

Section 32 report: Beds of lakes and rivers

for the Proposed Natural Resources Plan for the Wellington Region



greater WELLINGTON

REGIONAL COUNCIL

Te Pane Matua Taiao



Issues and Evaluation Report



Section 32 report: Beds of lakes and rivers

for the Proposed Natural Resources Plan for the Wellington Region

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1. Overview and purpose

This section 32 report is the analysis of the appropriateness of the objectives, policies and methods for activities in the beds of rivers and lakes contained in the Proposed Natural Resources Plan (proposed Plan or PNRP). This report is guided by the requirements of section 32 of the Resource Management Act 1991 (the RMA or the Act).

This report should be read in conjunction with the section 32 reports which evaluate policies regarding water quality, Māori values, natural heritage and aquatic ecosystem health in order to understand the context and principles for the development of the policies, rules and other methods discussed in this evaluation report.

1.1 Legislative background

Section 13 of the RMA imposes restrictions on the uses of beds of lakes and rivers. Certain activities such as erecting, or demolishing any structure in, on, under or over the bed, are not permitted unless there is a rule in a regional plan or resource consent allowing the activity to take place. This means that a comprehensive framework for activities in the beds of rivers and lakes is required in the proposed Plan in order for people to undertake what they consider to be routine or day-to-day activities, and to provide guidance on those activities that require resource consent.

The operative Regional Policy Statement for the Wellington region (RPS) identifies a range of activities in the beds of rivers and lakes that, if poorly managed, can impair ecosystem function. For example, filling in gullies or ephemeral streams and straightening or piping small streams; removing streamside vegetation or introducing noxious and invasive weeds; and undertaking works in rivers, particularly in low flows. The proposed objectives, policies rules and methods to manage activities in the beds of lakes and rivers have been guided by the RPS policy direction which promotes a policy framework that discourages reclamation activities, and the piping, straightening and the concrete lining of rivers; discourages the removal or destruction of indigenous plants in lakes; and maintains fish passage.

1.2 Report context and structure

To fulfil the requirement of section 32(2) of the RMA, this report identifies and assesses the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions.

In accordance with section 32(2), the analysis identifies the opportunities for economic growth that are anticipated to be provided or reduced and the opportunities for employment that are anticipated to be provided or reduced.

In addition, the analysis, where practicable, quantifies the benefits and costs and assesses the risk of acting or not acting if there is uncertain or insufficient information.

The nature of the RMA for the management of activities in the beds of rivers and lakes is restrictive in that a range of activities are not permitted unless there

is a rule in a regional plan, or resource consent, permitting the activity. It is necessary for the Wellington Regional Council (WRC) to include rules in the proposed Plan to avoid the community having to incur unnecessary and unreasonable costs securing resource consent for a wide range of everyday or necessary activities. This is the common sense approach expected by our community, and one that automatically reduces compliance costs for the community and carries a range of benefits to people living and working in the region. The WRC does not consider it necessary, helpful, or proportionate to quantify or monetise these baseline costs and benefits.

The proposed objectives and provisions generally establish an enabling management framework supported by performance standards. These standards are based on local, regional and national evidence, developed in line with industry best practice, and where appropriate, tailored to specific activities. Costs incurred by industry, landowners and stakeholders such as the WRC to conform to permitted activity standards are considered justifiable and proportionate to the wider environmental benefits that the good management of activities in the beds of lakes and rivers will bring.

Where the WRC has detailed quantitative or economic data, for example the costs of monitoring and enforcement, these have been used to illustrate the appropriateness of proposed provisions.

The structure of the report is shown below:

Issues statement: an outline of the main issues identified by the community (section 2, resource management issues)

Regulatory context: identification of relevant national and regional legislation and policy direction (section 3, regulatory and policy context)

Evaluation of objectives: an evaluation of the extent to which the proposed objectives achieve the purpose of the RMA (section 4, evaluation of the objectives)

Assessment of the policies and other methods: an assessment of the efficiency and effectiveness of the provisions as to whether they are the most appropriate way to achieve the objectives. This assessment (in section 5) is broken down into the following areas:

- Reclamation or drainage
- Management of gravel extraction
- Catchment-based flood and erosion control activities
- Management of vegetation
- Drains; and
- River bed structures

Appendix: Contains summaries of appropriateness of proposed Plan objectives and of the efficiency and effectiveness of the options to give effect to these objectives.

2. Resource management issues

This section reviews the sources of data from scientific studies and ongoing state of the environment monitoring; the findings from public engagement workshops; and evaluation of iwi values, and from these sources arrives at two key issues that must be addressed in the proposed Plan in relation to the management of beds of lakes and rivers in the Wellington Region.

Using these data sources, and following a review of the operative regional plans, the resource management issues relating to the management of activities in the beds of rivers and lakes have been identified by the WRC in the Issues Report for the draft Natural Resources Plan (GWRC 2011a).

2.1 Scientific studies and reporting

The state of environment monitoring undertaken by WRC does not include aesthetic or cultural parameters and most of the water-related monitoring relates to water quality and quantity parameters. WRC does monitor biological indicators, such as invertebrate and fish populations. These biological indicators are good indicators of the overall health of the river, including its physical health. *Measuring Up* (WRC 2005) provides a summary of this monitoring data and comments on the state and trend. Activities in river and lake beds can have an adverse impact on the biodiversity values of rivers and lakes. *Measuring Up* (WRC 2005) notes that biodiversity pressures include the drainage of wetlands and channelling of natural waterways.

Additionally, in 2012 Perrie et al. (2012) completed a report on the state and trends of river and stream water quality and ecology. This report was one of a series of technical reports and summary leaflets released by WRC documenting the 'health' of air, land and water (freshwater and coastal) resources in the Wellington region. One of the areas for improvement noted in the state and trends report is fish passage. Where the passage of fish is blocked by culverts, weirs and other obstructions, monitored sites have poorer than expected fish community condition. Barriers to fish passage are identified as a potentially widespread problem which requires addressing to improve indigenous fish community condition.

The annual summary of freshwater quality monitoring for the Wellington Region produced by Perrie and Cockeram (2010) ('the annual report') contains some commentary on intermittently flowing streams and on studies into effects of channel realignment. The annual report notes that intermittently flowing streams are commonly overlooked and undervalued and as such are 'at risk from being filled in and piped during land development and in rural areas can be degraded by stock access'. The annual report also summarises the findings of a report that identified the unique, distinct and high conservation interest of aquatic invertebrate communities in the study streams, and highlights the need for their protection (National Institute of Water and Atmospheric Research 2010).

The WRC has also undertaken preliminary investigations into the effects of channel realignment undertaken as part of flood and erosion protection works in the Waingawa River. The preliminary results of this work (as recorded in the annual report, page 20) show that this type of work immediately reduced the amount and quality of instream habitat, that re-establishment of this habitat took several months and that as a result some aquatic fauna were lost from the study area.

2.2 Public engagement workshops

WRC held a number of public engagement workshops in 2010 to gain an understanding of community issues and goals in respect of environmental management. WRC (2011b) summarised the outcomes of these workshops and found that most of the responses about rivers refer to high level goals and aspirations such as to have waterways suitable for swimming, be a safe source of food and a good habitat for fish and other water creatures. While not directly attributed to activities in beds of rivers, these aspirations are relevant because of the links between these activities and the values for rivers expressed by the community. There were limited responses specifically relating to the management of the region's lakes.

Some participants did make comments specifically relating to activities that occur in the beds of rivers. Loss of fish passage and impacts on aquatic biodiversity and habitat were of particular concern. Comments were wide ranging and included these comments from participants of the workshops:

- “Fish barriers are preventing fish access to spawning grounds” (waterway issues responses)
- “Loss of biodiversity: long fin eel, native fish e.g. kokopu, inability of inanga to get up stream” (biodiversity issues responses)
- “Fresh water habitat destruction through flood erosion management” (waterway issues responses)
- “Too many streams being culverted” and “streams still being culverted” (territorial authority responses)

2.3 Evaluation of iwi values

During the public engagement workshops with mana whenua iwi, several issues were raised of direct relevance to the management of activities in the beds of rivers and lakes.

Flood protection activities and gravel extraction were of particular concern, and included these comments from participants of the workshops:

- “Waiohine River at SH bridge used to be a great swimming spot – gravel extraction changed hydrology of river – now very shallow”
- “Rivers drying up → irrigation and bulldozers in river”
- “Flood protection activity is losing habitat for fish and whitebait”

- “Flood protection activities removing natural processes of river”
- “Gravel extraction has changed the [Ruamahanga] River, now it is shallow”
- “Meanders allowed silt to be deposited along the length of streams, now all falls out in the harbour”
- “Lack of meanders in the river – constrained to allow for land development”

The mana whenua iwi groups wanted to see the rivers be allowed to wander, and more restoration works commenced in the headwaters. This was expressed by participants of the workshops as the desire to:

- “Let the river wander”

2.4 Summary from information sources

There is a clear indication from the environmental reporting, scientific community and the recent public engagement workshops that some activities in the beds of rivers and lakes are of concern when not managed appropriately. Particular issues of concern are related to effects on aquatic life and biodiversity, in particular fish passage and the impacts of activities related to flood control and erosion management. This second issue has two aspects, first the impacts of large scale activities undertaken as part of river management schemes on the natural character of rivers. Secondly, the impact that other activities inadvertently have on the flood and erosion risks, for example the diversion of flood waters as a result of inappropriate structures or gravel extraction.

Two resource management issues of particular relevance to the management of the beds of rivers and lakes have been identified in the WRC (2011a) Issues report for the draft Natural Resources Plan. These are Issue 4.6 relating to adverse effects on rivers and their function, and Issue 4.7 relating to flood and erosion risk.

Other issues identified in WRC (2011a) are also relevant to the management of activities in the beds of rivers and lakes. For example activities in the beds of rivers and lakes can impact on indigenous biodiversity, water quality and cultural values. Those issues are covered in section 32 reports on those topics. An issues table summarising the discussion is included in Table A1 of the Appendix to this report.

2.5 Issue 4.6: Adverse effects of activities on the beds of rivers and lakes

Activities in the beds of rivers and lakes that are not well managed can have adverse effects on the natural character, mahinga kai and ecosystem health and function of rivers and lakes.

Use and development of natural resources can have adverse effects on the natural character, mahinga kai and ecosystem health and function of rivers and

lakes. The natural character of rivers and lakes includes such factors as dynamic natural and physical processes, landscapes and geological features. Activities in river and lake beds that alter natural character, mahinga kai and ecosystem health and function include:

- Filling in gullies and ephemeral streams and straightening;
- Reclaiming or piping streams; lining stream banks and beds with concrete; and
- Removing river and stream bank vegetation

2.6 Issue 4.7: Flooding and erosion risk

Inappropriate activities in the beds of rivers and lakes may exacerbate flooding and erosion risk.

Communities rely on existing flood mitigation works for a high level of protection from the risks of flooding and erosion. Uses of river or lake beds can increase the risk of flooding and erosion on existing flood protection works and on properties beyond river or lake beds. Such uses of river and lake beds with potential to exacerbate flooding and erosion risks include:

- Placement of structures that dam or divert water onto neighbouring land;
- Deposition of material (e.g. storage of material in the river bed) which can divert flood waters; and
- Disturbance of the bed in a way that accelerates erosion of river banks

3. Regulatory and policy context

3.1 Resource Management Act 1991

3.1.1 Definitions

The RMA defines river, bed and lake which are directly relevant to the management of activities in the beds of rivers and lakes

The RMA definition of a river is that it “means a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal)”. The definition is very broad and includes any permanently or intermittently flowing body of water. This is significant as the restrictions on the use of river beds in section 13 of the RMA (discussed later in this section) apply to everything from headwater ephemeral water courses through to large rivers.

The RMA excludes artificial watercourses from the definition of river, but artificial watercourses have been narrowly defined by case law. Only constructed watercourses meet this exclusion. Any watercourse that was once natural, or has its headwaters in a natural river meets the RMA definition of river. This can cause confusion as some highly modified watercourses, such as

drains or water races, which appear to be artificial actually fall within the definition of river and therefore the restrictions for rivers in the RMA apply to them.

The RMA definition of lake is likewise very broad and is defined as “a body of fresh water which is entirely or nearly surrounded by land”.

The bed of a river is defined in the RMA as “the space of land which the waters of the river cover at its fullest flow without overtopping its banks”. The bed of a lake is defined as “the space of land which the waters of the lake cover at its highest level without exceeding its margin.” In some rivers and lakes the banks and margins are easily defined and a relatively small and obvious area of land can be considered the ‘bed’. For other rivers and lakes the bed can potentially be very wide, e.g., braided rivers and/or and less easily defined, e.g., lakes with wide seasonal fluctuations.

3.2 Restrictions in the use of beds of lakes and rivers

Section 13 of the RMA identifies restrictions in relation to the use of beds of rivers and lakes. This section has two parts, the first identifies the activities that nobody may do unless specifically allowed by a rule in a plan. This section is often referred to as the ‘restrictive’ section. The second part identifies activities that may be undertaken unless restricted by a rule in a plan. This section is often referred to as an ‘enabling’ section.

Section 13 ‘restricts’ a person’s the ability to

- (a) *use, erect, reconstruct, place, alter, extend, remove or demolish any structure or part of any structure in, on, under, or over the bed; or; or*
- (b) *excavate, drill, tunnel, or otherwise disturb the bed; or*
- (c) *introduce or plant any plant or any part of any plant (whether exotic or indigenous)in, on or under the bed; or*
- (d) *deposit any substance in, on, or under the bed; or*
- (e) *reclaim or drain the bed.*

The second part of section 13 of the RMA ‘enables’ entering onto or passing across the bed of a lake or river and damaging, destroying, disturbing, or removing a plant or a part of a plant or habitat of plant or animal, whether exotic or indigenous, in, on, or under the bed of a lake or river.

If the WRC wishes to provide for any of the activities in the ‘restrictive’ section, it must provide for them specifically in the proposed Plan, otherwise a resource consent is required under the RMA. This is particularly important in relation to the use of structures, even existing structures such as bridges, which must be specifically allowed for by the proposed Plan or else a resource consent is required.

The WRC need only address the matters in the second section if it wishes to restrict them to manage some kind of adverse effect, as they are allowed under the RMA by default.

3.2.1 Functions of regional councils

The functions of a regional council under the RMA are contained in section 30 of the RMA.

Section 30(1)(c) contains a provision for regional councils to control the use of land for certain purposes including the beds of rivers and lakes. These include soil conservation, the maintenance and enhancement of the quality of water and ecosystems in water bodies and the avoidance or mitigation of natural hazards.

Section 30(1)(g) provides further functions specifically in relation to the bed of a water body, and allows the regional council to control the introduction or planting of any plant in the bed for soil conservation, water quality and natural hazard reasons (the maintenance and enhancement of ecosystems is not provided for in relation to controlling planting).

The council may not impose rules in relation to activities in river and lake beds for other purposes, for example cultural, heritage aesthetic or public access reasons. The council may employ other methods, such as policy guidance for discretionary activities or non-regulatory methods to achieve its goals in these areas.

3.2.2 Summary

The definitions of river, lake and bed, combined with the wide restrictions put in place by the RMA to control activities means that the WRC needs to give some thought to the areas where controls are or are not necessary to protect freshwater values, and carefully define these areas. The WRC needs to consider which activities identified in section 13 it wishes to enable or control in relation to beds of lakes and rivers, and to which rivers and lakes (defined by type or geographically) the controls should relate.

Not defining these restrictions and locations carefully risks having a plan framework which is either too restrictive (applies to too many activities or locations) or which allows inappropriate effects (by too narrow a definition of water bodies) of concern. In addition, when drafting the *rules* that are deemed necessary the WRC may only do so for the purposes of soil conservation, maintaining and enhancing water quality and ecosystems, and avoidance and mitigation of natural hazards.

3.3 National Policy Statement for Freshwater Management 2014

The policy direction of the National Policy Statement for Freshwater Management 2014 (NPS-FM) is to ensure that the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems, of fresh water are safeguarded. The NPS-FM deals primarily with water quality and water quantity.

The NPS-FM does not deal directly with the beds of lakes and rivers, or the physical contribution that physical habitat has on achieving the objectives of

the NPS-FM, particularly those dealing with life-supporting capacity, and ecosystem processes. However, The NPS-FM requires regional councils to develop freshwater objectives which may include values that are associated with the condition of the beds of lakes and rivers. For example, a potential national value identified in the NPS-FM is the value of natural form and character. Appendix 1 of the NPS-FM states that matters contributing to the natural form and character are visual and physical characteristics that are valued by the community, including morphology and location. Despite there being no direct requirement for the beds of rivers and lakes provisions to address the NPS-FM, the beds of lakes and rivers provisions in the proposed Plan have been developed so that they can achieve of the objectives of the NPS-FM.

3.4 National water conservation order

Section 67(4) of the RMA states that a regional plan must not be inconsistent with a water conservation order.

The National Water Conservation Order (Lake Wairarapa) 1989 recognises that Lake Wairarapa has outstanding wildlife habitat, created in part as a consequence of natural fluctuations of water levels. The order prohibits diversion of water and states that no water rights or general authorisation shall be made if the effect would be to diminish significantly the outstanding wildlife habitat feature of the lake. The primary matters relating to water takes and diversion from Lake Wairarapa are dealt with in the water allocation regime relating to the lake, discussed in the Section 32 report: Water quantity. However, a reclamation of the lake bed would necessarily involve diversion of water away from the area reclaimed, an activity which is prohibited by the order.

3.5 Regional Policy Statement for the Wellington Region

Section 67(3) of the RMA requires the regional plan to ‘give effect to’ the RPS. This means that the regional plan must ‘positively implement’ the direction given in the RPS.

The Regional Policy Statement for the Wellington Region (RPS) was made operative on 24 April 2013. It contains policies that direct the content of regional plans.

One of the significant regional management issues facing the region identified in the RPS is that the ecosystem function of some rivers, lakes and wetlands has been impaired, with some wetland and lowland stream ecosystems coming under particular pressure. Many activities in the beds of rivers and lakes, such as works in rivers in low flows, and filling in gullies and ephemeral streams, can contribute to poor ecosystem function.

Objective 13 requires that “The region’s rivers, lakes and wetlands support healthy functioning ecosystems.”

Habitat diversity is essential for aquatic ecosystems to survive and be self-sustaining. Policy 12 requires that aquatic habitat must be managed to achieve the objective of safeguarding aquatic ecosystem health, and states:

“Regional plans shall include policies, rules and/or methods that:

- (a) require that water quality, flows and water levels, and the aquatic habitat of surface water bodies are to be managed for the purpose of safeguarding aquatic ecosystem health; and*
- (b) manage water bodies for other purposes identified in regional plans.”*

Policy 18 of the RPS directs regional plans to include policies, rules and other methods to achieve a number of outcomes in relation to ecosystem health. Of relevance to activities in the beds of rivers and lakes is a combination of the promotion of activities beneficial to habitat diversity, such as the reinstatement of riparian habitat and the retention of natural features such as pools, riffles, runs and natural form of rivers; and the discouragement of activities that may degrade or destroy river and lake habitats, for example the discouragement of reclamation, piping or straightening of rivers. Policy 18 states:

“Regional plans shall include policies, rules and/or methods that:

- (a) promote the retention of in-stream habitat diversity by retaining natural features – such as pools, runs, riffles, and the river’s natural form;*
- (b) promote the retention of natural flow regimes – such as flushing flows;*
- (c) promote the protection and reinstatement of riparian habitat;*
- (d) promote the installation of off-line water storage;*
- (e) discourage the reclamation, piping, straightening or concrete lining of rivers;*
- (f) discourage stock access to rivers, lakes and wetlands;*
- (g) discourage the diversion of water into or from wetlands – unless the diversion is necessary to restore the hydrological variation to the wetland;*
- (h) discourage the removal or destruction of indigenous plants in wetlands and lakes; and*
- (i) maintain fish passage.”*

3.6 Regional Freshwater Plan

The operative Regional Freshwater Plan for the Wellington region (RFP) represents the ‘status quo’ for assessing provisions controlling the beds of rivers and lakes. The RFP identifies several issues in respect of the use of beds of rivers and lakes and the development of the flood plain. These issues recognise that the continued use of structures and the development of new structures play an important role in the social, cultural, environmental and economic well-being of the region. However, the structural integrity and safety

of structures in these locations can be adversely affected by erosion and flooding, and poorly sited or designed structures can exacerbate the risks of flooding and erosion, and undermine the effectiveness of flood protection structures downstream.

The operative RFP identifies that locating structures and carrying out other activities in river and lake beds can adversely affect the natural and amenity values of a water body, including the permanent loss of habitat and changes in the flow regime through diversion or the restriction of river flows. Reclamation is also identified as a significant resource management issue in the region, as it can damage and in some cases remove aquatic habitat, reducing species diversity and the ability of aquatic ecosystems to be self-sustaining. The planting or introduction of exotic or indigenous plants in lake and river beds is also recognised as requiring careful management to avoid adverse effects such as the smothering of native species and alteration of the water table.

The operative RFP permits a range of activities in the beds of rivers and lakes, such as the maintenance of existing structures; culverts, weirs, fords and small bridges in intermittently flowing streams; small dams; and the laying of pipes, ducts and cables across intermittently flowing streams subject to performance criteria and conditions. These conditions are intended to ensure that such works minimise the release of sediment and contaminants into the water body, and result in less than minor environmental effects. Reclamation is a discretionary activity in the region, except for the reclamation of the beds of lakes and rivers of high natural character (as identified in operative Policy 4.2.10 and Appendix 2 of the RFP) which is classified as a non-complying activity. The reclamation of Lake Wairarapa is a prohibited activity in the RFP.

3.7 Proposed Natural Resources Plan

The proposed Natural Resources Plan, referred to here as the proposed Plan seeks to ensure that the framework within which activities in the beds of rivers and lakes are managed reasonably provides for a range of activities that have social, environmental and economic benefits, but which also reflects and responds to the current understanding of the potential adverse effects of the activities.

The content of the proposed Plan provisions is similar in some respects to that of the current provisions to manage the activities in the beds of rivers and lakes in the RFP. However, in revising the provisions, the WRC has taken the opportunity to rationalise and consolidate a number of permitted activity conditions that are common to a range of permitted activities in this section of the proposed Plan. This will benefit plan users as it will make the requirements of the proposed Plan more accessible and the proposed Plan easier to use.

A key change in this part of the proposed Plan compared to the RFP is that the proposed provisions, including the general conditions and conditions specific to the activities provided for, reflect the values approach and the principle of integrated management both of which are critical to the proposed Plan's structure and intended management outcomes.

4. Evaluation of the objectives

Section 32(1)(a) of the RMA requires that an evaluation report must “examine the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of the [RMA]”.

There are no objectives in the proposed Plan specific to the beds of rivers and lakes. However, the management of the beds of rivers and lakes does contribute to the achievement of a number of other objectives within the proposed Plan. These objectives are analysed in other section 32 reports. These relevant objectives are not analysed in this report, however a brief summary of the objectives and their importance is summarised here, for completeness.

It is important that this evaluation report should be read in conjunction with these other reports:

- Section 32 report: Ki uta ki tai
- Section 32 report: Māori values
- Section 32 report: Recreation, public access and public open space
- Section 32 report: Natural hazards
- Section 32 report: Water quantity
- Section 32 report: Water quality
- Section 32 report: Aquatic ecosystems

4.1 Proposed objectives

4.1.1 Objective O3

Mauri is sustained and enhanced, particularly the mauri of fresh and coastal waters

This objective represents the primary interest of mana whenua who are seeking to enhance, not just maintain, the mauri of fresh water as the fundamental source of well-being for the region. In this respect, the proposed objective is in alignment with mana whenua’s role as kaitiaki.

The objective is useful and appropriate as it is intended to guide decision-making by ensuring that the mauri of the region’s natural resources, particularly our fresh and coastal water resources, is enhanced and not further degraded and that consideration is given to the relationship mana whenua have with the natural environment when activities may have an adverse impact on the mauri of the natural environment. Māori consider all things in the natural world to have mauri (life force) and wairua (a spiritual dimension). Each of the rivers in the region has its own mauri.

By enhancing the relationship of mana whenua with the region's natural resources, the proposed objective is relevant and appropriate as it will give effect to sections 6 and 7(a) of the RMA and its purpose.

4.1.2 Objective O5

Fresh water bodies and the coastal marine area, as a minimum, are managed to:

- (a) *safeguard aquatic ecosystem health and mahinga kai, and*
- (b) *provide for contact recreation and Māori customary use, and*
- (c) *in the case of fresh water, provide for the health needs of people.*

The objective states the intended outcomes for the management of fresh water bodies and the coastal marine area in the region. In combination with objectives related to specific management outcomes for water and land resources, including those generated through the whaitua committee process, this objective is useful and appropriate as it will assist in guiding effective decision-making.

The proposed provisions evaluated in this report seek to achieve this objective through providing clear guidelines for the design, construction and maintenance of activities and structures in the beds of rivers and lakes to ensure that adverse environmental effects are less than minor and important in-stream values are maintained and protected. The provisions also establish a more restrictive management framework where activities, such as reclamation, are known to result in adverse effects on aquatic ecosystem health and mahinga kai.

4.1.3 Objective O14

Māori relationships with air, land and water are recognised, maintained and improved.

Māori relationships with air, land and water are traditionally connected to people's identity and well-being. The environment is not seen as a separate entity, but something intrinsically linked to people. Mana whenua of a given area enact their authority over the land and water to ensure that the mauri of their environment is supported in accordance with their kaupapa (principles) and tikanga (practices). Lack of recognition of Māori perspectives, values, roles and relationships in resource management has driven implementation of new national policy and treaty settlement legislation to provide redress.

The RPS makes it clear that the identification of places, sites and areas with significant spiritual or cultural historic values to mana whenua rests with iwi, hapū, whanau and marae in accordance with their kaitiakitanga responsibilities.

This objective is relevant as it restates requirements and expectations for Māori relationships with land and water specified in the RMA (sections 6(e) and 6(g)), the NPS-FM (Objective D1 and Policy D1) and RPS (Objective 15 and Policies 21, 22 and 46).

The objective is also useful as it requires regulatory authorities and applicants to inform themselves of and better understand Māori relationships with the environment and to provide for them in resource management processes, activities and decision making. Objective O14 is closely linked to Objectives O3 and O15.

4.1.4 Objective O17

The natural character of the coastal marine area, rivers, lakes and their margins and natural wetlands is preserved and protected from inappropriate use and development.

This objective intends to protect natural character (including high natural character) in different environments from activities which can affect the values and attributes of natural character.

Activities in the beds of rivers and lakes, such as the construction and ongoing maintenance of structures and reclamation, have the potential to degrade the natural character rivers and lakes and their margins.

4.1.5 Objective O19

The interference from use and development on natural processes is minimised.

This objective intends to minimise the impacts of activities on natural processes. Activities in the beds of rivers and lakes, such as the construction and ongoing maintenance of structures and reclamation, have the potential to alter the natural processes within rivers and lakes.

4.1.6 Objective O20

The risk, residual risk and adverse effects from natural hazards and climate change on people, the community and infrastructure are acceptable.

See Section 32 report: Natural hazards for a detailed assessment of this objective.

4.1.7 Objective O25

To safeguard aquatic ecosystem health and mahinga kai in fresh water bodies and the coastal marine area:

- (a) *water quality, flows, water levels and aquatic and coastal habitats are managed to maintain aquatic ecosystem health and mahinga kai, and*
- (b) *restoration of aquatic ecosystem health and mahinga kai is encouraged, and*
- (c) *where an objective in Table 3.4, 3.5, 3.6, 3.7 or 3.8 is not met, a fresh water body or coastal marine area is improved over time to meet that objective...*

Note

Where the relevant whitua sections of the Plan contain an objective on the same subject matter as Objective O25 (water quality, biological and habitat outcomes), the more specific whitua objective will take precedence.

See Section 32 report: Aquatic ecosystems for a detailed assessment of this objective.

4.1.8 Objective O27

Vegetated riparian margins are established and maintained.

Riparian management can help contribute towards the reduction of sediment entering a waterbody, reduce stream bank erosion and flood damage, and enhance habitat for aquatic species. Planting or removal of vegetation in the beds of lakes and rivers can directly affect the achievement of this objective.

4.1.9 Objective O29

Use and development provides for the passage of fish and koura, and the passage of indigenous fish and koura is restored.

The intention of this objective is to prevent the creation of barriers to the passage of indigenous migratory species within the region's rivers and streams – being both physical structures such as dams and perched culverts, and the contamination of waters. Secondly, the passage of indigenous aquatic species should in some circumstances be restored where it is currently blocked. It is not appropriate to remove all current barriers to fish passage however, as some barriers are keeping populations of certain species safe from their predators.

4.1.10 Objective O30

The habitat of trout identified in Schedule I (trout habitat) is maintained and improved.

Objective O30 seeks an outcome of maintaining and improving the habitat of trout in Schedule I. Section 7(h) of the RMA requires particular regard to be given to the habitat of trout. The objective is a relevant and an appropriate means of reflecting the requirement of the RMA for the habitat of trout in the Wellington Region.

Provisions in the proposed Plan seek to achieve this objective by providing for important habitat for trout to be identified in Schedule I and managed for specific aspects of water quality and quantity, habitat configuration, fish passage and spawning.

4.1.11 Objective O33

Sites with significant mana whenua values are protected and restored.

See Section 32 report: Māori values for a detailed assessment of this objective.

4.1.12 Objective O35

Ecosystems and habitats with significant indigenous biodiversity values are protected and restored.

The region's indigenous ecosystems have been significantly reduced in extent, and the remaining indigenous ecosystems continue to be degraded or lost through use and development of natural resources, and through the incremental and cumulative impacts of human activities. Indigenous species that rely on these ecosystems face increasing pressure from the loss and degradation of habitat.

The reclamation or drainage of the beds of rivers and lakes can have irreversible harmful impacts on indigenous biodiversity values. Other activities, if not carried out in accordance with good management practices, or at an inappropriate time or location, can also undermine the integrity of ecosystems and habitats.

5. Assessment of the policies, rules and other methods

5.1 Summary of the appropriateness of the policies, rules and methods

Section 32(1)(b) requires an examination of whether the provisions are the most appropriate way to achieve the objectives by identifying other reasonably practicable options for achieving the objectives and assessing the efficiency and effectiveness of the provisions in achieving the objectives. Section 32(2) expands further on the assessment of efficiency and effectiveness.

32(2) An assessment under subsection (1)(b)(ii) must—

- (a) identify and assess the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions, including the opportunities for—*
 - (i) economic growth that are anticipated to be provided or reduced; and*
 - (ii) employment that are anticipated to be provided or reduced; and*
- (b) if practicable, quantify the benefits and costs referred to in paragraph (a); and*
- (c) assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions*

The discussion of the appropriateness of the policies and methods to achieve the objectives has been organised according to the type or nature of activity in the beds of lakes and rivers they are seeking to address. The areas are:

- Permitted activity conditions
- Reclamation or drainage

- Management of gravel extraction
- Catchment-based flood protection and erosion control activities
- Management of vegetation
- Drains
- River beds; and
- River bed structures

Tables A2 to A5 in the Appendix provides a summary of the reasonably practicable options for achieving the objectives and the purpose of the Act. The following sections below undertake a more detailed analysis of the appropriateness of the policies and methods, including rules, of the preferred option in each case.

5.2 Permitted activity general conditions

The operative RFP does not contain general conditions. Instead, there are conditions assigned to specific rules which are common or similar in a number of individual rules for uses of beds of rivers and lakes and rules for development on the floodplain. While these conditions are similar between the rules in the RFP, there are sometimes subtle differences in wording and/or intent. This leads to confusion between resource users operating under a number of different rules, and is inefficient for users and the Council to enforce.

The preferred approach is to gather those conditions common to a range of activities into one section of the proposed Plan. The opportunity has also been taken to refine a number of those general conditions where information and technical data are available. For example, with respect to managing sediment, the clause is specific, measurable and relates back to the freshwater quality objectives the proposed Plan is trying to achieve.

The general conditions apply as specified to all of the permitted activities in the beds of lakes and rivers section of the proposed Plan. For example, a number of conditions seek to ensure that construction sites and processes are managed to prevent the contamination of freshwater with fuel and oil from machinery. There are conditions to ensure that structures are sufficiently engineered and maintained to withstand time, environmental and natural processes. The purpose of the conditions is to make sure that the in stream effects of the installation, maintenance, presence and use of structures are appropriately managed to achieve the proposed Plan's anticipated outcomes regarding the safeguarding of life supporting capacity, ecosystem health, and mahinga kai.

The general conditions are necessary to ensure that the objectives of the proposed Plan are achieved when managing the beds of lakes and rivers. Many of the specific conditions are discussed in the policy and rule discussions below. All of the conditions have been adopted to apply only those restrictions

necessary to result in environmental or social benefit with the minimum cost to individuals or the Council.

Having general conditions stated once at the beginning of the beds of rivers and lakes section of the proposed Plan, is more efficient than repeating the same conditions multiple times for each rule in the proposed Plan. The approach can be varied and targeted by excluding particular conditions from the operation of particular rules, for example installation of a new culvert is a permitted activity under Rule R115 provided all general conditions are complied with, except condition (l) relating to not altering the natural course of the river.

This general conditions approach allows the benefits of a clear and consistent set of permitted activity standards, and avoids the costs of applying unnecessary conditions by allowing a targeted approach. This general conditions approach has also been used in the wetlands rules and the coastal rules for the same reasons. The general conditions between these three sets of rules have been drafted to provide for as much consistency as possible between the three sections, which will make the conditions more effective and more efficient to use and enforce.

5.3 Reclamation or drainage

Section 13 of the RMA restricts activities that ‘reclaim or drain the bed’. Reclamation in its broadest sense is the creation of dry useable land that was once bed. There are elements of reclamation in a number of activities undertaken within the bed of a river or lake. Reclamation can range from culverting a stream for vehicle access, to bank edge protection works for flood protection, to piping a stream to create dry land.

The adverse effects associated with reclamation and drainage activities, can be as extreme as the complete loss of habitat, natural character, mauri and other values associated with water bodies. However, reclamation is often an integral part of land development and subdivision, allowing land to be more intensively developed.

Policy P102 will contribute to the achievement of a range of objectives associated with managing the adverse effects of reclamation. The relationship between Policy P102 and the proposed objectives is shown in the table below, as is the relationship with the rules and methods intended to implement the policy.

Table 1: Provisions directly relating to reclamation

Objectives:	O2 Importance of land and water O3 Mauri O4 Intrinsic values O5 Fresh and coastal water O12 Benefits of regionally significant infrastructure O14 Māori relationships O15 Risk from natural hazards O17 Natural character O19 Natural processes O20 Ecosystem health and mahinga kai O29 Fish passage O31 Outstanding water bodies O33 Sites within significant mana whenua values O35 Sites with significant indigenous biodiversity values
Policies:	P102: Reclamation or drainage of rivers and lakes
Rules:	R127, R128 and R129
Method:	N/A

The adverse effects of reclamation vary in scale from less than minor to significant. The significance of these effects is influenced by a number of factors, including the scale and design of the reclamation. Reclamation can vary in extent, from partial reclamations such as establishing rock groynes along a river bank for erosion control or flood protection purposes to small culverts to provide vehicle access, to the piping of long lengths of stream to allow for new subdivisions or large scale roading projects.

There are however different options for designing a development or activity that might reduce the adverse environmental effects, such as breaking up the lengths of piped stream or diverting the stream and creating a new bed.

The location of reclamation within a catchment can also influence its impact. The reclamation of ephemeral flow paths can be less significant as they are often on the periphery of a stream catchment. Conversely, the piping of a stream in the lower reaches of a catchment may have greater effects as it could potentially cut off migration patterns and isolate upstream populations of aquatic species from the downstream and coastal environments.

Reclamation is undertaken by a variety of different resource users in both the urban and rural environments. In the urban environment reclamation is often undertaken to enable residential subdivisions. Infrastructure providers often undertake reclamation activities when developing new roading networks. Rural production land uses need the ability to cross water bodies and in some instances installing a culvert to allow for a stock crossing has less of an adverse effect than allowing the stock to cross in the water. The proposed Plan recognises that the resource users undertaking reclamation activities potentially have positive effects.

5.3.1 Operative regional freshwater plan – status quo

The operative regional freshwater plan, the RFP contains one specific policy on reclamation (Policy 7.2.15) which acknowledges that reclamation results in the destruction of the part of lake, river or wetland reclaimed. Under the RFP, reclamation is a discretionary activity, except in instances where it is proposed in rivers of high natural character, in which case it is a non-complying activity, or in respect of Lake Wairarapa, when it is categorised as a prohibited activity.

The Regional Freshwater Plan Evaluation report (WRC 2006) commented that Policy 7.2.15 was appropriate but highlighted that the policy did not provide guidance on piping of streams and did not distinguish between streams of differing biodiversity value. The report concluded that an approach that provides better policy guidance with a corresponding rule structure that treated streams differently according to their values is desirable.

In reviewing the operative policy approach, conversations with consents staff in particular expressed concern that the existing policy is too weak a tool against which to assess applications for, or involving, reclamation and drainage of the beds of rivers and lakes, and with which to prevent adverse effects such as the complete loss of habitat, natural character, mauri and other values associated with water bodies.

The continuing loss of stream habitat indicates that the operative policy and rules structure are not achieving the desired outcome and an alternative approach should be considered.

5.3.2 Policy options for the proposed Plan

The policy options for reclamation that are assessed in more detail in the Appendix are:

- The status quo – RFP as discussed in Section 5.3.1 above (Option 1)
- A weaker overall reclamation policy with no guidance on where reclamation maybe appropriate (Option 2);
- A policy approach that provides direction on appropriate reclamation and a rule structure which requires reclamations within sites with significant values to be considered in greater detail (Option 3 – the preferred option)
- A policy to avoid that provides no guidance on where reclamation is appropriate and requires applicants to draw on the beneficial use and development objectives and policies of the proposed Plan to demonstrate an application’s appropriateness (Option 4)

A weaker policy approach (Option 2) is inappropriate as the Council is at risk of challenge. The option does not fulfil the Council’s requirements under Part 2 of the RMA, give effect to the RPS, nor does it achieve the objectives of the proposed Plan. Option 2 is ineffective.

Option 3 and 4 set a stronger policy direction. Option 4 sets a clear statement to avoid reclamation. However, it provides no guidance to decision-makers as to

when reclamation may be appropriate. This approach increases uncertainty as it requires the resource user and decision-maker to draw on other policies in the proposed Plan to determine appropriateness.

Option 3 is favoured as the premise of the policy is to avoid the activity, however, the policy also recognises that reclamation in limited circumstances may be appropriate. The circumstances are identified in the policy, for example in relation to flood prevention and erosion control works, regionally significant infrastructure, urban growth areas, or where the reclamation or drainage is of an ephemeral flow path. The policy does not require the decision-maker to do further balancing of other policies within the plan to determine if reclamation, in principle, is appropriate. The decision-maker would still need to consider the other policies of the proposed Plan to determine if the effects of the specific proposal were acceptable.

The proposed reclamation policy contributes to the achievement of a number of proposed objectives, including those that recognise the importance of maintaining and restoring the natural character of the region's water bodies and preserving the habitats of our indigenous aquatic species. The policy enables the careful management of reclamation activities so as to ensure the achievement of objectives with specific outcomes, such as maintaining and restoring fish passage, and managing land use activities in such a way as to minimise adverse effects on water bodies.

5.3.3 Rule options

With regard to the rules framework the Council has considered various options over the proposed Plan development process. One approach for reclamation is to structure the rules so that the activities which may be appropriate have a lower activity status than inappropriate activities, for example, a discretionary activity status for these activities inside sites with significant values rather than non-complying. This approach is based on the benefits associated with the proposal rather than the effects on the stream habitat and system. This option requires certainty of the scale and nature of the effects associated with the activities that are the subject of the rule. It is difficult to describe a set of activities where in all occasions a different activity status is justified and this option is not recommended.

The proposed rule approach is to focus on the scale and effects of the reclamation works. This is consistent with the rest of the proposed Plan where activities with greater adverse effects or activities in areas of greater significance have a stronger rule status. The type of reclamation with the most significant environmental and cultural adverse effects is piping. Piping has been considered separately to other reclamation activities.

5.3.4 All reclamation activities, excluding piping

The proposed Plan recognises that there could be an element of reclamation in a wide range of activities. Where reclamation could reasonably occur when undertaking one of the permitted activities, the relevant rule permits the associated reclamation. Examples of this are the construction of a vehicle or stock crossing and the construction of a small dam. Reclamation that is not

permitted by these rules requires consent as a discretionary activity under Rule R129.

For all reclamation activities the preferred option is that reclamation should be strictly managed. The policy approach sets out that reclamation should be avoided except in certain circumstances, such as partial reclamation and when associated with the creation of a new bed. In seeking to address the decline of biodiversity and other values associated with streams and rivers in the region through reclamation and drainage activities, the Council has considered applying a stronger approach such as a universal prohibited activity status to all such activities, or applying a non-complying status to general reclamation activities. The kaitiaki group requested a non-complying activity status for all reclamation activities due to the adverse effects on cultural values. Such a strict approach is considered to be inappropriate as the costs outweigh the benefits. There are some occasions when reclamation or drainage is appropriate, as reflected in Policy P102. The preferred option for the activity status for all reclamation, excluding piping, outside of sites with significant values is discretionary.

Further consideration was given to those sites identified with significant values. The preferred option for sites with significant biodiversity values is discretionary as partial reclamation does not impact on fish passage and some of the in-stream habitat would remain. In these cases the reclamation may be appropriate, and may still occur in a manner which achieves the objectives of the proposed Plan. In these circumstances a case-by-case assessment is appropriate, and the strong ‘discouragement’ of a non-complying activity would impose costs that are not appropriate.

Sites with significant mana whenua values are different as the sites are discreet in nature and the value is attributed to that specific area. The kaitiaki group has recommended that reclamation is prohibited within these sites as reclamation effectively destroys the site. A prohibited activity status recognises and provides for mana whenua values but provides no option for appropriate reclamation to gain consent. The social and economic costs of prohibiting reclamation in sites with significant mana whenua value are considered to be far too high to justify adopting this approach in the proposed Plan. However, a discretionary activity status may result in an unacceptable cultural cost within a site with significant value. Hence, the preferred option is a non-complying activity status for all reclamation in sites with significant mana whenua values. This sends a strong message that reclamation in these sites is discouraged but provides an avenue for appropriate activities to gain resource consent.

5.3.5 Reclamation associated with piping of streams

The piping of streams is one of the activities undertaken in the beds of lakes and rivers that has the greatest environmental and cultural adverse effect.

The preferred option for piping of streams is a non-complying activity status. Establishing a regulatory framework that seeks to avoid reclamation and drainage could potentially increase development costs, however some of this may be perceived rather than actual. In some circumstances, the retention of natural features such as rivers and streams within residential developments may

attract a premium per lot. The potential increase in development costs to prevent the destruction of important values associated with natural water bodies is balanced against the costs incurred in trying to ‘daylight’ already piped water bodies (\$4000/m), or employing other methods to re-establish natural values. The social, cultural and environmental costs to the community of piping streams are considered too high and are not outweighed by the economic and social benefits experienced by a smaller group of resource users with a more permissive piping regime. The WRC intends to undertake a more detailed examination of the costs and benefits associated with the preferred option in respect of piping streams, in consultation with other parties, prior to the hearing to provide additional guidance to the hearings panel.

The proposed policy and rule approach does not mean that the piping of streams cannot occur under the proposed Plan. It is a strong approach that requires decision-makers to consider the objectives and policies of the plan and determine if reclamation is appropriate. The reclamation policy clearly states what types of reclamation may be appropriate. This approach provides a clear direction to the Council, resources users and the community of the proposed Plan’s expectations.

5.3.6 Reclamation in outstanding waterbodies

Reclamation in outstanding water bodies was considered as a separate area, due to their very high values. Rivers and lakes with outstanding indigenous biodiversity values have been identified in the proposed Plan. The upper reaches of three rivers (Ōtaki, Hutt, Wainuiomata) and three lakes (Kohangapiripiri, Kohangatera and Wairarapa) are identified. More detail on the process of identifying these and the policy approach to manage them can be found in the Section 32 report: Aquatic ecosystems.

In the RFP reclamation in Lake Wairarapa is a prohibited activity. The preferred option is to continue this approach with Lake Wairarapa and expand it to include all three outstanding lakes. There have been no issues with the current prohibited activity rule for Lake Wairarapa. The two other lakes (Kohangapiripiri and Kohangatera) are both within the East Harbour Regional Park and the benefits of prohibiting reclamation outweigh the costs. Additionally, it is unlikely that development will occur within these areas. This approach is the same approach to reclamation in outstanding wetlands, see Section 32 report: Wetlands.

In respect of outstanding rivers the operative plan has no direction. The preferred approach for rivers is that all reclamation is a non-complying activity. This approach recognises their outstanding values.

5.4 Management of gravel extraction

Gravel extraction is an activity that is necessary for flood management, and provides a resource that many in the region utilise for road building, track maintenance and other similar uses. Managed appropriately, the activity can have many environmental, social and economic benefits with little adverse environmental impact. Policy P103 seeks to contribute directly to the achievement of six objectives of the proposed Plan, which are set out in the

table below. The provisions framework acknowledges the economic and social importance of the resource by enabling its managed use within transparent parameters to manage effects.

Table 2: Provisions directly relating to gravel extraction

Objectives:	O5 Fresh and coastal water O17 Natural character O19 Natural processes O20 Risk from natural hazards O25 Aquatic ecosystem health and mahinga kai O30 Trout habitat
Policies:	P103: Management of gravel extraction
Rules:	R120 and R129
Method:	N/A

The RFP recognises the usefulness of the resource and establishes a permitted activity threshold for small-scale extraction (15 m³ for individual needs, and 50 m³ for use on the property on which the river bed occurs or to which it is adjacent). Extraction above those thresholds is categorised as a discretionary activity.

While the proposed policy and rules structure generally maintains the existing enabling approach, the policy framework has been strengthened to ensure that gravel extraction is managed to achieve the explicit goals of maintaining the gravel balance in our water bodies, and ensuring that gravel extraction does not result in increased flooding and erosion risk either further downstream, or at the extraction site. The overall approach to the gravel resource is in accordance with the fundamental management outcomes sought by Objectives O5 and O25 which includes managing the region’s natural and physical resources to safeguard aquatic ecosystem health and mahinga kai.

Policy P103, in particular clauses (a) and (b), help achieve the outcomes sought by proposed Objective O20 which seeks to reduce the risk and adverse effects associated with natural hazards, in this case flooding and erosion risk. The proposed policy and rule structure also helps to achieve Objectives O17 and O19, which seek to maintain and restore the natural character of lakes, rivers and their margins and minimise interference with natural processes. If not managed well, gravel extraction can cause changes to the natural character and morphology of rivers. For example, if too much gravel is extracted from a river of stream, more erosion and a deeply scoured bed may result. This may cause a change in the natural form of the river, for example from a multiple braided channel, to a single channel. This would fundamentally alter the natural character of the river, and alter the extent and type of habitat that is available for aquatic species.

For these reasons, the WRC has chosen to keep the permitted gravel extraction volumes relatively low. They provide for people to provide for their individual needs and well-being, e.g., maintaining farm tracks, but do not provide for commercial volumes. Extraction of commercial volumes of gravel requires a

site-specific assessment to ensure that the extraction is carefully managed to avoid the adverse effects identified in the policies above.

The WRC proposes to adopt the same approach in the proposed Plan as is in the RFP, as monitoring and evaluation of the existing policy illustrates that it is working well. The implementation of the operative rules also demonstrates that in most locations the small theoretical risk of a high number of individuals extracting gravel in accordance with the permitted activity conditions in the same time period is highly unlikely to eventuate.

However, the risk of adverse effects of multiple permitted gravel extractions is higher, and the consequences higher in the Hutt River. The Hutt River is easily accessible and close to the large population bases of Hutt and Upper Hutt cities. The Hutt River is also very carefully managed for flood management purposes and contains a large number of structures to control flood and erosion, managed by the WRC. A large population taking a larger permitted amount (15m³ is permitted subject to conditions under the RFP) of gravel in a river environment that requires careful and responsive management could have adverse effects on river control structures put in place to reduce the risk of flooding and erosion. A smaller permitted extraction (1m³ is permitted for the Hutt River in the proposed Plan) would still allow for individuals to access and use the gravel resource, but reduce the risk of cumulative impacts of its removal. A proposed additional condition for permitted activity status is that extraction in any 12-month period from the Hutt River be limited to 1m³ and must be collected by non-mechanical means.

Additional rule-specific conditions are proposed throughout the region which apply greater control over the depth to which gravel extraction can take place in order to ensure that river bed and bank stability is not compromised, and flood and erosion activities and measures are not undermined.

Gravel extraction activities are also managed by way of the general conditions. The adherence to these conditions will ensure that ecological values and their management outcomes represented by the proposed schedules, such as Schedule F1, inanga spawning habitat, and Schedule I, trout spawning waters, are not undermined through permitted gravel extraction activities.

Some domestic stakeholders may perceive a regulatory burden associated with the revised site and extraction management requirements in the permitted activity conditions. However, the proposed conditions are not unduly onerous given the importance of the values they seek to protect, but instead may require a change in behaviour and a better appreciation of the potential adverse effects that can be associated with poorly managed gravel extraction activities.

WRC's Flood Protection department is a key stakeholder in respect of this policy and rule. The department manages gravel extraction in rivers it manages for flood and erosion control purposes. Typically, Flood Protection holds global gravel extraction consents for a whole river and licenses others to undertake the extraction. Flood Protection reports that this system works well and in accordance with the anticipated environmental outcomes of the policy. It is an approach that can continue under the proposed provisions.

WRC considered developing a more complicated permitted activity regime, on the basis of permitting small amounts of gravel to be extracted from small rivers, and larger amounts from the bigger rivers in our region where more is required to be extracted to manage the flood and erosion profile of the water body. However, during the development cycle of the proposed Plan, there was insufficient information to generate a policy that would result in the desired environmental outcomes. Furthermore, it was considered unnecessary to incur the cost, time and resources in collating and analysing the data that would be necessary to develop such an approach given that the current policy is considered to be working well and in accordance with anticipated outcomes.

WRC also considered developing specific guidance establishing sustainable gravel takes on some of the region's bigger rivers to provide a gravel resource and to manage the river in terms of flood and erosion control and other values. The policy would operate on the same principle as a water take allocation, for example, directing that there is certain amount/allocation (m³) of gravel available to be extracted on the Waiohine River, after which threshold is reached no more extraction can take place. Flood Protection was consulted on this approach, but considered that it was not necessary, given the successful implementation of the existing policy.

5.5 Catchment based flood and erosion control activities

It is the task of WRC's Flood Protection department to work with communities to manage flood risk from the region's rivers and streams. The department undertakes research, consultation and data collection and analysis to understand the processes affecting a river/stream and its floodplain within a wider catchment, and to provide a coordinated response through floodplain management plans (in partnership with the community) to reduce the impact of flooding.

The physical work in the beds of rivers and lakes that is undertaken by WRC to implement river management schemes or flood plain management plans is acknowledged as being of considerable benefit to the wider community, contributing to the economic and social well-being of communities potentially affected by flooding and erosion activity in their river catchments. The proposed Plan defines catchment-based flood and erosion control activities as *“structures built, controlled or maintained by a local authority and associated activities for the purpose of protecting the community from flood or erosion risk in accordance with a river management scheme or flood plain management plan”*.

Policy P104 acknowledges the benefits associated with catchment-based flood and erosion control activities by seeking to protect them from the effects of third-party activities, for example causing water to be diverted out of the bed and onto neighbouring land which can cause direct flooding, or causing the scour and erosion of the bed downstream of the structure.

The policy contributes to the achievement of Objective O20 which states that the risk, residual risk and adverse effects from natural hazards and climate change on people, the community and infrastructure are reduced. The

relationship between Policy P104, Objective O20 and related provisions is set out in Table 3 below.

Table 3: Provisions directly relating to catchment-based flood and erosion control activities

Objectives:	O5 Fresh and coastal water O17 Natural character O19 Natural processes O20 Risk from natural hazards O25 Aquatic ecosystem health and mahinga kai
Policies:	P104: Effects on catchment-based flood and erosion control activities
Rules:	General conditions Section 5.5.4, Rule R120
Method:	N/A

The policy is intended to be implemented on a case-by-case basis through the assessment of the potential and actual adverse effects associated with a range of activities that trigger a consent. Consent is needed where there is non-compliance with permitted activity conditions, including compliance with the general conditions. The policy provides a clear (and necessarily low) threshold of tolerance for the creation of adverse effects by activities on catchment-based flood and erosion control activities, but ensures that owners of such flood and erosion structures, or those contracted by owners, are able to undertake works necessary to ensure that the structures are appropriately maintained.

There are no specific rules associated with proposed Policy P104. The policy’s management principles are however represented in the general conditions for activities in the beds of rivers and lakes that apply as specified to a range of permitted activities. For example, condition (i) requires that all reasonable steps be taken to minimise the duration of the diversion of water, and that any diversion channel have sufficient capacity to carry the same flow as the original channel so as to not cause flooding and erosion of any neighbouring property. Conditions (j), (k) and (l) require resource users to manage activities or structure design in order to ensure that the flooding of neighbouring property does not result, rivers are still able to convey flood flows, and the natural cause of a river is not altered. Condition (h) of Rule R120: Minor sand and gravel extraction – permitted activity, requires that permitted gravel extraction does not occur within 50m of any existing flood control structures in the bed of the river.

These conditions require extra care and consideration of the impacts of flooding and erosion. Any increased cost imposed by these restrictions is outweighed by the benefit of avoiding flooding and erosion, and protecting structures designed to protect property and the community from these risks.

The proposed approach is not dissimilar to the RFP, particularly Policy 7.2.1 which set out the appropriate uses within lakes and river beds, and Policy 7.2.2 which lists the characteristics and uses of rivers and lakes that should not be significantly affected by inappropriate uses. For example, the appropriate use of rivers and lakes should not, according to Policy 7.2.2, have significant

adverse effects on flood hazard, and other values and uses such as values held by mana whenua and/or natural amenity values. Operative Policies 7.2.3 and 7.2.4 also seek to ensure that the efficacy of formal flood and erosion control activities are not compromised by new uses within the beds of lakes or rivers, or through the development of ad hoc flood and erosion control measures.

Like operative Policies 7.2.3 and 7.2.4, the proposed policy LW.P108 specifically addresses the need to protect catchment-based flood and erosion activities from the effects of third-party actions. The use of a definition to clearly explain what is meant by and included within the term ‘catchment-based flood and erosion activities’ enables the draft policy to be succinct.

Policy P104 is targeted and specific in its approach, without putting the protection and maintenance of other values at risk. The policy provides the appropriate level of direction to applicants, consents staff and other resource users and stakeholders to ensure that third-party activities do not adversely affect the integrity and efficacy of catchment-based flood and erosion activities, safeguarding the economic investment those activities represent and the economic, social and environmental well-being of the region.

A far more general policy was considered which would not have differentiated between the general management of flooding and erosion risk and the management of that risk in respect of catchment-based flood and erosion control activities. However, it was considered that this would not provide sufficient protection to community-based flood and erosion measures, the long-term efficacy of which is essential for the economic, social and environmental prosperity of many parts of the region subject to flood and erosion hazards.

5.6 Management of vegetation

The planting of vegetation, or its removal, from the bed of a lake or river is an activity that is restricted by section 13 of the RMA. The WRC therefore has to provide for and control the activity in the proposed Plan through the provision of a policy and rules package. The proposed Policy P106 and the rules associated with it, seek to directly contribute to the achievement of five objectives. The relationship between the objectives and the policy, and the associated rules are set out in the Table 4 below.

Table 4: Provisions directly relating to the management of vegetation

Objectives:	O17: Natural character O25: Aquatic ecosystems and habitats O27: Riparian margins O30 Trout habitat O33: Sites with significant indigenous biodiversity values
Policies:	P106: Management of plants in the beds of lakes and rivers
Rules:	Rules R121, R122, R123 and R129
Method:	Method M1

The proposed approach is similar to that of the RFP, and indeed to that taken by regional councils throughout New Zealand. Essentially Policy P106 seeks to

promote four management principles: (i) that pest plants are not introduced, and that the removal of pest plants is enabled; (ii) plants fulfilling a flood protection and management function should be retained; (iii) the planting of indigenous species is encouraged; and (iv) the policy seeks to acknowledge the connection between plants in the bed of a lake or river and the habitat they might be providing for aquatic life. For example, it might be desirable from a flood and erosion control perspective to remove 500m of willows, but that could have the adverse impact of removing shade cover leading to the death of fish species. The proposed approach encourages an approach to the management of plants in the bed of lakes and rivers that is balanced and measured, and considers a range of values associated with plant species, both indigenous and pest.

The rules that implement Policy P106 are generally permissive for both the removal and planting of plant species, subject to conditions that are detailed and specific. The rules seek to ensure that people are not dissuaded from these activities, as they can have significant beneficial effects providing flood protection or restoring habitat, for example. However, the conditions reflect the need for careful management in order to limit the potential for unintended environmental consequences, such as log jams following vegetation removal, and the accidental destruction of habitat.

The proposed permitted activity Rules R122 and R123 are subject to a number of activity-specific conditions, as well as the general conditions set out in Section 5.5.4 of the proposed Plan. The specific conditions seek to ensure that these types of activities do not compromise or undermine the management outcomes for other important social, cultural and environmental values associated with and present in the beds of rivers and lakes, and which are set out in the schedules. For example, condition (f) in Rule R122 requires that vegetation removal in any part of a river or lake bed identified in Schedule F2a (birds-rivers) or Schedule F2b (birds-lakes) if the named birds are identified at the work site. Condition (h) establishes good management practices for the mechanical clearance of aquatic vegetation from a river so as to better ensure that management outcomes for habitat and ecosystem values are not jeopardised.

For activities that do not comply with the permitted activity conditions, or which are not specifically provided for in this section of the proposed Plan, WRC proposes a discretionary ‘catch all’ rule. This is considered an appropriate regulatory tool with which to assess the impact of activities that do not meet permitted activity standards and conditions.

The structure of the proposed provisions ensures that the relationship between the appropriate management of vegetation in the beds of rivers and lakes and the achievement of a number of environmental objectives is comprehensively articulated in the proposed Plan, and able to be clearly understood by resource users, consents staff and other stakeholders. Objective O25, for example, seeks to maintain aquatic ecosystem health and mahinga kai by managing aquatic and coastal habitats. Several of the proposed general conditions seek to guide and inform those engaged in activities that may directly or indirectly require or result in the removal or planting of vegetation are conducted and managed in

such a way as to ensure that the contribution of vegetation to a range of natural character, indigenous biodiversity and other ecological values and functions is better understood and that such practices contribute to the maintenance and enhancement of those values.

WRC will continue to provide practical help, advice and guidance to property owners and community members to undertake appropriate vegetation removal and planting to support this policy, and this is enshrined in non-regulatory Method M1: Regional plan implementation and integration.

The WRC considered the development of a more stringent approach to this particular area of resource management. However, the WRC considers that a more regulated approach, such as requiring resource consent for either the planting or removal of vegetation, would add cost and create unnecessary barriers to positive action, the vast majority of which leads to beneficial outcomes for the environment and the wider community and therefore would not be efficient.

5.6.1 Drains

The operative plan has a relatively permissive framework for the maintenance of drains. Rule 39 of the RFP permits the clearing of drains with restrictions only on the release of contaminants (such as petrol) and taking reasonable steps to minimise sediment release. The RFP also has a wide definition of ‘drain’ which includes both artificial drainage canals, and rivers channelled to the extent that they have the characteristics of a farm drainage canal. The remainder of the discussion in this section on the RFP adopts that definition of ‘drain’ being both artificial drains, and highly modified rivers which form part of the drainage network.

This wide definition of drain recognises the on-the-ground reality that the water courses that form the drainage network on productive land are a mixture of artificial canals and small streams that have been modified and incorporated into a drainage network. Many natural watercourses, which meet the RMA definition of a ‘river’ have been highly modified over decades to the extent that they resemble, and are managed as part of the drainage network.

Because drains (both artificial and those that are modified rivers) are connected to river networks, they provide habitat for many native fish, including eels and threatened native mud fish.

Over the life of the operative plan, local iwi and other members of the community have expressed a high level of concern with the negative impacts that the removal of vegetation, bed material and associated sediment discharges from drains, occurring as part of maintenance and clearing practices, has on fish habitat and fish life. There have been a number of well-publicised examples of drain maintenance and clearance having had a devastating impact on fish life, particularly eels and other native fish that live in drains.

In addition to the adverse effects on biodiversity, drain maintenance can also lead to the release of significant levels of sediment, which invariably discharges into natural waterways downstream. In developing the preferred

approach, WRC has sought to balance environmental and cultural concerns against the fact that drains serve an important function within primary production activities, and that they need regular maintenance to be effective.

Rule R121 seeks to encourage a change in drain maintenance practice, develop a wider thinking about drains as habitat as well as infrastructure, and secure a range of environmental outcomes.

The conditions of Rule R121 are based on a review of published good practice documents for clearing drains, published by both regional councils and industry. The good practices described in these documents are summarised in Table A6. It is clear from a review of the documents, that it is good practice to consider the habitat values of drains, and to recognise the connections between drains and more natural watercourses, including when considering water quality and sediment discharges.

All of the best practice documents reviewed include advice on the ‘integrated management’ of drains. This aims to manage the drain as part of the wider catchment landscape, and to manage the drain and surrounding landscape in such a way as to avoid or limit the need for mechanical maintenance of the drain.

Measures such as excluding livestock from drains (to reduce bank slumping and erosion), planting the banks, and managing surrounding land use to minimise the runoff of sediment and nutrients are considered to be best practice. These measures reduce the inputs of sediment and the growth of weeds, which reduce the need to clear sediment and weed from the drains.

The use of these ‘integrated management’ practices will be effective at achieving the objectives of the proposed Plan to maintain habitat, because the amount of habitat disturbance resulting from drain clearance will be minimised. However, (with the possible exception of livestock exclusion) they are actions that require highly site-specific consideration and design, and must be integrated into the management of the surrounding land. These types of measures are not appropriate to include in a permitted activity rule. Livestock exclusion can be more broadly required, and the appropriate application of livestock exclusion rules will contribute to the maintenance of habitat in drains. This is discussed in more detail in the Section 32 report: Livestock access, cultivation and break-feeding.

The changes to the conditions to the rule for drain clearance will require a change in practice from the status quo. This may result in increased costs for drain maintenance, compared with the status quo. As an example, the requirement to replace any fish removed by the operation, will require either the digger operator to periodically stop the excavations or clearance for a short time while they return fish to the water, or an extra person to be present to return the fish. For those not already using this best practice (which is also a requirement of section 70 of the Freshwater Fisheries Regulations 1983), an increased cost (in time or labour) will result, compared to the status quo of an operator not currently using this best practice.

If the whole extent of a drain is cleared in a single operation, all habitat is removed, all vegetative cover which provides for protection of fish from predation is removed, and the loss of vegetation can lead to increased water temperatures. The removal of large extents of habitat or refuge in a drain can have significant adverse effects on the native fish that live in those drains. Rule R121 requires either one half of the drain to be cleared at a time, or only the centre of the drain to be cleared. This provides for some parts of the drain to remain undisturbed (for a time) and to remain as a refuge for any indigenous fish that live in the waterway. An increase in costs may arise for some operations because of the new requirement to not clear the full extent of drains in a single operation.

For those with drains that are wide enough to allow the targeted clearance of the centre of the drain, clearance of the centre of the drain should be enough to allow water to flow freely, without the need to clear the entire width. There should be no increase in cost for drain clearance operations in these circumstances. For those with drains who wish to clear the full width of the drain (for example, by those who wish to restore the full width and hydraulic capacity of the drain, which has over time been lost due to sediment infilling the drain) the rule requires that one side of the drain be cleared at a time, to avoid the total loss of fish habitat in the drain on one occasion. This will necessitate the excavating equipment being brought back to the property on a separate occasion, and will incur additional costs of transporting the equipment. There may also be an additional cost over the status quo for those with narrow drains. Drains that are narrow enough to be able to be cleared with one 'scoop and lift' action with an excavator, will require two such actions, if only one side of the drain is cleared at a time. This will increase the time the operation takes, with commensurate increases in cost for labour and equipment.

It is acknowledged that the requirement to leave uncleared refuge areas within drains will increase costs. However, allowing the full extent of drains to be cleared in one operation will completely remove habitat, and potentially lead to significant adverse effects on fish life. Not including conditions to preserve (at least temporarily) some habitat for drain clearance operations would not be effective in achieving the objectives of the proposed Plan, particularly those objectives relating to maintenance of aquatic ecosystem health and mahinga kai.

Two further options to provide for habitat refuge as part of drain clearance operations were considered. The first was to include a condition similar to condition (k) of Rule R122 which requires that a refuge of 10m of unclear river bank be left for every 200m of river bank cleared. This would provide for habitat refuges, which are cleared at a later date. Feedback received from stakeholders suggested that this would not be practicable to apply to drains, as it would lead to blockages to the water flow, which, although they could be removed at a later date, in the short term may lead to localised flooding.

The second option was to provide for leaving a percentage of drains uncleared as part of any particular drain clearance operation. This is an option identified in some of the best practice guidance, and generally involves leaving 20% of the drains in a given network uncleared, so that they provide for habitat refuge.

For this to be effective the uncleared portion would have to be connected to the drains that are cleared. This option was not considered suitable for a permitted activity condition as it would not be efficient to enforce.

For those drains where the clearance of the entire width of the drain is necessary (due to the width of the drain being too narrow to allow for a more targeted approach) a resource consent will need to be sought. This will impose a cost to resource users in applying for a resource consent, and potentially in complying with monitoring conditions and fees. The resource consent process will however provide an opportunity to assess the site and provide for conditions to suit the specific circumstances, while providing for some protection for fish habitat.

The implementation of the new requirements to retain habitat during drain clearance operations is delayed two years from the date of public notification of the proposed Plan. This will allow time for education (including under Method M14, discussed below) and communication, and allow time for resource users to adjust their practice, before the new requirements come into force.

Rule R121 as proposed provides for clearance of both artificial drains and natural watercourses which are so modified that they resemble an artificial drain. Some concerns were raised by stakeholders, and Council compliance officers, that this may be inappropriate. Two main concerns were raised. The first concern is one of interpretation. The operative definition of ‘drain’ to include modified watercourses does require a degree of interpretation or judgement; when does a watercourse ‘have the characteristics of a farm drainage canal’? The second is one of definition, a ‘drain’ and a ‘river’ are two entirely separate classes of water body in the definitions in the RMA – using the RMA definition of river, any water body that was once a river, or has natural connections to a natural river system is a ‘river’ no matter its degree of modification or its management purpose.

One alternative considered to avoid any difficulty with interpretation or definition, is to separate out totally artificial drains from rivers. In this option the drain clearance rule would only apply to totally artificial drains. Any drains that are actually ‘rivers’ would have to comply with Rule 122, which only allows removal of weed from rivers. Removal of sediment to maintain or restore hydraulic capacity would not be permitted. This option raises its own issues.

The first issue is again one of interpretation. What are considered to be ‘drains’ from a pragmatic viewpoint on a farm property, are in fact usually a mixture of artificial drains and highly modified watercourses. The two classes look exactly the same and have been managed with periodic mechanical maintenance in the same way for decades. For a landowner to know which ‘drain’ fell into the artificial or river category on their property, they would need to look at the whole catchment to ascertain whether the ‘drain’ had any connections to natural watercourses, or had a natural ‘head water’. This would potentially require a review of historical aerial photographs to ascertain

whether a ‘natural’ watercourse had existed in that location at any point in time.

The second issue is one of practicality. Rivers which look and function like drains on farm properties fulfil an important function in the productive landscape; they lower the water table improving or creating conditions in which pasture can grow. If the hydraulic capacity of these watercourses is not maintained in the future, then they will not function in the same manner. Land will become more water logged and pasture growth and production will be reduced. Resource consents will have to be sought and granted for the maintenance and removal of sediment from a vast number of watercourses.

Separating out totally artificial watercourses from highly modified watercourses when both have the appearance and function of ‘drains’ is not considered an efficient or pragmatic response to the issues. Requiring identification on the ground on each individual farm will be time-consuming and expensive, resulting in high costs that are not warranted. Tightening the definitions and increasing the permitted activity conditions to acknowledge the habitat value of both types of water courses will overall reduce costs compared to other options, and have greater benefits to the environment, while still allowing ‘drains’ to continue to operate and have production benefits.

The proposed new wording of the rule and the definitions of highly modified watercourse and artificial farm drainage canal have been developed to try and ameliorate the interpretation and definitional issues identified with the operative definition of ‘drain’. Some interpretation will still be required, however with more guidance provided it is anticipated that the intention of the rule will be clearer to all.

The proposed Plan includes Method M14 to assist land owners to understand and implement the proposed rules. This education programme will help resource users to understand the conditions of the rules, to understand the habitat values of the drains that the conditions are there to protect, and how to interpret the definitions of ‘artificial farm drainage canal’ and ‘highly modified watercourse’.

5.7 River bed structures and other activities

Rivers are dynamic environments, and can be dangerous. On the whole, users of the region’s rivers operate safely when installing a new structure or maintaining an existing structure. The proposed suite of provision mentioned in Table 5 regarding structures are intended to promote and enable the installation and maintenance of properly engineered structures in a manner which is safe and responsible and will withstand the pressures of the natural environment in the long term.

Table 5: Provisions directly relating to river bed structures and other activities

Objectives:	O5 Fresh and coastal water O14 Māori relationships O15 Risk from natural hazards O17 Natural character O19 Natural processes O20 Ecosystem health and mahinga kai O29 Fish passage O30 Trout habitat O31 Outstanding water bodies O33 Sites within significant mana whenua values O35 Sites with significant indigenous biodiversity values
Policies:	These activities will be assessed against natural resource management policies which seek to achieve the identified objectives. There are no specific beds of lakes and rivers policies.
Rules:	General conditions section 5.5.4 and Rules R112, R113, R114, R115, R116, R117, R118, R119, R124, R125, R129
Method:	N/A

The proposed rules are activity focused, technical, and generally more permissive than those in the RFP. They seek to facilitate the building and maintenance of structures, such as bridges for example, which have tangible social and environmental benefits when properly constructed and maintained, without imposing an unnecessary regulatory framework and associated costs on resource users.

In particular, the proposed Plan contains a clear permitted activity approach to the maintenance, use and upgrade or removal of structures (Rules R112 to R118). This allows for structures to be used and maintained safely, and to be removed at the end of their life.

Each of the activity-specific rules contains four clauses providing for related disturbance, deposition, diversion and discharge. This creates a more user-friendly approach to that currently available in the operative plan, where these related uses are each located in a separate rule.

Overall, each of the rules addressing specific activities is similar to those set out in the RFP, with some exceptions. One new rule is the permitted activity for existing structures that divert flood water. Structures such as stopbanks are designed to divert water in a flood situation, but this diversion is technically restricted under the RMA. Rule R113, provides for structures outside of the bed of a river, to ensure that any potential diversion associated with existing structures is provided for. This is a common sense approach applied to a specific group of existing activities and will ensure that all such existing activities are compliant with the RMA.

Rule R115 provides for culverts as a permitted activity and has been amended from the rule in the RFP to be more focused and effective than the catchment

area approach adopted in the RFP, and is intended to result in more appropriate outcomes in respect of both safety and fish passage than provided by the RFP.

Culverts and bridges (Rules R114 and R115) provide benefits to both the owner of the crossing, and to the environment. Providing for small structures for crossing rivers allows for livestock crossings to be built without resource consent for most small streams, and this helps implement the livestock access restrictions contained elsewhere in the proposed Plan with minimum cost to the resource user. Other small structures that help people and communities provide for their well-being are likewise permitted (Rule R116 and R117) with conditions to ensure that adverse effects on the environment are minimised or avoided. These rules are considered an appropriate way to provide for reasonable resource use in the beds of lakes and rivers, with a minimum amount of regulatory costs, while being effective at providing the in-stream benefits to the river environment that are anticipated by the objectives of the proposed Plan.

Rule R119 provides for the management of flood debris. In common with the RFP, it continues to allow for its removal and beach recontouring as a permitted activity but expressly does not allow for the removal of sand, rock, shingle or gravel. Under the RFP it is unclear as to whether gravel can be considered as flood debris, and this lack of clarity has led to large volumes of gravel being removed without consent. The WRC considers that the removal of this loophole will better ensure that the objectives of the proposed Plan can be achieved.

The proposed framework for the rules provide for as many activities as reasonable as permitted activities. Those activities that cannot meet the permitted activity conditions, because of their scale or level of adverse effect require a resource consent. The default activity classification for those activities that require resource consent is discretionary (Rule R129), other than those activities such as reclamation discussed elsewhere in this report. This is a simplification from the RFP which did provide for some activities as controlled activities and restricted discretionary activities. The proposed framework is simplified, so it is easier for resource users to understand their consent category. Making some activities default to restricted discretionary was also considered, however activities in the beds of rivers and lakes can have wide-ranging effects, as discussed in this report. To ensure that the objectives and policies of the proposed Plan are appropriately achieved and considered, it is necessary to leave discretion open, so that all potential adverse effects can be considered.

There is one restricted discretionary rule in the proposed Plan, Rule R125 – small river crossings, dam and structures in a site identified in Schedule C (mana whenua). These activities are permitted in other rivers. Feedback received from the kaitiaki group was that although they were comfortable that the permitted activity conditions for these activities would adequately deal with the environmental effects of these activities, the presence of a structure may have adverse effects on the cultural values for which the site was identified, and it is possible that the structure would not be appropriate. This type of assessment requires a case-by-case consideration. The proposed restricted

discretionary activity provides for these activities to be assessed for their effects on mana whenua values, provided that they otherwise meet the permitted activity conditions. This rule assists the proposed Plan to achieve the objectives relating to protection of mana whenua values, and sites of significance to mana whenua (discussed in more detail in the Section 32 report: Māori values), and to achieve integrated management and the purpose of the Act.

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Appendix

Table A1: Activities in the beds of rivers and lakes issues summary

Issue	Significance	Need to be in proposed Plan	Different from operative plan?	Information sources	Appropriate level of information?
<p>Activities in the beds of rivers and lakes that are not well managed can have adverse effects on the natural character, mahinga kai and ecosystem health and function of rivers and lakes.</p>	<p>Clear direction from the RMA, NPS-FM, and RPS.</p>	<p>Demonstrates WRC leadership on issue, provides clear foundation for objectives and policies, and reflects concerns regarding potential and actual effects of activities in the beds of rivers and lakes.</p>	<p>The issue is similar, but the proposed Plan seeks to rationalise the policy framework to make it more efficient, easier to use, and easier to administer.</p>	<p>Local, regional and national information and data, including local monitoring data related to the administration of the operative RFP.</p>	<p>Yes.</p>
<p>Inappropriate activities in the beds of rivers and lakes may exacerbate flooding and erosion risk.</p>	<p>Clear direction from the RPS. Information indicates that people's actions in the beds of rivers and lakes can cause, or increase, the risk and consequences of flooding and erosion hazards.</p>	<p>Demonstrates WRC leadership on issue, and accords with the direction of the RPS.</p>	<p>Issue recognised in operative plan, but the proposed Plan seeks to rationalise the policy and rules framework, and ensure alignment with integrated management and values based approach.</p>	<p>Information and data from Flood Protection services within the WRC. Information gathered as part of the natural hazards policy development.</p>	<p>Yes.</p>

Table A2: Assessment of alternative options – reclamation or drainage of rivers and lakes

		Option 1 – Status quo (no change from operative plan)	Option 2 – Piping of streams is considered to be appropriate	Option 3 – Reclamation is to avoided except for certain circumstances, particularly in sites with significant values (preferred option)	Option 4 – Reclamation is avoided in all locations and circumstances
Costs (of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions)	Council	Costs incurred through assessment and determination of resource consents, and the monitoring of conditions during and after development.	<p>Risk of challenge as the Council would not be meeting its requirements under the RMA in respect of significant indigenous biodiversity, mana whenua relationships, natural character.</p> <p>Risk of challenge as the Council would not be giving effect to the RPS requirement to discourage piping of streams, protection of significant indigenous biodiversity, etc.</p> <p>Risk of challenge as the policy/rule option would not be achieving the objectives of the proposed Plan.</p> <p>Provides no guidance as to when piping is inappropriate and leaves all applications to a case-by-case assessment, potentially resulting in increased uncertainty.</p> <p>Compromises WRC's partnership with mana whenua</p>	<p>Potential increase in processing costs and time, as more activities caught by non-complying status will mean increase in processing of technically difficult and challenging applications.</p> <p>Potential for additional costs to be incurred by Council associated with the monitoring of performance of consents against conditions.</p> <p>Perception that piping outside sites is appropriate.</p>	<p>Potential increase in processing costs and time, as more activities caught by non-complying status will mean increase in processing of technically difficult and challenging applications.</p> <p>Potential for additional costs to be incurred by Council associated with the monitoring of performance of consents against conditions.</p> <p>Provides no guidance as to when piping of a stream maybe appropriate and leaves all applications to a case-by-case assessment, potentially resulting in increased uncertainty and increasing inefficiency.</p> <p>Lack of direction in respect of sites with significant values that could result in a greater risk of inconsistent application of policies and uncertainty in outcome.</p>

		Option 1 – Status quo (no change from operative plan)	Option 2 – Piping of streams is considered to be appropriate	Option 3 – Reclamation is to avoided except for certain circumstances, particularly in sites with significant values (preferred option)	Option 4 – Reclamation is avoided in all locations and circumstances
	Resource user (consent applicant or permitted use)	<p>Implementation of existing policy results in costs to resource users in requiring applications for discretionary or non-complying resource consent.</p> <p>Costs incurred in compliance with conditions of consent, both at time of construction and ongoing monitoring and maintenance.</p>	<p>Provides no guidance as to when piping is inappropriate and leaves all applications to a case-by-case assessment, potentially resulting in increased uncertainty and increasing inefficiency.</p> <p>Costs incurred in consenting processes, compliance with conditions of consent, both at time of construction and ongoing monitoring and maintenance.</p>	<p>May result in more reclamation activities being identified as non-complying. Potential associated increase in costs as policy test is higher than for discretionary, and notification requirements expensive and potentially time-consuming.</p> <p>Potential increase in construction, monitoring and maintenance costs through compliance with more stringent conditions to protect significant values.</p> <p>A behavioural change might be required to adapt to new structure and values-based approach.</p> <p>Potentially inequitable in respect of property/development rights.</p> <p>Increased cost of development through alternative solutions such as realignment of streams, reduced available land, fewer saleable lots, offsetting, and construction costs.</p>	<p>May result in more reclamation activities being identified as non-complying. Potential associated increase in costs as policy test is higher than for discretionary, and notification requirements expensive and potentially time-consuming.</p> <p>Potential increase in construction, monitoring and maintenance costs through compliance with more stringent conditions to protect significant values.</p> <p>Potential cost to understating new regime and a behavioural change might be required to adapt to new structure and values-based approach.</p> <p>Increased cost of development through alternative solutions such as realignment of streams, reduced available land, few saleable lots, offsetting, and construction costs.</p> <p>Provides no guidance as to when piping of a stream maybe appropriate and leaves all applications to a case-by-case assessment, potentially resulting in increased uncertainty and increasing inefficiency.</p>

	Option 1 – Status quo (no change from operative plan)	Option 2 – Piping of streams is considered to be appropriate	Option 3 – Reclamation is to avoided except for certain circumstances, particularly in sites with significant values (preferred option)	Option 4 – Reclamation is avoided in all locations and circumstances
Community costs (environmental, social, Economic, cultural)	<p>Continued experience of adverse effects including loss of habitat, natural character, mauri and other values associated with water bodies.</p> <p>Loss or degradation of mana whenua values through reclamation activity.</p> <p>Sites with significant mana whenua values, including mahinga kai sites, at risk of loss through reclamation activity, including through the creation of fish barriers.</p> <p>Sites with significant biodiversity value at risk of loss through reclamation activity, including through the creation of fish barriers.</p> <p>Important lakes in the region, other than Lake Wairarapa, and their values at risk of loss through reclamation activity.</p> <p>Contribution to loss of associated values, such as recreation and amenity values.</p>	<p>Loss of or degradation of mana whenua values through reclamation activity.</p> <p>Sites with significant mana whenua values, including mahinga kai sites, at risk of loss through reclamation activity, including through the creation of fish barriers.</p> <p>Sites with significant biodiversity value at risk of loss through reclamation activity, including through the creation of fish barriers.</p> <p>Important lakes in the region, other than Lake Wairarapa, and their values at risk of loss through reclamation activity.</p> <p>Contribution to loss of associated values, such as recreation and amenity values.</p> <p>Cost of flood protection and increased risk to people and property from flood events that exceed the design capacity.</p> <p>Effectively an irreversible effect as it is a significant cost to remove piping and daylight streams.</p>	<p>Some values not identified in schedules may continue to be lost (in particular, potential for mana whenua values not identified in Schedule C to be impacted by less stringent activity status).</p> <p>There is the potential for streams that are not recognised as significant to be lost. These communities are unfairly affected.</p> <p>Urban design and planning including transportation planning is compromised as driving force for subdivision design would be retention of in-stream habitat.</p> <p>Does not recognise mauri, ki uta ki tai or the connectedness of the whole catchment. For example reclamation of lower value sites in the lowlands could adversely affect sites with significant values in the headwaters.</p> <p>Potential increase in the cost of housing.</p>	<p>Potential loss of sites with significant values. Resulting degradation of mana whenua values, significant biodiversity values, mahinga kai, and important lakes as there is not clear statement in the approach that these areas are more important.</p> <p>Urban design and planning including transportation planning is compromised as driving force for subdivision design would be retention of in-stream habitat.</p> <p>Potential increase in the cost of housing.</p>

		Option 1 – Status quo (no change from operative plan)	Option 2 – Piping of streams is considered to be appropriate	Option 3 – Reclamation is to avoided except for certain circumstances, particularly in sites with significant values (preferred option)	Option 4 – Reclamation is avoided in all locations and circumstances
Benefits (of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions)	Council	Operative policy and rules structure known and understood by decision-makers.	Potentially easier to implement as it is the same approach in all areas.	<p>Council meets its requirements under the RMA in respect of significant indigenous biodiversity, mana whenua relationships, natural character.</p> <p>Council gives effect to the RPS requirement to discourage piping of streams, protection significant indigenous biodiversity, etc.</p> <p>Recognises and respects the Council's partnership with mana whenua.</p> <p>Implementation will better ensure delivery of wider range of environmental outcomes associated with avoidance of inappropriate reclamation activity.</p> <p>Provides a clear policy direction that the sites with significant values are important and should be protected from inappropriate reclamation. Higher likelihood of consistent decisions.</p>	<p>Potentially easier to implement as it is the same approach in all areas.</p> <p>Council meets its requirements under the RMA in respect of significant indigenous biodiversity, mana whenua relationships, natural character.</p> <p>Council gives effect to the RPS requirement to discourage piping of streams, protection significant indigenous biodiversity, etc.</p> <p>Sends a clear message that the piping of streams is inappropriate</p> <p>Recognises and respects the Council's partnership with mana whenua.</p> <p>Implementation will better ensure delivery of wider range of environmental outcomes associated with avoidance of inappropriate reclamation activity.</p>

	Option 1 – Status quo (no change from operative plan)	Option 2 – Piping of streams is considered to be appropriate	Option 3 – Reclamation is to avoided except for certain circumstances, particularly in sites with significant values (preferred option)	Option 4 – Reclamation is avoided in all locations and circumstances
Resource user (consent applicant or permitted use)	Regulatory framework known and understood by affected resource users.	<p>Greater certainty regarding developments as the policy approach states that piping of streams is appropriate.</p> <p>Lower costs incurred in consenting processes, compliance with conditions of consent, both at time of construction and ongoing monitoring and maintenance.</p> <p>Lower construction costs as developments can be designed to maximise return rather than minimise adverse effects</p> <p>There is no property right equity issue as all sites have the same right to develop.</p>	<p>Improved public understanding of the role of river and lake bed management in the achievement of other freshwater objectives and the importance of sites with significant values.</p> <p>Potentially developments that offer a higher quality of life with subsequent increased sale potential in respect of price and speed of sale.</p> <p>Recognises good design and good environmental development practise.</p> <p>Provides a clear policy direction that the sites with significant values are important and should be protected from inappropriate reclamation. Higher likelihood of consistent decisions.</p>	<p>Provides a clear policy direction</p> <p>There is no property right equity issue as all sites have the same right to develop.</p> <p>Improved understanding of the role of effective river and lake bed management in the achievement of other freshwater objectives.</p>

	Option 1 – Status quo (no change from operative plan)	Option 2 – Piping of streams is considered to be appropriate	Option 3 – Reclamation is to avoided except for certain circumstances, particularly in sites with significant values (preferred option)	Option 4 – Reclamation is avoided in all locations and circumstances
Community benefits (environmental, social, economic, cultural)	<p>One key site, i.e. Lake Wairarapa, has a high level of protection from adverse effects of reclamation activity.</p> <p>Other important sites in region, e.g. surface water managed in its natural state, and managed for aquatic ecosystem purposes are afforded a high level of protection.</p>	<p>Potentially lower cost housing.</p> <p>Potentially developments are better designed as the driving force is not in-stream habitat.</p>	<p>Lower cost of flood protection and lower risk to people and property from flood events that exceed the design capacity.</p> <p>Improved public understanding of the role of river and lake bed management in the achievement of other freshwater objectives and the importance of sites with significant values.</p> <p>More comprehensive range of values deemed important by community, including mana whenua values, afforded protection or greater oversight. Greater certainty that sites with significant values are protected.</p> <p>Adverse environmental effects associated with reclamation slowed, potentially reversed.</p> <p>Encourages development that is responsive to environmental constraints.</p> <p>Potentially developments that offer a higher quality of life through environmental benefits.</p> <p>Greater connection to the natural environment.</p>	<p>Lower cost of flood protection and lower risk to people and property from flood events that exceed the design capacity.</p> <p>Improved public understanding of the role of river and lake bed management in the achievement of other freshwater objectives.</p> <p>Recognises mauri, ki uta ki tai or the connectedness of the whole catchment by having the same management approach for the whole catchment.</p> <p>Adverse environmental effects associated with reclamation slowed, potentially reversed.</p> <p>Improved public understanding of the role of river and lake bed management in the achievement of other freshwater objectives.</p> <p>Development that is responsive to environmental constraints is encouraged.</p> <p>Potentially developments that offer a higher quality of life through environmental benefits.</p> <p>Greater connection to the natural environment.</p>

Table A3: Assessment of alternative options – management of gravel extraction

		Option 1 – Status quo (no change from operative plan)	Option 2 – Amend provisions to be more directive and reflect strategic outcomes sought by proposed Plan (preferred option)	Option 3 – Strict regulatory approach, more complex permitted activity regime
Costs (of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions)	Council	Costs associated with processing discretionary activity gravel extractions. Moderate costs associated with monitoring and enforcement of permitted activity standards and conditions of consents.	Similar to Option 1 costs.	Financial, time and human resource cost in collating and analysing data necessary to support and justify more complex permitted activity regime. Potential increase in monitoring and enforcement costs across range of permitted activities. Potential added and on going cost in continued collation, storage, maintenance and re-analysis of data and information.
	Resource user (consent applicant or permitted use)	Costs associated with applying for resource consent for gravel extraction in exceedance of permitted thresholds. However, the permitted activity rule is aimed at minor extraction activities at the domestic level. Large scale operators currently have to apply for consent.	Similar to costs associated with Option 1. Potential increase in compliance costs for gravel extraction in Hutt River, as consents will reflect revised management practices and requirements. Potential increase in costs associated with compliance with amended permitted activity conditions, including general conditions, which may trigger need for consent. Conditions of consent for discretionary activities, and requirements for licensed extractors, may increase perceived and actual regulatory and cost burden.	Time cost in determining whether gravel extraction is within permitted limits. Potential increase in financial costs associated with securing consent if permitted activity regime lowered permitted activity thresholds. Complexity could result in some resource users foregoing resource use, or exceed permitted takes without benefit of consent. Potential increase in costs of extraction, as extraction tailored to fit range of permitted activity thresholds and less efficient overall.

		Option 1 – Status quo (no change from operative plan)	Option 2 – Amend provisions to be more directive and reflect strategic outcomes sought by proposed Plan (preferred option)	Option 3 – Strict regulatory approach, more complex permitted activity regime
	Community costs (environmental, social, economic, cultural)	Small, and to date unfounded, theoretical risk of a high number of individuals extracting gravel in accordance with the permitted activity conditions in the same time period and thereby placing resource under unanticipated pressure. Permitted activity conditions do not sufficiently protect values associated with beds of rivers and lakes (e.g. habitat, ecological, recreational and access)	Small, and to date unfounded, theoretical risk of a high number of individuals extracting gravel in accordance with the permitted activity conditions in the same time period and thereby placing resource under unanticipated pressure.	Potential environmental cost associated with takes undertaken without benefit of consent. Potential increase in cost of resource to post-extraction users.
Benefits (of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions)	Council	Gravel extraction contributes to flood and erosion management, protecting social and economic well-being. Relatively low, known and stable administration, compliance and monitoring costs. The approach is considered by Council and stakeholders to work effectively in managing the resource. Practice of Council securing global consents for large-scale extraction and licensing operators to undertake extraction can continue.	Gravel extraction contributes to effective flood and erosion management, protecting social and economic well-being. Administration, compliance and monitoring costs remain similar to those for Option 1. Practice of Council securing global consents for large-scale extraction and licensing operators to undertake extraction can continue. The overall activity framework is similar to Option 1, which is considered by Council and stakeholders to be an effective means by which to manage the resource. The additional benefits to Council of Option 2 are that it establishes the comprehensive framework within which to manage the resource and which recognises the resource's management as contributing to a range of important environmental, social, economic and cultural outcomes, values and uses.	Better understanding of gravel resource and flood and erosion profile of water bodies across region. Ability to deploy targeted management of gravel resource across region.

		Option 1 – Status quo (no change from operative plan)	Option 2 – Amend provisions to be more directive and reflect strategic outcomes sought by proposed Plan (preferred option)	Option 3 – Strict regulatory approach, more complex permitted activity regime
	Resource user (consent applicant/licensed operator or permitted use)	<p>Straightforward regulated access to valuable resource.</p> <p>Costs known and reasonable to user (extractor)</p>	<p>Straightforward regulated access to valuable resource assured.</p> <p>Costs remain known and reasonable to resource user (extractor)</p> <p>Improved guidance (through permitted activity conditions and general conditions) as to how to extract resource sustainably.</p>	<p>Better understanding of gravel resource and flood and erosion profile of water bodies across region.</p>
	Community benefits (environmental, social, economic, cultural)	<p>Access to and availability of post-extraction resource continues.</p> <p>Gravel extraction contributes to flood and erosion management, protecting social and economic well-being.</p>	<p>Access to, and availability of, post-extraction resource continues.</p> <p>Range of values associated with beds of rivers and lakes (e.g. habitat, ecological, recreational and access) better able to be protected.</p> <p>Sensitivities of Hutt River to gravel extraction recognised and provided for.</p> <p>Cost of resource to post-extraction users should not be negatively impacted by implementation of provisions (over current prices).</p> <p>Gravel extraction contributes to flood and erosion management, protecting social and economic well-being.</p>	<p>Environmental and social benefits associated with improved understanding of gravel resource and flood and erosion profile of water bodies across region; and potentially improved strategic management of gravel resource over time.</p> <p>Gravel extraction contributes to flood and erosion management, protecting social and economic well-being.</p>

	Option 1 – Status quo (no change from operative plan)	Option 2 – Amend provisions to be more directive and reflect strategic outcomes sought by proposed Plan (preferred option)	Option 3 – Strict regulatory approach, more complex permitted activity regime
<p>Efficiency (costs vs benefits) and effectiveness (will the provisions achieve the objective)</p>	<p>The status quo costs to industry are well known and understood, and are accepted as being reasonable in relation to the value of the resource, and the value to environmental and social well-being) (in terms of flood and erosion protection) that is associated with gravel extraction.</p> <p>However, the permitted activity conditions do not acknowledge or provide for the protection of a wide range of environmental, social and cultural values that may be affected by the extraction of gravel. In this respect, the status quo is not effective in achieving either the operative or proposed objectives.</p>	<p>The costs (time and financial) to industry will be similar to those associated with the status quo, but the provisions will be more effective in enabling the environment and values considered important to stakeholders to be safeguard and protected in the long term, and access to an important and necessary resource will continue to be made available.</p> <p>The provisions work with industry best practice in terms of extraction methods and practices, not against it. Provides an appropriate, workable, achievable management framework for all stakeholders.</p> <p>Considering the expected costs and expected benefits this option is seen as being an efficient way of achieving the objective.</p> <p>The proposed Plan will be more efficient as it ensures that the extraction of gravel achieves a range of objectives and maintains and protects values considered important by stakeholders.</p>	<p>There are additional upfront and on going costs (over and above Options 1 or 2) associated with this option, in both establishing the evidence base to justify a complex range of permitted activities; maintaining and storing the information and data; and ensuring the information remains relevant and up-to-date. There are also costs associated with the monitoring and evaluation of the implementation of the provisions. Aside from providing Council and other stakeholders with a more in depth knowledge of the quantum and behaviour of the gravel resource in the region, the benefits of the approach do not exceed those of Options 1 or 2, and do not exceed the costs of implementing the approach.</p>

	Option 1 – Status quo (no change from operative plan)	Option 2 – Amend provisions to be more directive and reflect strategic outcomes sought by proposed Plan (preferred option)	Option 3 – Strict regulatory approach, more complex permitted activity regime
Risks of acting or not acting (If there is uncertain or insufficient information)	The status quo approach was developed on sufficient information, and monitoring and evaluation of the effects of the implementation of the existing policy have demonstrated that it is resulting in the resource being well managed. The development of the proposed Plan has provided information that has enabled the Council to improve upon the existing policy framework to ensure the gravel resource is managed effectively and efficiently within a range of environmental, social, cultural and economic parameters and values.	There is sufficient information to provide for greater certainty with respect to the risks associated with gravel extraction activities. The risk of not acting upon this information is that the management of the resource in the long term fails to achieve the proposed Plan's more strategic objectives in respect of aquatic habitat, natural character and natural hazards. Given the certainty of the information, the risk of not acting is a greater risk.	There is not sufficient information to pursue this approach, and the costs of securing the information do not exceed the social, economic or environmental benefits that could be accrued through implementing the approach. Option 1 has shown to be effective in managing the resource, and Option 2 builds on this approach using available information and data. The risk to environmental and other outcomes in not collating these data is low given that the preferred option can deliver the anticipated environmental and other benefits and outcomes efficiently and effectively
Appropriateness (If it is efficient and effective then it must be appropriate)	This option is not appropriate as it fails to acknowledge and provide for the achievement of a range of objectives relating to natural hazards, natural character and the management of natural resources considered to be appropriate to meeting the purpose of the RMA.	The new provisions are appropriate given the high level of efficiency and effectiveness for achieving the proposed Plan's objectives and meeting the purpose of the Act.	This option is not appropriate as it is not an efficient or effective means of achieving the objectives.
Conclusions	Option 1 is not considered to be the most effective or efficient means of achieving the proposed objectives or meeting the purpose of the RMA.	The proposed provisions for the management of the region's gravel resource are considered the most efficient and effective for meeting the purpose of the Act by managing the resource sustainably and in a manner that provides for the community's economic, social and cultural well-being.	Option 3 is not considered to be the most effective or efficient means of achieving the proposed objectives or meeting the purpose of the RMA.

Table A4: Assessment of alternative options – catchment-based flood and erosion control activities

		Option 1 – Status quo (no change from operative plan)	Option 2 – Amend to reflect values approach in proposed Plan overall (preferred option)
Costs (of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions)	Council	Costs incurred through assessment and determination of discretionary consents. However, assessment of a proposal against these provisions is likely also to be assessed against other provisions in the proposed Plan, so difficult to quantify costs specific to this set of provisions to Council. Some costs associated with the general monitoring of performance of consents against conditions related to the implementation of the existing policies, and general compliance costs.	As with Option 1, costs incurred by Council are through assessment and determination of discretionary consents. However, assessment of a proposal against these provisions is likely also to be assessed against other provisions in the proposed Plan, so difficult to quantify costs specific to this set of provisions to Council. Similar to Option 1, some costs associated with the general monitoring of performance of consents against conditions related to the implementation of the existing policies, and general compliance costs.
	Resource user (consent applicant or permitted use)	The implementation of this policy likely to be experienced by resource user through conditions of consent where activity does not comply with permitted activity conditions intended to avoid adverse effects of third party activities on flood and erosion mitigation measures in river beds.	The implementation of this policy likely to be experienced by resource user through conditions of consent where activity does not comply with permitted activity conditions intended to avoid adverse effects of third-party activities on flood and erosion mitigation measures in river beds. Costs unlikely to be significantly different from those associated with Option 1, and likely to be related to the design of works that could affect catchment-based flood and erosion control activities. Some social or behavioural change may be required on the part of some resource users to understand the importance of protecting range of values and uses of beds of rivers and lakes.
	Community costs (environmental, social, economic, cultural)	The operative provisions are considered to be effective in ensuring that third party works do not undermine flood and erosion mitigation infrastructure. However, current approach fails to effectively recognise and provide for other values present in river beds and considered to be important by the community, for example, protection of mana whenua values and fish spawning habitats.	Some social or behavioural change may be required on the part of some resource users to understand the importance of protecting range of values and uses of beds of rivers and lakes.

		Option 1 – Status quo (no change from operative plan)	Option 2 – Amend to reflect values approach in proposed Plan overall (preferred option)
Benefits (of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions)	Council	<p>Valuable flood and erosion mitigation infrastructure protected from adverse effects of third-party activities.</p> <p>Flood and erosion mitigation assets do not suffer unnecessary damage or degradation from third-party activities.</p> <p>Flood and erosion mitigation infrastructure performs effectively as anticipated by Council and within planned for depreciation and maintenance parameters.</p>	<p>Valuable flood and erosion mitigation infrastructure protected from adverse effects of third-party activities.</p> <p>Flood and erosion mitigation assets do not suffer unnecessary damage or degradation from third-party activities.</p> <p>Flood and erosion mitigation infrastructure performs effectively as anticipated by Council and within planned for depreciation and maintenance parameters.</p> <p>Revised strategic emphasis of provisions enable achievement of range of objectives intended to protect, maintain or enhance environmental, social and cultural values considered important by the community.</p>
	Resource user (consent applicant or permitted use)	Resource users can undertake range of activities as permitted activities without undue regulatory burden.	As with Option 1, preferred approach enables resource users to continue to undertake range of activities as permitted activities without excessive regulatory burden.
	Community benefits (environmental, social, economic, cultural)	Effectiveness of flood and erosion mitigation infrastructure is not undermined by third party activities and continues to protect communities located near rivers and their floodplains. This ensures the protection of a wide range of public and private assets, and the social and economic well-being of those communities.	<p>Effectiveness of flood and erosion mitigation infrastructure is not undermined by third-party activities and continues to protect communities located near rivers and their floodplains. This ensures the protection of a wide range of public and private assets, and the social and economic well-being of those communities.</p> <p>Social, cultural and environmental benefits accrue from contribution of provisions to strategic objectives safeguarding range of environmental, social and cultural values.</p>

	Option 1 – Status quo (no change from operative plan)	Option 2 – Amend to reflect values approach in proposed Plan overall (preferred option)
Efficiency (costs vs benefits) and effectiveness (will the provisions achieve the objective)	The current provisions are effective in helping to ensure the efficacy of existing flood and erosion mitigation measures. The economic costs of implementing the provisions are known and largely considered acceptable by affected stakeholders. However, the current provisions do not effectively account or provide for the other social, environmental and cultural costs associated with works in the beds of rivers and lakes. In the long term, the undermining of these values through the implementation of this policy will result in costs which outweigh the benefits of the approach.	The provisions are effective as they will ensure the continued efficacy of catchment-based flood and erosion activities, and assist in the achievement of a range of environmental, social and cultural objectives and outcomes. The proposed shift to a more strategic and integrated approach carries similar costs to that associated with Option 1, but has the potential to contribute to more benefits than the status quo, and is therefore more efficient than Option 1. The provisions provide an appropriate, workable, achievable management framework for all stakeholders.
Risks of acting or not acting (If there is uncertain or insufficient information)	The information which underpins Option 1 has since been supplemented with new data regarding the potential adverse effects of third-party activities not just on flood and erosion control measures, but also on a range of other social, environmental and cultural values which the community has indicated are important and worthy of protection. This information is sufficient to indicate that the current provisions will not contribute to achieving the proposed objectives.	There is sufficient information to provide for greater certainty over the environmental, social and cultural risks associated with the works in the beds of rivers and lakes to justify the proposed provisions to effectively take account of and provide for them. The risk of not acting given the certainty of information, and the strategic nature of the proposed Plan this information supports, is a greater risk.
Appropriateness (If it is efficient and effective then it must be appropriate)	This option is not appropriate as it does not contribute to the achievement of proposed objectives intended to protect and safeguard a range of environmental, social and cultural objectives that are considered appropriate in meeting the purpose of the Act.	The new provisions are appropriate given the high level of efficiency and effectiveness for achieving a range of environmental, social and cultural objectives of the proposed Plan, and which meet the purpose of the Act.
Conclusions	Option 1 is not the most efficient or effective means of achieving the objectives, or meeting the purpose of the Act.	The new provisions for protecting catchment-based flood and erosion control activities are the most efficient and effective for meeting the purpose of the Act by managing the use and development of natural and physical resources in a way which protects flood and erosion control measures from the adverse effects of third-party activities, and thereby enabling communities to provide for their social, economic and cultural well-being.

Table A5: Assessment of alternative options – management of vegetation

		Option 1 – Status quo (no change from operative plan)	Option 2 – Amend to reflect values approach of the proposed Plan. (preferred option)	Option 3 – Strict regulatory approach (e.g. require consent for the planting/removal of vegetation)
Costs (of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions)	Council	Provision of practical help, advice and guidance to property owners and community members to ensure appropriate vegetation management.	Provision of practical help, advice and guidance to property owners and community members to ensure appropriate vegetation management as part of Method M1: Regional plan implementation and integration.	<p>Increase in costs over baseline through consents processing and decision-making.</p> <p>Continued provision of practical help, advice and guidance to property owners and community members to ensure appropriate vegetation management.</p> <p>Council could potentially erode or lose positive 'partnership' arrangement with stakeholders as provisions emphasise its role of regulator.</p> <p>Increased regulatory burden on resource users may encourage some to avoid consent process and undertake poor management practice, which could adversely affect environmental, social and cultural values and assets. This could result in increased monitoring and enforcement costs.</p>

		Option 1 – Status quo (no change from operative plan)	Option 2 – Amend to reflect values approach of the proposed Plan. (preferred option)	Option 3 – Strict regulatory approach (e.g. require consent for the planting/removal of vegetation)
	Resource user (consent applicant or permitted use)	Low costs to resource users as regulatory burden is low and there is help and support available from Council to ensure effective implementation of the policy.	Low costs to resource users as regulatory burden is low and there is help and support available from Council to ensure effective implementation of the policy. The revised management conditions may impose some restrictions and burdens on resource users, for example restrict the times during which planting can take place in locations also valued as bird habitats.	Costs to resource users would be higher than those associated with either the baseline Option 1, or with the preferred Option 2 as regulatory and compliance burden is higher than the existing. In order to ensure maintenance of other values identified in the proposed Plan, this approach would likely be accompanied by revised management conditions which may impose some restrictions and burdens on resource users, for example restrict the times during which planting can take place in locations also valued as bird habitats. Potential loss or erosion of partnership between resource user and council as provisions emphasise Council's regulatory role.
	Community costs (environmental, social, economic, cultural)	Costs to the community are mainly those associated with the provisions not providing a management framework that recognises and provides for the protection and maintenance of values that are directly and indirectly associated with the appropriate management of vegetation in the beds of rivers and lakes, for example, protection of bird habitat and loss of important habitat and associated native species loss in drain environments.		Potential loss or erosion of partnership between wider community and council as provisions emphasise Council's regulatory role. Increased regulatory burden may encourage some to avoid consent process and undertake poor management practice, which could adversely affect environmental, social and cultural values and assets.

		Option 1 – Status quo (no change from operative plan)	Option 2 – Amend to reflect values approach of the proposed Plan. (preferred option)	Option 3 – Strict regulatory approach (e.g. require consent for the planting/removal of vegetation)
Benefits (of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions)	Council	<p>Council secures good environmental management practices across the community at relatively low cost to either the Council or the resource user.</p> <p>Council able to engage with stakeholders in positive and productive 'non-regulatory' way, aiding in building effective and positive relationships in the long term.</p>	<p>Council secures good environmental management practices across the community at relatively low cost to either the Council or the resource user.</p> <p>Council continues to be able to engage with stakeholders in positive and productive 'non-regulatory' way, aiding in building effective and positive relationships in the long term.</p> <p>Council able to lead strategic and integrated thinking and management of freshwater resources and associated environments.</p> <p>Council better ensures achievement of objectives and outcomes for range of ecological, social and cultural values considered important by the community.</p>	<p>Council potentially able to secure environmental gains more swiftly through strict regulation.</p> <p>Council's role as regulator in area of vegetation management clearly understood by resource users and wider community.</p>
	Resource user (consent applicant or permitted use)	<p>Low regulatory cost and burden.</p> <p>Effective and positive relationship with Council, and access to useful resources.</p>	<p>Low regulatory cost and burden.</p> <p>Effective and positive relationship with Council, and access to useful resources.</p> <p>More comprehensive advice and guidance on the effective management of vegetation activities, and better appreciation of wider impacts (positive and negative) of good management practices.</p>	<p>Council clearly understood as regulatory authority in respect of vegetation management.</p>

		Option 1 – Status quo (no change from operative plan)	Option 2 – Amend to reflect values approach of the proposed Plan. (preferred option)	Option 3 – Strict regulatory approach (e.g. require consent for the planting/removal of vegetation)
	Community benefits (environmental, social, economic, cultural)	Environmental outcomes in respect of vegetation management achieved. Low regulatory and cost burden to resource users reflects in rates.	Environmental outcomes in respect of vegetation management achieved. Contribution to the achievement of environmental outcomes in respect of indigenous biodiversity. Low regulatory and cost burden to resource users reflects in rates. Approach better ensures achievement of objectives and outcomes for range of ecological, social and cultural values considered important by the community.	Environmental outcomes in respect of vegetation management achieved.

	Option 1 – Status quo (no change from operative plan)	Option 2 – Amend to reflect values approach of the proposed Plan. (preferred option)	Option 3 – Strict regulatory approach (e.g. require consent for the planting/removal of vegetation)
<p>Efficiency (costs vs benefits) and effectiveness (will the provisions achieve the objective)</p>	<p>The financial costs to Council and resource users associated with the status quo are considered to be relatively low compared to the benefits of the implementation of the provisions. However, Option 1 is not effective as its implementation fails to provide for the achievement of other objectives designed to safeguard values considered important by the community, such as ecological and social values. This failure is also a potential cost to the environment in the long term, which also undermines its overall efficiency.</p>	<p>The provisions will ensure good management practices in terms of vegetation planting and removal within similar cost parameters as status quo. Revised management conditions will ensure that other values considered important to the community are also safeguarded. A modest increase in costs may be experienced by some resource users, particularly in terms of time as the bird habitat example above suggests, or in ensuring compliance with conditions to manage drain clearance activities. However, these costs are considered to be modest, and are outweighed by the benefits associated with the proposed provisions package. The preferred approach is more aligned to the overall strategic development and nature of the proposed Plan, and contributes to the achievement of the overarching objective of integrated management of the region's resources.</p> <p>Provides an appropriate, workable, achievable, and cost effective management framework for all stakeholders.</p> <p>The proposed approach is more efficient and effective than either Option 1 or 3.</p>	<p>The costs of this option are more than those associated with either Option 1 or 2. There is a potential for some increase in benefits in terms of vegetation management and other environmental outcomes, but the increase in the Council's strict regulatory role could erode beneficial and productive relationship with the community, as well as place a strain on Council's resources as it focuses on delivering on regulatory requirements. Overall, whilst the approach may be effective in achieving the objectives, it is considered that the costs of this approach far outweigh any potential benefits, and is therefore not considered an efficient means of achieving the proposed objectives.</p>

	Option 1 – Status quo (no change from operative plan)	Option 2 – Amend to reflect values approach of the proposed Plan. (preferred option)	Option 3 – Strict regulatory approach (e.g. require consent for the planting/removal of vegetation)
Risks of acting or not acting (If there is uncertain or insufficient information)	The information which underpins Option 1 has since been supplemented with new data regarding effective management of vegetation in the beds of rivers and lakes, and also the role that good management plays in the achievement of a range of other social, environmental and cultural outcomes the community has indicated are important and worthy of protection. This information is sufficient to indicate that the current provisions will not contribute to achieving the proposed objectives.	There is sufficient information to provide for greater certainty over the environmental, social and cultural outcomes associated with the effective management of vegetation in the beds of rivers and lakes to justify revising the draft provisions to effectively take account of and provide for them. The risk of not acting given the certainty of information, and the strategic nature of the proposed Plan this information supports, is a greater risk.	There is sufficient information to indicate that proceeding with Option 3 would potentially result in greater overall risks and costs than overall benefits.
Appropriateness (If it is efficient and effective then it must be appropriate)	This option is not appropriate as it does not effectively enable the Council and other stakeholders to achieve the objectives and management outcomes expressed in the proposed objectives, which have been found to be appropriate and meet the purpose of the Act.	The new provisions are appropriate given that they are efficient and will be effective in achieving the objectives, which have been found to be appropriate and meet the purpose of the Act.	Option 3 is not appropriate as it is not an efficient means of achieving the objectives.
Conclusions	Option 1 is not the most effective or efficient means to achieve the objectives or the purpose of the Act and are not considered appropriate.	The new provisions for the management of vegetation in the beds of rivers and lakes are the most efficient and effective for meeting the purpose of the Act by promoting the sustainable management of natural resources.	Whilst Option 3 may be effective in achieving the objectives, it is not efficient and is therefore not an appropriate option for the Council to consider.

Table A6: Summary of good practice documents for drain clearance

	Environment Canterbury Best Management memo (Greer 2014)	Department of Conservation Drain Management in New Zealand (Hudson and Harding 2004)	Sustainable Drain Management WaterNZ (Hudson 2005)	Environment Waikato Best Practice Land Drainage (Gibbs 2007)	Dairying and the Environment – Management for Waterways (Dairying and the Environment Committee 1998)
Integrated management focus first to reduce need to clear drain	Notes that best practice is to manage drains to minimise the need for clearance	<p>Yes. Good summary provided:</p> <ul style="list-style-type: none"> - Controlling soil loss and contaminants through stock, crop and effluent management - Controlling farm soil erosion and contaminants with buffer strips along drain margins - Reducing nutrients and sediments in streams with nutrient stripping and sediment control measures - Controlling bed and bank erosion by improved channel design and erosion - Control measures e.g. with the construction of sediment traps - Using a combination of practices (e.g. chemicals, grazing and mechanical harvesting) for the control of weeds in an integrated pest management programme 	First priority should be to prevent problems by control of inputs and land management	Yes, focus is on sustainable management of land and drains to avoid need to clear mechanically	Yes minimising the need for drain clearance is emphasised
Install sediment and silt barriers permanent		Noted, to limit area requiring routine clearing	Key measure to avoid need to mechanically clear length of drain frequently (only the sediment trap needs to be cleared)		

	Environment Canterbury Best Management memo (Greer 2014)	Department of Conservation Drain Management in New Zealand (Hudson and Harding 2004)	Sustainable Drain Management WaterNZ (Hudson 2005)	Environment Waikato Best Practice Land Drainage (Gibbs 2007)	Dairying and the Environment – Management for Waterways (Dairying and the Environment Committee 1998)
Install sediment and silt barrier, temporary (during excavation)	In heavily silted waterways prevent suspended sediment moving downstream using artificial or natural filters	Noted to control sediment during excavation		In sensitive areas use filter fabric or straw bales to reduce flow of dirty water Can maintain buffer of weed at lower end and clear this last	
Maintain original grade (no widening or deepening)	Avoid removing coarse gravel and cobble substrates Maintain variability in stream bed depth and contours i.e. do not flatten the bed	Noted, manipulate channel shape to concentrate flow		Objective (a) The channel should not be enlarged or deepened below its original depth	Avoid deepening drains
Sediment	Distribute spoil in such a way that it cannot slump or be washed back into the waterway		Cart away spoil or deposit on side of bank	Do not place excavated material in wetlands or boggy areas Excess spoil should be incorporated into fields or taken from site Erosion prone soils should be seeded or planted	Spread out drain clearings away from waterways and wetlands
Weed bucket	Use a weed rake rather than a conventional bucket in gravel bottom waterways Use a conventional bucket rather than a weed rake where large amounts of fine sediment are present		Use weed bucket or conventional bucket	Use a weed bucket to allow water and fish to escape back into drain	Use a weed bucket

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Method – fish	<p>Encourage the digger operator to ensure the bucket is submerged at the end of each cut</p> <p>Distribute spoil so that stranded eels can make their own way back to the waterway</p> <p>Return stranded mega fauna (fish, crayfish, shellfish etc.) to the waterway</p> <p>Recover distressed fish from the disturbed waterway and relocate them upstream</p> <p>Do not return recovered fish to highly turbid or de-oxygenated water</p>				Have someone walking alongside to return fish to water

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Restrictions on extent cleared	Maintain beneficial plant refuges by only partially clearing plants from the waterway (leaving the margins or entire sections of waterway uncleared) Maintain ecological refuges by not cleaning all waterways in a catchment or property at once Replace lost habitat complexity with reinstated artificial structures	Noted, leave undisturbed continuous strip of plants on one bank, excavating one bank and retain vegetation on the other bank Noted, Clear weeds into meander pattern		Don't clear all of your drains in one year, instead if your drains need clearing every five years, do one fifth every year If spraying only spray centre of drain, not banks	Spray only centre channel Clear only one part of the drain at a time so that vegetated areas remain as filters. Clean lower end last so that a weed filter is present during clearing
Work from edge			Work from one bank normally	Work from one bank if possible to minimise erosion and maintain bank vegetation	
Bank/edge disturbance		Noted, avoid excessive drain widening		Avoid disturbing banks, only excavate material from bed	
Retain riffles/habitat	Preserve specific important habitats such as riffles	Noted, retain or create sinuosity and pools and riffles Clear weeds into meander pattern Noted, reduce bank slopes		Maintain existing bends in the channel and maintain diversity in bed (not smooth channel)	Avoid straightening natural drainage channels

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Timing restrictions	Between March and May avoid clearing waterways identified as potential inanga spawning and between May and September avoid clearing waterways identified as trout spawning habitat	Noted best practice as limiting clearance to when drainage efficiency is significantly reduced	Time works to avoid sensitive places at sensitive times	Mechanical clearing in late autumn, winter or early spring is preferable in coastal areas where white bait spawning could occur	Spray weeds when drains are seasonally dry Avoid excavating during peak spawning and migration times

The Greater Wellington Regional Council's purpose is to enrich life in the Wellington Region by building resilient, connected and prosperous communities, protecting and enhancing our natural assets, and inspiring pride in what makes us unique

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