Assignment 7
Project Design (1)

The goal of this assignment is for Design Project teams to work together to continue to produce data to support your Design Project. To complete this assignment, please do the following:

(1) Determine the drainage area of your project watershed in square miles and the following properties of this area
   a. Percent impervious cover
   b. Percentage distribution of the NLCD land cover classes
   c. Percentage distribution of Hydrologic Soil Groups (A, B, C, D). If part of the watershed has no soil description, just base the percentages on that area which has a soil description.
(2) Develop a design for your stream crossing that is either a new culvert or a new bridge that will have adequate capacity. Use the definition of capacity from the Austin Drainage Criteria Manual, Section 1.2.4D: "runoff from the fully developed 100-year frequency storm shall not produce a headwater elevation at the roadway greater than six (6) inches above the roadway crown elevation or six (6) inches above any top of upstream curb elevation, whichever is lower."
(3) Choose a site for a large detention pond in your watershed. Delineate the drainage area of this detention pond and report its area in square miles. Estimate the surface area, storage volume and maximum depth of your pond (in US feet units).
(4) Go to the web site
   https://data.austintexas.gov/Environmental/Water-Quality-Sampling-Data/5tye-7ray and extract data for Watershed = "Your watershed", SiteType = "Stream", Medium = "Surface Water", Parameter = "E Coli Bacteria". You have to create a login for yourself in order to be able to save the data. The Texas Water Quality Standards for contact recreation, page 48, state that: "The geometric mean criterion for E. coli is 126 per 100 mL. In addition, the single sample criterion for E. coli is 399 per 100 mL." Determine the geometric mean and highest single sample value for E. Coli in your watershed and determine if these waters are compliant with these standards
   https://www.tceq.texas.gov/assets/public/waterquality/standards/tswqs_2014/TSWQ2014Rule.pdf

This assignment is due in on Tuesday April 19.