

12. Extracting

12.1 General

When piling is intended to serve only as temporary protection for permanent construction work, it can be extracted for re-use by means of suitable extractors either of the impact, vibratory or jacking type.

12.2 Measures to be taken before and during driving

When extraction of piles is foreseen, the following details must be taken into account: sheet pile section, sheet pile length, driving depth, subsoil data, embedded time and driving method. All these factors may create problems, as requiring very heavy extraction equipment or even making recovery impossible.

A slip coating on the inside of the interlocks reduces the friction.

In dense soils the use of sacrificial toe-protection shoes may be helpful. Immediately before driving, the shoe is put on the pile toe without welding. The protrusion of the shoe over the sheet pile creates a loosened soil zone along the surface of the pile.

For an evaluation of the required pulling force, the previous establishment of a driving record for each pile is very useful. This identifies the piles with the lowest resistance, thus defining the starting-point for the extraction work.

If driving records of the piles are not available, then the first pile to be extracted should be selected with care.

Piles near the centre of a wall should be tried until one pile begins to move.

If difficulty is experienced, then a few driving blows may be used to loosen a pile.

It may also be necessary to reinforce the head of the piles to aid the successful extraction of the initial pile.

Accurate driving of the piles in the soil makes extraction easier.

It may be necessary to increase the section to ensure good drivability and minimise damage to the piles.

12.3 Extraction

Vibrators and extractors of various sizes are available. They loosen the pile from its initial position, so that it moves with the help of the pulling force of the crane. The limit values of the extractors and crane loads given by the manufacturer must be respected.

The connection between pile and vibrator is made by hydraulic clamps, shackles and bolts.

Sometimes drilling or jetting is necessary to facilitate the extraction operation.

