



Dams

Regional councils are responsible for ensuring that dams meet the requirements of both the Building Act 2004 and the Resource Management Act 1991 (RMA). The Building Act ensures that dams are built to meet the standards set in the Building Code, so that they are structurally sound¹.

The RMA deals with controlling the effects building a dam can have on the environment, including on instream life and habitats, and the disruption of the natural flow of water. In

the Manawatu-Wanganui Region, the One Plan sets out how to manage dams under the RMA.

Together these provisions ensure that the risk to people and property living downstream doesn't increase, and regional flood control and drainage assets aren't damaged. If you own a dam or are planning to construct one, this information sheet will help you understand how these two Acts affect you.

Dams and the Building Act:

The Building Act defines dams, and requires that all dams be constructed to meet the Building Code, regardless of their size and location. 'Dam':

- (a) means an artificial barrier, and its appurtenant structures, that—
 - (i) is constructed to hold back water or other fluid under constant pressure so as to form a reservoir; and
 - (ii) is used for the storage, control, or diversion of water or other fluid; and
- (b) includes—
 - (i) a flood control dam; and
 - (ii) a natural feature that has been significantly modified to function as a dam; and
 - (iii) a canal; but
- (c) does not include a stopbank designed to control floodwaters².



¹ The Building Act 2004 also controls canals and other structures associated with dams.

² **Section 7** of the Building Act 2004.

Large dams have more risks associated with them, so the Building Act has additional controls around their construction. If your dam is large, you will need to apply for, and be granted, a building consent before you begin work.

'Large dam' means a dam that has a height of 4 or more metres and holds 20,000 or more cubic metres volume of water or other fluid³. The Act sets out how it must be measured:

the height of a dam is the vertical distance from the crest of the dam and must be measured,—

- (a) *in the case of a dam across a stream, from the natural bed of the stream at the lowest downstream outside limit of the dam; and*
- (b) *in the case of a dam not across a stream, from the lowest elevation at the outside limit of the dam...⁴*

The crest is:

the uppermost surface of a dam, not taking into account any camber allowed for settlement, or any curbs, parapets, guard rails, or other structures that are not part of the water-retaining structure; and for the avoidance of doubt, any freeboard is part of the water-retaining structure for the purposes of this definition².

It is sensible to get a suitably qualified engineer to design your dam, to ensure it will meet the Building Code and follow the best practice set out in the New Zealand Dam Safety Guidelines⁵. Building consents for large dams are issued by the Waikato Regional Council on behalf of all the regional councils in the North Island. More information and application forms are available on **Horizons** and **Waikato Regional Council's websites**. You'll also need a Project Information Memorandum (PIM) from Horizons as part of any building consent application for a new large dam.

Dams and the One Plan

Small dams can be constructed in rivers, artificial watercourses and on land in the Region without needing a resource consent, provided you can meet all of the conditions that apply to your dam and its location. These conditions are set out in **Rule 17-7 New and existing small dams**, and **Table 17.2 General conditions for permitted activities and controlled activities involving the beds of rivers and lakes**. This information sheet provides guidance about how to meet the conditions; we recommend that you read this in conjunction with Rule 17-7 and Table 17.2, and the **Working in beds of rivers and lakes – 'general conditions'** information sheet.

If you can't meet all the conditions, that doesn't mean you can't construct a dam. However, you will either need to consider whether you can alter your proposal to meet them, or apply for and be granted a resource consent before you



This small farm dam's spillway is located on the far side of the dam crest

start. Even if you don't need a resource consent, you may need a building consent. For more information, take a look at **Horizons' website** or **contact Horizons' Coordinator District Advice** for free advice.

³ To meet the definition, it must have both the height and the volume, not just one or the other.

⁴ **Section 133B** of the Building Act 2004.

⁵ These 2015 Guidelines are prepared by the New Zealand Society of Large Dams (NZSOLD), and available from the **Institution of Professional Engineers New Zealand**

Location

Dams can be constructed in many places in the Region without needing a resource consent, in catchments smaller than 50 hectares. A **Land Management Officer** can calculate the catchment size if you don't already know how big it is.

There are some places you will need to apply for, and be granted, consent before you begin construction⁶:

- River reaches that have the One Plan Value of Flood Control and Drainage. If you pay rates for a flood control or drainage scheme, **contact your Horizons' Area Engineer** for free advice.
- River reaches with the One Plan Value of Site of Significance – Aquatic or Site of Significance – Cultural. These reaches are described, and mapped at a regional scale, in **Schedule B**. Your **local Horizons' Land Management Officer** can help you work out whether your site is in one of these reaches.
- Wetlands. This would be the case if the wetland is considered to be rare, threatened or at-risk habitat. **Horizons' staff** can provide free advice about the status of wetlands and other types of indigenous habitat on your property.

- Sites 500 m upstream or downstream of a flow recording site⁷, or 20 m upstream or downstream of a high pressure gas transmission pipeline. These pipelines are usually marked by a white triangle marker post or a yellow pipeline warning sign, or your local district or city council can give you this information.

You may also need a consent to construct a dam in a river on land leased from the Department of Conservation. There may be restrictions around when you can construct your dam if the reach has other Values; refer to the **Working in beds of rivers and lakes – 'general conditions'** information sheet and conditions (m) to (t) in **Table 17.2** of the One Plan for more information.

There are some water bodies in the Region that are not allowed to be dammed at all. Some of these are protected by Water Conservation Orders or Notices. Most are the main stem of large rivers, but there are also some tributaries and streams. These water bodies are listed in **Rule 17-1 Damming of protected rivers**.



A spillway on a large dam

Dam design – size and capacity

The maximum depth of water that can be behind your dam (without a resource consent) is 3 m. This is measured from the natural ground level at the upstream toe of the dam structure. Please note that the Building Act **measures the height of a dam differently**, for the purposes of determining whether a dam is a 'large dam' and needs building consent.

There must be a spillway that will allow a 200 year flood event to pass without overtopping the dam. You'll need advice from a qualified engineer with experience in dam design to ensure that your spillway meets this condition. There must always be a residual flow out of the dam if it's in a river or artificial watercourse, including while it's filling,

and there must be safe passage of fish both upstream and downstream. Water behind the dam must not encroach onto your neighbours' properties. **Horizons' engineers** can review your design and advise you whether it will meet these conditions.

⁶ This also applies to removing a culvert.

⁷ You can check this on **Horizons' website**.

Construction and maintenance

The construction and maintenance of the dam must meet all the applicable general conditions listed in **Table 17.2** of the One Plan, which set a framework around a common-sense approach to managing the effects of activities in the bed of any river or lake. In particular, the materials used to construct your dam must not be toxic to aquatic ecosystems; uncured concrete and tyres are two materials that are unlikely to meet this condition.

If you need to do work beside the river (outside the bed) to complete the construction of your dam you may need to get a resource consent for this, even if you don't need consent for the dam itself. A **Land Management Officer** can help you work through a simple, free consent process at the farm gate.



Existing small dams

If you have an existing dam, it must meet all the same conditions as a new dam or you will need to apply for a resource consent. Dams that are not designed or constructed properly are a serious risk to people and property downstream, as well as instream life. **Rule 17-7** sets standards to avoid those risks, and when they can't be met a consent process provides the opportunity to assess the effects of the dam and, if necessary, make improvements to its safety. Horizons' staff can provide free advice about your existing dam, including whether any improvements or upgrades will need a building consent.

Taking water

In the One Plan, taking water is treated as a separate activity to damming it. Under **Rule 16-1 Minor takes and uses of surface water**, you are allowed to take a small volume of water each day from across all the surface water sources on your property⁸, without resource consent:

- 400 litres per hectare per day for animal farming, to a maximum of 30 m³ per day per property; **or**

- 15 m³ per day per property for any other use at a rate of no more than 2 litres per second.

You must also meet the following conditions:

- the intake velocity must not be more than 0.3 m per second
- the intake must be covered by a screen with a maximum mesh aperture size of 3 mm
- the take can't be from a rare, threatened or at-risk habitat.

You also need to notify Horizons (by **email or letter**) where the take is, the maximum instantaneous rate of take, and what you will be using the water for – this helps us manage the demand for water across the Region.

⁸There is a separate quota for ground water takes (from bores).



Additional information

Contact Horizons Regional Council on **0508 800 800** or email help@horizons.govt.nz