

Numerical study on stability and deformation of retaining wall with groundwater drawdown

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ABSTRACT

In this study, the ground settlement in backside of retaining wall and the behavior of the retaining wall were analyzed according to the method of groundwater drawdown due to excavation by using two-dimensional(2D) finite element analysis. Numerical analysis was performed by applying 1) fixed groundwater level, 2) constant groundwater drawdown, 3) transient groundwater drawdown, and 4) dry condition according to excavation. In addition, the behavior of the retaining wall according to the initial groundwater level, ground conditions, and surcharge pressure in backside of retaining wall was evaluated. Based on this study, it was found that the horizontal displacement of the retaining wall was large in fixed groundwater level condition and the smallest in transient groundwater drawdown condition. It was confirmed that the high adjacent ground settlement was shown in fixed groundwater level condition and the low adjacent ground settlement was shown in constant groundwater drawdown condition. In addition, the change in the horizontal displacement of the retaining wall according to the surcharge pressure was the largest in transient groundwater drawdown, and the largest change in adjacent ground settlement was confirmed in constant groundwater drawdown condition.

REFERENCES

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