
Development of existing pile removal and backfill by casing cyclic shear removal method using circulation agitation

- Existing pile removal and backfilling method that can ensure the construction quality of new piles -

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The backfill borehole of existing pile by the casing cyclic shear removal method is unable to create a stable backfill area due to the effects of the drilling slurry properties in the borehole, the injection method of the backfill material and agitation methods. To solve these backfill borehole problems, a new method called the casing cyclic shear removal method using circulation agitation was developed. The results of scaled model experiments confirmed that the backfill material could be mixed uniformly by using a combination of the circulation agitation method and mechanical agitation. The results of on-site tests showed that entire boreholes were generally backfilled. The unconfined compression strength and the wet density of the backfill borehole increased with the increase of depth because of the consolidation and dehydrating effects. The effectiveness of the circulation agitation method for cement-bentonite water and the drilling slurry was confirmed.
