

# CASE STUDY

## Porth, South Wales



## RESIDENTIAL

### CLIENT

Castell Group

### TECHNIQUES

Overburden Drilling System & RBeam

### ACHIEVEMENTS

Working to and achieving a tight programme.

Successfully completing a challenging footprint on a restricted site.

### Project Brief

Roger Bullivant Limited (RBL) was employed to deliver a foundation solution for a residential apartment development in South Wales for Castell Group. The project required the installation of the Overburden Drilling System (ODS) set into firm strata to establish a stable foundation. After completing the piling phase, the beam installation team installed RBL's precast ground beam system, RBeam, providing a comprehensive foundation solution.

The site presented significant challenges, including varying ground levels, limited access, and an irregular footprint that demanded precision in planning and execution. Despite these obstacles, RBL completed both the piling and beam work on schedule, supporting the client's accelerated project timeline. The work was completed within six weeks, enabling the site to be handed over for the next stage of construction without delay.



**ROGER BULLIVANT**

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## Key Issues & Requirements

- **Limited Site Parameters:** The project was located on a constrained site, with tight boundaries and minimal space for staging construction activities. The restricted space required coordination among trades and precise timing of equipment use to optimise efficiency.
- **Difficult Access for Deliveries:** Due to the urban location of the site, delivery access was restricted, especially for larger vehicles. Narrow roads, nearby residential buildings, and limited turning space complicated the delivery of materials and equipment.
- **Multi-Level Site:** The site's natural topography presented challenges with multiple elevation levels, making excavation, piling, and foundation work more complex. Installing piles and beams required precise adjustments to accommodate these changing levels, and additional equipment and techniques were necessary to stabilise and level the working areas. Precast RBeam was selected to deal with the multi-level configuration of the foundation negating the requirement for numerous starter bars and stub columns.
- **Local Resident Concerns (Noise and Traffic):** The project was situated in a residential area, where residents expressed concerns about construction-related noise and increased traffic. To address these concerns, noise-reducing techniques and equipment were used wherever feasible, and work schedules were optimised to minimise peak-hour disruptions. Clear communication channels were established with residents to keep them informed about the project's timeline and any anticipated impacts. Additionally, a traffic management plan was implemented to control and mitigate congestion, ensuring that deliveries and on-site activities had minimal impact on the local community.

## Solutions

- **ODS Drilled Piles in Hard Strata:** To ensure stability in challenging ground conditions, RBL installed 220mm diameter ODS Drilled Piles. Given the hard strata on-site, the team drilled each pile position to a depth of 3 meters using this system which helped alleviate resistance from the firm layers, allowing the steel tubes to achieve their design lengths more efficiently and securely. This approach minimised vibrations, reducing noise and disruption for nearby residents.
- **Accommodating Site Constraints with Multiple Platform Levels:** RBL implemented staged work areas and constructed temporary access ramps where needed to facilitate the movement of equipment between levels. This allowed for smooth transitions across elevations, optimising safety and workflow even in constrained site areas.
- **Customised Beam Installation for Non-Standard Foundation Layout:** RBL installed 246 linear meters of RBeam across multiple levels, adapting to the site's unconventional layout and varying elevation changes. The atypical layout required a flexible and adaptive approach to beam placement, with customised measurements and cuts to fit the unique shape of the foundation. By carefully mapping out the layout and adjusting for level changes, RBL was able to ensure the beams were installed precisely, providing a stable base for the apartment structure despite the site's challenging configuration.
- **Difficult Logistical Solutions for Urban Deliveries:** RBL coordinated closely with delivery teams to pre-schedule material drop-offs at precise times, ensuring that equipment and materials were on hand exactly when needed without congesting the limited on-site space.



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- ↘ Noise and Traffic Mitigation to Address Resident Concerns: With the site located in a residential area, RBL took proactive steps to minimise noise and traffic concerns from residents. Noise-reducing techniques were deployed wherever feasible. To address traffic concerns, RBL developed a comprehensive traffic management plan, including designated entry and exit routes, scheduled delivery times, and off-peak material transportation. The team also engaged with the local community through regular updates and open communication channels, keeping residents informed about the project schedule, anticipated impacts, and planned mitigations.

