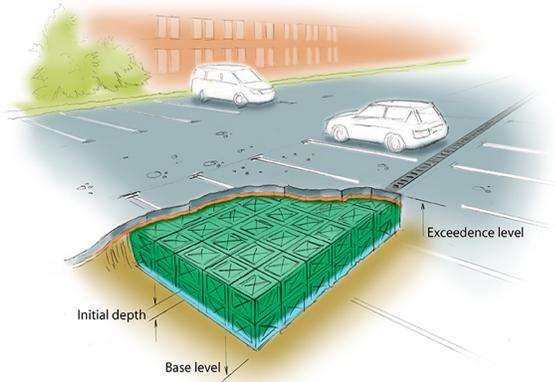


# Tank

**Tank stormwater controls** may be used to model a range of stormwater controls including, but not limited to, tanks and municipal harvesting tanks.



## 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.

## Tank: Dimensions

Parameter	Value
Exceedence Level (ft)	1874.1
Depth (ft)	1874.1
Base Level (ft)	0.0
Freeboard (in)	0.0
Initial Depth (ft)	0.0
Void Ratio (%)	100

Depth (ft)	Area (ft²)	Perimeter (ft)
0.000000	1637.727928	184.589166

Total Volume (ft³): 20173.197

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 **ground** model (TIN) 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 1000m<sup>2</sup>.
- **Depth** - Represents the depth of the stormwater control.
- **Base Level** - Represents the level (above datum) of the base of the stormwater control.

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

**Initial Depth** - Defines the initial wetted depth within the facility.

**Void Ratio** - Defines the percentage of the tank that is available for storage. This is dictated by the type of fill material that is used, i.e. 100% if empty or typically 30% for rubble.



[Back to: Help Documentation](#)

## Stormwater Control Types

- [Bioretention](#)
- [Infiltration Trench](#)
- [Pond](#)
- [Porous Paving](#)
- [Soakaway](#)
- [Swale](#)
- [Tank](#)
- [User Defined](#)
- [Stormwater Control Sizing Calculator](#)

These systems can be customized to represent a variety of drainage or treatment facilities. Please review the description of each system to see which one would be the most convenient to use.

## Workflow - What's next...?



Connect **Inflows** to your **Stormwater Control**, specify **Inlets** or **Outlets** or connect to another Stormwater Control or **Junction**.

## Back to...?

- [Inflows](#)
- [Analysis Criteria](#)
- [Site Ribbon](#)

### Depth-Area-Perimeter Spreadsheet

Enter the plan area and infiltration area of the stormwater control at each depth. A depth of 0m corresponds to the invert level. All areas above the top of the structure may be left as 0.

The infiltration area specified at 0m is considered to be the base of the structure. The side surface at a given depth is the infiltration area specified for that depth less the base area.

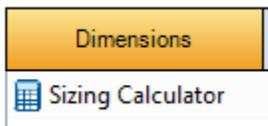
### Circular

The circular button will calculate the infiltration surface automatically based on a circular shape and the areas specified.

### Depth Increment (m)

Enter the depth increment for the tank area spreadsheet. Small values lead to a more accurate result but limit the height of the structure.

### Sizing Calculator:



The Sizing Calculator option allows the user to re-size the Tank by specifying a volume and a parameter to modify to achieve that volume. It also allows the user to specify a Side Slope for the Tank. The Sizing Calculator is discussed in more detail in the [Stormwater Control Sizing Calculator](#) section.

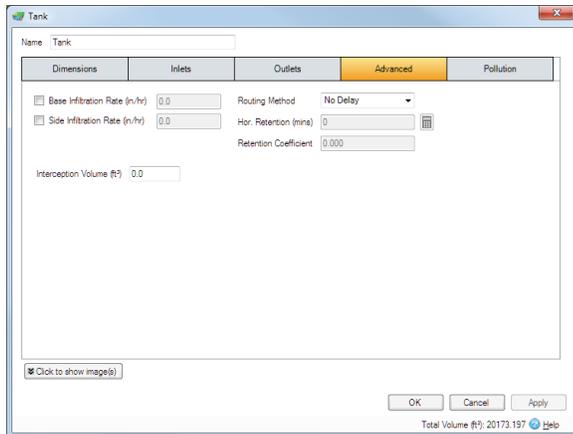
### Tank: Inlets

Explore the [Inlets](#) page for more details on the different types of Inlets that can be specified.

### Tank: Outlets

Explore the [Outlets](#) page for more details on the different types of Outlets that can be specified.

### Tank: Advanced



**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.

**Interception Volume** - The volume of water that enters the stormwater control that is permanently held within it. *Note: this cannot be emptied as there is no evapotranspiration for tanks.*

**Routing Method** - provides three ways of determining the time it takes to water to travel through the system:

- **No Delay** - Water is seen as traveling through the system without any delay. This may be useful when considering systems with permanent water levels.
- **Simple Time Delay** - The horizontal Retention value can be specified, see below, to introduce a delay in water leaving the system. However the Muskingum method is Not used.
- **Muskingum** - The horizontal retention time and retention coefficient are used in the [Analysis of SWC/Junctions](#) equation to calculate velocity, flow and volume for each timestep.

**Horizontal Retention** - Specifies the time for water to pass from the inlet to the outlet in the horizontal direction. This is used in the [Analysis of SWC/Junctions](#) method to calculate velocity, flow and volume for each timestep. The value can be calculated based on the dimensions of the system in several ways:

- **Manning's equation** - The software can determine the retention time based on the dimensions will be used to determine the travel time using the [Manning's](#) equation. To do this a Manning's n value must first be specified on the calculator. The calculated velocity will then be applied to the Length of the system to determine the retention time.
- **User Specified** - If the retention time is a know value it can simply be entered into the field to bypass any calculations.

**Retention Coefficient** - [Analysis of SWC/Junctions](#) attenuation coefficient – scalar value between 0.1 and 0.5. This will be calculated automatically from the dimensions of the system using [Muskingum-Cunge](#). Alternatively the value can be entered by the user if known to bypass any calculations.

## Tank: Pollution

Pollutant Name	Background Concentration (mg/litre (Mg))	Removal Method	Percentage Removal (%)	τ (mins)
1. TSS	0.000000000000	Percentage Removal	0.000	
2. TP	0.000000000000	Percentage Removal	0.000	
3. TN	0.000000000000	Percentage Removal	0.000	

**Pollution 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.

**Removal 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.

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- [Tank: Dimensions](#)
  - [Sizing Calculator:](#)
- [Tank: Inlets](#)
- [Tank: Outlets](#)
- [Tank: Advanced](#)
- [Tank: Pollution](#)