

RISKS RELATED TO SECANT CFA- PILE WALLS

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Walls consisting of CFA-piles are often used for vertical cut offs for building pits. Several methods of installation and geometry may be used and sizes, depths and strengths of walls necessary vary widely. Based on experience with secant CFA-pile walls in The Netherlands, requirements for this type of wall can be set with a risk management view to it. This paper describes those requirements, based on specific local conditions.

In many cities (also in The Netherlands) the application of building pits for the realisation of underground spaces (such as car parks, shops or cellars) or infrastructure is becoming common practice. That however does not mean that the construction of underground projects in building pits always follows the schedule. To limit damage to buildings and nuisance for neighboring residents all kinds of measures are taken. That the desired result is not always achieved becomes clear from examples mentioned in this paper.

For example the use of a pile wall is considered. Such CFA-pile walls are offered generally as a soil - and water retaining structure, whereas in practice it has become clear that this type of walls is not 100% watertight. Sometimes this leads to large problems, but in other cases these walls are successfully applied. How can we prevent that a pile wall has negative impact on a project? The answer is found in a risk management approach.



Design of (CFA-)pile walls should incorporate for tolerations during construction to ensure that sufficient overlap between adjacent piles is maintained over the depth of the excavation. Countermeasures should be designed for possible leakages and loss of local strength. In some cases (mainly in conditions with sands behind the wall and high water tables) leakage can not be accepted, because it often involves loss of soil behind the wall leading to sinkholes. In those conditions the construction needs extra safety measures, such as a smaller centre to centre distance, a larger pile diameter or even another type of wall.

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