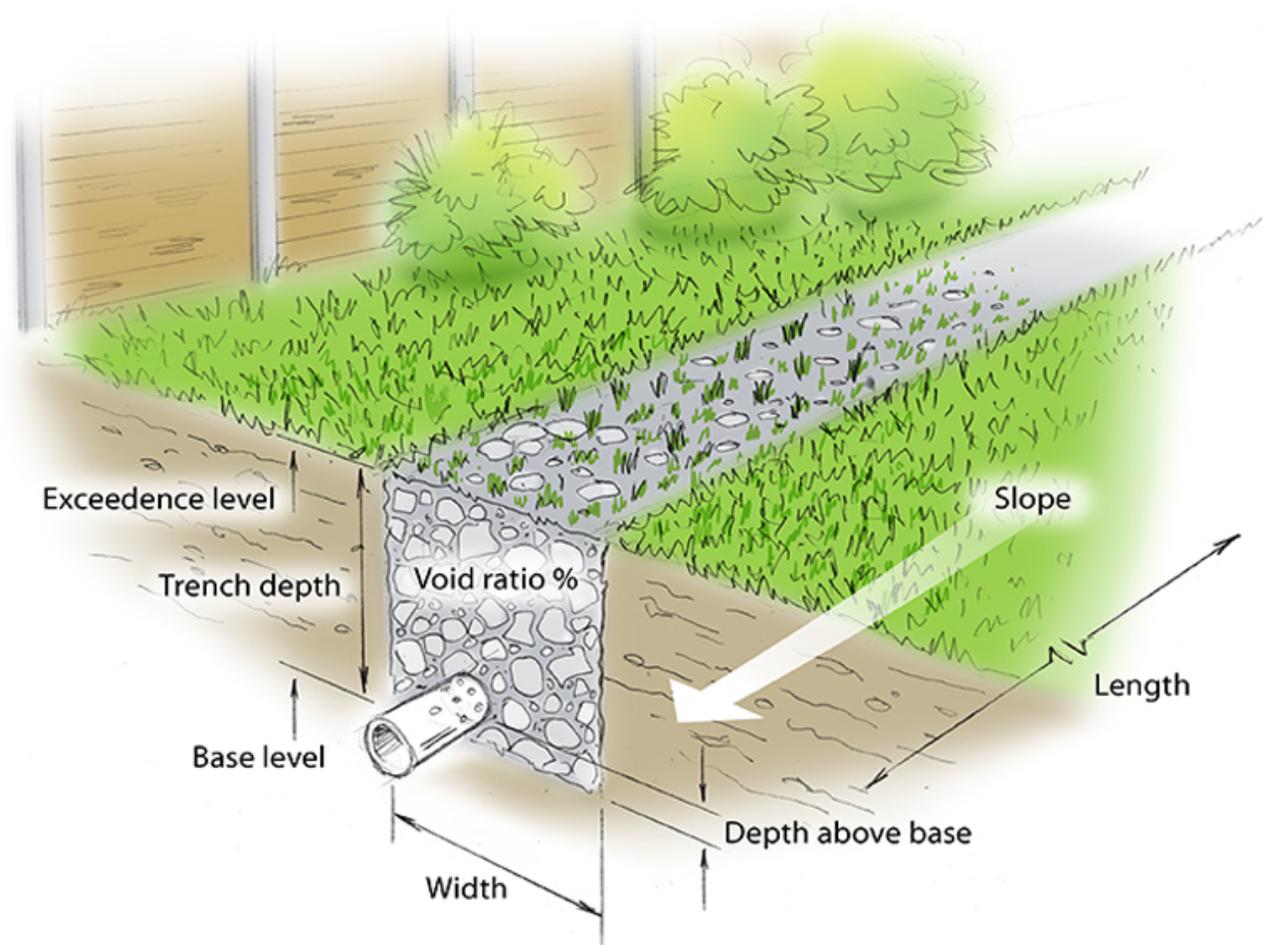# Infiltration Trench

Infiltration Trench stormwater controls may be used to model a range of stormwater controls including, but not limited to Infiltration Trenches, Trench Soakaways, French Drains, all with and without under drain pipes.

Total Volume

The Total Volume value shown in the bottom-right corner of the data form shows the volume available in the system up to the Freeboard level.

Dimensions

The Dimensions tab has the following fields:

Infiltration Trench

Name: Infiltration Trench

| Dimensions | Inlets | Outlets | Advanced | Pollution |

Sizing Calculator

- Exceedence Level (m): 559.13
- ● Depth (m): 2.20
- Base Level (m): 556.93
- Freeboard (mm): 15
- Porosity (%): 20
- Length (m): 21.55
- Long. Slope (1:x): 0.50
- Width (m): 27.71

☐ Under Drain On
- Height Above Base (m): 0.00
- Diameter (mm): 0
- No. of Barrels: 0
- Release Height (m): 0.00
- Manning
- n: 0.015

☒ Click to show image(s)

OK   Cancel   Apply

Total Volume (m³): 260.959 ⓘ Help

The depth within the stormwater control is determined from two of the following three parameters, with the third automatically calculated based on the option selected:

- **Exceedence Level** - Represents the level (above datum) of the stormwater control above which flooding is reported. This may be the level that interacts with the ground surface or the top of an embankment, whichever is higher. An overflow or spillway crest level may be specified at a lower level as part of the outlet control details. If a Surface Data is present the Exceedence Level will automatically be picked up from the centre of the icon or from the lowest point on the bioretention perimeter if an area has been drawn. This combined with the Freeboard setting allows a Status of Flood Risk to be assigned to the system on the Summary. For stormwater controls on a slope the Exceedence level applies to the downstream (lowest) end. Above the Exceedence Level, water will be stored above the ground and then allowed to drain back into the network. The default ponding area used for the flooded volume is 1000m².
- **Depth** - Represents the depth of the stormwater control.
- **Base Level** - Represents the level (above datum) of the base of the stormwater control. For structures on a slope the invert level applies to the downstream (lowest) end.

Freeboard - Controls how close to the specified Exceedence Level the water must reach before the Status (on the Summary) shows Flood Risk.

Porosity - The percentage of the storage volume that is available for storage. This is dictated by the type of fill material that is used. I.e. Typically 30% for rubble.

Length - The maximum path length through the stormwater control, used only for the purpose of calculating Time of Travel. The Length will be automatically set from the dimensions of the stormwater control unless over typed, in which case it is set to "user specified".

Longitudinal Slope - Slope along the length of the stormwater control.

Width - The width of the stormwater control.

Under Drain On: Specifies whether a pipe or conduit under drain is present in the lowest layer of the filter area. If under drain is on the following can be specified:

Height Above Base - Height of the invert of the pipe above the base of the stormwater control.

**Diameter** - Defines the diameter of the pipe/s.

No. of Barrels - Represents the number of pipes.

Friction Scheme - Specifies the formula used to calculate velocity and time of travel. Select from: Manning's, and Colebrook-White. The variable below the combo box depends on the option selected.

> **n** - Manning's n roughness value. Used by the Manning Formula equation to calculate the velocity and therefore time of travel when using the Manning's option.

> **Roughness** - Colebrook-White roughness value. Used by the Colebrook-White Formula equation to calculate the velocity and therefore time of travel when using the Colebrook-White option.

Release Height - Height above the invert of the under drain pipe at which the water is released (marked in red on the diagram below). This is commonly used to create a saturated zone.
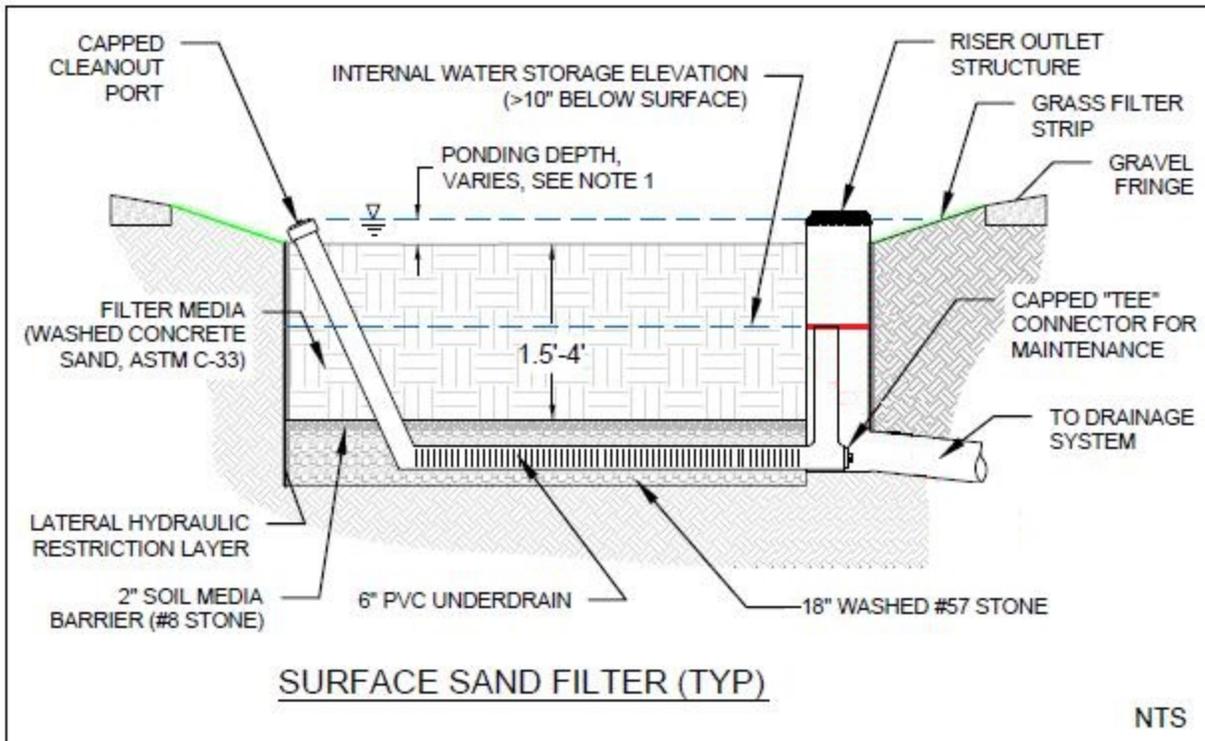
Sizing Calculator
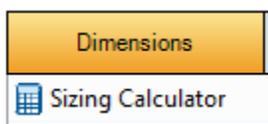
The Sizing Calculator option allows the user to re-size the Infiltration Trench by specifying a volume and a parameter to modify to achieve that volume. The Sizing Calculator is discussed in more detail in the Stormwater Control Sizing Calculator section.

Inlets

Explore the Inlets page for more details on the different types of Inlets that can be specified.

Outlets

Explore the Outlets page for more details on the different types of Outlets that can be specified.

Advanced

The Advanced tab has the following fields:

Base Infiltration Rate - Defines the rate of infiltration through the base of the filter area. This should be determined from a performance site test.

Side Infiltration Rate - Defines the rate of infiltration through the sides of the filter area. This should be determined from a performance site test.

Safety Factor - Reduces the infiltration rate during the analysis to account for silting up or poor maintenance. This is required for the UK.

⚠️ This option may not be available for your region. For more information, refer to the Regionalisation topic.

Conductivity - The conductivity rate is used for the calculation of both the horizontal and vertical transfer of the water in the sub-surface layers. Please refer to Guidance on Conductivity Rates for guidance on how to set these values depending on the type of material.

Pollution

The Pollution tab has the following fields:

Name- Name of pollutants. This is populated based on the Pollutants set up as part of the Site Data.

Background Concentration - Value below which the pollution concentration cannot fall during analysis. When concentration reaches this level, no further removal occurs.

Method - Percentage Removal or First Order Decay method can be chosen. Click on the links for more information about each method.

Percentage Removal - Available if Percentage Removal entered. The value entered will be deducted from the Inflow into the system.

 - The decay time constant or (mean) lifetime of the pollutant. It can be entered manually or calculated from the decay constant or decay half-life. See Pollutant Removal Method - First Order Decay for more details.