CIVL 1112 – Assignment #13

Name: _____

Objective

This assignment aims to use your spreadsheet to develop a feasible detention pond design for the site assigned to your group in the lab.

You *must* submit the cover sheet for the assignment, your calculation on engineering paper for Part 1, printouts of your spreadsheet for Parts 2 and 3, and your calculations for Part 4. Also, submit your spreadsheets for Part 2 to Canvas. You must follow the Excel format.

This part of the assignment aims to estimate the cut-and-fill cost and the detention pond's volume. This application will support your designs for the detention pond project.

Part 1. Table 1 lists the original elevations for an underdeveloped site. Table 2 gives the desired elevation of the developed site. Compute the cut-and-fill earthwork cost for this site. Assume the on-site cost is \$2.50/yd^3, the off-site cost is \$5.00/yd^3 for fill, and \$3.00/yd^3 for the cut.

Table 1. Original Elevations for 50' x 50' grid.

	1	2	3	4	5
1	64	67	69	71	67
2	66	69	70	71	69
3	67	70	71	72	68
4	63	66	68	68	66

Table 2. Proposed Elevations for 50' x 50' grid.

	1	2	3	4	5
1	66	67	68	69	69
2	66	67	68	69	69
3	66	67	68	69	69
4	66	67	68	69	69

Part 2. Use the cut-and-fill spreadsheet we developed in class. It allows users to enter the row and column spacing of the elevation grid, the original elevations at each gridline intersection, and the proposed elevation. Your spreadsheet should also graph the original and proposed elevations.

Part 3. After checking your spreadsheet against the data above, use it to develop a feasible detention pond design for the site assigned to your group in the lab. This will give each group an opportunity to develop several alternative designs for each site as part of their overall detention pond design report. For our design purposes, a feasible design is a pond that can retain at least 50,000 gallons and minimizes earthwork costs.

Part 4. Use the information on the syllabus to compute your current grade in the class.