

Common Areas for Improvement on PBL-2 Preliminary Calculations

Hyetograph

- Make sure to specify design storm: duration, depth, and frequency
- Use the SCS Method – Type 2 curve (see Example 3b from Sept 27)
- Only show a table or figure, not both. If you plot the hyetograph, use bars rather than a line/scatter since the hyetograph values are for time intervals (not points in time)
- In SWMM, specify the design storm hyetograph at a small time step to model and capture important features, particularly around the peak rainfall intensity (1 hour is too coarse).

Pre Development Hydrograph

- Existing land use condition is Pasture/Range land

Post Development Hydrograph

- Disaggregate sub-catchments by land use type
- Within a sub-catchment, separate the pervious and impervious areas
- Only calculate an average (weighted) curve number for the pervious areas within a sub-catchment.
- Note that the SCS Curve Numbers for residential land use types are already weighted averages of good pasture and impervious areas (see the new “CurveNumbers” worksheet in the Excel examples for Sept 27).
- You can use different sub-catchment geometries for the post- and pre-development calculations. The post-development geometry should reflect your design and arrangement of areas.

Runoff Volume to Manage

- a. Calculate pre-development runoff (the hydrograph)
- b. Calculate runoff according to the 0.2 cfs/acre rule in the Logan City code
- c. Choose the lesser of a. or b.
- d. Calculate the post-development runoff hydrograph
- e. Runoff volume is the difference between d. and c.

Write-up

- Explain the methods and model inputs you use to obtain your results! (e.g., so the reader can open SWMM/Excel and repeat your analysis)