

ES476/576 Hydrology

Working with Groundwater Contour Maps

Your assignment is to analyze a groundwater contour map that you produced by hand in Problem #16 of Groundwater Problem 1. Attached is a computer-generated contour map with a vector flow net superimposed, assuming isotropic aquifer conditions.

Questions:

- A. Calculate the average hydraulic gradient of the aquifer depicted on the attached contour map.
- B. Assume the hydraulic conductivity of the aquifer is 0.0001 cm /sec and that the effective porosity of the aquifer is 0.19 . Calculate the seepage velocity of the groundwater system for the northern tier of the map (east-west along T8N line) (again, use the original problem 16 map for reference).
- C. Using Darcy's Law and assuming that the aquifer is 200 feet thick, calculate the total aquifer discharge to the lake shoreline in millions of gallons per day (MGD).

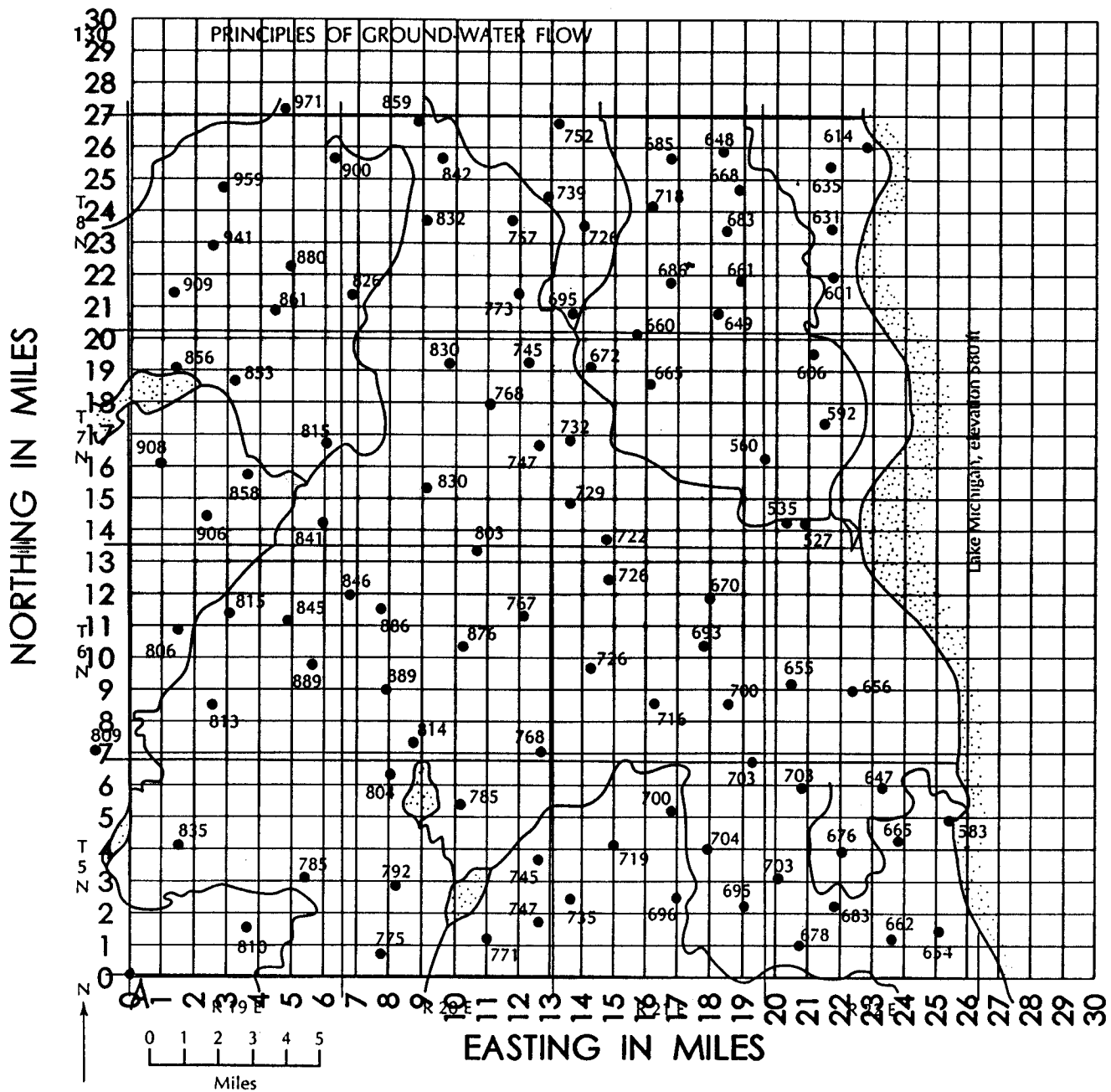
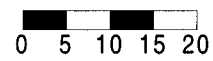
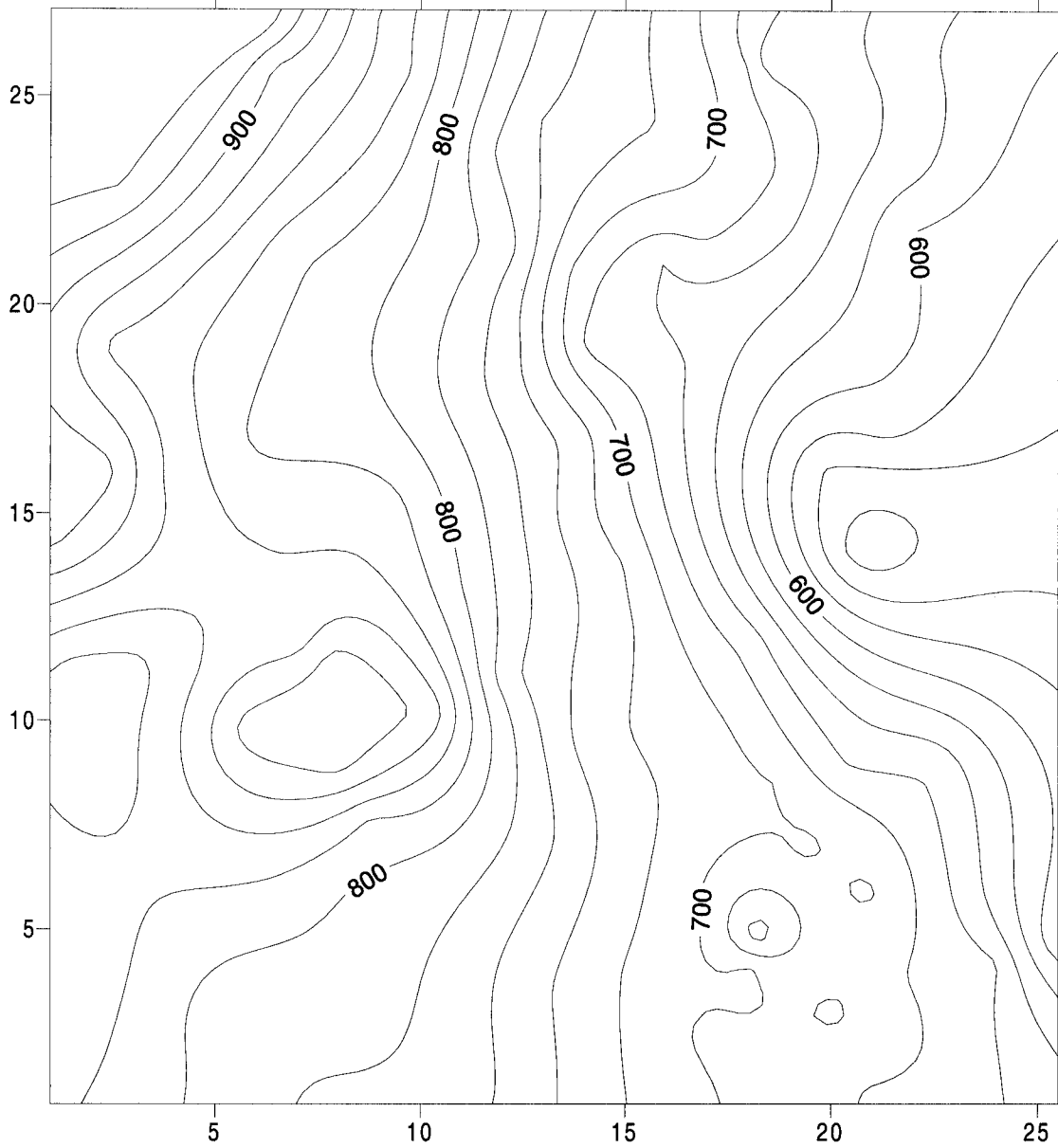


FIGURE 4.31 Base map for Problem 16.

Water Table for the West Bank of Lake Michigan Kriging



Groundwater Flow for the West Bank of Lake Michigan

Kriging

