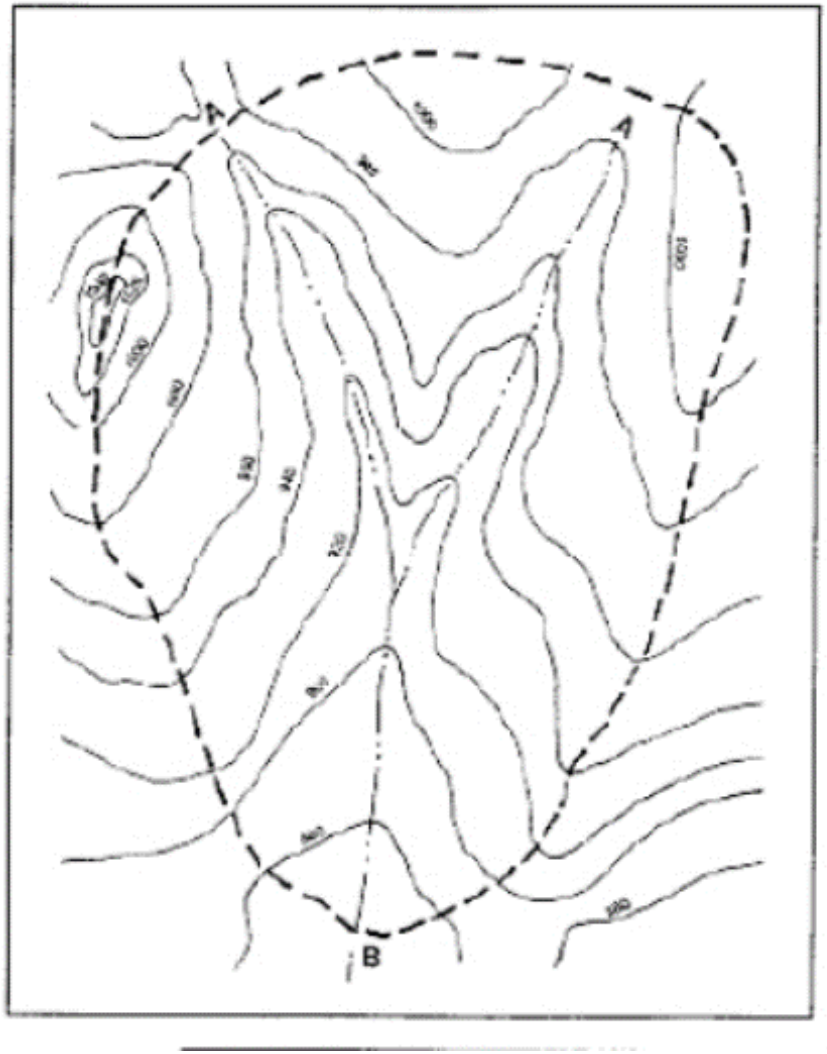
Lecture 2b – Delineating watersheds

Learning Outcomes

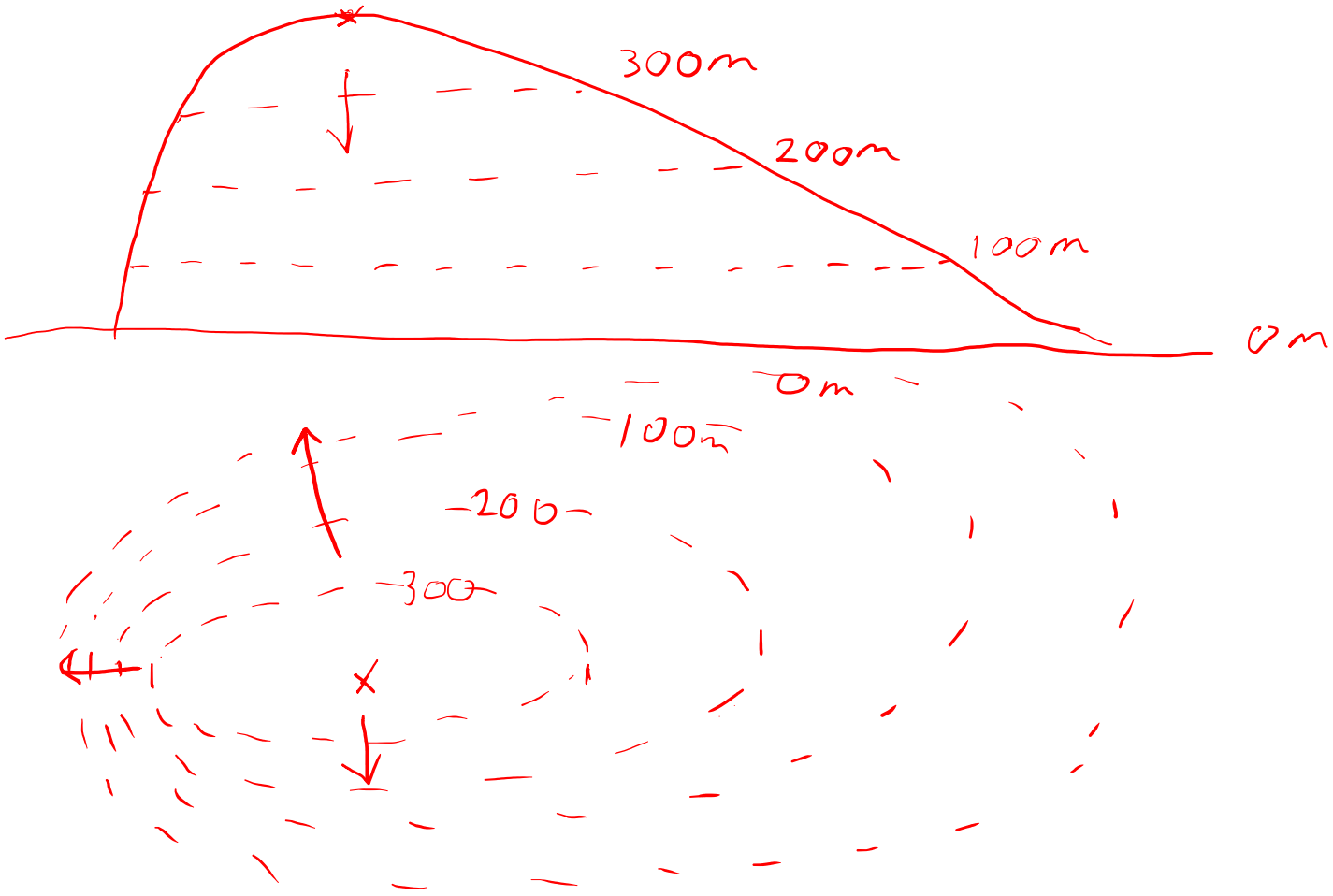
- Be able to explain what a watershed is and why they are used as the basic unit when managing water
- Be able to delineate a watershed from a contour map and use it to evaluate the path of a pollutant
- Be able to characterize a watershed (drainage area, length, elevation, slope)
- Be able to identify different drainage network patterns, identify the stream order, and estimate how factors might affect drainage density

Watershed delineation

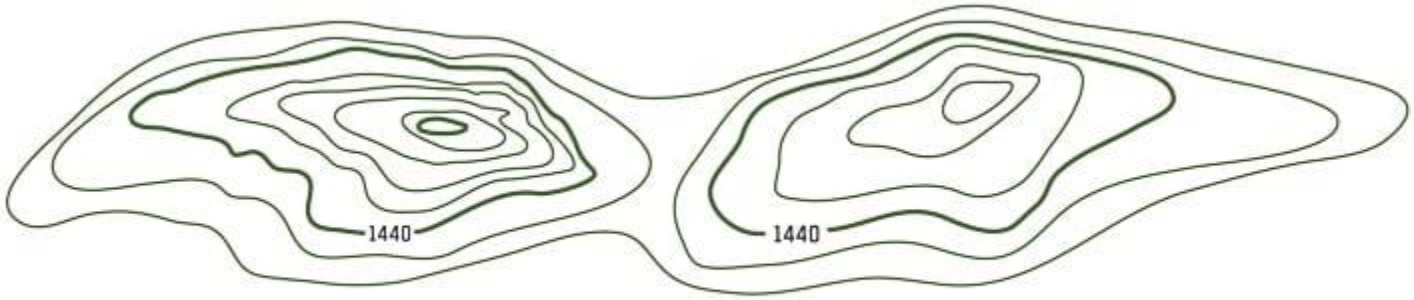
- Defining a watershed is fundamental to understanding the hydrology of that area
- Watersheds are defined relative to a point – often the river mouth, dams, reservoirs
- Watershed delineation can be done manually or using DEMS (Digital Elevation Models) and GIS (Geographic Information Systems)



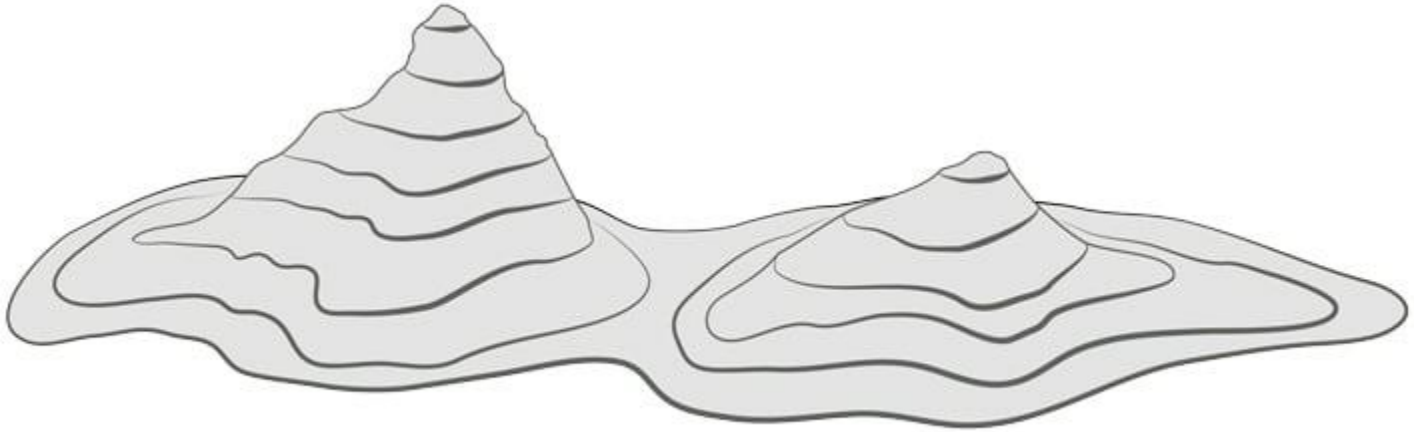
Contour lines



Contour lines

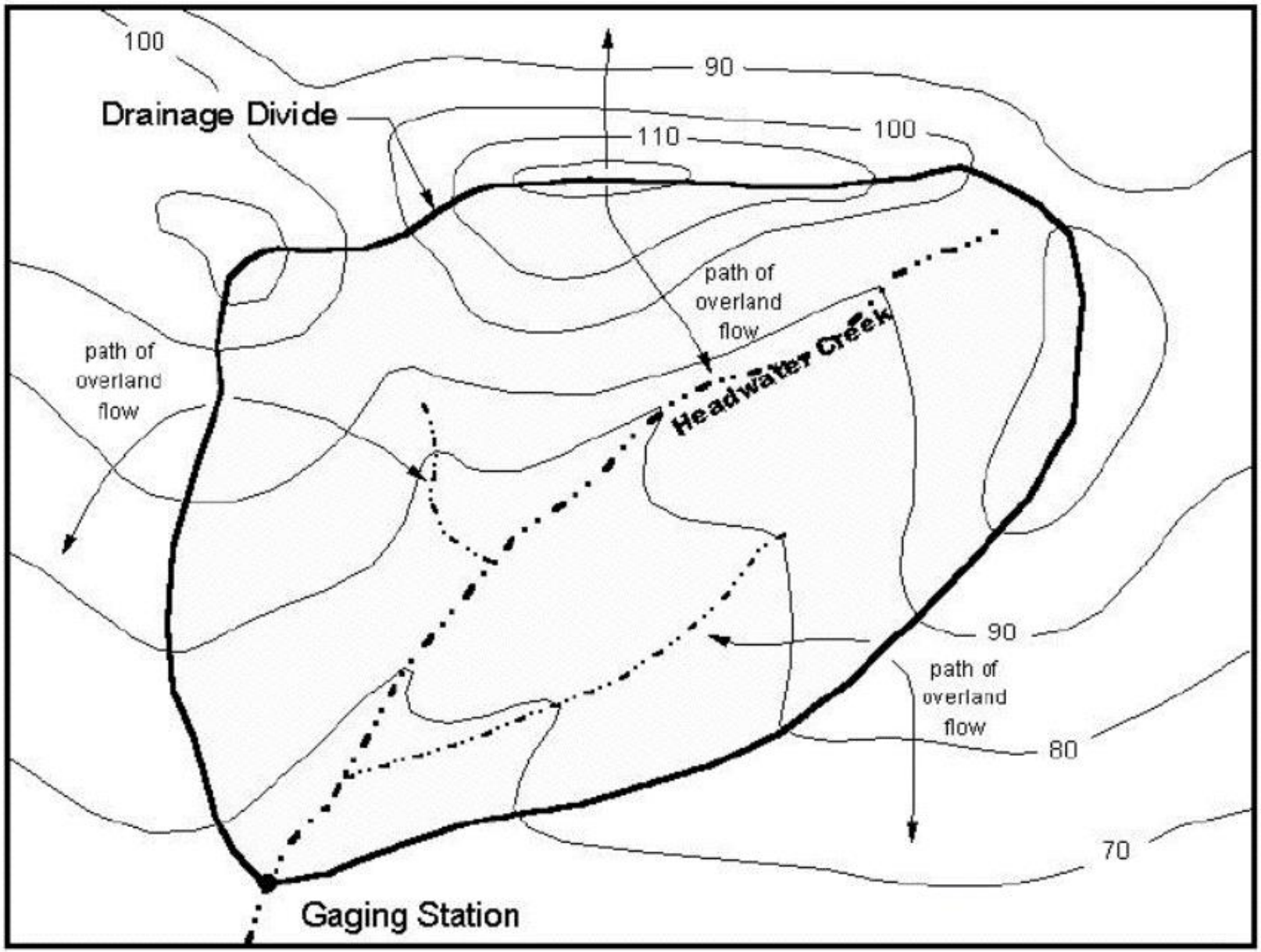


WHAT YOU SEE
ON YOUR MAP



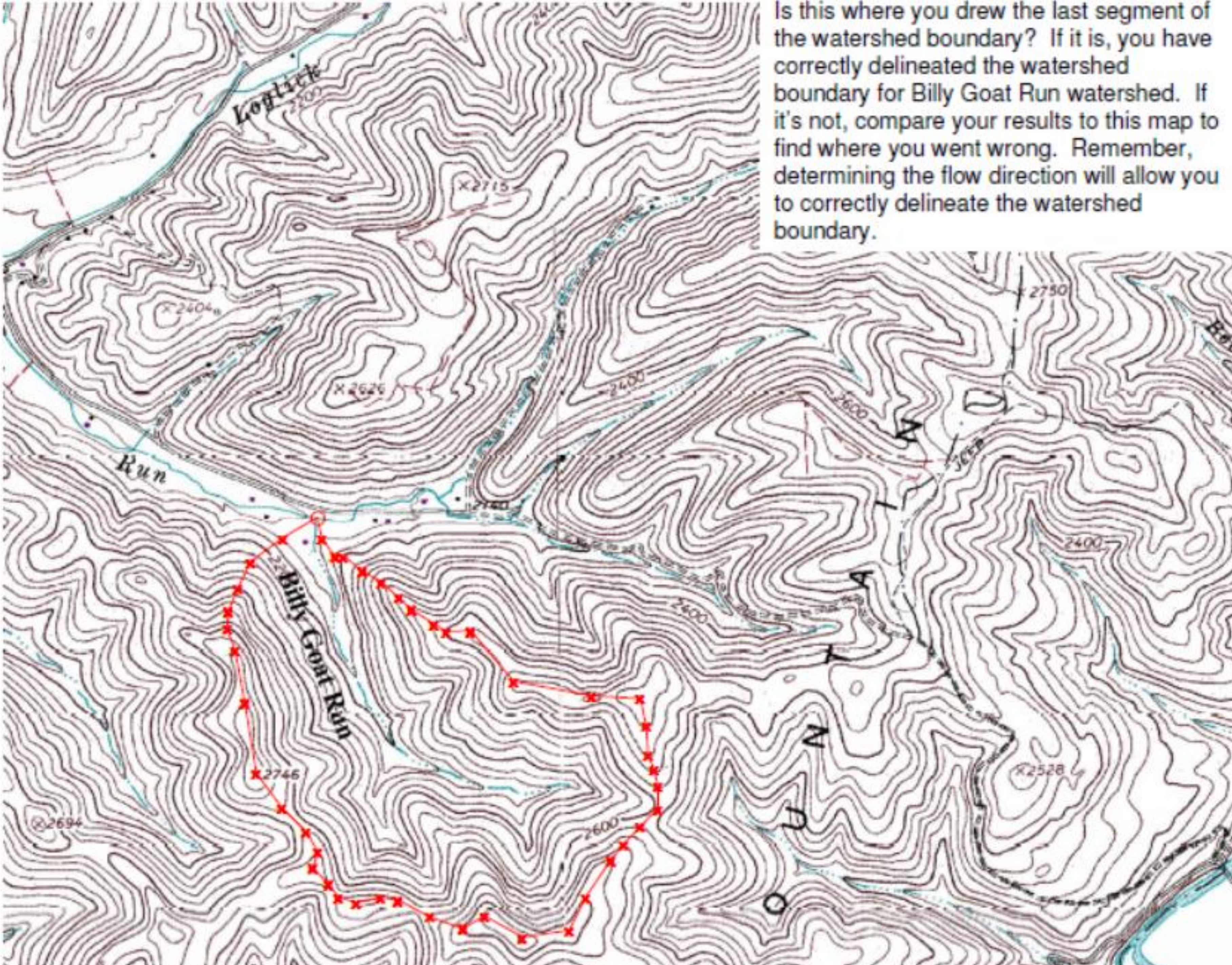
3-D VIEW
OF LANDMARK

Manual watershed delineation



Run
Billy Goat Run
2626
2600
2746
2694

Is this where you drew the last segment of the watershed boundary? If it is, you have correctly delineated the watershed boundary for Billy Goat Run watershed. If it's not, compare your results to this map to find where you went wrong. Remember, determining the flow direction will allow you to correctly delineate the watershed boundary.



US watershed delineation (StreamStats)

- In the US, USGS operates StreamStats http://water.usgs.gov/osw/streamstats