

# CASE STUDY PARC LLANDAF, CARDIFF



## PILING

### CLIENT

**Taylor Wimpey**

### SCOPE OF WORKS

**Continuous Flight Auger  
(CFA) Piles  
Driven Tubular Steel Piles  
Driven Precast Concrete Piles**

### ACHIEVEMENTS

**Completed on time  
Completed on budget**

## Project Brief

Roger Bullivant Limited was approached by Taylor Wimpey Homes to provide piled foundation services for their project, which includes constructing 3 apartment blocks, 36 three-story townhouses, 15 two-story houses, and their accompanying garages. These structures will be built on a 10.5 acre site, formerly the home of BBC Wales Broadcasting House.

The RB South Wales team presented plans suggesting the use of Continuous Flight Auger (CFA) piling for the apartment blocks and Driven Tubular Steel Piles for the housing units.



**ROGER BULLIVANT**

T. 0845 838 1801 [roger-bullivant.co.uk](http://roger-bullivant.co.uk) [info@roger-bullivant.co.uk](mailto:info@roger-bullivant.co.uk)

# PILING



## Key Issues/Requirements

- To address the issue of ground heave caused by the removal of trees, Roger Bullivant utilised Driven Tubular Steel Piles, socketed into the bedrock. This approach was taken for specific piles that needed customised design.
- The site's ground conditions consisted of a layer of man-made soil on top of a mixture of gravelly clay and weathered mudstone (piles found in the mudstone).

## Solution

- 3 Apartment blocks – 450mm dia. CFA Piles (Total 352 no.)  
Town Houses – 178mm dia. Driven Tubular Steel Piles (307 no.)  
2 Storey Houses and associated garages – 140mm dia. Driven Tubular Steel Piles (260 no.)
- To ensure effective penetration of the mudstone layer, the 140mm and 178mm dia tubular steel piles were installed using RBL 5500 series rigs. These rigs were chosen over the 3000 series rigs as they accommodate a heavier 5.5t hammer.
- For the installation of CFA piles to the apartment blocks, an RBL Geax EK110 rig was employed.
- The pile loads ranged from 400kN to 1200kN, depending on the specific requirements.
- Given the presence of numerous existing trees on the site, it was necessary to design the piles to account for potential ground heave. Our chosen solution involved using Driven Tubular Steel Piles into the mudstone layer, fully concreted, and reinforced throughout their entire depth.
- Piles were tested using both dynamic and integrity testing as design and installation verification.
- As the development is surrounded by residential houses, it was crucial to closely monitor noise and vibration levels. SOCOTEC supplied specialised equipment that provided real-time readings, enabling both our team and the client to ensure that agreed-upon thresholds were not exceeded.