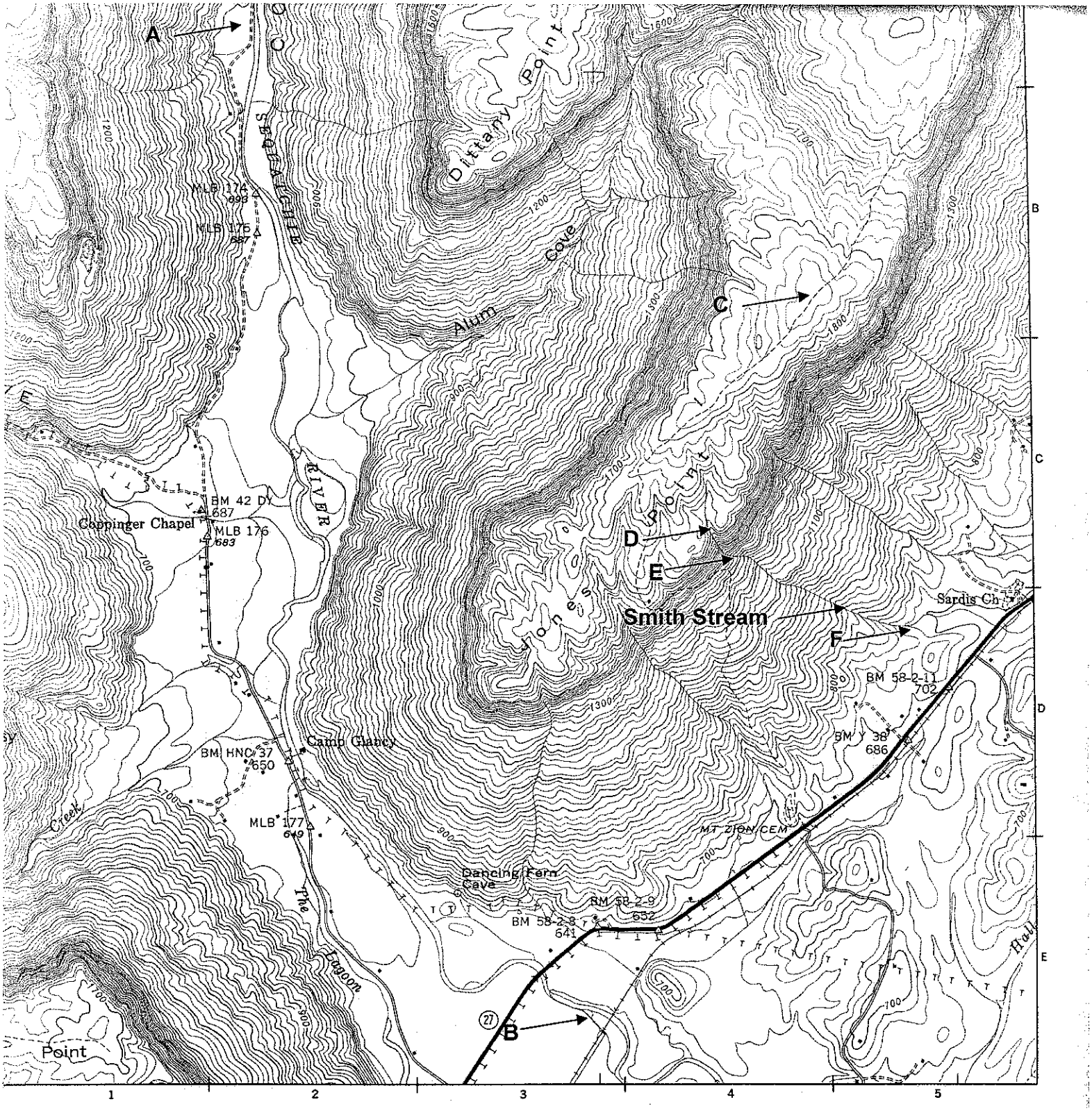
ES202 Additional Map Exercise – Whitwell, TN Map

KEY

Refer to the attached map and answer the following questions.

1. What is the contour interval of the map? 20 feet
2. Using a ruler and the graphical scales, determine the fractional scale of the map. Show all of your math work. 1 inch ≈ .38 mile, .38 mile × 63360 inch = 24076.9 inch.
   Scale = 1:24000
3. What is the drainage pattern of the stream network in "Alum Cove", north-central portion of the map? Dendritic
4. Which direction is the Sequatchie River flowing? South Which direction is the stream in Alum Cove flowing? Southwest
5. Calculate the average gradient of the Sequatchie River between points A and B. Calculate gradient in ft/mi. Show all your math work.
   Gradient: $\frac{\text{relief}}{\text{distance}} = \frac{700\text{ft (A)} - 600\text{ft (B)}}{8.5\text{ in} \times 24000 = 204000\text{ in}} = \frac{100\text{ ft}}{3.22\text{ mile}} = 30.12\text{ ft/mile}$
   $204000 \times 1.58 \times 10^{-5} = 3.22\text{ mile}$
6. What is the elevation of point C?
   1870
7. In which direction is "Smith Stream" flowing?
   Southeast
8. Calculate the average gradient of Smith Stream between points D and E. Calculate gradient in ft/mi. Show all your math work.
   Gradient: $\frac{1600\text{ft (D)} - 1340\text{ft (E)}}{4/16\text{ in} \times 24000 = 6000\text{ in}} = \frac{260\text{ ft}}{0.09\text{ mi}} = 2888.9\text{ ft/mile}$
   $6000\text{ in} \times 1.58 \times 10^{-5} = 0.09\text{ mile}$
9. Calculate the average gradient of Smith Stream between points E and F. Calculate gradient in ft/mi. Show all your math work.
   Gradient $= \frac{1340\text{ft (E)} - 750\text{ft (F)}}{13/16\text{ in} \times 24000 = 36000} = \frac{590\text{ft}}{0.569\text{ mi}} = 1036.9\text{ ft/mile}$
   $36000 \times 1.58 \times 10^{-5} = 0.569$
10. Based on your results from questions 8 an d 9 above, what can you conclude about the change in stream gradient when water flows from high elevation to low elevation? Describe your observations. Steep at first, then "flattens" out.
11. What is the shape of the channel pattern of Sequatchee River near point A? What about point B? Is this river braided in any given reach?
    A = straight, B = meandering
12. Calculate the maximum relief for this map (answer in feet).
    1860 ft − 600ft = 1260 ft.
13. Is the topography around Dittany Point relatively steep or relatively gentle? What about the hill above Dancing Fern Cave? DP = steep
    DFC = relative gentle
14. What fluvial landform is Coppinger Chapel located on? Is this an erosional or depositional landform? What fluvial landform is Camp Glancy located on?
    CG → floodplain - depositional. CC → alluvial fan



1 0 1 MILE

1 .5 0 1 KILOMETER