ABSTRACT

On top down construction, opening in slab is used for mobilisation during construction. Opening area on slab is usually confined because it will reduce the stiffness of slab. The function of slab on top down construction as lateral support of diaphragm wall. In this research, the case studies consisted of cantilever diafphragm wall, diaphragm wall with full slab, diaphragm wall with void slab, diaphragm wall with void slab and vertical support, diaphragm wall with enlarge void area of slab. This research is done using Plaxis 3D Foundation program with undrained parameter-total stress analysis and the result is verified by input the soil as lateral load and spring using Etabs 9.7.0 . The result is that the position and value of diaphragm wall's bending moment is different between the two program. For the cantilever diaphragm wall and diaphragm wall with full slab, the difference value of bending moment between 6% until 15%. For the case of diaphragm wall with void slab and vertical support the result of bending moment is different too far. For enlarging void area of slab from 16% to 21.6%, the depth of excavation become smaller from -15.50 m becomes -7.20 m. According to the analysis result of Plaxis 3D Foundation, slab as diaphragm's lateral support can be classified as semi-rigid diaphragm that has a large axial force.

Keywords : Diaphragm wall, top down, bending moment, total stress, undrained parameter, spring, semi-rigid.