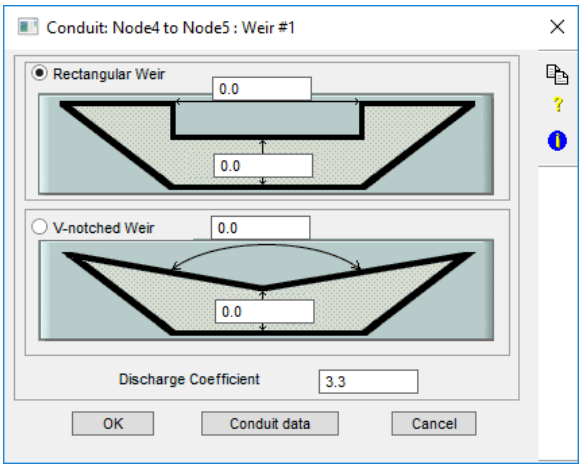
Runoff Weir Diversions

In Runoff, a weir is a control structure at the bottom of a conduit which affects the outflow characteristics of the conduit. Data must be entered for both the weir and the conduit.

Runoff mode supports two different types of weir diversions: Rectangular, and V-notched weirs.

Rectangular Weir

This option uses a broad-crested weir control structure at the bottom of the conduit. A weir equation is used to control the outflow from the conduit instead of Manning's equation.



The weir is defined in terms of its:

> ***Weir Length (G2 - SPILL).*** Length of rectangular broad-crested weir (eg. width of spillway), ft [m].
>
> ***Weir Height (G2 - WELEV).*** Height of weir crest from bottom of conduit, ft [m]. The weir height may be used to store water in a conduit.
>
> ***Weir Discharge Coefficient (G2 - WDIS).*** Discharge coefficient of the weir. Note that this parameter is shared for both rectangular and triangular weir options.

Conduit Data must also be entered.

The broad-crested equation used is:

> Q = C . L . (H - Hc)^1.5

where:

> Q = outflow, cfs [cms]
>
> C = weir coefficient, ft^0.5/sec [m^0.5/sec]
>
> L = weir length, ft [m]
>
> H = hydraulic head, ft [m]
>
> Hc = weir crest depth, ft [m]

V-notched Weir

This option uses a V-notch weir control structure at the bottom of the conduit. A weir equation is used to control the outflow from the conduit instead of Manning's equation. The triangular opening of a V-notch weir is assumed to have no upper limit.

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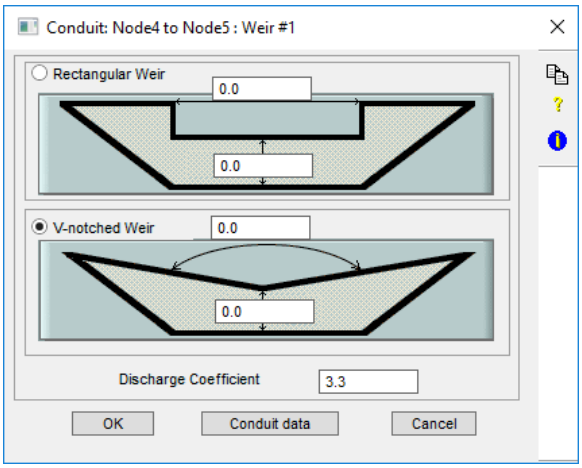

The weir is defined in terms of its:

Angle (G2 - SPILL). V-notch angle, in degrees, of the notch opening in a V-notch weir.

Height. Weir Crest height of the weir before flow over the weir, ft [m].

Weir Discharge Coefficient (G2 - WDIS). Discharge coefficient of the weir. Note that this parameter is shared for both rectangular and triangular weir options.

Conduit Data must also be entered.

The equation used for V-notch weirs is:

Q = C . TAN(A/2) . (H - Hc)^2.5

where

Q = outflow, cfs [cms]

C = weir coefficient, ft^0.5/sec [m^0.5/sec]

A = angle of notch (angle of opening), degrees

H = hydraulic head, ft [m]

Hc = weir crest depth, ft [m]