

ES302 Watershed Delineation and Drainage Area Measurement

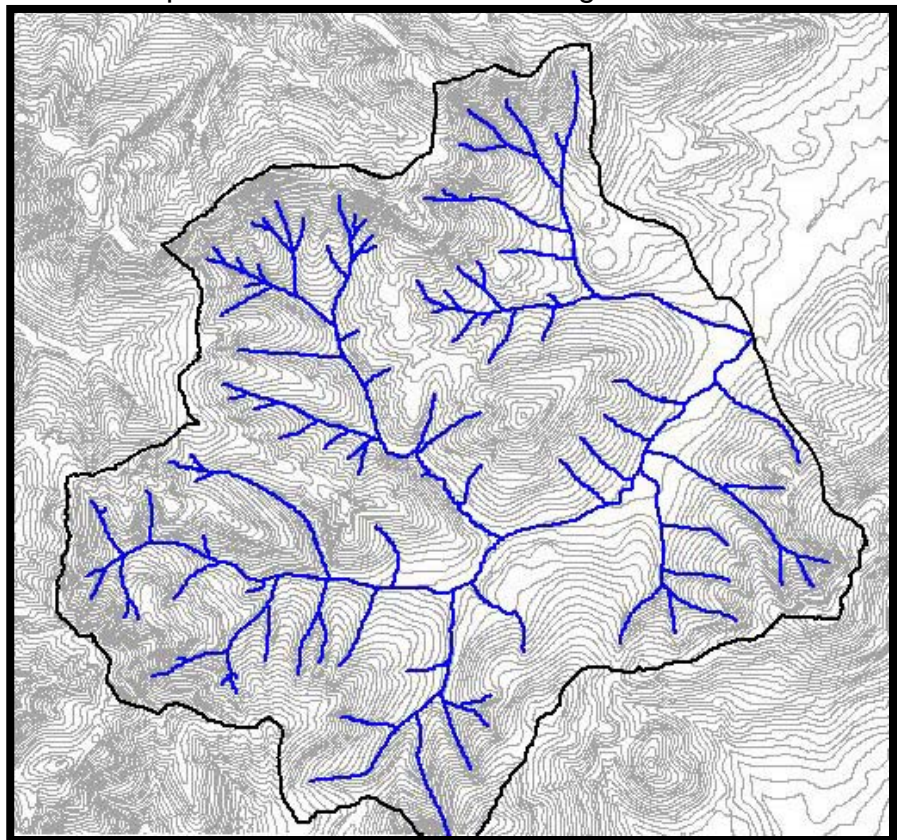
Watersheds or drainage basins are comprised of a network of stream channels that link from smaller to larger, providing a conduits for surface water runoff and sediment transport on the Earth's surface. Drainage basins are defined by topographic contour patterns with drainage divides (bounding ridges) and stream channels (defined by "V-shaped contour lines"). When defining watershed boundaries and stream channels it is important to remember that water flows from high elevation to low elevation, and in a simple sense, perpendicular to contour line.

The example map below shows an illustration of contour lines, topography, stream channel network, and drainage divide. The following are the steps used to delineate watershed boundaries and stream networks:

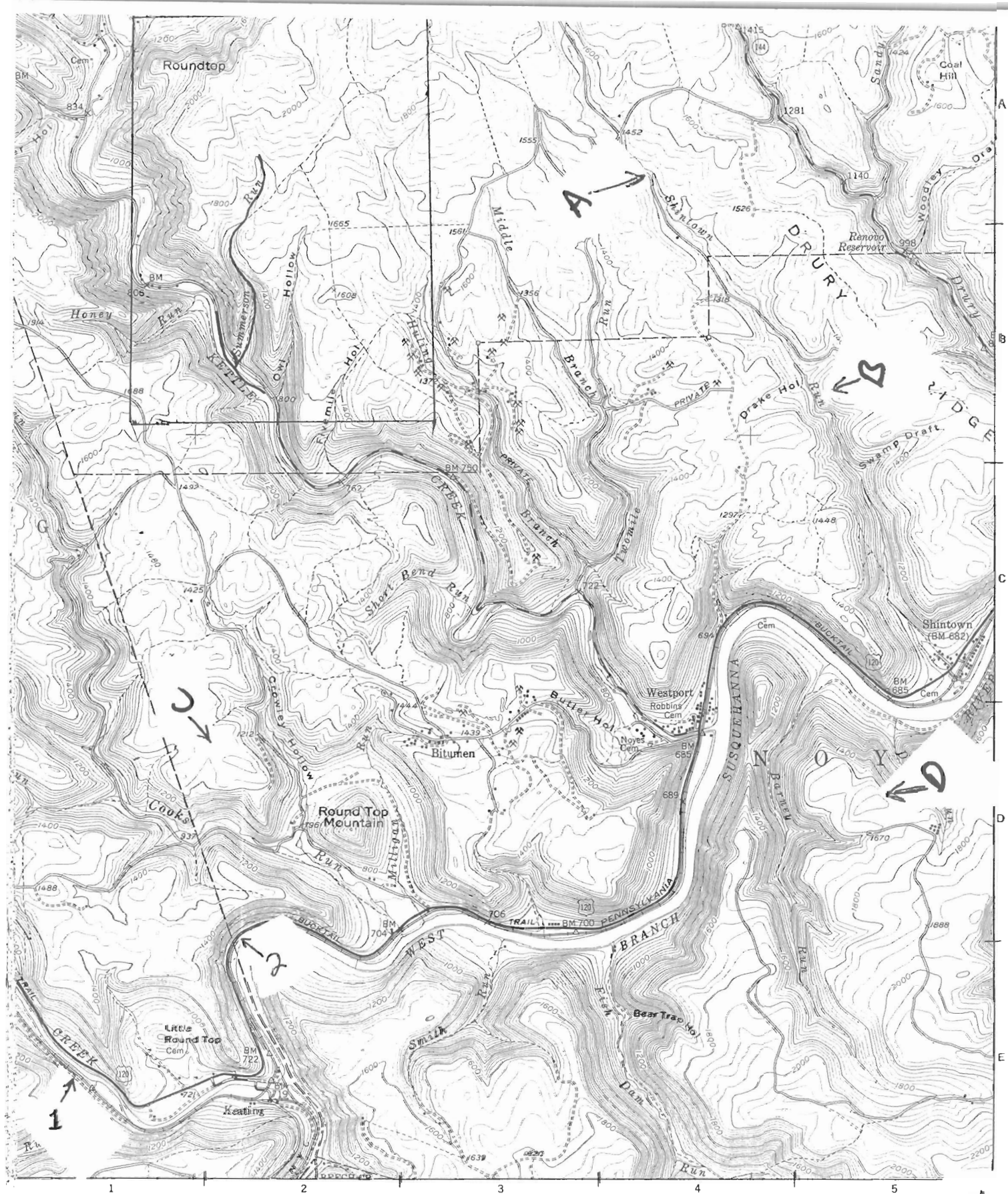
Draw the watershed divide or boundary:

- (1) First examine the contour pattern, look for "contour crenulations", ie. V-shape contour lines that indicate the location of a stream valley.
- (2) Using a pencil, start at the "mouth" or the outlet of the watershed and draw a line that follows the highest elevation hill or ridgelines that separate drainage
- (3) Draw lines in the center of the v-patterns that show the drainage network.

Example Watershed Network



Exercise: Refer to the Renovo West map on the next page. A. Determine the contour interval for the map. B. Your job is to draw the drainage divide for the Summerson Run watershed outlined within the box. The main stream is show in the Heavy dark line. Draw in the smaller streams by identifying V-shape crenulations. Once you have the stream network, draw the drainage divide according to the procedures outlined above. C. Using a ruler and the graphical scale, determine the fractional scale for the map. D. Using the Planix 7 planimeter and instructions, determine the drainage area of Summerson Run in sq. km and sq. mi.



RENOVO WEST, PENNSYLVANIA Physiographic features include abandoned entrenched meanders as well as entrenched creeks and a river. Note also the canyon or gorge of the West Branch of the Susquehanna River, dendritic drainage at Drury Run, and meander cores of Round Top and Little Round Top Mountains.

Scale
 Contour Interval
 Latitude
 Longitude

