RELATIONSHIP BETWEEN SHEAR-WAVE VELOCITY AND CONSOLIDATION PARAMETERS OF PEAT

BACKGROUND AND DESCRIPTION
Peat is a difficult material in geotechnical applications because of the large settlements and the low bearing capacity. Obtaining undisturbed samples for the material is challenging. Therefore, the possibility of using in situ tests to obtain first order estimates of consolidation parameters for peat is investigated. A connection between shear wave velocity, \( V_s \), and consolidation parameters has been shown for Norwegian clay.

The goal is to examine if there is a relation between \( V_s \) and consolidation parameters in Swedish peat. \( V_s \) will be measured at three different sites using “Down-hole method” (see figure 1) and undisturbed samples will be extracted for oedometer testing. The consolidation parameters are estimated through CRS-testing in the laboratory. The relation will be evaluated through a regression analysis where a best fit trendline will be shown as well as the coefficient of determination. The consolidation parameters that will be analyzed are the preconsolidation pressure \( \sigma_{sc} \), the compression parameters \( M_0 \) and \( M_L \) and the modulus number \( m \). Moreover, the water content of the peat will be measured every 0.1 meters in the laboratory and compared to \( V_s \).


Samples will be extracted using a Russian sampler. Classification of the peat will be done according to von Post scale of humification which is commonly used for work on peat.