

# **Abstract**

This diploma thesis deals with nature of loess's structural bonds. Research part of the thesis aims to clarify types of bonding forces that interact between particles and what effect these forces have on overall strength of the loess. Next equally important objective was to resolve(clarify) what causes weakening of these bonding forces leading to reduction in soil volume, which may result in complete collapse of its entire structure. As part of the research, loess samples undergone significant amount of laboratory analyzes in order to expand knowledge about its grain size and mineral composition to achieve better understanding regarding behavioral mechanisms working inside the studied soil. Peak practical part experiment was performed as an analysis on loess samples during air pressure conditions and vacuum to determine which of the coupling forces have the most significant effect on the final strength of loess's structure.

**Keywords:** loess, structural bonds, collapsible soils