

SECTIONAL FLIGHT AUGER PILING

RESTRICTED ACCESS

Sectional Flight Auger (SFA) piling enables the installation of piles in low-headroom environments or within restricted-access sites.

SFA piles are typically used in the same ground conditions as conventional continuous flight auger (CFA) piles. SFA piling is the preferred method where access is restricted or headroom is limited, and where CFA rigs are unable to operate.

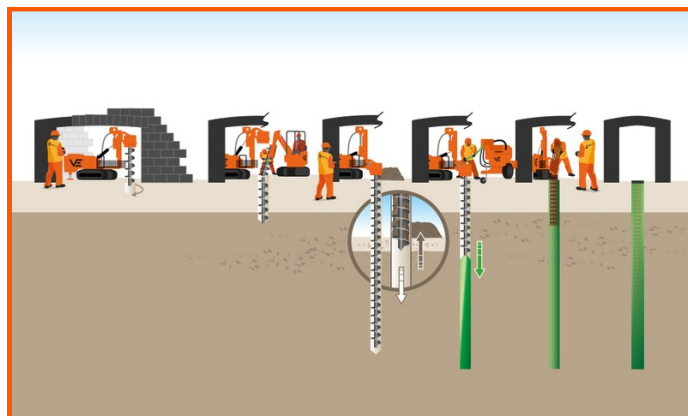
As a bored, soil-replacement piling technique, it is particularly suitable for operations within buildings, beneath structures such as bridges, or in other areas with reduced headroom and limited access.

We have the capability to construct piles up to 900 mm in diameter to significant depths, across a range of ground conditions throughout the UK.

These piles can be installed with headroom constraints as low as 3.75 m.

SFA techniques include adding and removing augers to achieve design depth and can also include the use of temporary casing where ground conditions require.

UNDERSTANDING SFA



The use of a specially developed fleet of rigs provides flexibility in both machine footprint and headroom capability, enabling installation in constrained environments.

SFA piles are constructed using sectional hollow-stem augers, which are bored into the ground.

Additional auger sections are added progressively to achieve the required design depth.

Upon reaching the design toe level, concrete is pumped through the hollow stem as the auger is simultaneously withdrawn. Auger sections are removed in stages during withdrawal.

The reinforcement cage is then inserted into the fluid concrete, with the top of the reinforcement set in accordance with the design requirements.



PROJECT ADVANTAGES

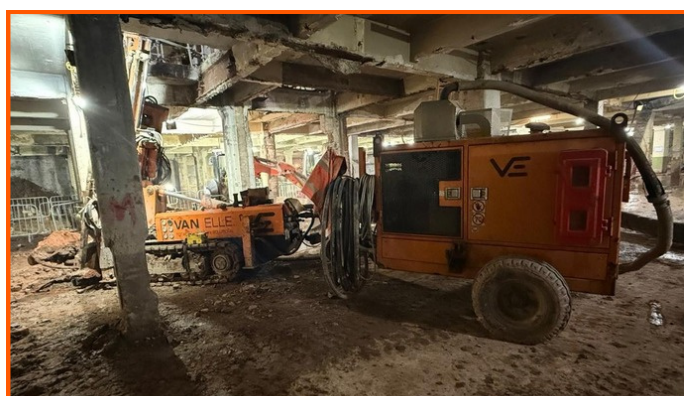
- Specific, purpose-built rigs suited to restricted-access environments
- Enables installation within buildings, beneath structures, or other low-headroom and logistically challenging sites
- No requirement for bentonite or polymer support fluids, with temporary casing available where ground conditions require
- Efficient, quiet and low-vibration technique, minimising disruption
- Cost-effective and versatile, suitable across a wide range of ground conditions
- Ideal for sensitive areas

EXAMPLE APPLICATIONS

- Structural foundations
- Sites with logistical or access constraints
- Low-headroom environments, including within existing buildings and beneath structures
- Contiguous and secant piled walls
- Rail infrastructure and other sensitive environments
- A wide range of ground conditions

TECHNIQUE CAPABILITIES

- **SFA** – 300mm to 900mm
- **Cased CFA/SFA** – 340mm to 1,000mm
- **Rotary Auger Bored** – 340mm to 1,000mm



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WILLENHALL AND DARLASTON STATIONS

Sector: Rail

Client: Network Rail

Foundation works were delivered for the new Willenhall and Darlaston Stations, a key scheme to reinstate the passenger rail link between Wolverhampton and Walsall.

Phase One comprised 98 No. SFA piles at Darlaston and 98 No. SFA piles at Willenhall, supporting the new platforms at both stations.

Phase Two at Willenhall comprised a twin guide wall incorporating 120 No. SFA and BCIP piles for a retaining wall, alongside 29 No. bearing piles for the lift, lift motor room and stairs.

SFA piling was well suited to the sensitive site conditions adjacent to live railway infrastructure, providing a lower-impact foundation solution with reduced noise, vibration and disruption to surrounding operations.

The project involved complex, multi-phase piling at both stations, with each site presenting specific foundation and earth retention requirements.

Works were carried out safely alongside live rail lines, overhead electrification and highways, without disruption to rail services.



ROYAL CLARENCE SCHEME

Sector: Infrastructure

Client: Nooko

Complex SFA piling works were delivered within a highly constrained city centre environment, with 162 No. SFA piles installed across the upper and basement levels. The works comprised 36 No. 300mm diameter and 126 No. 350mm diameter piles.

The works were undertaken within and around a listed, derelict building, requiring careful consideration to protect the existing structure and surrounding infrastructure.

SFA piling was selected as a less intrusive technique, helping to minimise vibration and reduce the potential impact on the existing material of the building and adjacent infrastructure.

Where obstructions were encountered below piling platform level, casing and down-the-hole hammer (DTHH) techniques were used to facilitate the SFA piling works.

Basement piling was completed using a Klemm 702, craned over existing structures to access the restricted work area, while a Klemm 708 operated on the upper levels.

