

CE4333 Lab Problem
September 19, 2006

A contractor is estimating the amount of earth to be removed from site for grading. The topographic plan is shown in attached figure. The area to be graded includes the grids from B2 to D5. The desired level is 98. How much earth must be removed if the soil is dense clay?

Calculate the most optimal total cost and duration of removal of the excess material given the following information:

Available resources:

- Laborers capable of loading truck at 1.5cy/hr at \$15 per hour
- Truck driver at \$18/hr
- Loader operator at \$21/hr

Available equipment:

- A truck that moves at 30mph when loaded and 40mph when empty has a capacity of 12cy and cost \$25/hr. It takes 3 minutes for the truck to dump its load.
- A loader which can be rented at \$50/hr with a load production rate of 95cy/hr and it takes \$400 to transport the loader to site.

Hauling distance = 7miles

Use MS Excel to set up all alternatives and justify the best course of action.

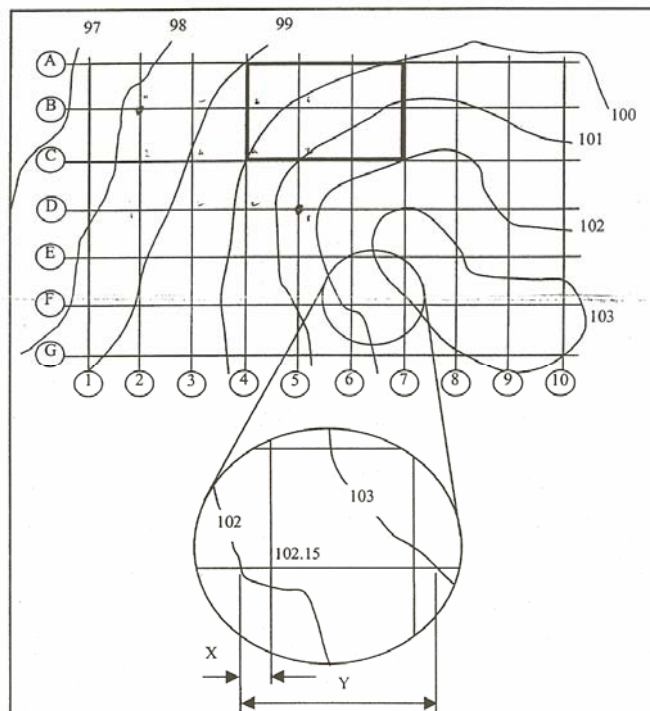


Figure 3.1: Topographic Plan with Grid (20' x 20')