Sales@fli.co.uk
01452 722200

FLI structures

Screw Piles

A screw piled base can often be installed in a shift.

There is no excavation, cart away, steel fixing, concrete pouring or waiting for cube test results.

The environmental impact is low, with minimal ground disturbance, noise and vibration and no chemicals.

The piles can be removed and recycled or reused.

The superstructure can be fitted immediately after the piles.

Screw piles can be easily installed on slopes.

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FLI structures

Simple Install

Screw piles are usually installed in less than half an hour, so often the piles and superstructure can be installed in a single shift.

Connections allow for standard piling tolerance, so there is no need to survey positions and modify the superstructure to suit the as-built locations.

Piles can be installed on slopes without excavation that could undermine the track during build.

Screw piles give torque readings to validate the design and they are easy to test.

Screw piles are easy to adapt if torque isn’t reached or if there is early refusal.

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FLI structures

High performance compact foundations

Unlike most pile types, screw piles work in both tension and compression, so are ideal for cantilever structures like gantries and towers, with high overturning moments.

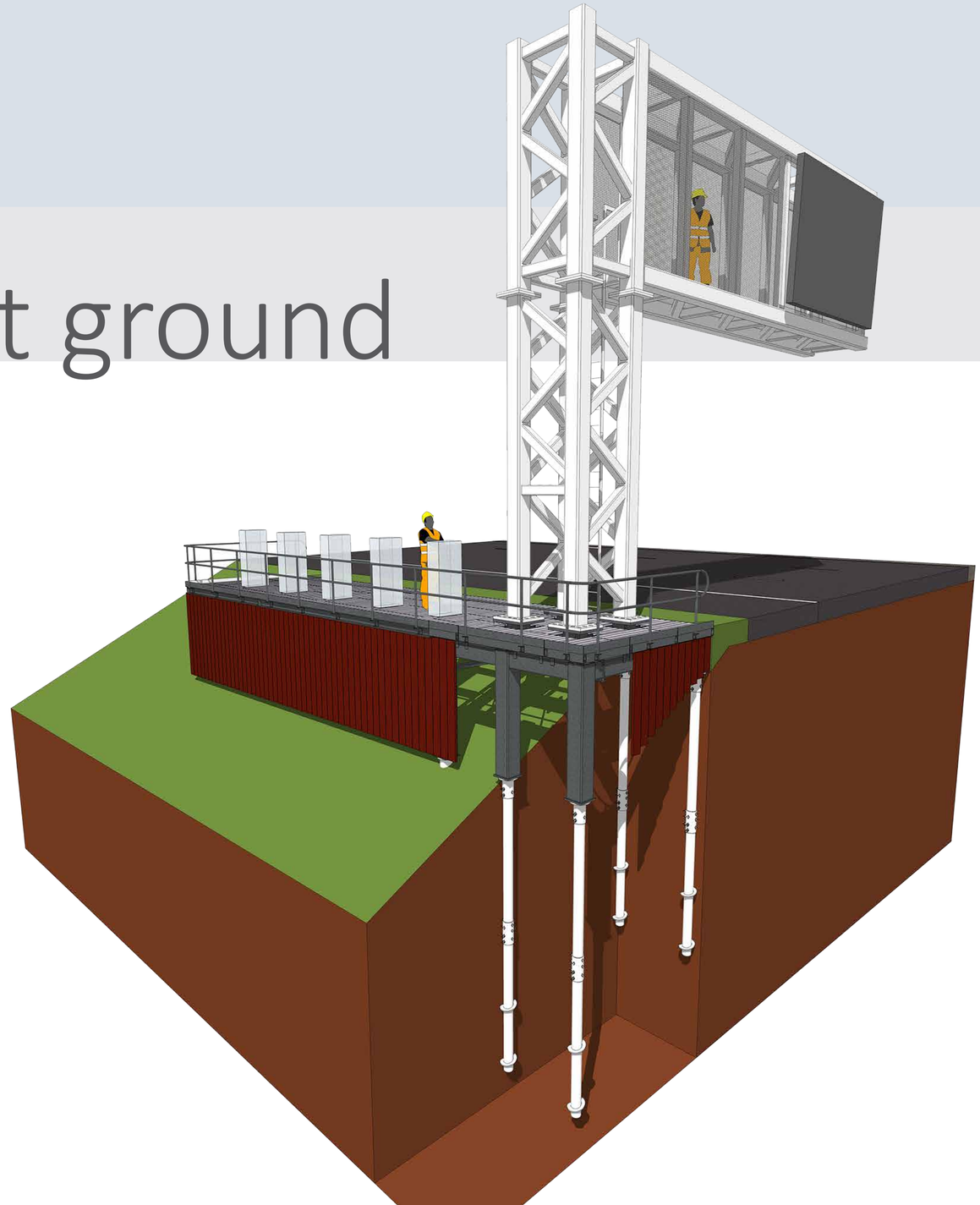
They are also a more compact option, particularly useful at constrained sites, such as the FLI gantry illustrated, installed on a narrow embankment for the Crossrail project.

FLI structures

Steep slopes and soft ground

Traditional concrete can be a difficult and expensive option on steep slopes, with sheet piling often required. Screw piles offer a simple and efficient solution which can cater for slopes with the addition of some simple bracing.

Screw piles offer an efficient solution for soft or made ground larger helices can be used to spread the load and the helices can be placed below the foot of the slope to avoid issues with slope stability.



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FLI structures

No excavation

Trial pit excavation spoil is reinstalled and compacted after the pile is installed so there is no cart away. This saves both time and cost particularly for larger installations.

The lack of excavation is particularly beneficial for sites with contaminated ground where disposal is expensive.

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FLI structures

No vibration / Minimal Impact

Screw piles are not installed by impact driving or vibration methods. Therefore, there is no vibration, and the noise is low.

They can be installed between protected tree roots, rather than removing them.

They offer an ideal foundation solution for installations close to historic structures, green spaces or forests.

The solution can bridge existing services or infrastructure to avoid relocation or diversion costs and disruption.

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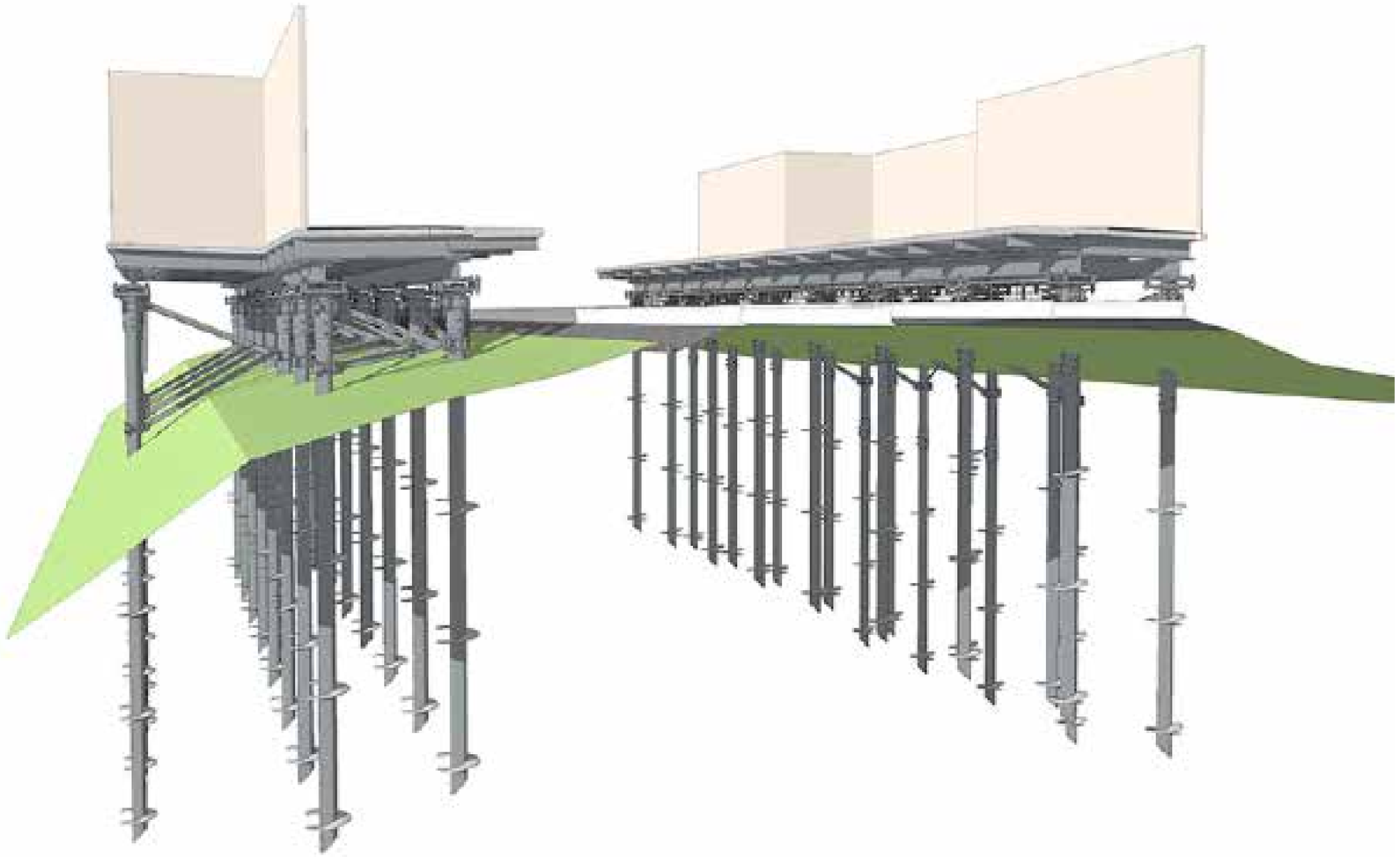
FLI structures

Low carbon emissions



The transportation of a screw pile solution is minimised compared to concrete wagons, dumper trucks and cart away vehicles. There is simply a delivery at the beginning and a motor collection at the end. Plant use is also less, as site time is minimised.

At the end of the structure's life, the foundations are simply unscrewed from the ground and recycled or reused, with no need to break out concrete and crush up. While the precise carbon emission reductions are case dependant, they are significant.

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FLI structures

Bridge existing concrete or services

Redundant foundations from decommissioned structures do not have to be broken out and existing services do not have to be re-routed.

FLI designs grillages that span over existing infrastructure.

The illustration is a grillage for a telecoms tower.
The original tower has been removed but the foundation remains to avoid disruptive and noisy breaking out in a tight site. Installing a new base on a tight site might require sheet piles as there may be no space for overdig. Screw piles also require less space than a new concrete base, so enable a larger new tower to be installed, without having to extend the site demise.

FLI structures

Low cost flood mitigation

The need for flood risk mitigation for substations and other infrastructure, is growling and it’s costly.

Screw piles offer a simple, quick and cost-effective solution.

Longer piles can be installed with bracing to raise the superstructure above ground. No plinths or walls are needed- just a few steel steps.

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FLI structures

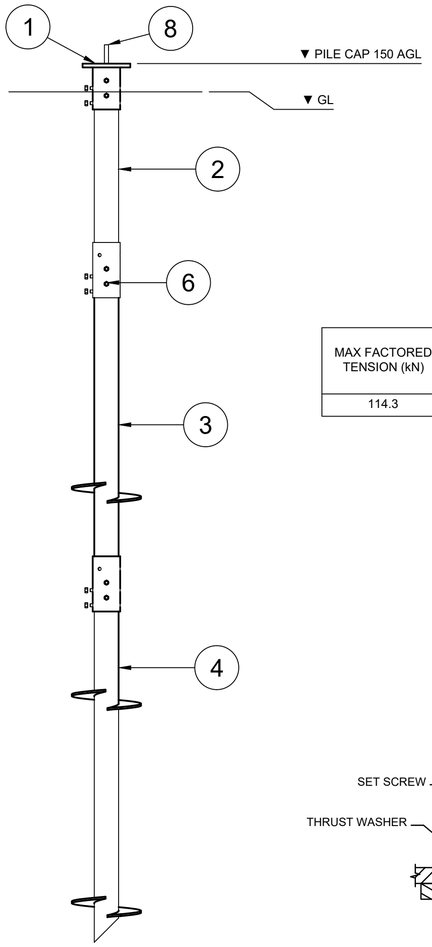
Screw Pile Design

FLI's design engineers and detailers deliver standard or bespoke solutions based on superstructure loadings, GI and topographical information.

FLI offers a large range of screwpiles to support a variety of structure types and loads.

FLI is the only UK company that can offer superstructure and foundation solutions on a turnkey basis.

FLI can also design other foundation solutions where appropriate, including micropiles, driven piles and concrete bases.



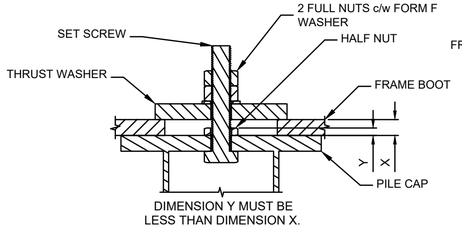
SCREW PILE FOUNDATION

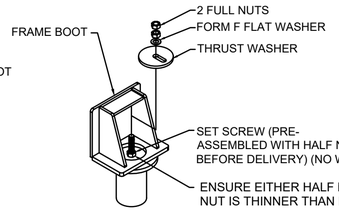
ITEM	DRG No.	PART No.	DESCRIPTION	WT (kg)	QTY
1	193C	193C	PILE CAP TO SUIT Ø193.7 CHS PILES (135 TO FIRST BOLT)	43.3	12
2	193E	193E1.5	Ø193.7 CHS PILE EXTENSION SECTION (1500 B-B)	105.4	12
3	193E	193E2.5	Ø193.7 CHS PILE EXTENSION SECTIONc/w 1 No. Ø550 HELICES (2500 B-B)	186.1	12
4	2363-L1	2363-L1	Ø193.7 CHS PILE LEAD SECTION c/w 2 No. Ø550 HELICES	212.6	12
5	------	-------	M24x260 LG B-N-FW(SHANKED)(GALV)	1.6	144
6	------	-------	M36x200 LG B-2N-FW(FORM 'F')(GALV) ONE HALF NUT	2.7	12
7	------	SPARE	M24x260 LG B-N-FW(SHANKED)(GALV)	1.6	12

TOTAL WEIGHT = 6853.6 kg

MAX FACTORED TENSION (kN)	MAX FACTORED COMPRESSION (kN)	TEST LOAD 150% OF TENSION (kN)	MINIMUM INSTALLATION TORQUE REQ'D (kNm)	MAX TORQUE NOT TO EXCEED (kNm)	PILE LENGTH (m)	RECCOMMENDED TORQUE MOTOR
114.3	175.4	114.3	31.8	77.6	7.000	PD60-02

PILE TOLERANCES	
HORIZONTAL (PLAN)	±75mm
LEVEL	±3mm
VERTICALITY	±0.5°





IF IN DOUBT ASK

UNLESS OTHERWISE STATED:-
MATERIAL:- GRADE AS PER FLI LTD FORM 11G
FINISH:- GALVANISED TO BS EN ISO 1461
DIMENSIONS:- MILLIMETRES (mm)
WELD INSP.- AS PER NSSS LATEST EDITION ANNEX 'B'
TOLERANCES:-

CUT LENGTH	± ±2mm
HOLE CENTRES	± ±2mm
ANGULAR CUT	± ±0.25°
FABRICATED ASSY	± ±3mm
PCD	± ±1mm

CERTIFIED TO EXECUTION CLASS EXC2

NON PRELOADED BOLTING ASSEMBLIES TO BS EN 1504-1

NOTES:-

1. ALL DRAWING NOTES RE FOR GUIDANCE ONLY. REFER TO RELEVANT METHOD STATEMENT FOR INSTALLATION INSTRUCTION.
2. BOLTS SHALL BE MADE "SNUG TIGHT" ACHIEVABLE BY THE EFFORT OF ONE MAN USING A NORMAL SIZE SPANNER.
3. PILES NOT TO BE TERMINATED SHORT EVEN IF DESIGN TORQUE IS REACHED.
4. POSITION & ORIENTATION OF PILES ARE TO BE DETERMINED BY CONTRACTOR ON SITE.
5. EXCAVATE INSPECTION PITS BY HAND OF SUFFICIENT DIAMETER TO ALLOW CABLE DETECTION EQUIPMENT TO BE CORRECTLY OPERATED AT ITS BASE. THE INSPECTION PIT SHALL BE ADVANCED AND CABLE DETECTION UNDERTAKEN IN 250MM INCREMENTS TO A DEPTH OF 1M, OR AS OTHERWISE DIRECTED IN THE RELEVANT METHOD STATEMENT.. ONCE THE PILE IS INSTALLED,BACKFILL ANY VOIDS AROUND THE PILE WITH SITE WON GRANULAR MATERIAL OR IMPORTED TYPE 1 MATERIAL USING A HAND TAMPER. BACKFILL MATERIAL IS TO BE COMPACTED IN LAYERS OF NO MORE THAN 200MM AND UNTIL NO FURTHER COMPACTION BY HAND TAMPER CAN BE ACHIEVED. IF A PILE CAP IS FITTED THEN ADJUST THE PIT DIAMETER ACCORDINGLY TO ALLOW COMPACTION.
6. DESIGNS ARE CARRIED OUT IN GOOD FAITH BASED ON THE GROUND INVESTIGATION DATA PROVIDED BY THE CLIENT. RISKS ARISING FROM UNFORSEEN GROUND CONDITIONS FALL TO THE CLIENT.

ISSUE	DATE	MODIFICATION	CKD
A		FIRST ISSUE	

FLI structures
FRANCIS & LEWIS INTERNATIONAL LTD
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DATE: 04/11/2022	SCALE:	F&L REF: 2363
DRN: NC	CKD: HN	APP'D:

CUSTOMER

ORDER No.

TITLE
SCREW PILE DRAWING