

17.3 Conveyance

The conveyance of a Channel Section is a measure of the carrying capacity of the channel section. The discharge of uniform flow in a channel may be expressed as

$$Q = V A = C_0 A R^x S^y = K S^y$$

in which $K = C_0 A R^x$. The term K is known as the conveyance of the channel section as it is directly proportional to discharge (Q). When either the Chezy formula or the

Manning formula is used as the uniform - flow formula, then the exponent y is equal to

$$1/2, \text{ hence the discharge is equal to } Q = K \sqrt{S}$$

and hence the conveyance is equal to

$$K = \frac{Q}{\sqrt{S}}$$

This equation can be used for computing the conveyance when the discharge and slope of the channel are given. When the Chezy and Manning formulae are used the

conveyance can be written as $K = C A R^{1/2}$ and $K = \frac{1}{n} A R^{2/3}$ respectively and in which C

is Chezy resistance factor and, n is the Manning roughness coefficient.

Generally, these two uniform flow equations are made use off to compute the conveyance when the geometry of the water area and the resistance factor or roughness coefficient are given. Since the Manning formula is used extensively, most of

the following discussions and computations will be based on $K = \frac{1}{n} A R^{2/3}$