hiperenergy™

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Hollow Pile

Where the hole is greater than the sum of its parts

→ Redefining sustainable construction

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Hiperpile constructed with a hollow void significantly reduce material use and embodied carbon, propelling us towards a net-zero future in the ground engineering industry.

Technical benefits and features

The hollow void is constructed using one of two methods:

- Where reinforcement and in-situ concrete is placed externally around a void forming liner positioned centrally to the bore
- Or using precast elements
  (see Precast data sheet for further details)

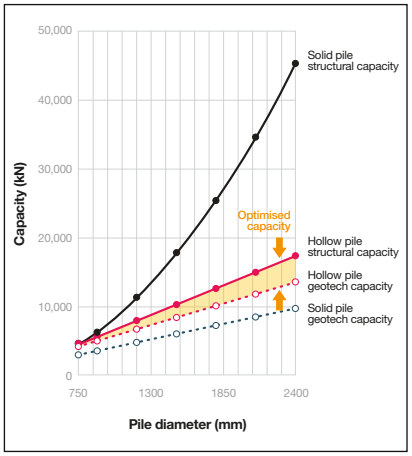
- In-situ hollow piles - Pile bored diameters of 750mm to 1500mm are available with a void ranging between 350mm and 1100mm in diameter

- The concrete wall thickness varies between 200mm to 300mm, dependent on structural loading conditions

- A solid base and top section provide base capacity and a suitable connection to the structure

- Axial, lateral and bending resistance are all designed in accordance with relevant codes and standards

- The Hollow pile is a patented product



Piled foundations are routinely designed with structural capacities that far exceed the geotechnical capacity; this unsustainable design results in the inefficient use of construction materials.

Central to the Hiperpile product is the hollow void, critical in reducing concrete volumes which is the primary contributor to the embodied carbon intensity of deep foundations.

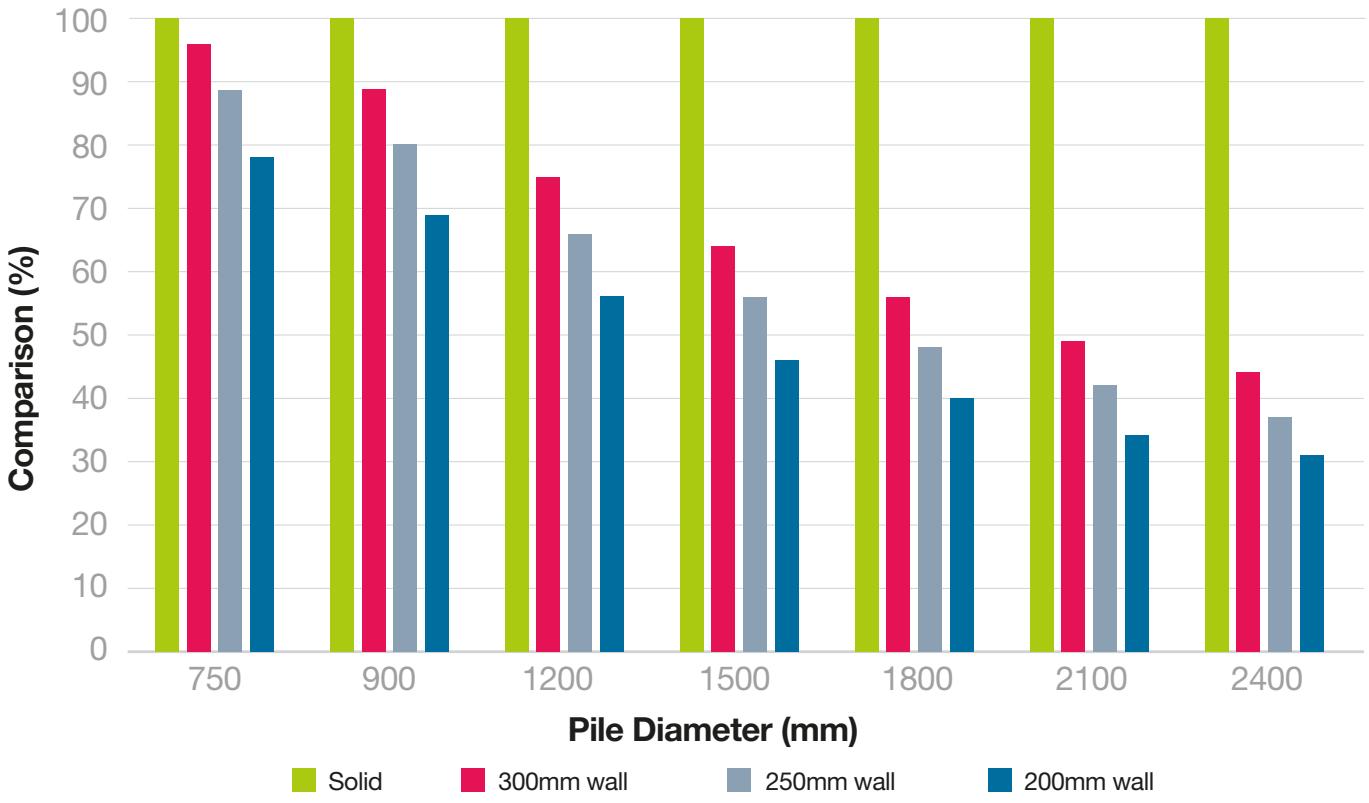
We have developed hollow void construction methodologies using cast-in-situ and precast techniques for a diverse range of structural loads and ground conditions.

Larger piles can support higher lateral loads and bending moments, therefore substructure pile caps can be reduced in size. Significant combined carbon savings are generated from smaller pile caps and large diameter carbon efficient foundations.

Tangible benefits

- Reduces material volume by 30%-70% (pile diameter dependent)
- Reduces embodied carbon by 20%-50%
- The hollow void unlocks geothermal energy storage and generation potential
- The hollow void may be utilised for storing backfill material or water attenuation
- Reduces associated material deliveries and vehicle movements by up to 40%
- Reduction in site activities and associated H&S and environmental risks
- Reduction in overall sub-structure carbon by reducing reliance on large pile caps

Hollow Pile material saving



In summary

The hollow pile optimises concrete consumption against structural load capacity; the larger the pile diameter, the greater the embodied carbon saving.

Additionally, hollow piles facilitate the transition from the traditional multiple-pile cap design approach to smaller pile caps or more resource-efficient monopile solutions.

hiperenergy™

St Andrew's House
Portsmouth Road
Esher, Surrey
KT10 9TA

T: +44 (0) 20 7643 1000
E: enquiries@hiperenergy.com
hiperenergy.com