# Retaining Wall Solution for Ainley Industrial Estate Development

## ELLAND - WEST YORKSHIRE - United Kingdom



| TYPE OF PROJECT | YEAR OF CONSTRUCTION | CLIENT | CONTRACTOR | DESIGNER |
|---|---|---|---|---|
| **Reinforced Soil Walls And Slope Reinforcement** | **2021** | **Royd Developments** | **Edwards Excavations** | **Williams Walling** |

PROD. RELATED
**MACWALL ()**

# Challenge

Royd Developments was commissioned to deliver a major industrial development at Ainley Industrial Estate, requiring the construction of a new warehouse, an associated lorry turning area, and a conveyor bridge linking the new facility to an existing warehouse.

A key challenge was the creation of a stable development platform within a constrained site footprint. To maximise usable space and meet the client's layout requirements, the scheme required the construction of two large retaining walls. Phase 1 involved a retaining wall measuring 126 metres in length and 7.4 metres in height, while Phase 2 required a 58 metre long wall at 6 metres high.

Due to the limited available space and the need to optimise the development layout for heavy vehicle access and operational efficiency, a near-vertical retaining wall solution was identified as the most suitable approach. The solution also needed to accommodate additional structural elements, including piled warehouse foundations and conveyor bridge supports, without compromising stability.



AINLEY INDUSTRIAL ESTATE DEVELOPMENT



MacWall Landmark - note positive connection

# Solution

Maccaferri provided technical support and engineering expertise to deliver an efficient and cost-effective retaining wall solution using the MacWall Landmark segmental reinforced soil wall system.

The MacWall system combines a high-performance segmental retaining wall with geogrid soil reinforcement, enabling the construction of near-vertical structures while maintaining long-term stability. The system features a durable and visually appealing split-face concrete block finish, making it suitable for industrial and commercial developments.

Geogrid layers are installed within compacted structural backfill to create a reinforced soil mass, while a free-draining stone column positioned behind the facing blocks enhances drainage and durability. The system incorporates a secure mechanical connection using a locking bar, which fixes the geogrid within a recessed channel in the concrete blocks. Subsequent block courses interlock to ensure structural integrity and prevent movement.

A significant benefit of this project was the use of site-won 6I/6J material as structural backfill. This reduced the need for imported aggregates, delivering both cost savings and environmental benefits by minimising transport and quarrying impacts.

The design also accounted for complex foundation requirements. The warehouse was supported on piles extending below the retaining wall foundation, ensuring no additional load was transferred to the wall. For the conveyor bridge supports located within the reinforced soil zone, Maccaferri worked closely with the construction team to modify the geogrid layout. This allowed the foundations to be installed without affecting the performance or stability of the retaining wall system.

The MacWall Landmark system provided a robust, space-efficient, and sustainable retaining wall solution, enabling the successful delivery of the industrial development while meeting both structural and environmental objectives.



MacWall Landmark under construction



Curved layout to the ends of the wall



MacWall Landmark nearing completion - Phase 1 - adjacent



MacWall Landmark nearing completion - Phase 1

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