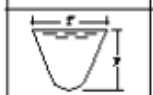
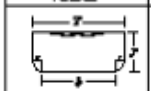
Figure II-4.13. Geometric Elements of Common Sections

Section	Area A	Wetted perimeter P	Hydraulic radius R	Top width W	Hydraulic depth D	Section factor Z
	by	$b + 2y$	$\frac{by}{b + 2y}$	b	y	$by^{1.5}$
	$(b + zy)y$	$b + 2y\sqrt{1 + z^2}$	$\frac{(b + zy)y}{b + 2y\sqrt{1 + z^2}}$	$b + 2zy$	$\frac{(b + zy)y}{b + 2zy}$	$\frac{[(b + zy)y]^{1.5}}{\sqrt{b + 2zy}}$
	zy^2	$2y\sqrt{1 + z^2}$	$\frac{zy}{2\sqrt{1 + z^2}}$	$2zy$	$\frac{1}{2}y$	$\frac{\sqrt{2}}{2}zy^{2.5}$
	$\frac{1}{8}(\theta - \sin\theta)d_0^2$	$\frac{1}{2}\theta d_0$	$\frac{1}{4}\left(1 - \frac{\sin\theta}{\theta}\right)d_0$	$\left(\sin\left(\frac{1}{2}\theta\right)d_0\right)$ or $2\sqrt{y(d_0 - y)}$	$\frac{1}{8}\left(\frac{\theta - \sin\theta}{\sin\frac{1}{2}\theta}\right)d_0$	$\frac{\sqrt{2}}{32}\frac{(\theta - \sin\theta)^{1.5}}{(\sin\frac{1}{2}\theta)^{0.5}}d_0^{2.5}$
	$\frac{2}{3}Ty$	$T + \frac{8y^2}{3T}$ *	$\frac{2T^2y}{3T^2 + 8y^2}$ *	$\frac{3A}{2y}$	$\frac{2}{3}y$	$\frac{2}{9}\sqrt{6}Ty^{1.5}$
	$(\frac{\pi}{2} - 2)r^2 + (b + 2r)y$	$(\pi - 2)r + b + 2y$	$\frac{(\frac{\pi}{2} - 2)r^2 + (b + 2r)y}{(\pi - 2)r + b + 2y}$	$b + 2r$	$\frac{(\frac{\pi}{2} - 2)r^2}{(b + 2r)} + y$	$\frac{[(\frac{\pi}{2} - 2)r^2 + (b + 2r)y]^{1.5}}{\sqrt{b + 2y}}$
	$\frac{T^2}{4z} - \frac{r^2}{2}(1 - 2\cot^{-1}z)$	$\frac{T}{2}\sqrt{1 + z^2} - \frac{2r}{z}(1 - z\cot^{-1}z)$	$\frac{A}{P}$	$2[z(y - r) + r\sqrt{1 + z^2}]$	$\frac{A}{T}$	$A\sqrt{\frac{A}{T}}$

*Satisfactory approximation for the interval $0<x\leq1$, where $x=4y/T$. When $x>1$, use the exact expression $P = \left(\frac{T}{2}\right)\left[\sqrt{1 + x^2} + \frac{1}{x}\ln\left(x + \sqrt{1 + x^2}\right)\right]$