Hydrology Project: Final Report Guidelines

Use proper report format. Your final report should **not** simply be your memos from Tasks 1-3 stapled together!! You are now assembling your work into one coherent document; however, this should be relatively simple to do as all of the work/computations have already been completed.

- Make sure you address any concerns/errors your TA indicated in the grading of each memo.
- **Include all information required for each memo.** Be sure to double check that you didn’t overlook anything in the memos.
- Include answers to all questions asked in each task description.
- Remember to label tables and figures, label axes of figures, label columns of tables, etc.
- Provide references where necessary.

**Be sure the following information is included:**

1. Describe your watershed. [See Memo 1.] Include both main channel slope and average watershed slope.
2. Include any relevant maps (screenshots) that your team created, and reference them within the report text. Discuss the maps and their importance.
3. Discuss the hydrologic soil groups and land cover in your watershed.
4. Report the actual CN computed for your watershed under existing conditions [Task 2], and the modified CN for the urbanization scenario [Task 3].
5. Discuss/show initial abstraction (in) and basin lag time (min) computations for both the existing conditions and the urbanization scenario. Also discuss how you selected the percent impervious surface under the urbanization scenario.
6. Include a summary of your HEC-HMS model input for both CNs considered.
7. Include the total depth of precipitation (in) observed over the 24-hr, 100-yr storm event.
8. Discuss/provide relevant output from HEC-HMS and compare results obtained for the two CNs considered [see Memo 3]. Be sure to include the plot of the runoff hydrograph observed in each case and answer the following questions:
   - What was the total abstraction (inches) for the 24-hour storm event?
   - What was your rainfall excess (inches)?
   - What was the total runoff volume (acre-ft)?
   - What was the peak discharge (ft³/s), and what time did it occur?
Questions to answer/discussion to include in final report:
1. How does watershed shape affect the total discharge, peak discharge, and timing of the peak discharge?
2. How does watershed size affect the total discharge, peak discharge, and timing of the peak discharge?
3. What does the CN really mean? [i.e., high/low CN affects discharge (Q) how?]
4. The RCN obtained above is for average antecedent moisture conditions (AMC II). Compute the value of the RCN assuming both dry and wet antecedent moisture conditions.
5. Discuss the dominant land uses in the watershed.
6. Discuss the land uses in your watershed.
7. How does the hydrologic soil group affect land use? (Think about suitability of land.)
8. How would land use changes in your watershed affect the CN? Discuss some examples such as urbanization, residential development, and abandonment of pasture-land.
9. How does slope affect the time of concentration?
10. How does watershed shape affect the time of concentration?
11. How does CN affect the time of concentration?
12. Why would a lower design discharge be desired? (Think about aspects of design.)
13. What watershed management practices could reduce the design discharge?

A hardcopy of your report must be submitted to your TA by 5 pm Friday December 11.
Late reports will be penalized 25% for each day late.
No reports will be accepted after Noon on Monday December 14.