CEE444
FALL 2002
HOMEWORK NO. 12

The 10 km reach of the Alamar river improvement project has the following hydraulic and cross-sectional characteristics:

Bottom width   = 40 m
Side slope (inbank)   = 2:1
Equilibrium slope   = 0.004
Bank-full depth   = 3 m
Left flood-plain width   = 20 m
Right flood-plain width   = 20 m
Slope of flood plain (transversal)   = 0.01
Side slope at the end of flood plain   = 2:1
Flood plain depth   = 4.2 m

Calculate the water surface profile using HEC-RAS. Use 10 equally-space cross-sections for the following conditions:

1. Discharge = 550 m^3/s Manning's n, 0.03 (inbank) and 0.05 (outbank).

2. Discharge = 1720 m^3/s Manning's n, 0.03 (inbank) and 0.05 (outbank).

3. Discharge = 550 m^3/s Manning's n, 0.04 (inbank) and 0.06 (outbank).

4. Discharge = 1720 m^3/s Manning's n, 0.04 (inbank) and 0.06 (outbank).