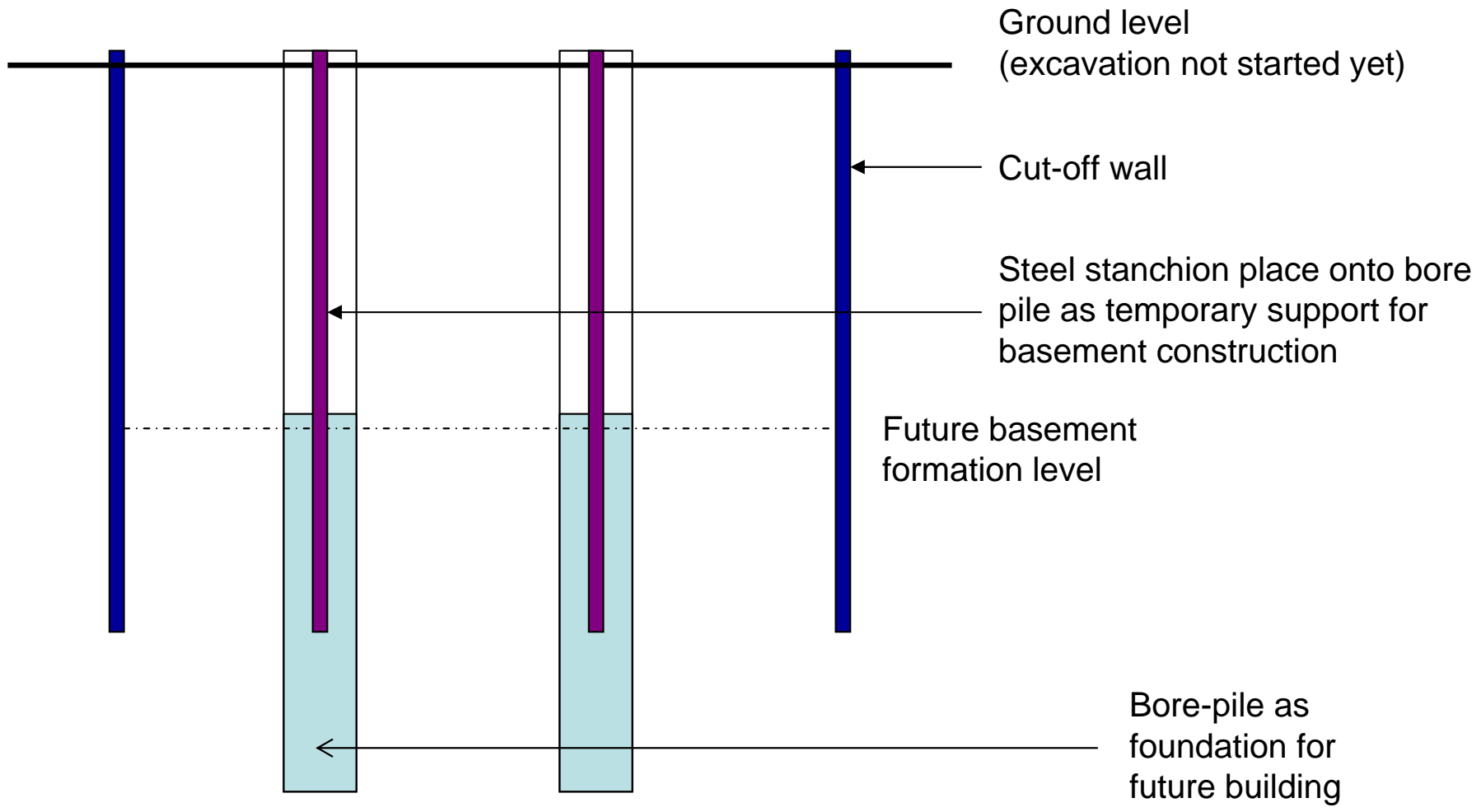
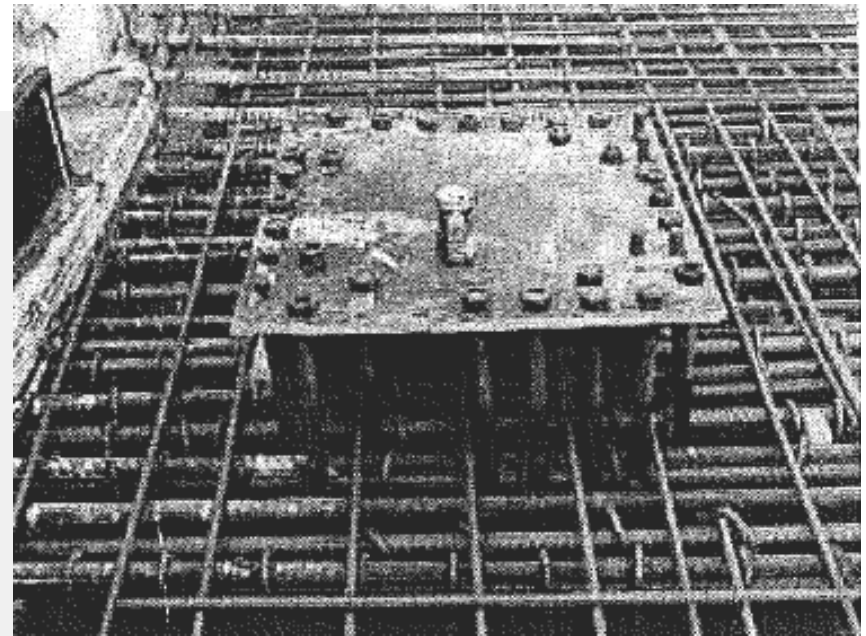
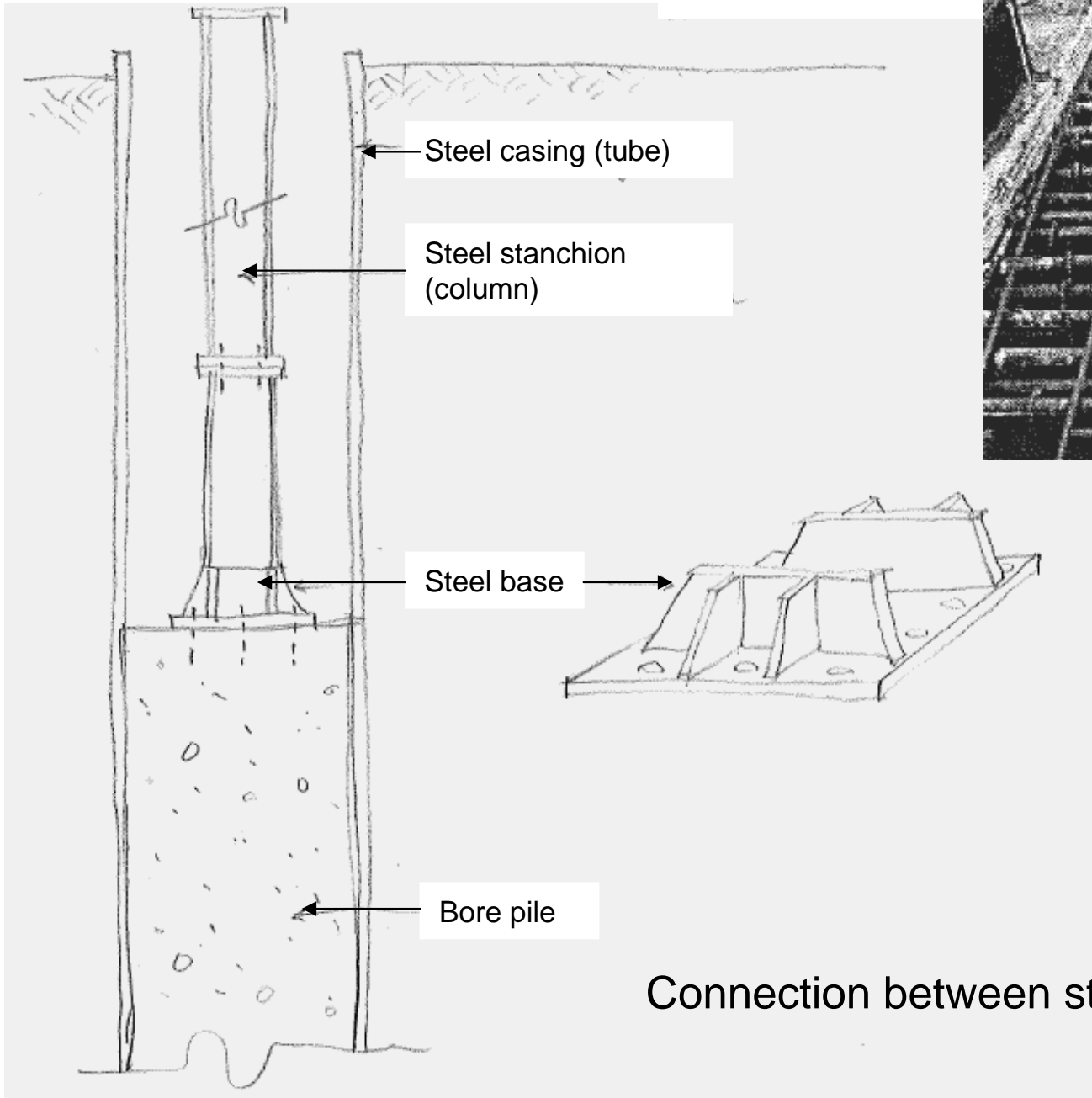


Illustration to explain the construction of basement using top-down method





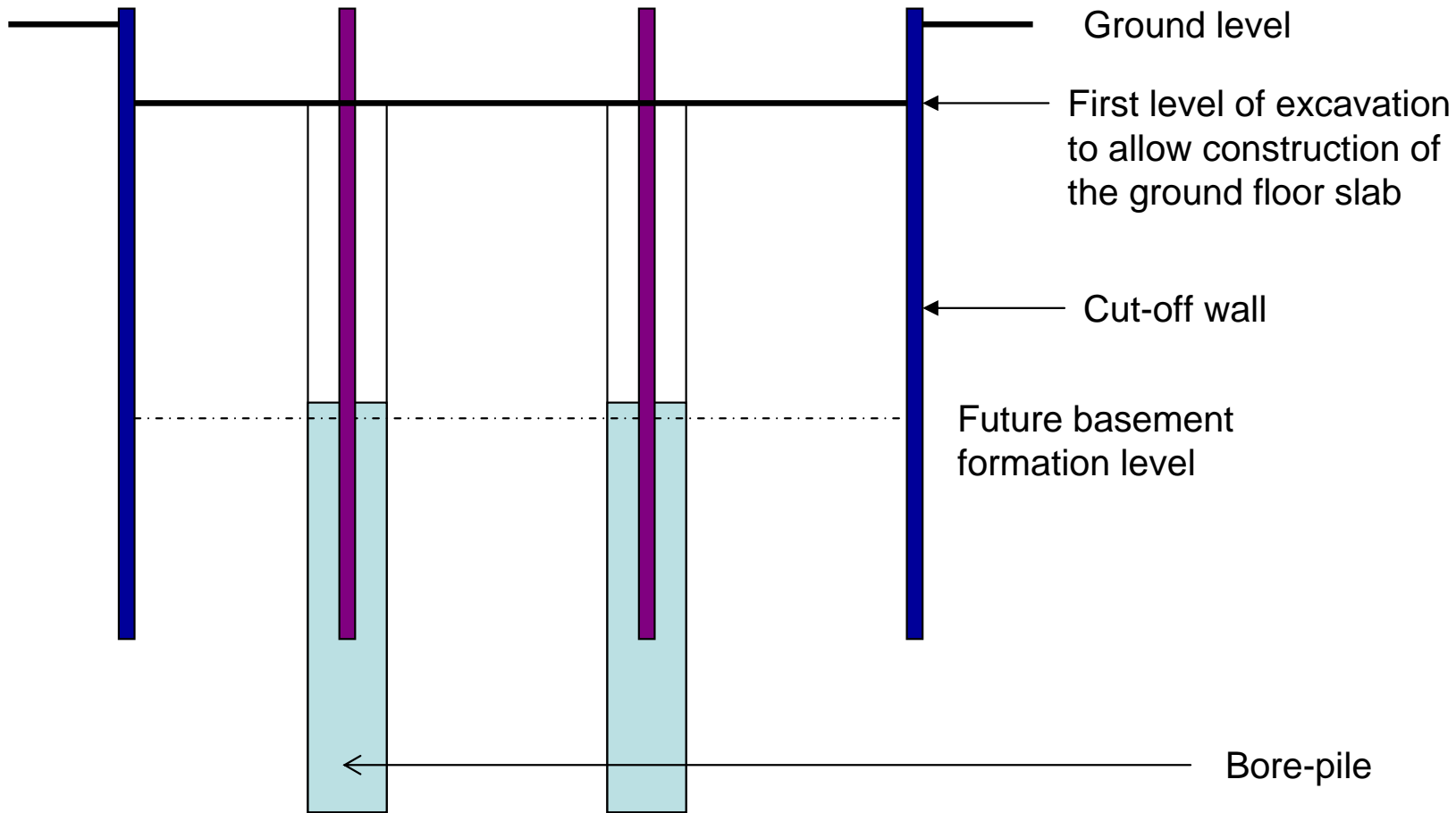
Steel base embedded into concrete for future connection of steel stanchion by welding

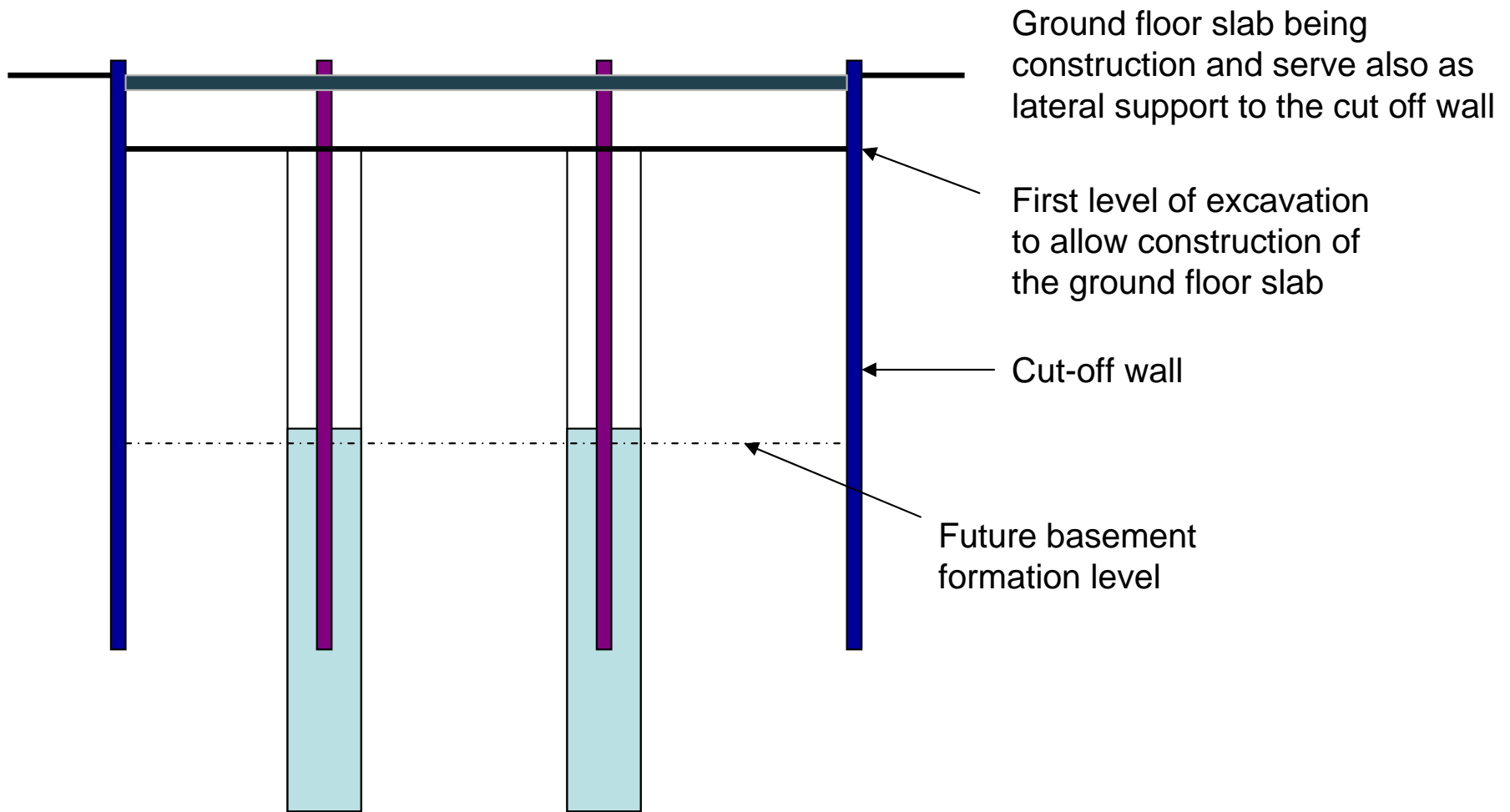


Connection between steel stanchion and bore pile



Steel stanchion (column) placed on top of the bore pile as support for top-down basement as well as permanent column for future structure





Ground floor slab being construction and serve also as lateral support to the cut off wall

First level of excavation to allow construction of the ground floor slab

Cut-off wall

Future basement formation level



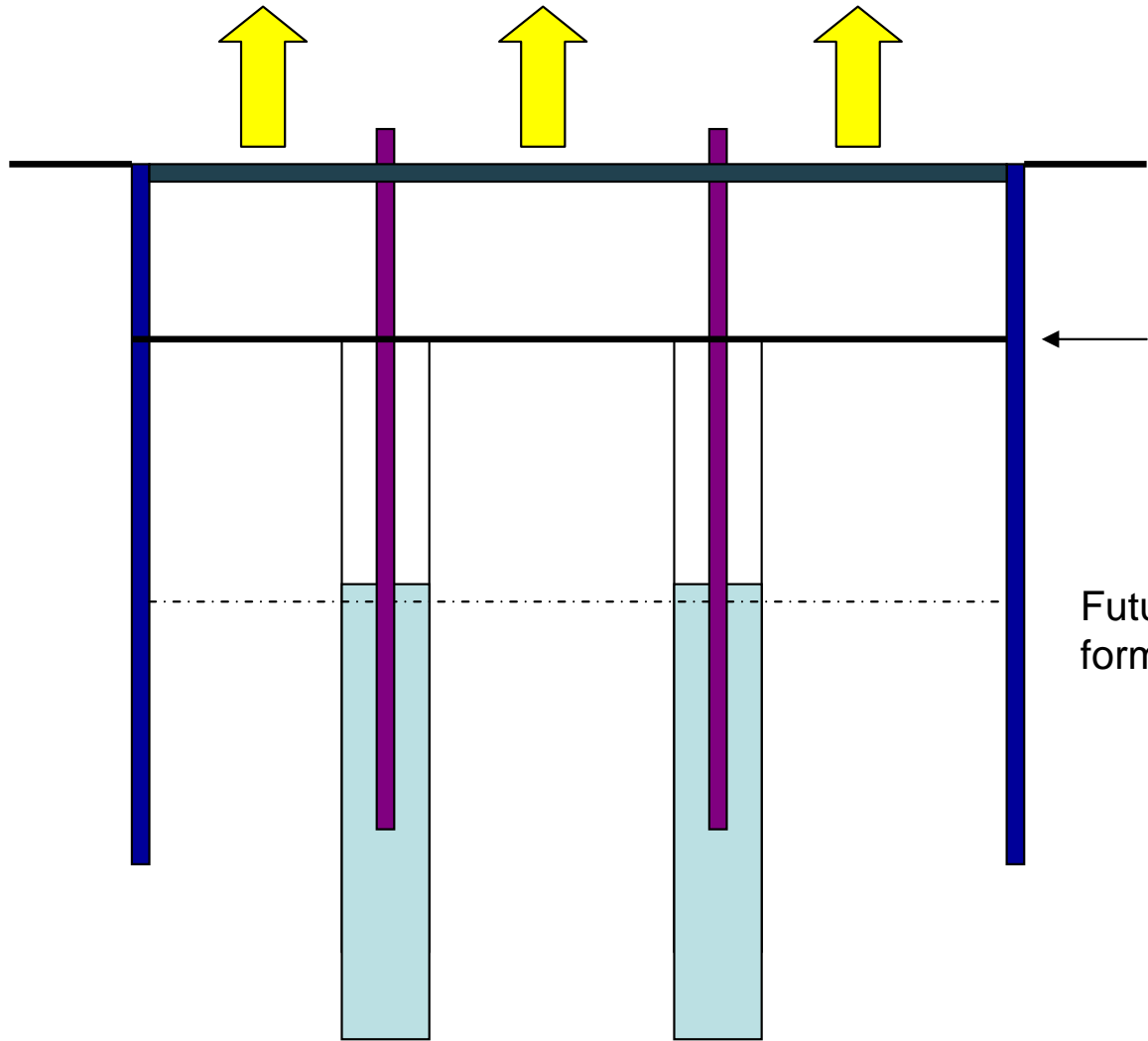
Completion of the ground floor slab and start to excavate downward for the first basement using the steel stanchions as support





Completion of the ground floor slab and start to excavate downward for the first basement using the steel stanchions as support

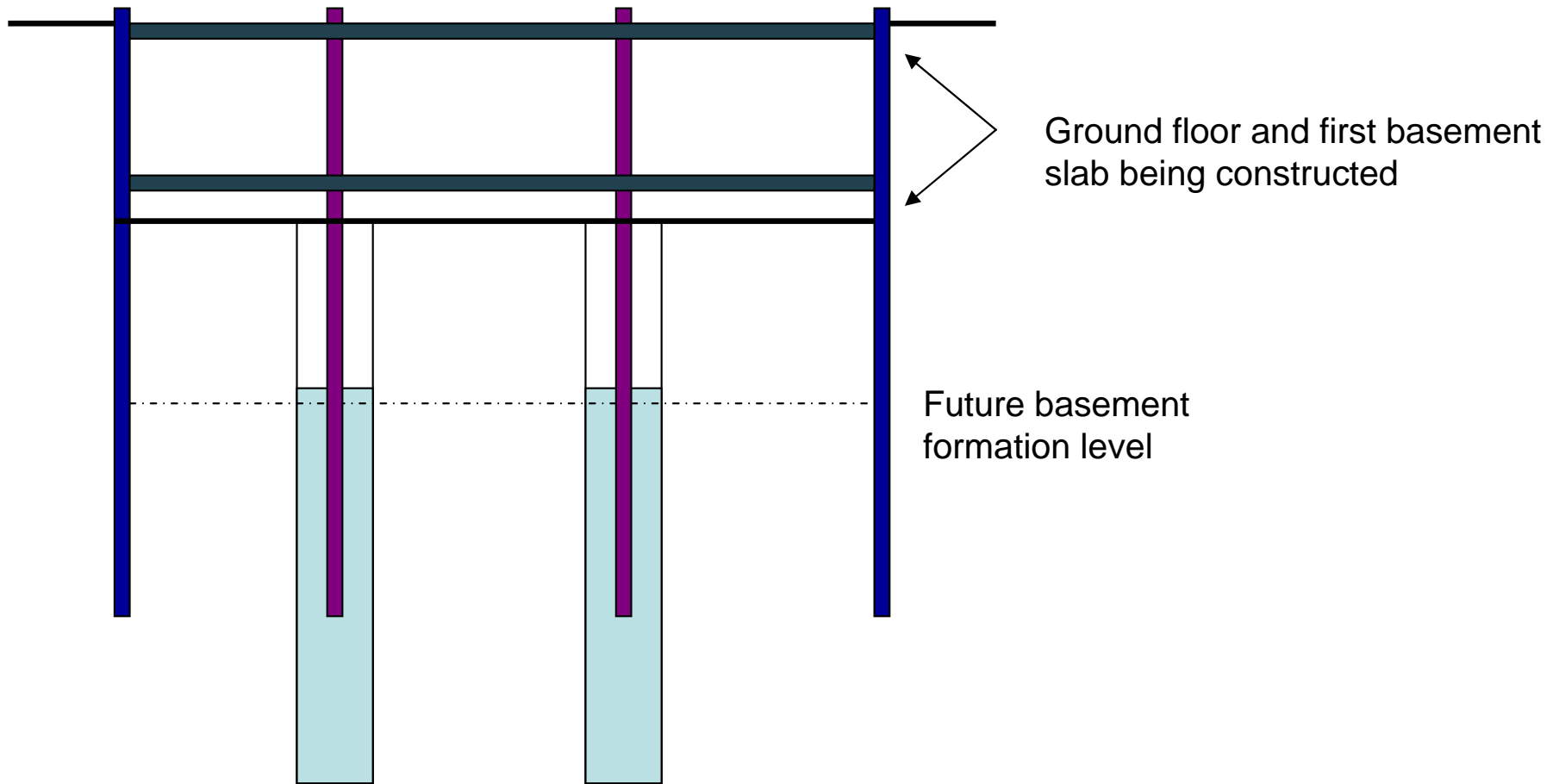
Superstructure can be constructed at the same time upon completion of the ground floor slab

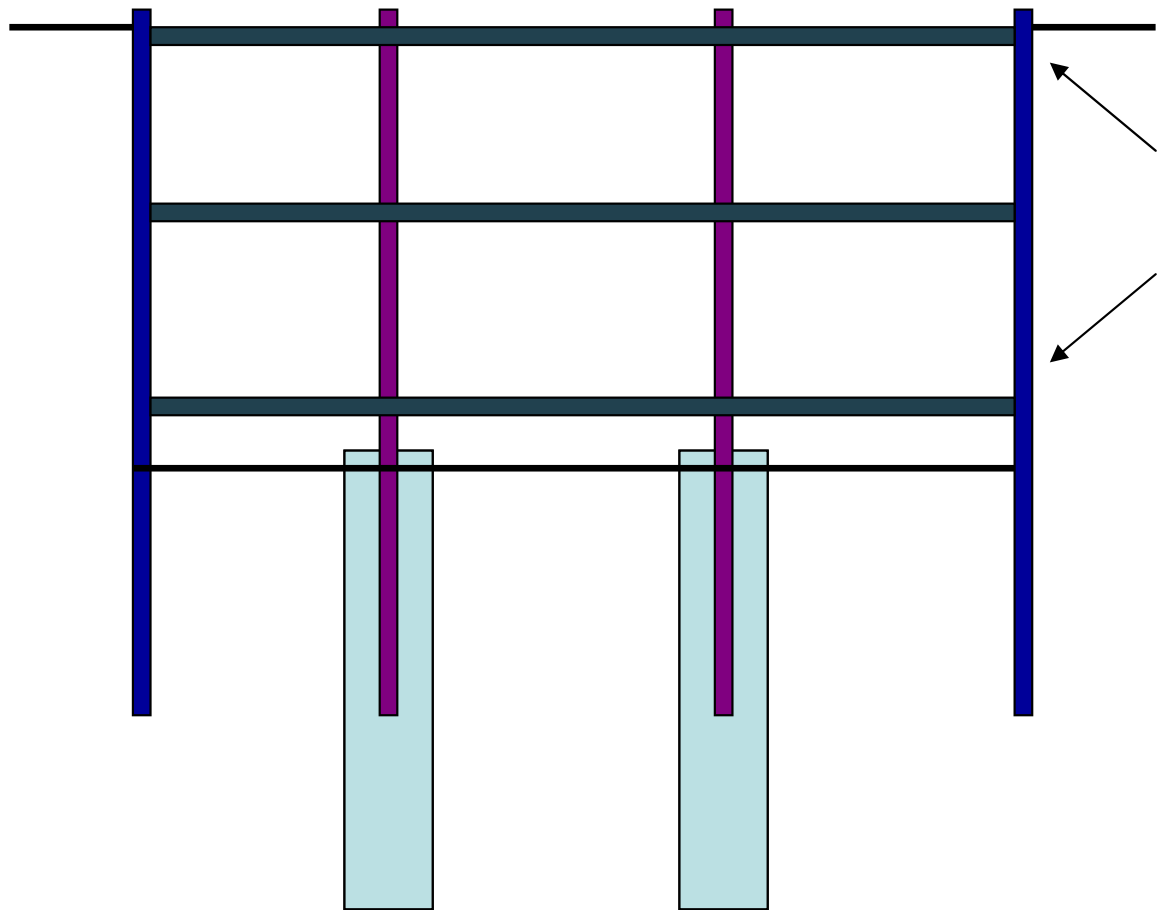


Ground floor slab being constructed and serve also as lateral support to the cut off wall

Second level of excavation to allow construction of the first basement slab

Future basement formation level





Excavation repeated until the completion of the entire basement

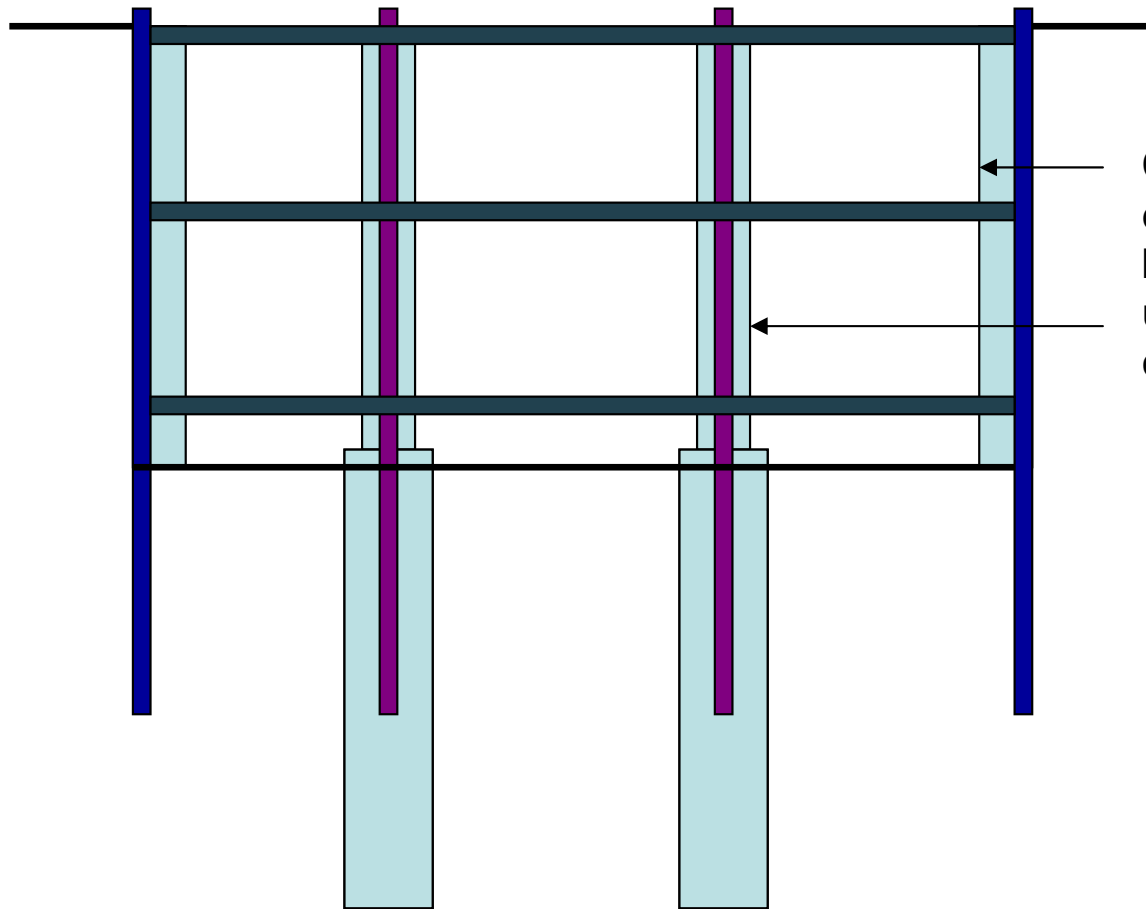


Excavation and construction of the basement slab using double-bit arrangement





Other work reality in top-down basement – congested work environment, complicated layout, difficult phasing of work as part of the construction planning



Cast the basement wall and encase the steel stanchion to become permanent columns, all using formwork and reinforced concrete



Basement steel stanchion finally encased with reinforced concrete to become permanent column