

Assessment of the Proposed Lake Discharge at Lake Okareka and Associated Stream Works against Relevant Legislation and Planning Documents

The following Pieces of legislation and extracts from planning documents are relevant to the proposed activities and have been considered when compiling this resource consent application.

1 The National Policy Statement for Freshwater Management 2014

The National Policy Statement for Freshwater Management 2014 (NPS-FM) is an instrument under the Resource Management Act 1991 (RMA) and came into effect on 1 August 2014. It sets out the objectives and policies for freshwater management and recognises the national significance of freshwater. It contains a number of objectives that are relevant to this proposal and these have been taken into account in developing this application.

- **Water Quality Objective A1: To safeguard:**

- a) the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems, of fresh water; and
- b) the health of people and communities, at least as affected by secondary contact with freshwater;

in sustainably managing the use and development of land, and of discharges of contaminants.

- **Water Quality Objective A2: The overall quality of fresh water within a region is maintained or improved while:**

- a) protecting the significant values of outstanding freshwater bodies;
- b) protecting the significant values of wetlands; and
- c) improving the quality of fresh water in water bodies that have been degraded by human activities to the point of being over-allocated.

- **Water Quantity Objective B1**

To safeguard the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of fresh water, in sustainably managing the taking, using, damming, or diverting of fresh water.

- **Tangata Whenua Roles and Interests Objective D1**

To provide for the involvement of iwi and hapu, and to ensure that tangata whenua values and interests are identified and reflected in the management of fresh water including associated ecosystems, and decision-making regarding fresh water planning, including on how all other objectives of this national policy statement are given effect to.

Comment

The proposal increase in Lake Okareka maximum discharge rate and associated stream protection works are consistent with the objectives of the NPS-FW in that the discharge allowance will enable lake levels within a target range which will protect shoreline, structures, property, infrastructure and wetlands whilst ensuring that there any adverse effects on the Waitangi Stream and receiving environment are no more than minor.

2 Assessment of the Activity Against the Matters Set Out in Part 2 of the Resource Management Act

2.1 Section 5: Purpose and Principles

Section 5 of the RMA promotes the sustainable management of natural and physical resources. 'Sustainable management' is defined by the RMA as:

managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while

- a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
- b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
- c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

Comment

Controlling the level of Lake Okareka helps to protect the natural and physical resources associated with the lake and lakeside environment. Having the potential to increase discharge rates will assist in maintaining the lake level within target range. Recent climatic events and projected effects of climate change indicate that higher discharge rates may be necessary to maintain the lake level within the target range. Potential adverse effects on the Waitangi Stream have been identified and appropriate measures to mitigate/remedy potential effects will be implemented.

The discharge rate will be undertaken in accordance with an approved management plan.

2.2 Section 6: Matters of National Importance

Section 6 of the RMA outlines several matters of national importance that are of relevance to this proposal and need to be recognised and provided for by persons exercising functions and powers under the RMA.

(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:

(c) The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna

(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:

(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:

Comment

The level of Lake Okareka has been controlled since the 1960s. The current resource consent application to increase the maximum discharge rates will help to maintain the lake level within the current target range. This will help to protect the 'character' of the lake albeit modified. It will also help to maintain the function of wetlands (natural and man-made) around the lake margins.

Protection works within the Waitangi Stream will not enhance the natural character of the stream, but in the areas of proposed mitigation the stream is heavily modified.

Public access to and around the lake has been severely compromised by recent high lake levels resulting in reduced access and damage to infrastructure (pathways, property, jetties etc). The ability to implement higher discharge rates as and when necessary will avoid these issues.

Tangata whenua have been involved in the ongoing consultation process. They have made the point that they would prefer to see the lake without man made outfall controls and allowed to rise and fall within its natural range, but accepting that there are properties around the lake and other resources that need to be protected and as such have provided written support to the proposal.

2.3 Section 7: Other Matters

Section 7 of the RMA outlines other matters to which all persons exercising functions and powers under it shall have particular regard.

(a) Kaitiakitanga:

(aa) The ethic of stewardship:

(b) The efficient use and development of natural and physical resources:

(c) The maintenance and enhancement of amenity values:

(d) Intrinsic values of ecosystems:

(f) Maintenance and enhancement of the quality of the environment:

(h) The protection of the habitat of trout and salmon:

(i) The Effects of climate change;

Comment

This proposal has regard to the matters listed above. As kaitiaki of Lake Okareka, Tuhourangi are supportive of the proposal.

The proposal has regard to the ethic of stewardship because maintenance of the lake level within the target range allows the community to use it for recreational and social activities and protects it for the use of future generations.

The amenity values of the lake are enhanced by maintaining the lake within the target range which allows year round access to the lake and margins.

The Waitangi Stream is a significant trout spawning habitat which could potentially be affected by increased discharge rates. Also periods of very low flow could have an adverse effects on fisheries habitat values. The regional council will continue to work with Fish and Game and the landowner to ensure that the discharge management plan protects the fisheries habitat particularly at times of very high and very low flows.

The effects of climate change are significant components of this resource consent application. The large number of high rainfall in 2017 were 1 in 100 year events when measured over a range of time duration. Modelling to take account of climate change indicated that signifiant events will become larger and more frequent. The modelling shows potential lake levels when considering;

- No effect of climate changes and
- Lake levels using a range of climate change scenarios

The proposed increase in maximum discharge rates and operations within the proposed management plan will maintain the lake within the target range for all but the largest predicted events.

2.4 Section 8 of the RMA – Treaty of Waitangi

Section 8 of the RMA requires the principles of the (Te Tiriti o Waitangi) to be taken into account by all persons exercising functions and powers under it -

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

Comment

BoPRC is taking into account the principles of the Treaty of Waitangi by actively engaging with iwi and hapū in respect to the continued use of the lake discharge structure and proposed changes to the maximum discharge.

3 Regional Policy Statement 2014

The BOPRC Regional Policy Statement (RPS) became operative on 1 October 2014. The RPS describes the significant resource management issues facing the region and sets out the objectives, policies and methods for addressing those issues. The RPS presents the overarching resource management framework for the region. The following objectives and policies are relevant to this proposal and have been considered in the resource consent application.

3.1 Integrated Resource Management

Objective 12 The timely exchange consideration of and response to relevant information by all parties with an interest in the resolution of a resource management issue.

- Policy IR 4B Using consultation in the identification and resolution of resource management issues.

Comment - A working party was established to consider views from all affected parties and representative groups. Particularly relevant is reference to the changing environment i.e.

responding to the effects of climate change. Recent events and modeling indicates that the current discharge limits will not adequately accommodate future discharge requirements.

3.2 Iwi Resource Management

Objective 13 is to recognise Kaitiakitanga and the principles of the Treaty of Waitangi (Te Tiriti o Waitangi) are systematically taken into account in the practice of resource management.

- Policy IW 3B: Recognising the Treaty in the exercise of functions and powers under the Act
- Policy IR 4B: Using consultation in the identification and resolution of resource management issues

Comment - Consultation has been undertaken between the consent holder and iwi and written approval has been received.

Objective 14 is to ensure partnerships between Bay of Plenty Regional Council, district and city councils and iwi authorities.

- Policy IR 3B: Adopting an integrated approach
- Policy IR 4B: Using consultation in the identification and resolution of resource management issues

Comment - Consultation has been undertaken between the consent holder and iwi

Objective 17 is to ensure that the mauri of water, land, air and geothermal resources is safeguarded and where it is degraded, where appropriate, it is enhanced over time.

- Policy IW 2B: Recognising matters of significance to Māori

Comment - Consultation and site visits have been undertaken between the consent holder and iwi and written approval has been received.

3.3 Matter of National Importance

Objective 19 The preservation of the natural character of the region's coastal environment (including coastal marine areas) wetlands, lakes and rivers and their margins

- Policy MN 1B: Recognise and provide for matters of national importance
- Policy MN 3B: Using criteria to assess values and relationships in regard to section 6 of the Act

Objective 20 The protection of significant indigenous habitats and ecosystems, having particular regard to their maintenance, restoration and intrinsic values.

- Policy MN 1B: Recognise and provide for matters of national importance
- Policy MN 2B: Giving particular consideration to protecting significant indigenous habitats and ecosystems
- Policy MN 3B: Using criteria to assess values and relationships in regard to section 6 of the Act
- Policy MN 4B: Encouraging ecological restoration

Objective 21 Recognition of and provision for the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga”

- Policy IW 2B: Recognising matters of significance to Māori
- Policy IW 5B: Adverse effects on matters of significance to Māori
- Policy MN 1B: Recognise and provide for matters of national importance
- Policy MN 3B: Using criteria to assess values and relationships in regard to section 6 of the Act

Comment - The above criteria have been considered and where relevant have been addressed in the consent application.

Comment - The increase in maximum discharge will retain the character of the lake whilst protection the character of the Waitangi Stream, whilst recognising that the lake and stream character has been modified from its natural state.

Comment - Maintenance of lake levels will protect the wetland habitats around the lake margins. The proposed mitigation measures will ensure protection of the habitats and ecosystems within the Waitangi Stream.

Comment - An ecological assessment of the effects of the proposed activity on the Waitangi Stream has been completed. The report then provides a plan to mitigate the potential adverse effects. The consultation process recognises relationships listed in Objective 21 and Tuhourangi Tribal Authority have provided written approval for the proposed activities.

Overall, this proposal is consistent with relevant policies in the RPS. Engagement with iwi has ensured that Kaitiakitanga principles are maintained.

3.4 Water Quality and Land Use

Objective 28 Enhance the water quality in the lakes of the Rotorua district and other catchments at risk.

- **Policy WL 2B:** Defining catchments at risk
- **Policy WL 3B:** Establishing limits for contaminants entering catchments at risk

Comment - Objective 28 relates mainly to effects of landuse on water quality. These effects are not associated with the proposed activities, however the AEE does compare water quality between lake Okareka and the receiving environment (Lake Tarawera) and considers that the increase in water quality discharged from Lake Okareka will not have an adverse effects on Lake Tarawera water quality. There is potential for sediment (a contaminant) generation resulting from increased flows in the Waitangi Stream. These will be mitigated by the proposed engineering works. There will be short term sediment generation caused during the engineering works.

4 BOPRC Operative Regional Natural Resources Plan(RNRP).

The BOP RNRP was released in September 2017. This plan replaces the Regional Water and Land Plan (RWLP) and amalgamates a number of other plans into the one document. Note that the Rules that applied under the former RWLP remain unchanged in the RNRP but have been renumbered.

The following objectives from the RNRP are relevant to the proposed activities and have been considered in the resource consent application;

4.1 Kaitiakitanga

- KT O1 (Objective 1) The principles of the Treaty of Waitangi (Te Tiriti o Waitangi) are recognised and taken into account in the management of water, land and geothermal resources.
- KT O3 (Objective 3) Consultation with tangata whenua that recognises their societal structures, practices, protocols, and procedures, and status under the Act.
- KT O4 (Objective 4) The water, land and geothermal concerns of tangata whenua are taken into account and addressed as part of resource management processes, while recognising that different iwi and hapu may have different concerns or practices.
- KT O6 (Objective 6) Maintain the biological and physical aspects of the mauri of water, land and geothermal resources; and where practicable achieve the ongoing improvement of the biological and physical aspects of the mauri where it has been degraded, as it relates to:
- (a) Water quality meeting the specified water quality classifications.
 - (b) Water flows not breaching the instream minimum flow requirements.
- KT O7 (Objective 7) The extent of the spiritual, cultural and historical values of water, land and geothermal resources (including waahi tapu, taonga and sites of traditional activities) to tangata whenua are identified.

4.2 Integrated Management of Land and Water

- IM O2 (Objective 10) Stewardship of natural resources which:
- a) Sustains the life-supporting capacity of soil, water and ecosystems.
 - (b) Maintains, and where appropriate, protects cultural, ecological, amenity, natural character and landscape values through management practices that avoid, remedy or mitigate adverse effects.
- IM O3 (Objective 13) The water quality in rivers and streams is maintained or improved to meet the Water Quality Classifications set in the Water Quality Classification Map, and the following environmental outcomes:
- (a) Natural State (Lake) Water Quality Classification - the natural quality of the water shall not change.
 - (b) Natural State (River) Water Quality Classification - the natural quality of the water shall not change.
 - c) Managed State (Lake) Water Quality Classification - the water quality in the lake shall not deteriorate.
 - (d) Aquatic Ecosystem (Bay of Plenty) Water Quality Classification - water quality shall be sufficient to support diverse and healthy aquatic ecosystems.

- e) Contact Recreation Water Quality Classification - water quality shall be sufficient to allow contact recreational uses.
- f) Water Supply Water Quality Classification - water quality shall be sufficient to allow for municipal water supply purposes, while recognising water treatment may still be required.
- g) Drains with Ecological Values Water Quality Classification - water quality shall be sufficient to support aquatic ecosystems, while recognising that aquatic ecosystems in such areas are limited.
- (h) Regional Baseline Water Quality Classification - water quality shall not deteriorate.

IM O4 (Objective 14) The water quality of lakes and bathing sites on rivers and streams listed in Schedule 10 is maintained at a level suitable for swimming.

IM O5 (Objective 15) Maintenance of high quality groundwater.

4.3 Land Management

LM O2 (Objective 17) Riparian margins are appropriately managed to protect and enhance their soil conservation, water quality and heritage values.

LM O3 (Objective 19) Protect vulnerable areas from erosion.

4.4 Discharges to Water

DW O1 (Objective 23) Discharges of contaminants to water are managed to meet the following goals:

(a) After reasonable mixing, discharges of contaminants to lakes, streams and rivers meet the water quality classification of the receiving water bodies as a minimum; and have no more than minor adverse effects on heritage values, existing users in downstream areas, and lakes, harbours and estuaries.

(b) Discharges of contaminants to water are in a manner that takes into account the cultural values of tangata whenua acknowledged for that area.

DW O4 (Objective 27) Discharges of water to water avoid, remedy or mitigate adverse effects on the environment as appropriate to the values, uses and existing environmental quality of the activity site.

4.5 Beds of Water Bodies

BW O1 (Objective 55) Aquatic ecosystems, aquatic habitats of indigenous species, spawning areas and migratory pathways of fish, and significant aquatic vegetation are maintained and enhanced.

BW O2 (Objective 56) Trout habitats are protected.

BW O3 (Objective 57) Adverse effects on fish passage and migration along rivers and streams is avoided, remedied or mitigated.

BW O4 (Objective 58) Activities in, on, under or over the beds of streams, rivers and lakes:

- (a) Do not significantly impede the flow of flood waters, except where the activity is necessary for flood control purposes.
- b) Provide for water flow and volume requirements in downstream areas, including authorised water abstractions and non-consumptive uses.
- c) Avoid, remedy or mitigate adverse effects on natural hydrological processes of the stream, river or lake, or downstream areas.
- d) Do not lead to accelerated erosion of the beds and banks of streams, rivers and lakes.
- (e) Maintain existing public access to and along the margins of rivers and lakes, where appropriate.
- (f) Avoid or mitigate the contamination of water by sediment.
- (g) Avoid adverse effects on areas of significant natural character.
- (h) Avoid, remedy or mitigate adverse effects on ecological values.

BW O5 (Objective 59) Structures in, on, under or over the beds of streams, rivers and lakes are:

- (a) Designed to commonly accepted design standards (including flood design standards) in relation to the use and location of the structure.

- (b) Constructed to a standard to withstand flood events.

- (c) Designed and used to account for natural lake level fluctuations.

BW O6 (Objective 60) Derelict, abandoned and unauthorised structures in, on, under or over the beds of streams, rivers and lakes that are causing adverse environmental effects are removed.

4.6 Rotorua Lakes

RL O1 (Objective 11) The water quality in the Rotorua lakes is maintained or improved to meet the following Trophic Level Indices:

- (a) Lake Okareka – 3.0
- (k) Lake Tarawera – 2.6

4.7 Rules

The following rules within the RNRP apply to the proposed activities.

4.7.1 Discharge of Water (Application Form 4A Adapted)

- Under section 15(2A) of the Resource Management Act 1991 and Rule DW R8 (Rule 37), relating to the discharge of water from Lake Okareka to the Waitangi Stream as a discretionary activity.

DW R8 (Rule 37) Discretionary - Discharges to Water or Land

Any:

- 1 Discharge of a contaminant to water.
- 2 Discharge of water to water.

3 Discharge of a contaminant onto or into land in circumstances which may result in the contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water.

4 Discharge of a contaminant from any industrial or trade premises onto or into land. That is not:

- (a) Permitted by a rule in this regional plan.
- (b) Permitted by a rule in any other Bay of Plenty regional plan.
- (c) Prohibited by a rule in this regional plan.
- (d) Restricted discretionary status by a rule in this regional plan.
- (e) Controlled status by a rule in this regional plan.

Is a discretionary activity.

This activity is also subject to the requirements of the rules in the Rotorua Lakes section of this regional plan.

All discharges to surface water that are discretionary under this rule will be assessed against the Water Quality Classification of the receiving water body (refer to Schedule 9 and the Water Classification map).

Resource consent applicants who seek to exceed the relevant Water Quality Classification standards must provide evidence in their application to demonstrate how the adverse effects of the proposed activity will be avoided, remedied or mitigated to be consistent with IM O3.

Advisory Note

1 Cleanfill sites that do not discharge leachate or contaminants to land are included in the definition of 'earthworks' and addressed by rules in the Land Management section of this regional plan.

2 If a resource consent applicant is unable to avoid, remedy or mitigate adverse effects on the environment, and does not meet IM O3, the resource application is likely to be publicly notified and/or consent may be declined.

3 The application of fertiliser is permitted under DW R11 subject to compliance with the conditions of the Rule. If the application does not comply with DW R11, a resource consent is required under DW R8. The Regional Council prefer resource users to comply with DW R11 rather than apply for a resource consent.

Explanation/Intent of Rule

To allow the Regional Council to assess the adverse effects of any discharge of contaminants or water to the environment that is not otherwise addressed by other regional rules. The resource consent process is an appropriate means of assessing such effects. DW R8 applies to, but is not limited to, comprehensive catchment discharge consents for stormwater, discharges from contaminated sites, and large scale discharge of contaminants from trade and industrial premises (including waste disposal discharges).

4.7.2 Take Surface Water (Application Form 5A)

- Under section 14(1) of the Resource Management Act 1991 and Rule 43, to take surface water from Lake Okareka as a discretionary activity.

Rule 43 Discretionary – Take and Use of Water

The take and use of surface water or groundwater that:

- 1 Is not permitted by a rule in this regional plan, and
- 2 Is not a controlled activity under a rule in this regional plan, and,

3 Is not prohibited by Rule 49.

Is a discretionary activity.

In relation to this rule, the Regional Council may review resource consents for the take and use of surface water where the total volume of water authorised to be taken from a stream or river reach is greater than that provided for in the low flow allocation specified in Policy 66 and an Instream Minimum Flow Requirement for the stream or river reach has been specified in Schedule 7.

Explanation/Intent of Rule

To allow the Regional Council to assess the effects of water takes on the environment on a case by case basis according to the objectives, policies and methods in section 5.1 of this regional plan. This rule includes, but is not limited to municipal water supply, irrigation, non-consumptive use by human activities, and other uses.

4.7.3 Structures (Application Form 1A)

- Under section 13(1) of the Resource Management Act 1991 and Rule BW R36 (Rule 71), for the erection of an additional surface take structure that is unable to meet the minimum mesh screen dimensions as a discretionary activity.
- Under section 13(1) of the Resource Management Act 1991 and Rule BW R36 (Rule 71), for the placement of an additional discharge structure in the Waitangi Stream as a discretionary activity.

BW R36 (Rule 71) Discretionary – Activity in the Beds of Streams, Rivers and Lakes

Unless provided for by another rule in this regional plan, the:

- 1 Use, erection, reconstruction, placement, alteration, extension, removal, or demolition of any structure or part of any structure in, on, under, or over the bed of a stream, river or lake,
- 2 Excavation, drilling, tunneling or other disturbances to the bed of a stream, river or lake,
- 3 Introduction of planting of any plant or any part of any plant in, on, or under the bed of a stream, river or lake,
- 4 Disturbance, removal, damage or destruction of any plant or any part of any plant in, on, or under the bed of a stream, river or lake,
- 5 Deposition of any substance in, on, or under the bed of a stream, river or lake,
- 6 Reclamation or drainage of the bed of a stream, river or lake,

Is a discretionary activity.

Advisory Note

1 This rule does not apply to plantation forestry activities as these are regulated under the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017.

Explanation/Intent of Rule

To allow the Regional Council to assess the adverse environmental effects of activities in the bed of a stream, river or lake on a case by case basis, where the activity is likely to cause more than minor effects. In relation to deposition of substances, this rule includes, but is not limited to, gravel storage, and the deposition of debris and tree trimmings. This rule also applies to existing reclamations that are not otherwise authorised. The consent duration for reclamations of the bed of a river, stream or lake is unlimited under section 123 of the Act.

4.7.4 Disturbance Around a water Body (Application Form 1B)

- Under section 13(1) of the Resource Management Act 1991 and Rule BW R16 (Rule 59A), relating to works around culverts 2 and 3, as a controlled activity.

- Under section 13(1) of the Resource Management Act 1991 and Rule BW 36 (Rule 71), for the disturbance of the river bed associated with the placement of temporary and permanent erosion control structures, as a discretionary activity.

BW R16 (Rule 59A) Controlled – Culverts and Culvert Extensions

The use, erection, reconstruction, placement, alteration or extension of a culvert in, on or under the bed of a river, stream, or lake, and associated bed disturbance, where the culvert:

- 1 Is not located where the adjacent land slope is greater than 35°, and
- 2 Is not located within any Urban Area or Settlement, or within one (1) kilometre upstream of any Urban Area or Settlement, and
- 3 Is not located in a wetland, and
- 4 The culvert diameter is no greater than 1800 mm, and
- 5 Is not located in a Land Drainage Canal,

Is a controlled activity subject to the following conditions:

- (a) The activity shall not prevent the passage of migrating fish.
- (b) No works shall be undertaken in the bed of a water body listed in Schedule 1D between 1 May and 30 August.
- (c) No works shall be undertaken in the bed of a water body listed in Schedule 1A between 15 August and 15 October.
- (d) The construction, installation and ongoing presence of the culvert shall not cause or induce erosion of the bed or banks of any surface water body. Erosion includes:
 - (i) Instability of land or the banks of the surface water body.
 - (ii) Scour to the bed of the surface water body.
- (e) The activity shall not compromise the structural integrity or use of any other authorised structure or activity in the bed of the stream, river or lake, including flood control works in River Scheme Works Areas (defined in Schedule 5).
- (f) The activity shall not cause a hazard to navigation in navigable rivers and lakes.
- (g) The structure shall not alter the natural course of the river.
- (h) All machinery shall be kept out of the bed of the stream, river or lake where practicable.
- (i) The disturbance of the bed shall be limited to the extent necessary to carry out the activity.
- (j) No machinery refuelling or fuel storage shall occur at a location where fuel can enter any water body.
- (k) All practicable measures shall be taken to avoid vegetation, soil, slash or any other debris being deposited into a water body or placed in a position where it could readily enter or be carried into a water body.
- (l) The structure shall be maintained in a sound condition for the purpose for which it was constructed, and be kept clear of accumulated debris.
- (m) The structure shall be constructed to ensure that the structure can not break free and cause a blockage or erosion.
- (n) Following the completion of construction, all excess construction materials and equipment shall be removed from the bed of the stream, river or lake.

The Regional Council reserves its control over the following matters:

- a) Measures to account for prevailing ground slope.
- b) Catchment size above the culvert.
- c) Erosion protection works.
- d) Maintenance of the culvert.
- (e) Fill height above the culvert.

- f) Velocity of water from the culvert.
- (g) Construction standards.
- (h) Measures to provide for fish passage.
- (i) Location of the culvert.
- (j) Size of the culvert.
- (k) Flood design levels.
- (l) Measures to account for soil type and geology.
- (m) Number of culverts in the cross-sectional area of the stream.
- (n) Monitoring requirements.

Advisory Note

1 This rule does not apply to plantation forestry activities as these are regulated under the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017.

Explanation/Intent of Rule

To provide for culverts that are not within high risk areas (specified in 1 to 5), and not in a Land Drainage Canal, but of a size and catchment area that requires the engineering design of the proposed culvert to be checked by the Regional Council.