

CASE STUDY

Winter Gardens, Great Yarmouth



COMMERCIAL

CLIENT

VINCI Building

TECHNIQUES

Permanently cased
bottom-driven steel piles

ACHIEVEMENTS

Sensitive piling solution
delivered within restricted
access and working
space.

No impact on
neighbouring wildlife
or existing Victorian
structure.

Project Brief

Roger Bullivant Limited (RBL) was selected to provide a piling solution to support a £12.3 million renovation of Winter Gardens in Great Yarmouth. The project, carried out by VINCI Building, is heavily funded by the National Lottery and will improve the existing building by turning it into an exciting public space on the promenade.

The Winter Gardens is the UK's last surviving Victorian ironwork glass house of this type, making the protection of the existing structure a key factor throughout the project. RBL's piling works supported the restoration of the structure whilst enabling the wider programme to progress safely.

Project Manager at VINCI Building commented,

“Thankyou for helping us develop what turned out to be the most appropriate solution for delivering the piling package in a challenging environment. Despite a few complications with the ground, the delivery of the package was smooth and allowed us to complete our enabling contract within programme. We appreciate the RBL team's efforts in maintaining good health and safety standards, and look forward to working with you on the next one.”



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Key Issues & Requirements

- Severely constrained internal working space, as the structure was fully supported by a complex temporary scaffold system throughout the works.
- Challenging ground conditions, typical of a coastal location were comprised of sand and not well suited to the initially proposed wet cast piling solution.
- Environmental sensitivity, with neighbouring wildlife at the Sea Life Centre. Although ground conditions were favourable for driven piles, concerns were raised regarding vibration and the potential impact on aquatic creatures.
- Heritage protection requirements, including minimising vibration and disturbance to the existing Victorian glass and ironwork frame.

Solutions

- Due to RBL's experience in working in constrained, sensitive environments, the proposed wet-cast solution and associated risks presented cost and programme implications for the piling works and follow-on activities.
- Therefore, the team proposed a permanently steel-cased bottom driven piling solution. Tests were undertaken to validate pile performance, confirm achievable depths and monitor the vibration levels in real time.
- The test piles showed that the solution could be installed safely and efficiently, with vibration levels remaining within acceptable limits. Continuous monitoring confirmed that there was no impact on the neighbouring Sea Life Centre, and more importantly, its wildlife. There was also no effect on the existing glasshouse structure.
- Following the successful trials, the full piling works were carried out using the pre tested solution. This provided the required structural performance while respecting the environmental, heritage and logistical constraints of the site.



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