Appendix 7B-2   Water Surface Profile Calculation Form

Worksheet For Non-Uniform Flow In Open Channels

Tolerance = ±

STA.	H_1 $d_1 + \frac{v_1^2}{2g} + Z_1$	d_2 depth	A_2 X-Section Area at Station 2	P_2 Wetted Perimeter	R_2 $A_2 \div P_2$	V_2 $Q_2 \div A_2$	$\frac{v_2^2}{2g}$ $v^2 \div 2(32.2)$	Z_2 Flow Line Elevation	L Distance Between Stations	S_1 $\frac{Q^2 \cdot n^2}{2.25 \cdot R_1^{4/3} \cdot A_1^2}$	S_2 $\frac{Q^2 \cdot n^2}{2.25 \cdot R_2^{4/3} \cdot A_2^2}$	S_A $\frac{S_1 + S_2}{2}$	h_f $S_A \cdot L$	H_2 $d_2 + \frac{v_2^2}{2g} + Z_2$	$H_{up} = H_{down} + h_f$

Source: