



Culverts

Culverts in the Horizons Region are managed by two pieces of legislation, the One Plan, and the National Environmental Standards for Freshwater 2020 (NES-FW). The information in this factsheet can help to explain the consent authority considerations when consenting culverts, and help you decide whether a culvert might be right for your situation. Once you have worked through the information below we recommend you contact the Horizons Consents Duty Planner on 0508 800 800 for more advice.

In some cases small to medium sized culverts can be installed in most rivers around the Region as a permitted activity, provided you can meet all of the conditions that apply to your proposal and location. If the installation can meet the permitted activity conditions of both the One Plan AND the NES-FW, then no resource consent is required. If you can't meet all the conditions of the permitted activity rules, it doesn't mean you can't install a culvert. However, you will either need to consider whether you can alter your proposal to meet the conditions, or gain a resource consent before you begin any works.

This information sheet provides guidance about the conditions, and we recommend you read it in conjunction with the following documents:

- [Horizons Regional Council One Plan, RP-LF-AWBD-R63;](#)
- [Table 15;](#)
- Working in beds of rivers and lakes – 'general conditions' information sheet;
- [National Environmental Standards for Freshwater 2020 \(NES-FW\) Regulation 70 and 71;](#) and

NES-FW Guidance Document. We also advise checking with your local district or city council whether you need building or resource consent from them.

Culverts and the One Plan

The Horizons One Plan sets out conditions in [RP-LF-AWBD-R63 Culverts](#) and in [Table 15](#) which must be met in order for the installation of a culvert to be considered a permitted activity under the One Plan. NOTE: the ongoing use of the culvert, once installed, is a permitted activity under One Plan [RP-LF-AWBD-R57 Use of structures.](#)



Location of your new structure

Culverts can be installed in many places in the Region without needing a resource consent under the One Plan. However, the One Plan specifies that to install a culvert in some places a consent is required before beginning any works.¹:

- **River reaches that have the One Plan Value of Flood Control and Drainage.**

If you pay rates for a flood control or drainage scheme, see the information sheet on [Working near rural rivers in flood control and drainage schemes](#), and contact your Horizons' Area Engineer or Consents Duty Planner on 0508 800 800 for 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 2 of the One Plan](#), or you can check out [Horizons Maps | Public Viewer](#). A [Consents Duty Planner](#), can help you work out whether the site is in one of these reaches.

- **Wetlands, and lake and lagoon margins.** Consent will be needed if the area is considered to be rare,

threatened or at-risk habitat. [Horizons staff](#) can provide free advice about the status of wetlands, lake and lagoon margins, and other types of indigenous habitat on your property.

- **Sites within 500m upstream or downstream of a flow recording site², or 20m upstream or downstream of a high pressure gas transmission pipeline.**

The pipelines are usually marked by a white triangle marker or fence post, or a yellow pipeline warning sign, or your district or city council can give you this information.

You may also need a consent to install a culvert in a river reach or lake on land leased from the Department of Conservation. There may also be restrictions around when you can install your culvert if the reach has other Values; please refer to the Working in beds of rivers and lakes – 'general conditions' information sheet, and conditions (13) to (20) in [Table 15](#) of the One Plan, or call the Consents Duty Planner on 0508 800 800 for more information.

Size of the culvert

There are limits on the size of culverts that can be installed in rivers without a resource consent.

The One Plan specifies:

- The culvert must be no longer than 20 m
- Circular culverts must have a diameter between 0.3 m and 1.2 m
- Non-circular ('box') culverts must have a width and height between 0.3 m and 1.2 m each.

The culvert must be the right size for the site, so it can allow:

- A 0.5% Annual Exceedance Probability (AEP) or 1 in 200 year flood event to flow through it without overtopping, unless it has a specifically designed spillway.
- The flow from a 1 in 200 year event without impediment.

The size will depend on the size of the catchment and rainfall in the area. [Consents Duty Planners](#) can

¹ This also applies to removing a culvert.

² You can check this on [Horizons' website](#)





advise how big a culvert needs to be at a specific site. It will be helpful if you can tell us how big the catchment is above that point if you know, or we can help calculate the catchment size.

If these conditions can't be met then a consent is required under the One Plan.

Position of the culvert

[RP-LF-AWBD-R63](#) of the One Plan includes several conditions to ensure the culvert is positioned properly in the bed, so it will have only a minor effect on the river, its bed, and in-stream life.

- The culvert must be positioned in the bed so it has the same alignment and gradient as the river. Its depth below the bed must be at least 20% of the culvert width. In effect, the bottom of the culvert should be as though it is the bed of the river.
- The culvert inlet and outlet must be protected from erosion.

Ongoing use, maintenance, upgrade and removal of a culvert under the One Plan

The ongoing use of a culvert, once installed, is a permitted activity under [RP-LF-AWBD-R57 Use of structures](#).

Under the One Plan the maintenance, upgrade or removal of the culvert must meet all the applicable general conditions listed in [Table 15](#) of the One Plan, which set the framework for managing the effects of activities in the bed of any river or lake.

Culverts must also be **maintained** to avoid aggradation or erosion of the bed of the river. It is important that you clear any debris caught on the culvert, as trapped debris can raise the bed upstream, increase flood levels, and cause scouring and erosion by disrupting the even flow of water.

While there is the option of installing a multiple barrel culvert, Horizons advises that it is usually preferable to install a single culvert as it is less likely to become blocked by debris. If you do not need to install a multiple barrel culvert, a [Consents Duty Planner](#) can advise you how big each culvert will need to be.

- The culvert must be positioned and maintained to avoid aggradation (build up) or erosion (scouring) of the bed of the river.
- There can be no more than two meters of fill above the height of the culvert, unless it has a spillway that will enable a 0.5% AEP (1 in 200 year) flood event to flow without overtopping the fill. If you need a spillway, we recommend that you get design advice from a qualified engineer to make sure it can meet the standard.

In some cases culverts may be '**upgraded**' anywhere in the Region without a resource consent. The One Plan defines 'Upgrade' as '*bringing the culvert up to date or to improve its functional characteristics, provided the upgrading itself does not give rise to any significant adverse effects, and the character, intensity and scale of any adverse effects of the culvert remain the same or similar*' – that is, the culvert size or capacity is not increased. If you're not sure your activity meets the definition of upgrade or maintenance, get in touch with the Consent's Duty Planner on 0508 800 800 to discuss your proposal.

You can also **remove**³ a culvert from the bed of most rivers and lakes in the Region without consent, provided you meet all the rule conditions of One Plan Rule [LF-AWDB-R59](#) (including the applicable

³ See [RP-LF-AWBD-R59](#) Removal and demolition of structures, [Table 15](#) of the One Plan, and the [information sheet on the general conditions](#).



general conditions in [Table 15](#)), and the culvert isn't in a wetland or a reach with the Flood Control and Drainage Value.

Ancillary activities and land disturbance

One Plan Rule [LF-AWDB-R63](#) includes some ancillary activities which may be required in order to install the culvert, and may be undertaken as part of the installation without needing a separate consent.

If you're removing bed material or plants as part of the upgrade, there are restrictions on the volume and location where you put it; these are set out in [RP-LF-LW-R35](#) Discharges of contaminants onto or into land that will not enter water⁴.

In some cases, if land disturbance is required for the formation of culvert approaches, then a consent may also be required for land disturbance. Contact the Consent's Duty Planner on 0508 800 8500 to help determine if a land use consent is also required for the proposed works.

National Environmental Standards for Freshwater (2020) (NES-FW)

The NES-FW regulates the placement, use, alteration, extension or reconstruction of new culverts to ensure they meet the requirements for fish passage.

- The mean cross-sectional water velocity in the culvert must be no greater than all adjoining river reaches.

Size of the culvert

[Regulation 70\(2\)](#) of the NES-FW (2020) specifies:

- Where the width of the river at the culvert location is less than, or equal to three meters, the culvert must be greater than, or equal to 1.3x the width of the river, or
- Where the width of the river at the culvert location is greater than three meters, the width of the culvert must be greater than $(1.2 \times \text{width of the river}) + 0.6$, and

Position of the culvert

[Regulation 70\(2\)](#) of the NES-FW (2020) also includes conditions to ensure the position of the culvert allows for fish passage.

- The culvert must be laid parallel to the slope of the bed of the river.
- Where the culvert is not open bottomed its invert must be placed so at least 25% of the culverts diameter is below the level of the bed. NOTE: this is different to the One Plan specification of 20%.

If the placement, alteration, extension or reconstruction of the culvert cannot meet the conditions of the NES-FW, then the activity becomes a discretionary activity and a resource consent will be required.

Maintenance, upgrade and removal of a culvert under the NES-FW

The NES-FW also regulates the alteration, use or reconstruction of a culvert, and provided the permitted activity condition of Regulation 70(2) can be met, a resource consent is not required. If all the conditions cannot be met,



then a resource consent will be required under the NES-FW, which will impose conditions relating to the maintenance and monitoring of the culvert.

Additional information

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