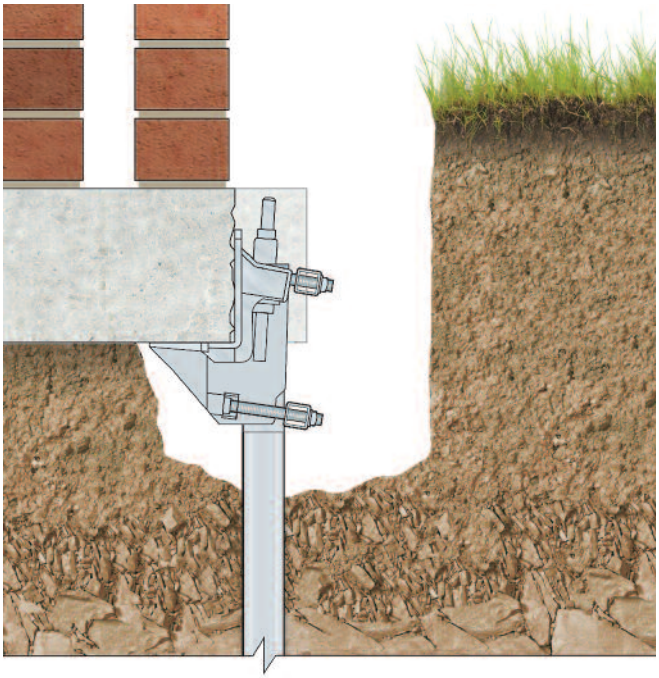
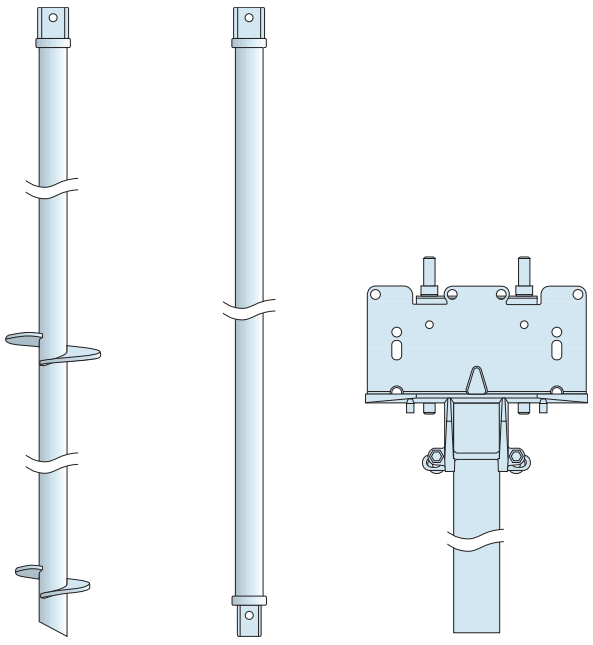
HELIFIX
SUSTAINABLE STRUCTURAL SOLUTIONS

Micro-piles

Efficient, economical and non-disruptive method of foundation stabilisation





Helifix DIXIE Pipe Pile System

For full Product Information, Case Studies and downloadable Repair Details go to:

www.helifix.co.uk/products/remedial-products/micro-piles

Applications

- Helifix DIXIE pipe piles provide structural support to a building's foundations following subsidence, with minimum disruption to the occupants
- Ideal for situations with restricted access
- Screws into virtually any soil type

Features

- Fully engineered solution
- International Code Council (ICC) certified system
- Conforms to AC358, the International Standard for helical foundation underpinning systems
- Pipe piles provide increased resistance to buckling and high ultimate loads
- Independently verified ratings up to 240kN
- Square connections simplify engagement and accelerate installation speed
- Rapid contract times with minimal disruption/noise
- Excellent on-site quality control given by established torque versus capacity relationship
- Each installed pile can be load tested
- Normally only hand-held equipment required
- No spoil removal or vibration
- Case histories available in a wide range of soil types and depths to 20 metres
- Complements Helifix Helibeam superstructure stabilisation systems, maximising pile centres
- Approved installer network

Installation Procedures

Helifix in-house engineers assess each situation and design repairs based on the damage, the weight of the individual property and the local ground conditions. Fully trained contractors supply and install the systems.

1. Minimal excavations are dug to the foot of the foundations at predetermined spacings.
2. A notch is cut in the footings to enable the pile's underpinning bracket to be located adjacent to the building wall to minimise the eccentric loading.
3. The helical pile is 'screwed' deep into the stable subsoil using lightweight, hand-held equipment until the specified torque is achieved. This determines the pile's load bearing capacity.
4. Adjustable 'L' shaped brackets are fitted to the piles and placed under the foundations.
5. The brackets are jacked up to mobilise the building load. Further subsidence is avoided with the building weight being fully supported by the piles.

View our installation animation

Helical Pile bearing capacity

The load bearing capacity of a helical pile is dependent on:

a. The strength of the soil – evaluated using standard techniques.
b. The projected area of the helical plates – plate surface area and number.
c. Depth of the plates below ground surface level.

Helical piles should be installed to an estimated depth based on soil investigations to ensure the required load bearing capacity is attained.

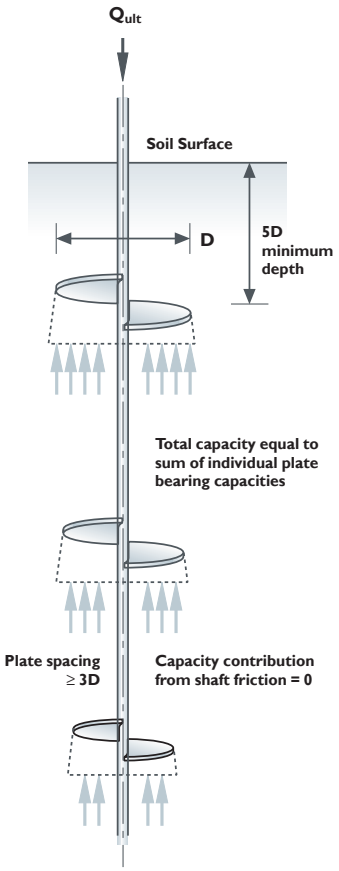
The soil behaviour mechanism is assumed to follow the theory that the overall capacity of the helical pile is equal to the sum of the capacity of the individual plates. Any friction contribution along the central shaft is generally ignored. The helical plates are spaced far enough apart to avoid overlapping of individual "pressure bulbs" to obtain best performance.

The following is Terzaghi's general bearing capacity equation to determine the ultimate capacity of the soil.

$$Q_{ult} = A_h (cN_c + q'N_q + 0.5\gamma'BN\gamma)$$

Where:

Q_{ult} – ultimate capacity of the soil, kN
A_h – projected plate area, m^2
c – soil cohesion, kN/m^2
q' – effective overburden pressure, kN/m^2
B – footing width (base width), m
γ' – effective unit weight of the soil, kN/m^3
N_c, N_q & $N\gamma$ – bearing capacity factors



Pile spacing

Having determined the capacity of the helical pile, it is recommended that the centre-to-centre spacing between adjacent piles be no less than five times the diameter of the largest plate.

Safety factor

Once the ultimate capacity of the helical pile has been determined an appropriate safety factor must be applied, generally a minimum of 2, to give an acceptable working capacity.
The appropriate level to be determined by the design engineer.

MacLean™ CIVIL PRODUCTS
DIXIE HELICAL - MVP - HIGH CAPACITY

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