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| Project Title: | A Case Study for Determining the Ground Improvement Efficiency of Jet-Grout Columns |
| Project Coordinator: | Assist. Prof. Dr. Mehmet Rifat KAHYAOĞLU |
| Project Abstract: | The energy released during earthquakes can cause many problems. Ground improvement methods are used to increase strength of soils which are sensitive to problems such as bearing capacity, settling and liquefaction. Jet grout columns, also known as high modulus columns as soil improvement method, are widely preferred to increase bearing capacity, to reduce settlement and to prevent liquefaction. Although its efficiency has not been sufficiently studied with real case studies or numerical studies, jet grout columns have become a common engineering practice to prevent such problems. Since this method is a widely used today; jet grout has made it compulsory to compare and analyze the reliability of the method, the manufacturing phase and in-situ tests with various methods and procedures. In the proposed project, the contribution of jet grout columns as a precaution against bearing capacity, settlement and liquefaction problems will be determined by a case study. The works performed at the Transformer Assembly-Disassembly building site in the Kocaeli, Alstom Grid Energy Industry Inc. region having bearing capacity, settlement and liquefaction problems will be evaluated. According to the determined soil properties; bearing capacity, settlement, liquefaction problems are determined in the study area. After the construction of the jet grout columns, this improvement method will be investigated with the analytical and numerical methods whether it eliminated the soil problems. After the jet grout column construction, the soil parameters will be tried to be determined after the jet within situ field tests. The precision of the determined soil parameters will be examined by back calculations with various correlations. At the end of the Project, the calculated soil parameters after the jet grout are compared, and an abac containing a variety of parameters that can be used in jet grout column design is planned to be formed. |
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