

Correlation between the Undrained Shear Strength of Clay of the Champlain Sea as Determined by the Vane Test and the Swedish Cone

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Abstract : The undrained shear strength is an essential parameter for determining the consistency and the ultimate bearing capacity of a clay layer. The undrained shear strength can be determined by field tests such as the in situ vane test or in laboratory, including hand vane test, triaxial, simple compression test, and the consistency penetrometer (i.e. Swedish cone). However, the field vane test and the Swedish cone are the most commonly used tests by geotechnical experts. In this technical note, a comparison between the shear strength results obtained by the in situ vane test and the cone penetration test (Swedish cone) was conducted. A correlation between the results of these two tests, concerning the undrained shear strength of the Champlain sea clay, has been developed. Moreover, some applications of the proposed correlation on some geotechnical problems have been included, such as the determination of the consistency and the bearing capacity of a clay layer.

Keywords : correlation, shear strength, clay, vane test, Swedish cone

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