

Southern Rail Systems Alliance: Pembroke Rail Cutting



Project Details:

Client: Southern Rail Systems Alliance

Principal Contractor: Colas Rail

Location: Pembroke, South Wales

Application: Trackside Drainage
in Challenging Ground Conditions

System Used: Trough and Stacker Drainage Units

Project Overview

The Pembroke Rail Cutting project presented a complex drainage challenge that required innovative solutions and precise execution. Located in South Wales, this trackside drainage installation demonstrated the capability of modular drainage systems to overcome significant ground conditions and infrastructure constraints while delivering exceptional performance.

Working as part of broader rail renewal works, the project required completion within tight rail possession windows, making efficiency and reliability critical factors in the solution design and installation process.

The Challenge

- Shallow bedrock severely restricted excavation depth for traditional drainage solutions
- Telecoms infrastructure presence further limited layout options and routing possibilities
- Curved, uneven terrain required drainage route to follow complex topography
- Tight rail possession windows as part of broader renewal works demanded rapid, efficient installation
- Performance requirements needed to achieve target discharge rate of 42 litres per second

Objectives

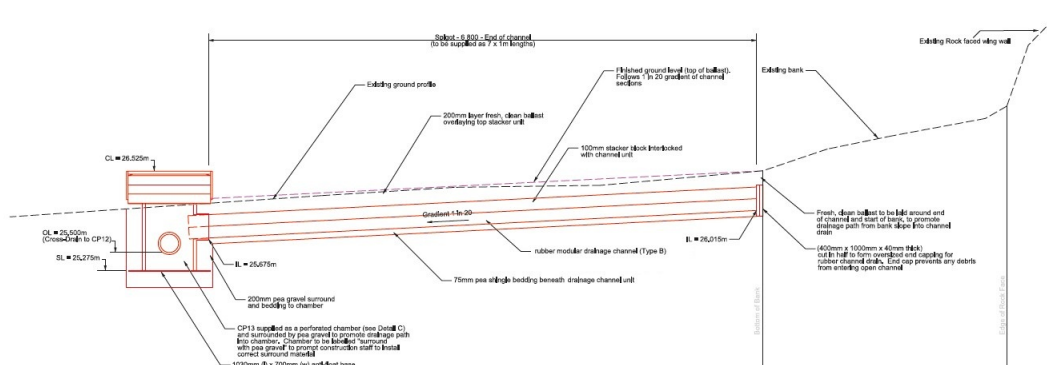
- 1 Install effective surface water drainage to collect runoff from rock cutting
- 2 Work around existing infrastructure and bedrock constraints
- 3 Complete installation within limited project timeline
- 4 Achieve specified discharge rate for water management

The Solution

- Modular drainage system installation along the cutting with precise 1:20 longitudinal gradient
- On-site cutting and stepping of units while maintaining complete flow continuity
- 75mm compacted pea gravel bed provided stable, well-draining support base
- 50mm Drainage Mat units strategically positioned to protect trough from sediment build-up
- Modular system flexibility allowed adaptation to ground constraints without performance compromise

Results

- ✓ Target discharge rate achieved: 42 litres per second flow capacity successfully delivered
- ✓ Constraint adaptation: Successfully navigated ground and infrastructure limitations
- ✓ Schedule compliance: Installation completed on time with no delays to broader renewal works
- ✓ Performance integrity: No compromise to hydraulic performance despite complex installation requirements
- ✓ Operational success: System remained fully functional and effective post-installation



“The system can overcome challenges we encounter on site regularly. The ability to cut and step the units without impacting the performance was extremely useful under a time-restricted install.”

Bill Smalley – Construction Manager

Contact us:

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