

# CEE3430 Engineering Hydrology

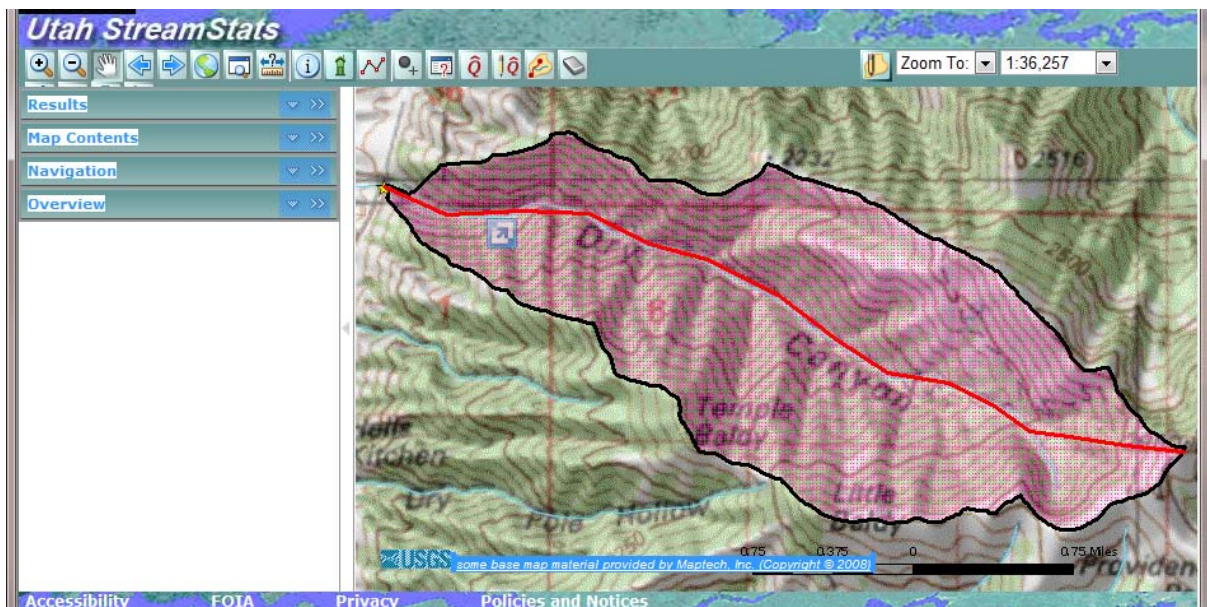
## Homework 3. Hydrologic Analysis

Date: 1/24/11

Due: 1/31/11

**Objective.** The objective of this homework is to gain experience in hydrologic analysis using unit hydrograph methods.

1. Bedient 2.3
2. Consider Logan Dry Canyon with the following watershed properties determined from StreamStats



$$A=3.58 \text{ mi}^2, L=4 \text{ mi}, L_{ca}=2 \text{ mi}$$

Assume

$$C_t=1.5, C_p=0.8$$

Find the peak discharge  $Q_p$ , the basin lag time  $t_p$ , and the time base of the unit hydrograph  $T_B$  using Snyder's method. (Follow Bedient pages 130 to 133. Use  $T_B = 4 t_p$ , since this is a small watershed.) Find the corresponding duration of rainfall  $D$ , and sketch the Snyder unit hydrograph.

3. Bedient 2.5. Also calculate the area of parts A and B of Buffalo Creek implied by the given unit hydrographs.
4. Bedient 2.13