

## Bay Road Stabilization Colchester, Vermont

**Owner:** Town of Colchester

**Services Provided:** Surveying and civil, geotechnical and structural engineering.

**Problem:** Settlement of the road edge and guardrail began shortly after re-construction (widening) of Bay Road in the early 1990's. A 110-foot section of road was widened over uncompacted slope fill; measurements indicated movements of 3" to 4" per year (horizontal and vertical).



**Settled Road Edge (After 3 Years)**



### **Horizontal & Vertical Movements (>3"/Yr)**

**Design Approach:** The selected approach, based upon cost and duration, was an anchored sheetpile wall. This concept utilized 25-foot deep sheets with wales and tie-rods connected to 9-foot deep anchor sheets with wales on the opposite side of the road. Related design considerations included relocation of an existing waterline and overhead power lines to outside the stabilization area.

**Construction:** The 150-foot long stabilization area was constructed in the fall of 1997 at a cost of \$135,000 (\$900/LF).

**Investigation:** Knight Consulting Engineers set-up a soil investigation program in order to determine the in-situ soil profile and soil strengths. A topographic survey was performed in order to identify the configuration of the 60-foot high slope. Slope stability analyses were performed to identify the extent of the roadway to be reinforced and conceptual reinforcement sections for 6 different design approaches.



**5 Years after Stabilization**