C-20: An Investigation of the stability of shallow landsliding at Loxley, Warwickshire. England

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This paper is concerned with investigations of an unstable site at Loxley, Warwickshire, England under the MSc. Programme. This site has exhibited evidence of instability for many years, causing a limitation in its use. The study has involved field, laboratory and analytical work.

The field work involved topographical and geomorphological mapping, In addition, representative soil samples were collected and tested in the laboratory for classification and the determination of shear strength parameters.

This site is located in a gentle slope with inclination from 10° - 15°. It consists of creamy gray stiff clay with very small amounts of flint and pebbles. This layer is capped with a very thin dark black humus layer. The slope shows evidence of instability, such as tension cracks, undulating features. Most of these features increase in the Winter season and decrease in the Summer period.

Laboratory classification tests categorized the soil in CE (clay of extremely high plasticity) – CV (clay of very high plasticity) range at soil classification chart. Shear strength tests gave the soil parameters in residual state. The effective cohesion is equal to zero ($C_r = 0$) and the residual friction angle is between 8° and 10°. This is very similar to the natural slope angle of the studied slope.

Using the measured parameters, stability analysis suggest that the site is unstable at all time. Field evidence however supports the concept that the site is only unstable during the wet winter period. It is believed that stability during the remaining part of the year is due to the development of suction pressure.