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Ground Water Permeability With Respect To The Contact Point Of Glacial Lake Vermont and the Champlain Sea Sediments at Town Line Brook.

Introduction:

Our project we will be conducting is to determine the exact contact point between Glacial Lake Vermont and the Champlain Sea within the sediments at Town Line Brook. From the contact point we will determine how the different sediments affect the groundwater permeability. This is important for the surrounding area of human development and how erosional rates will impact the area in the future.

This research will be conducted at Town Line Brook at an active landslide site. The history of this area has been highly impacted by human development. Surrounding the gully there are human communities that play a role in the erosion rates of the sediments. A previous dump existed at the gully site, which may help to stabilize the landslide. The geology of this area consists of sediments deposited first by Glacial Lake Vermont during the Pleistocene period. Sediments deposited by the Champlain Sea consisting of sands overlay these glacial sediments, mainly consisting of clay, silts and sands.

Work Plan:

Compile Detailed Stratigraphic Column:

- Using shovels and other available equipment to clear off a section
- Using bucket augers to obtain core samples and give a more accurate stratigraphic column
- Using measuring devices to determine an accurate scale

Survey Site:

- Using levels and rods
- Ultimately to compare sites along the brook

Place –Based:

- Find old air photos of the area – specifically the brook
- Ground photos from historical society of past usages

-Photos of landfill

-Use these to decipher how the site has changed over a period of time.

Hypothesis:

The experiment will test the permeability differences between Glacial Lake Vermont and Champlain Sea sediments. A contact point will need to be analyzed to distinguish between sediments stability with respect to ground water and the influence it has on the current landslide. We expect to find a difference in perm abilities between Glacial Lake Vermont and Champlain Sea sediments. We are predicting the sand sediments of Champlain Sea to be more permeable than the clay sediments of Glacial Lake Vermont. We are predicting the ground water table to be at the contact point, which determines the stability of the landslide.

Equipment:

-shovels

-bucket augers

-tape measure

-level and rods