INTRODUCTION

Fig. 1. On July 28th, 2006, flooding from Otter Creek at the Townley Avenue bridge in the City of Cortland inundated basements and properties near Crotone and Townley avenues. It has been suggested by some residents that sediment accumulation in the Otter Creek channel near Broadway and Townley Avenue was the cause of this flooding.

RESEARCH QUESTION

Fig. 2. The Otter Creek drainage basin is located in central New York State. The majority of this basin is within the towns of Cortlandville and City of Cortland in Cortland County. Otter Creek drains the area to the west and southwest of the city. The main stem of Otter Creek begins at Stupke Pond (~2.5 miles southeast of Cortland) and flows northeast. It is joined by two intermittent tributaries before eventually draining into the West Branch Tioughnioga River. Valleys in this area are broad and are bounded by steep hillsides that rise nearly 700 feet above the valley floors. Otter Creek drains the area to the west and southwest of the city. The main stem of Otter Creek begins at Stupke Pond (~2.5 miles southeast of Cortland) and flows northeast. It is joined by two intermittent tributaries before eventually draining into the West Branch Tioughnioga River. Valleys in this area are broad and are bounded by steep hillsides that rise nearly 700 feet above the valley floors.

Fig. 3. Glacial and glacifluvial processes during the Quaternary period shaped the landscape currently observed throughout central New York. The Laurentide Ice Sheet was at its most recent maximum extent in northern Pennsylvania and Long Island about 20,000 years ago. Ice retreat dominated for the next ~5000 years prior to the Valley Heads re-advance, when moraines and outwash were deposited around the Cortland area. The Laurentide Ice margin then withdrew northwards from the area, leaving the Valley Heads deposits as the dominant landforms and features of our local landscape.

BEDROCK GEOLOGY

- Bedrock in the region is predominantly Delewarean in age, nearly flat lying beds of slate with minor schistose and fine-grained sandstones.
- Much of the bedrock is buried under glacial deposits, which are thickest in the valley bottoms.

SURFICIAL GEOLOGY - Fig. 4.

EVENTS DURING THE VALLEY HEADS RE-ADVANCE

- The Valley Heads reached its maximum extent in central New York about 14,400 yr BP.
- This re-advance was followed by a ~5000 year period of relative stability.
- This period of stability was terminated by the Wisconsinan period of glacial advances.

GOLD HISTORY

- Sediment accumulation and flooding of Otter Creek in Cortland
- Dr. David Barclay, Scott Causer, Elizabeth Hensel, Bobby Taylor, Matt Vitale, and Fall 2007 Geomorphology (GLY 367) undergraduate students
- Geology Department, SUNY Cortland