caused considerable damage to properties and infrastructure, especially to residential properties in both rural and urban environments, farm properties (including stock losses) and transportation links. Significant investment has been made to reduce the risk of flooding, including flood protection works along the Wairau River and its tributaries, and along the Waitohi and Waikawa Rivers in Picton. These works include changing the location of rivers through the construction of diversions and blocking off alternative outlet channels through the provision of

stopbanks. Due to the development that these works have enabled, it is not possible to reverse them and the Council has a responsibility to maintain the current "artificial" river pattern.

Eastern Marlborough contains the Wairau, Awatere and Clarence faults onshore and significant and proximate faults in Cook Strait, as well as a number of lesser but still active faults. These faults have the potential to cause significant damage to property and infrastructure and create considerable disruption. Seismic activity can also result in a number of different natural hazards, including liquefaction of soils, inundation by sea, salt water intrusion into freshwater aquifers and tsunamis.

Other potential hazards may have localised effects, such as flooding from streams and stormwater overflows, slope instability and fire. Slope instability involves the falling or sliding of material downslope caused by ground failure within bedrock or the overlying soil. This is of particular concern in some parts of Marlborough because of the potential for earth movements to affect residential sites, rivers and transportation routes.

Our actions in using and developing natural and physical resources can increase the risk and consequences of natural hazards. Building in areas prone to flooding, fault rupture and/or liquefaction and land instability will put peoples' lives, property and infrastructure at risk. In some cases, the severity of the hazard may be able to be mitigated through good location, design and construction to the extent that the consequences are minimal.

Climate change has the potential to worsen the effects of some natural hazards and itself creates a new hazard of a rise in sea level. These issues are dealt with in Chapter 19 - Climate Change (Volume 1 of the Marlborough Environment Plan (MEP)).

[RPS, R, D]

Objective 11.1 – Reduce the risks to life, property and regionally significant infrastructure from natural hazards.

Natural hazards can have significant adverse effects on individuals and the community, including loss of life, personal injury, damage to property and disruption of day-to-day life, business and the provision of community infrastructure. For this reason, the objective seeks to reduce the risks and consequences of natural hazards. This objective also implements direction from the CDEMP, which signals that resource management provisions have an important role to play in risk reduction.

General

[R, D]

Policy 11.1.1 – Establish the extent of land subject to flooding, liquefaction and tunnel gully erosion and identify this land within the Marlborough Environment Plan as a hazard overlay.

In order to reduce the risk of natural hazards it is first important to establish the land likely to be subject to these hazards. This will allow new land uses in these areas to be managed in a way that recognises the inherent risks of the development proceeding. The natural hazards identified in the policy are those to which management can be applied to reduce risk using the provisions of the RMA. The result of implementing this policy will be the production of natural hazard overlays. These will be mapped (or otherwise identified) and included in the MEP. Where there is uncertainty over the spatial extent of a natural hazard, a precautionary approach has been taken. This means that the overlay may be a conservative estimation. However, this approach is considered appropriate given the potentially significant consequences of natural hazards, especially the loss of life.

[RPS, R, D]

Policy 11.1.2 – In conjunction with Civil Defence, provide an emergency response to natural hazard events.

The provision of an emergency response to a natural hazard event is important in managing the adverse effects of the hazard. The Council is actively involved in the provision of a response to natural hazard events for which they are the lead agency, including floods, urban stormwater, sewer or water supply failure. The Council may also provide support or ancillary services to agencies leading the response to other emergency events such as earthquake or major fire. Once a state of local or national civil defence emergency has been declared, the Council will continue to provide services under the direction of the Civil Defence Controller. Details of the roles and responsibilities of emergency agencies and a commitment to a coordinated and collaborative approach to hazards events are included in the CDEMP. This policy also records the intent to continue to be involved in emergency responses on an ongoing basis and recognises that the role of the Council is complimentary to that of Civil Defence.

Flooding – Flood management

[R]

Policy 11.1.3 – To actively manage any flood hazard through the provision and maintenance of flood defences and other flood mitigation works, where there is significant community benefit.

One of the means of reducing the risk of flooding is to provide flood defences to protect the existing population, properties and community infrastructure. On the Lower Wairau Plain, a significant investment has been made over a considerable period of time to protect Blenheim, other towns and the surrounding rural land through the construction and maintenance of stopbanks and the training and diversion of rivers. The Waitohi and Waikawa Rivers in Picton are the only other rivers to which the Council has administered flood defences.

The costs of managing flood hazards are significant. This policy identifies a threshold for justifying such intervention. The initial expenditure to establish flood defences and the ongoing maintenance expenditure must be warranted by significant community benefit. Those benefits will have to be identified and evaluated on a case-by-case basis.

This policy is also moderated by the remaining provisions of this chapter, which seek to avoid or mitigate the adverse effects of flooding by management of new land uses in flood prone areas. This should reduce the demand for additional flood defences.

[R]

Policy 11.1.4 – Establish and maintain floodway capacities for Marlborough's rivers to the following standards:

(a) to an annual recurrence interval of 1 in 100 years for major rivers on the Wairau River floodplain (below the confluence with the Waihopai River);

(b) to an annual recurrence interval of 1 in 50 years for the Waitohi and Waikawa Rivers; and

(c) to an annual recurrence interval of 1 in 50 years for rivers and drainage channels that provide for urban stormwater disposal.

This policy establishes standards for the rivers for which the Council provides flood defences. It also applies to rivers and drainage channels that receive urban stormwater discharges. An annual recurrence interval is the expected period between river flows of a particular magnitude (in other words, a flood of that magnitude has a certain probability of being exceeded in any year). Historical records of flood flows are used to determine the annual recurrence intervals specified in the policy. The standards in (a) to (c) reflect those adopted by the Council in the Rivers and Land Drainage Asset Management Plan. They provide a measure of the level of protection provided by stopbanks, river diversions, detention dams, stopbank erosion protection measures, river channel

clearing, channel excavation channel training, flow control gates and other flood mitigation measures.

[R, D]

Policy 11.1.5 – Enable the maintenance of existing Marlborough District Council administered flood defences and other Council initiated flood mitigation works.

Given the population and community infrastructure that relies on the protection provided by existing Council administered flood defences, it is important that flood defences be maintained to the standards specified in Policy 11.1.4. This policy signals that the maintenance of the flood defences and other flood mitigation works will be enabled. Maintenance could involve works in the river bed or floodway, or on the landward side of flood banks. Regional and district rules will therefore both be required to implement the policy. These rules will assist to provide for the social and economic wellbeing and safety of the communities protected by the Council administered flood defences. The designation of Council administered floodways also enables any maintenance works that would otherwise be covered by Section 9(3) of the RMA to occur (see Policy 11.2.1).

[R]

Policy 11.1.6 – Recognise and provide for gravel extraction as a means of mitigating the adverse effects of gravel deposition in river beds.

Gravel that naturally accumulates in river beds can act to impede flood flows and encourage bank erosion. There is a history of strategic removal of accumulated gravel in Marlborough's rivers (especially the Wairau River) to maintain the floodway capacities specified in the standards of Policy 11.1.4 and reduce the potential for bank undercutting and erosion. This extracted gravel also provides a significant resource that is used in road construction and maintenance and the construction industry.

Provided the adverse environmental effects of gravel extraction are avoided, remedied or sufficiently mitigated, the removal of gravel from the river bed in these circumstances has positive outcomes. The rate and permanence of gravel accumulation is variable and depends on the occurrence of floods and other characteristics specific to each river. A single large flood can significantly change the amount of gravel available and the location of extraction. Regular riverbed monitoring and observations are undertaken to determine the acceptability of gravel extraction at any location and any extraction operation will need to be limited in duration so that its impact can be monitored.

[R]

Policy 11.1.7 – Mitigate the adverse effects of gravel extraction on irrigation water intakes, ecological and recreational values, water clarity and bank stability by:

(a) avoiding, where practicable, extraction from the wet bed of any river;

(b) placing limits on:

(i) the timing of operations (especially to avoid bird nesting);

(ii) the method of extraction;

(iii) the location of the extraction and access to the location;

(iv) the amount of gravel that can be extracted; and

(v) the length of time over which the extraction can occur.

Comment [1]: Topic 9

The main adverse effects caused by the extraction of gravel from river beds are disturbance of bird nesting, impacts on fish habitat, disturbance of recreational activity, sedimentation causing reduced clarity of water, river bank erosion and its potential impact on existing structures located in the riverbed. These effects can be minimised by controlling the method, location, timing, amount and duration of the gravel extraction operation as set out in (a) and (b).

Flooding – management of activities in flood prone areas

[D]

Policy 11.1.8 – Unless provided for by Policy 11.1.10(a), avoid locating houses and other habitable structures, including associated on-site wastewater management systems, where they could be inundated or otherwise damaged by flood events.

The policy directs that to avoid or mitigate the adverse effects of flooding, any house or other habitable structure should be free from inundation. It also recognises that the servicing of the house in terms of domestic wastewater is important in terms of avoiding material damage to properties. The exception recognises that Policy 11.1.10(a) provides a means of mitigating the adverse effects of flooding by establishing minimum floor levels. In addition, Policy 11.1.10(b) requires an evaluation to establish the nature of the flood hazard in the Level 2 risk area. The results of the evaluation may enable locating a house or other habitable structure in this risk area.

Comment [2]: Topic 9

[R, D]

Policy 11.1.9 – Establish a hierarchy of flood risk (Levels 1 – 3) as follows:

- **(a) Level 1: Land that suffers flooding of shallow, low velocity water in a flood event with an annual recurrence interval of 1 in 50 years;**
- **(b) Level 2: Land that suffers flooding but the depth/velocity of the flooding is not well understood, or cannot easily be expressed relative to natural ground level, in a flood event with an annual recurrence interval of 1 in 50 years, or land within 8 metres of any lake, river or wetland;**
- **(c) Level 3: Land that suffers flooding of deep, fast flowing water in a flood event with an annual recurrence interval of 1 in 50 years, or land in the bed of any lake or river or in any wetland; and**
- ~~**(d) Level 4: Land that has the potential to suffer flooding of deep, fast flowing water in an extreme flood event that overwhelms stopbanks and other constructed flood defences.**~~

Through a combination of historical records and modelling, the Council has been able to characterise the nature of likely flood events. The different flood hazard levels in the policy ~~(in terms of depth and velocity)~~ reflect the potential severity of flooding (in terms of depth and velocity). Flood risk increases from Level 1 to Level 43, creating a hierarchy of flood risk. The hierarchy allows the management of flooding to be specifically tailored to reflect the risk. In other words, avoiding or mitigating a Level 1 flood risk requires a different response to avoiding or mitigating a Level ~~4~~ 3 flood risk. ~~This~~ The~~is~~ different responses to the levels are reflected in subsequent policies. The ~~four~~ three levels of flood risk will each be represented by separate flood hazard overlays.

An annual recurrence interval of 50 years has been used as the relevant measure of flood risk as it reflects the standard specified in the New Zealand Building Code for managing flood risk to buildings. Level 2 and Level 3 also include land within or in close proximity to lakes, rivers and wetlands. This is because this land has a greater potential to be flooded. It also ensures that the risk of flooding is managed where no historical records exist or where no modelling has been undertaken. ~~Level 4 is an extreme flood event and is rarer than a flood with an annual recurrence interval of 1 in 100 years.~~

Comment [3]: Topic 9

[D]

Policy 11.1.10 – Control the erection and placement of houses and other habitable structures within areas subject to a flood hazard overlay, and reduce the risks to life and property by:

- **(a) establishing minimum floor levels for houses and other habitable structures subject to a Level 1 flood risk, set at least 450 mm above the natural ground level as measured at any point of the building footprint. The building footprint includes any associated on-site wastewater management system;**

(b) requiring houses and other habitable structures subject to a Level 2 flood risk to be subject to evaluation of the flooding hazard and effective mitigation actions; and

(c) avoiding houses and other habitable structures in locations where they will be subject to a Level 3 flood risk.

Given the potential consequences of a person choosing to reside in a flood prone area, it is considered appropriate to exercise control over any such proposal. This will enable the Council to reduce the risk to life and property from flooding. The matters in (a) to (c) identify how that risk reduction will occur given the likely severity of any flooding event.

Minimum floor levels will be sufficient where land is subject to Level 1 flood risk, as this will mitigate any adverse effects by ensuring any house or other habitable structure is above flood waters and that people can still safely reside in the house/structure during and immediately after a flood event. The appropriate minimum floor level will be determined through the building consent process and in many cases a floor level of 450 mm above the natural ground level will be sufficient.

Where the flood hazard is not well understood (i.e. Level 2 flood risk), it is appropriate that a precautionary approach is taken and that the flood hazard is evaluated. The results of this evaluation may trigger other policies in this chapter. It is not appropriate to allow people to reside on land subject to a Level 3 flood risk, as the deep and fast flowing water would present an unacceptable risk to life and property.

[R, D]

Policy 11.1.11 – Identify land that has potential to experience flooding of deep, fast flowing water in an extreme flood event that overwhelms stopbanks and other constructed flood defences as residual risk areas (Level R) and Aavoid locating intensive residential, commercial or industrial developments on land subject to a Level 4 R flood risk.

Comment [4]: Topic 9

It is possible that areas protected by flood defences will experience extraordinary flood events that exceed the annual recurrence intervals specified in Policy 11.1.4 and subsequently overwhelm stop banks or other flood defences. In some areas, this will result in a sudden occurrence of deep, fast flowing waters that could endanger life, property and regionally significant infrastructure. Although such an event has a very low probability of occurring in any given year, the adverse effects could be catastrophic if intensive development is allowed to occur in these areas.

The Council has considered this and has signalled through this policy that it would be inappropriate to allow any future commercial, industrial or multi-lot residential developments to occur in areas subject to a Level 4 R flood risk. Level R indicates an extreme flood event that breaches flood protection works and is rarer than a flood with an annual recurrence interval of 1 in 100 years.

This policy applies to the rezoning of land that would facilitate these developments or to resource consent applications for subdivision or development. While there are not any specific rules that apply to the Level R overlayIn the case of resource consent applications for residential subdivision and development and other intensive activities will be assessed against this policy., tThe threshold for the application of the policy is the creation or development of lots less than one hectare. The density of development where lots are in excess of one hectare is considered an acceptable risk given the probability of flood breakout occurring.

[D]

Policy 11.1.12 – Where an activity within an area subject to a flood hazard overlay is dependent upon the provision of flood defences to reduce the risk of flooding, there must be an ongoing commitment to the maintenance of the flood defences over time.

The provision of flood defences (either new or existing) may be sufficient to reduce the risk of flooding of any proposed development. The protection afforded by the flood defence (whether

public or private) will only be provided if it is maintained on an ongoing basis. For example, stopbanks can erode and vegetation can compromise the efficiency of a floodway or the integrity of a stopbank. If resource consent is to be granted for a development within an area subject to a flood hazard overlay and that resource consent is dependent on a flood defence, then a requirement for the private flood defence to be maintained should be imposed.

The Council is only likely to undertake maintenance of privately constructed flood defences where they directly adjoin and integrate with existing Council administered defences. In other situations, the obligation for maintenance will be that of the consent holder.

[D]

Policy 11.1.13 – Recognise that the risk to life and property during flood events may beis greater in rural environments given longer response times.

Isolation of properties affects the ability of the Council and Civil Defence to provide an emergency response in the event of flooding. The greater the distance of flooded properties from Blenheim (the location of the Emergency Operations Centre) and other towns, the longer it will take to respond to the flooding, especially in the event of large scale or District-wide events. Some communities are proactively preparing readiness plans in recognition of the additional risks created by isolation.

The potential increase in flood risk caused by locating development in rural areas needs to be taken into account by individuals when purchasing properties. The Council can also recognise this issue when planning for residential growth in Marlborough. Consolidation of growth in and around existing urban areas will facilitate effective responses to flood events. This matter, along with other rezoning considerations needs to be taken into account when considering the rezoning of land in rural environments to provide for residential, commercial or industrial developments.

Comment [5]: Topic 9

[D]

Policy 11.1.14 – Require applicants for subdivision consent for land not serviced by a Marlborough District Council administered reticulated stormwater system to demonstrate that the method of stormwater management will not adversely affect any third party.

The subdivision of land often acts a precursor for land use change, including the use of rurally zoned land for residential, commercial or industrial purposes. Buildings and hardstand areas (e.g. drives, car parking and yards) constructed following the subdivision of land intercept rainwater that would otherwise have soaked into the ground (or ponded) and quickly directs it to other parts of the property or offsite. If the property is not serviced by a Council administered reticulated stormwater system, this stormwater has the potential to adversely affect neighbouring properties or properties further afield. It is important that the potential for flooding is considered as part of the process of creating future allotments. This will require consideration of the likely volume, rate and direction of stormwater run-off. The policy excludes allotments to be serviced by Council administered reticulated stormwater systems, as connection to these systems allows stormwater to be removed from the property effectively.

Comment [6]: Topic 14

[D]

Policy 11.1.15 – Any allotment of less than one hectare proposed to be created in the Rural Environment Zone or the Rural Living Zone must be shown to have a minimum area free of flooding during a flood event with an annual recurrence interval of 1 in 50 years of:

(a) 1,000 square metres; or

(b) 80 percent of the property,

whichever is the greater.

Section 106(1)(a) of the RMA provides the Council with options through the subdivision consent process for managing the material damage to land or any structure on that land as a result of flooding (and other hazards). Policy 11.1.10 sets standards for new dwellings and associated servicing to minimise material damage. However, property owners will also have a reasonable

expectation that they can also use the remainder of their property on an ongoing basis. This policy establishes a standard to minimise the amount of material damage that can occur to land. The threshold of one hectare is used to differentiate between residential properties and properties used for rural purposes. The Council's experience is that people residing on properties smaller than one hectare have expectations similar to residentially zoned properties, which is that their property will not be affected by flood events. The standards set in (a) and (b) ensure that most of a property remains capable of use during a flood event. An annual recurrence interval of 1 in 50 years reflects the standard specified in the New Zealand Building Code as the relevant measure of flood risk.

[R, D]

Policy 11.1.16 – Refine the boundaries of flood hazard overlays in response to:

- **(a) changes to levels of protection provided by flood defences and other flood mitigation/management works; or**
- **(b) new observations of flood events or more detailed assessment of the flood hazard; or**
- **(c) changes in catchment hydrology due to land use change or climate change; or**
- **(d) changes in flood hydraulics due to channel aggradation or erosion, vegetation growth within the floodway or sea level rise.**

The mapped flood risk will change from time to time either because the flood risk physically changes or because the Council's knowledge of flood risk improves with more information and/or analysis. Where the extent of the flood hazard changes as a result of the matters set out in (a) to (d), it will be necessary to refine the boundaries of the flood hazard overlay in the MEP. This refinement is likely to occur on an ongoing basis. Any such changes will have to pass through the First Schedule process of the RMA.

Earthquake and liquefaction

[D]

Policy 11.1.17 – Avoid locating residential, commercial or industrial developments on Rural Environment or Rural Living zoned land on the Wairau Plain east of State Highway 1/Redwood Street, unless remediation methods are to be used to reduce the level of liquefaction risk to an acceptable level.

Liquefaction is the process by which earthquake shaking causes increased pore water pressure in soils that in turn reduces the strength of the soils. The potential for shaking intensities sufficient to trigger liquefaction is significant given the overall seismicity of the District. Land underlain by the "Dillons Point Formation" on the Wairau Plain has an elevated risk of liquefaction. The Dillons Point formation is marine sediment deposited on the eastern margin of the Plain by previous marine processes and consists of grains of small and relatively uniform particle size. These characteristics, combined with high groundwater levels, are conducive to liquefaction. The western extent of the Dillons Point formation (at a thickness that represents a significant liquefaction risk) is approximately State Highway 1 and Redwood Street. The northern and southern extent is generally the foothills of the ranges to the north and south of the Wairau Plain.

Comment [7]: Topic 9

This policy signals that it would be unwise to allow any future commercial, industrial or multi-lot residential developments to occur on rurally zoned land underlain by the Dillons Point formation due to the high risk of liquefaction. Such liquefaction has the potential to cause significant damage to buildings and infrastructure and would therefore cause significant disruption to residential, commercial or industrial activity. A policy of avoiding such development of land ensures that significant investments and community infrastructure is not subject to unnecessary risk.

In some situations, it may be possible to implement remediation methods to reduce the level of risk to an acceptable level. This will be assessed on a case-by-case basis.

This policy applies to the rezoning of land that would facilitate these developments or to resource consent applications for subdivision or development. In the case of resource consent applications for residential subdivision and development, the threshold for the application of the policy is the creation or development of lots smaller than one hectare. The density of development where lots are in excess of one hectare is considered an acceptable risk given the probability of an earthquake occurring.

[D]

Policy 11.1.18 – Where it is proposed to subdivide land zoned Urban Residential 2 – Greenfields and land identified in Appendix 23 for residential purposes, the subsoil of the site must be investigated to establish if specific foundation designs of buildings are required to mitigate the effects of liquefaction or lateral spread.

There are areas of land zoned for residential development that may have localised soils susceptible to liquefaction and/or lateral spread. The policy requires that, in the event of proposals to subdivide land within the Urban Residential 2 – Greenfields Zone and within the land identified in Appendix 23 for residential development, that the subsoil be specifically investigated to establish the risk of these hazards occurring in the event of an earthquake. For land zoned Urban Residential 2 – Greenfields, standards set out the nature of those investigations. The results of the investigation will determine whether specific foundation design will be required to mitigate the effects of liquefaction and/or lateral spread.

Land instability

[D]

Policy 11.1.19 – Control the erection and placement of structures within areas prone to tunnel gully erosion.

The extent of land potentially subject to tunnel gully erosion in Marlborough and the nature of the resulting hazard are well understood. The hazard is directly linked to loess soils that exist predominantly in the hill country along the southern boundary of the Wairau Plain. The Council (and its predecessor) has a long history of managing the risk of tunnel gully erosion. In areas prone to tunnel gully erosion, it is important that any new structure is not subject to an unreasonable risk of damage. The controls will be primarily applied through the Building Act 2004. The policy allows, in conjunction with Policy 11.1.20, the risks to life and property created by unstable ground to be reduced. Areas of loess soil are identified in the MEP.

[RPS, R, D]

Policy 11.1.20 – Continue to manage the Wither Hills Soil Conservation Reserve to maintain and enhance soil stability.

The Wither Hills Soil Conservation Reserve comprises 1,100 hectares of land the length of the southern boundary of the Blenheim urban area. The soils over the Reserve are loess and are particularly vulnerable to tunnel gully erosion. Eroded material has the potential to fill stream channels at the base of the Wither Hills and create a flood risk for the Blenheim urban area. This policy signals that soil conservation management will continue for the foreseeable future to manage this flood hazard. This will be achieved through an active programme aimed at maintaining and enhancing soil stability over the Reserve.

[D]

Policy 11.1.21 – Locate new structures and works to:

(a) **avoid them being damaged from the adverse effects of land instability; ~~and~~or**

(b) **in the case of the National Grid, avoid them being damaged from the adverse effects of land instability, or where they cannot be avoided, must be mitigated to the extent that it is practicable to do so; and**

(~~b~~c) **avoid any increase in the adverse effects of slope instability that the structure or work may cause.**

Comment [8]: Topic 9

Marlborough is characterised by steep terrain and in some locations, unstable geology. Combined with the potential for intense rainfall events, these factors create the potential for slope instability. Examples historically include rock/debris slumps, debris slides or flows, coastal erosion and tunnel gully erosion in various parts of the District. Establishing residential, commercial or industrial development or infrastructure supporting that development or linking our communities in locations prone to land instability will lead to unsustainable outcomes. This policy requires new structures and works to be located in environments that avoid adverse effects caused by land instability. It also addresses the situation of a structure or work exacerbating those adverse effects. It is recognised that the National Grid cannot always be located to avoid all damage from the adverse effects of land instability and therefore this policy allows for the adverse effects of land instability on the National Grid to be mitigated to the extent practicable, where the effects cannot be avoided. The policy will primarily be implemented through the zoning of land and the scale/intensity of activity that the zone rules enable. However, the policy can also be applied in a resource consent context when an assessment of environmental effects for the structure or work identifies a risk of land instability. This includes subdivision undertaken to enable more intensive use of the land. A safe and stable building platform will have to be established for the subdivision of land in certain environments.

Comment [9]: Topic 9

Fire

[D]

Policy 11.1.22 – Require a buffer between dwellings, ancillary structures and land used for ~~commercial~~ plantation forestry. Regulation 14 of the National Environmental Standards for Plantation Forestry 2017 requires plantation forestry to not be planted within 40 metres of a dwelling.

Comment [10]: Topic 22

To reduce the risk of fire in rural environments, a setback distance will be imposed to restrict the proximity of ~~:~~

~~(a)~~ houses and ancillary structures to existing plantations of ~~commercial~~ plantation forestry~~.; and~~

~~(b) new plantations of commercial forestry to existing dwellings and other habitable structures.~~ (Deleted)

Comment [11]: Topic 22

The setback will create a buffer between the plantations and residential (and associated) activity, a potential source of ignition. The buffer will also reduce the risk of fires in plantations spreading to houses and other habitable structures.

Issue 11B – The use of natural and physical resources can make existing natural hazards worse.

Issue 11B recognises the undesirability of placing people and property in areas subject to natural hazards. People's actions can also increase the severity of existing hazards. Placing or constructing buildings, walls, fences and other impermeable structures, or depositing material in floodways will create a barrier to flood flows and potentially increase water levels or divert flood flows elsewhere. Planting of unsuitable trees and other vegetation within a floodway could also create similar effects, although trees also assist to maintain bank stability.

Excavation on or near a stopbank can compromise the integrity of the stopbank and any failure could result in the breakthrough of flood waters. The construction of structures on stopbanks can have similar effects, while structures constructed in close proximity to a stopbank can compromise the ability of the Council to access the flood defence for maintenance work or emergency response. In areas prone to land instability, the discharge of stormwater from buildings and impervious surfaces to land increases soil moisture saturation, making the soil more prone to ground failure.

Activities may be undertaken without any awareness that they may result in the adverse effects described above.

[R, D]

Objective 11.2 – Natural hazard mitigation measures, structural works and other activities do not increase the risk and consequences of natural hazard events.

Given the serious nature of the adverse effects caused by natural hazards, it is important that human activities do not increase the risk and consequences of natural hazard events. This objective seeks to ensure that this does not occur. The following policies identify activities of particular concern.

It is desirable that the potential for an increase in the risk and consequences of natural hazard events is considered prior to the activity occurring. This would avoid the need for remedial work to rectify the effects of inappropriate activities as well as the potential for significant adverse effects should a hazard event occur prior to the Council becoming aware of the activity or remedial work being carried out. This objective does not mean that the activities listed in the policies cannot occur, but it may mean that they have to be undertaken in a manner that sufficiently mitigates the potential for adverse effects.

[D]

Policy 11.2.1 – Designate Marlborough District Council administered floodways.

Land within Council administered floodways will be designated. This means that the floodways will be included, by way of a schedule and mapping, within the MEP. The land designated will be a combination of Council and privately owned land. The effect is that any person wanting to undertake work in a floodway (that may adversely affect the floodway) will require the written permission of the Council. This will allow the Council, as the requiring authority, to assess the proposal and its potential adverse effects on the floodway prior to the activity commencing.

[D]

Policy 11.2.2 – Control land uses on or in close proximity to existing Marlborough District Council administered flood defences and within floodways to ensure that they do not compromise the effectiveness of any defence or the efficiency of any floodway.

Land use activities undertaken on or in close proximity to existing flood defences and within floodways have the very real potential to compromise the effectiveness of the defence or the efficiency of the floodway. Of particular concern are activities that could affect the integrity of the flood defence (especially excavation on or close to stopbanks) and activities that physically obstruct flows within the floodway (e.g. planting of unsuitable vegetation, construction of structures and deposition of material). Activities that might impede access to the flood defence or floodway for maintenance purposes are also of concern.

Given the reliance of some communities on the performance of the flood defences and/or floodway, it is important that consideration is given to the potential for these adverse effects to occur and therefore the appropriateness of undertaking the activity. The most effective way to do this is to require resource consent to undertake the activities, as this will allow a thorough assessment of the proposal and its potential adverse effects prior to the activity occurring.

[R, D]

Policy 11.2.3 – Where appropriate, ensure that privately initiated and constructed flood defences integrate with Marlborough District Council administered flood defences.

In some situations, individuals may choose to privately construct flood defences to protect their own property. If these defences are not constructed to integrate with the protection already provided by existing Council administered flood defences in the vicinity, then the new flood defence may be counter-productive. Regard can be had to the need for integration of flood defences when considering resource consent applications to construct the new defence.

[D]

Policy 11.2.4 – Where appropriate, require the creation of esplanade reserves and esplanade strips (as part of the subdivision consent process) to enable the mitigation of flooding hazards and to provide access for maintenance purposes. Priority rivers for setting aside esplanade reserves and esplanade strips for this purpose are:

(a) rivers on the Wairau River Floodplain; and

(b) rivers flowing through or in the vicinity of residential development in the Marlborough Sounds.

Maintenance of floodways and river channels can help to mitigate and manage flood hazards. For some rivers, it is desirable for erosion resistant vegetation to be planted and maintained on the river channel edge. For other rivers, it is necessary for vegetation to be removed to provide for the free flow of flood water. Access to carry out river control works in the channel, such as gravel extraction, rock placement, aquatic vegetation removal or stop bank maintenance, may also be required. Council control of vegetation and access to and along a river bed can therefore be important. Vegetation control and access can be achieved through the creation of esplanade reserves and esplanade strips as part of the subdivision consent process.

The waterbodies identified in (a) and (b) are those where multiple landowners or a community would benefit from the flood mitigation works identified above. In this way, the policy acts to provide greater certainty about when the Council will utilise the esplanade reserve provisions of the RMA for flood hazard mitigation purposes.

[D]

Policy 11.2.5 – The width of any esplanade reserve or esplanade strip set aside for flood hazard mitigation shall generally be 8 metres, except on land adjoining the Wairau River, Omaka River, Waihopai River, Pelorus River or Rai River, where the width shall be 20 metres.

Under the RMA (Section 230), esplanade reserves of 20 metres width are required where any allotment of less than 4 hectares is created when land is subdivided. The Council has the discretion to vary this requirement for esplanade reserves or strips. The policy identifies that in many circumstances a reduction in width is appropriate if the reserve or strip is being taken for flood hazard mitigation. In most circumstances, 8 metres is sufficient to undertake river control works and to access the river for this purpose. Exceptions are set out in the policy and include larger rivers which, because of their scale, require a wider reserve or strip to undertake river control works.

Regard should also be had to the special circumstances identified in policies in Chapter 15 - Resource Quality (Water, Air, Soil), Chapter 8 - Indigenous Biodiversity and Chapter 9 - Public Access and Open Space.

[R, D]

Policy 11.2.6 – When considering any application for resource consent or notice of requirement for hazard mitigation works, have regard to:

(a) the likely effectiveness of the mitigation works and the residual risks remaining after mitigation works are in place;

(b) whether non-structural or soft engineering methods are a more appropriate option;

(c) the cumulative effects of isolated structural mitigation works;

(d) any adverse effect on existing hazard mitigation works;

(e) responsibility for the ongoing maintenance of the mitigation works to the required standard; and

(f) the method and effects of construction on the surrounding environment.

Although hazard mitigation works act to protect the community, the construction and ongoing presence of these works can themselves have adverse effects on the environment. Where they involve substantial modification to the natural character of the waterbody, these effects can be significant. Recognising the potential for adverse effects, this policy provides direction to ensure that any proposed new works are effective in the first instance and that the method of hazard mitigation is the most appropriate. These principles can be applied when processing resource consent applications required to undertake the work or any notice of requirement application to provide for the work. This will ensure that any adverse effects, including those on existing hazard mitigation works, are avoided or mitigated, and that mitigation works are maintained in an effective state on an ongoing basis.

[D]

Policy 11.2.7 – Where stormwater is to be discharged into a surface waterbody or drainage channel, there must be sufficient capacity within the waterbody to accommodate the likely rate of discharge without overtopping the banks or causing any scour.

Where land disposal of stormwater is not a viable option, it is likely that the collected stormwater will be discharged into a surface waterbody/drainage channel. To ensure that this discharge does not cause a flooding hazard downstream, it is important that there is sufficient capacity within the waterbody/drainage channel to accommodate the discharge. If this is not the case, the discharge will cause overtopping of the banks. Breakout can also occur when the discharge velocity causes scour of the bed and/or banks of the waterbody/drainage channel.

Methods of implementation

The methods listed below are to be implemented by the Council unless otherwise specified.

[D]

11.M.1 Zoning

Zoning will be used as a means to ensure that the scale and/or intensity of residential, commercial or industrial development recognises the inherent risk of natural hazards. Environments more prone to natural hazards will not be zoned to explicitly provide for such land uses in recognition of the potential threat to life, property and infrastructure.

A Floodway Zone will be used to identify river channels and land on Council-managed berms to reduce the risk of flooding on adjoining land. The use of the zone will allow the application of regional and district rules, as set out below, to avoid people undertaking activities that might impair the hydraulic efficiency of the floodway or the effectiveness of any flood defences.

[R, D]

11.M.2 Overlay

Areas subject to flooding and tunnel gully erosion hazards will be identified on the MEP maps through overlays. This will allow the application of regional and district rules, and other methods, (as set out below) to avoid and mitigate these natural hazards.

[D]

11.M.3 Designations

Floodways and floodway land will continue to be designated for river control works. This will enable the Council to undertake necessary maintenance work (where that is covered by Section 9(3) of the RMA) and to control activities on land that it does not own that might impair the functioning of the floodway.

[R]

11.M.4 Regional rules

Resource consent will be required to erect or place houses and other structures on land covered by Level 2 and Level 3 flood hazard overlays. This will allow the policies of this chapter to be applied to determine whether it is appropriate to establish these structures within areas subject to natural hazards.

A permitted activity standard will be used to establish an appropriate setback for structures from rivers as an additional means of avoiding or mitigating flood hazards. This recognises that where there is no flood hazard overlay, there is still a risk of flooding when building in close proximity to rivers. In addition, a setback acts to maintain the integrity of the river channel and the stability of the river bank.

Rules will be used to set minimum standards for the investigation of subsoils of land zoned Urban Residential 2 – Greenfields. In the event of proposals for the subdivision of land for residential purposes, the investigations will establish the risk of liquefaction and lateral spread and the need for specific foundation design of buildings to mitigate this risk.

Resource consent will be required to undertake land uses within the Floodway Zone to ensure that the activity does not reduce the capacity of any floodway or otherwise impair flood flow. Land uses to be controlled include:

- *construction of structures;*
- *inappropriate planting or removal of vegetation; and*
- *deposition of cleanfill and other material.*

This will allow the policies of this chapter to be applied to determine whether it is appropriate to undertake activities that have the potential to inhibit the channel efficiency of floodways.

Permitted activity standards will be used to establish appropriate setbacks for activities from stopbanks or any other flood mitigation structure. Resource consent will be required to undertake specified activities within close proximity to these flood defences to ensure that they do not adversely affect the effectiveness of the defence.

Permitted activity rules will be used to enable the Council to undertake the maintenance and repair of existing flood defences and other flood mitigation works. The permitted activity rules will link to works required to achieve and maintain the design intentions established for the waterbody/drainage channel. Works include gravel extraction required to maintain floodway capacity.

Permitted activity standards will be used to establish appropriate setbacks for:

- *dwellings and other habitable buildings from existing ~~commercial~~ plantation forestry plantations; and*
- *~~commercial~~ plantation forestry plantations from existing dwellings and other habitable structures.*

Comment [12]: Topic 22

[D]

11.M.5 District rules

Applications for subdivision consent involving land likely to be subject to material damage by erosion, falling debris, subsidence, slippage or inundation, will be required to demonstrate that a safe and stable building platform exists for each proposed allotment and the balance parcel. The building platform must be shown on the scheme plan and be supported by a report prepared by a chartered professional engineer with relevant skills and consistent with any relevant Council standards.

[R, D]

11.M.6 Building Act 2004

The Building Act 2004 requires a building consent to be refused for the construction of a building or major alterations to a building if land on which the building work is to be carried out is subject to, or is likely to be subject to, natural hazards. Consent is also to be refused if the building work will accelerate, worsen or result in a natural hazard on that land or any other property.

A minimum floor level will be established for new dwellings and other new habitable structures where those structures are proposed to be constructed on land subject to a Level 1 flood hazard. The floor level will be a minimum of 450 mm above natural ground conditions. Site specific factors, especially the elevation of the land at the site of the proposed building platform, will determine the minimum floor level.

[R, D]

11.M.7 Council activities

Maintain flood defences and other flood mitigation works to provide protection from flood events as set out in a Council Asset Management Plan. Policies 11.1.3 and 11.1.4 provide guidance as to when the Council will actively manage flood hazards through such intervention and the standards to which protection will be provided. The Asset Management Plan will be prepared in consultation with Marlborough's tangata whenua iwi, relevant utility operators (particularly KiwiRail and NZTA) and the community.

Comment [13]: Topic 9

The Council may utilise the emergency provisions provided under Section 330 of the RMA to respond to foreseeable or actual hazard events in order to achieve Objective 11.1.

Comment [14]: Topic 9

The Council will continue to maintain soil conservation works within the Wither Hills Soil Conservation Reserve in accordance with Rivers and Land Drainage Asset Management Plan.

[R]

11.M.8 Gravel permits

In addition to regional rules, the Council will utilise a system of gravel permits to authorise the extraction of gravel from river beds. These permits will be issued by a Council Rivers and Drainage Engineer and will specify the location of extraction and the amount of material to be extracted. Conditions can be imposed on the gravel permits to manage any site-specific adverse effects not addressed through regional rules. The permits provide the flexibility to respond to the accumulation of gravel in river beds in the short term. The duration of the permits will be limited to enable effective monitoring of the effect of the extraction on river bed levels and the surrounding environment.

[D]

11.M.9 Geotechnical reporting standards

The Council has established minimum requirements for the reporting of geotechnical investigations. These identify the expectations for geotechnical investigations and the reporting of those investigations. They also set out the reliance that the Council places on the information provided in geotechnical reports so that this is understood and appreciated.

[R, D]

11.M.10 Incentives

Where the Council owns or controls access to floodway land, differential pricing on gravel extracted under a gravel permit may be used to encourage gravel to be extracted from priority areas in terms of maintaining floodway capacity or other river control objectives.

[R, D]

11.M.11 Civil Defence Emergency Management Plan

The CDEMP provides strategic direction to assist the community to prepare for and respond to natural hazards in Marlborough. The CDEMP also details the responsibilities for readiness, response and recovery in the event of a hazard at an operational level.

Communities are supported to improve their readiness under the CDEMP, especially communities in remote locations.

[R, D]

11.M.12 Emergency response

Where information is available, the Council will help Civil Defence to provide an emergency warning of and response to natural hazards.

[R, D]

11.M.13 Information

Property specific hazard information, including whether the property is affected by a hazard overlay, will be available to the public through the MEP maps, the issue of LIMs or through general enquiry.

[R, D]

11.M.14 Monitoring

Monitor the performance of rivers and floodways against the operational standards established in Policy 11.1.4. This will involve regular surveys of river beds to establish the extent of sediment build-up or impeding vegetation growth, monitoring of relevant flood hydrology (including the effects of climate change) and hydraulic calculations to reassess flood carrying capacity. This work will establish whether further intervention is required to maintain floodway capacity.

[R]

11.M.15 Gravel Management Strategy

Using the information gathered through Method 11.M.14, the Council will determine the sustainable yield of gravel from Marlborough rivers on an ongoing basis. The allowable annual extraction is recorded in the Gravel Management Strategy. The Strategy is used to guide the processing of gravel permit applications. The Gravel Management Strategy is incorporated into the MEP by reference.

The Gravel Management Strategy will be prepared in consultation with Marlborough's tangata whenua iwi, relevant utility operators (particularly KiwiRail and NZTA), affected landowners and the community.

Comment [15]: Topic 9

[D]

11.M.16 Reserve management plans

The Council will continue to manage farming and other activities on the Wither Hills Soil Conservation Reserve through a management plan prepared under the Reserves Act 1977. This plan clearly sets out soil conservation objectives, which then influence the nature of any lease to use the land for farming purposes through lease conditions.

Anticipated environmental results and monitoring effectiveness

The following table identifies the anticipated environmental results of the natural hazard provisions of the MEP. The anticipated environmental results are ten year targets, unless otherwise specified. For each anticipated environmental result, a series of indicators will be used to monitor the effectiveness of the natural hazard provisions.

Anticipated environmental result	Monitoring effectiveness
11.AER.1 Residential, commercial and industrial development does not locate in areas where natural hazards are most likely to occur.	The number of building consent and/or resource consent applications to erect or construct a structure or building refused for natural hazard reasons.
11.AER.2 Where development must occur in areas subject to natural hazard, the potential adverse effects of those natural hazards are sufficiently mitigated or otherwise managed by appropriate design and/or placement of structures and/or works.	Analysis of damage caused by specific hazard events demonstrates that there is no damage to development authorised under the provisions of the MEP.
11.AER.3 The floodway capacity of Marlborough rivers (as specified in Policy 11.1.4) is maintained.	Results of monitoring undertaken in accordance with Method 11.M.14. The record of Council works to maintain floodway capacity.