

December 2, 2009

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AMERST (remember- the H is silent)

In the spring, at the depths the country's financial crisis, the Geology Department submitted a proposal for a "shovel-ready" economic stimulus grant to help the College. The Amherst Mineral Economic Recovery Stimulus Thingey (AMERST) grant requested \$125,000,500 to explore, develop, and exploit the mineral potential of a ~675 km² tract of land to the west of Amherst College. To our surprise, our proposal was accepted even though the majority of the budget (\$125 million) was to go directly into the College's endowment –leaving only \$500 to explore, develop, and exploit the mineral potential of the 26 X 26 km AMERST parcel. To help us fulfill the obligations of the AMERST, we solicit the services of three-person geologic teams to investigate the geology of the 26 X 26 km AMERST land parcel and prepare AMERST Regional Geology (ARG) reports. You will find the area exceedingly flat and offering abundant outcrop on which to base your study. Responses to this solicitation should provide:

I.) A complete geologic map of the designated area, with two accompanying cross-sections completed by **each 3-person team** executed to the following specifications:

- The map should be drawn on the grid base map supplied, on which the grid spacing represents 1 km, the northwest corner is at A1, and the southeast corner is at Z26.
- The map and cross-sections should be colored, using a different color for each rock unit and the same coloring scheme for both map and sections. Do not use heavy, dark, or vibrant colors that would obscure other data (such as strikes and dips) plotted on the map. Neatness is essential!
- The map should be given a title that indicates the location of the mapped area (e.g. "Geologic map of the Stinky Swamp Area").
- The map and sections should be accompanied by a "Key" or "Explanation" in which each rock unit is named (e.g. "Amherst Arkose, Belchertown Basalt") with its map color indicated. In this key, all rock units should be listed in chronological order, with the oldest at the bottom. All geologic symbols used should appear in the Key as well.
- Two cross sections should be drawn: A-A' between the southwest and northeast edges of the map, and B-B' between the northwest and southeast edges of the map respectively. These sections should be drawn with A and B to the left and A' and B' to the right, and both ends of the sections should be clearly labeled. The vertical and horizontal scales in the cross-section must be exactly the same, and must match the horizontal scale in the map. The geology of these cross-sections must, of course, correspond exactly where the two sections cross. A protractor will be necessary to draw the cross-sections accurately. Remember, sedimentary units tend to maintain a constant thickness.
- The map must have a north arrow and both the map and cross sections must have an appropriate bar scale shown.

II.) An individually written outline of the geologic history of the study area submitted by **EACH MEMBER** of a subcontracting team submitting a geologic map and sections. Each member of each geologic consulting team must independently prepare this part of the geologic report to the following specifications:

- The report may be written in discursive form or in outline form.
- While concise, the report should be as complete as possible, including but not limited to: the formation of individual units and the nature of the environment in which they formed; uplift, erosion, and the creation of unconformities; orogenesis and the deformation and/or metamorphism of rocks; protoliths of metamorphic rocks; and igneous events. Include statements that document the observations on which the report is based.
- Every attempt should be made to place dates on these events, where possible, as well as to place the events in relative order.