Maccaferri’s motto is ‘Engineering a Better Solution’. We do not merely supply products, but work in partnership with our clients, offering technical expertise to deliver versatile, cost effective and environmentally sound solutions. We aim to build mutually beneficial relationships with clients through the quality of our service and solutions.

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MACCAFERRI APPLICATIONS

RETAINING WALLS & SOIL REINFORCEMENT

HYDRAULIC WORKS

ROCKFALL PROTECTION & SNOW BARRIERS

EROSION CONTROL

SOIL STABILISATION & PAVEMENTS

BASAL REINFORCEMENT

COASTAL PROTECTION, MARINE STRUCTURES & PIPELINE PROTECTION

ENVIRONMENT, DEWATERING & LANDFILLS

DRAINAGE OF STRUCTURES

TUNNELLING+

LANDSCAPE & ARCHITECTURE

SAFETY & NOISE BARRIERS

FENCING & WIRE AQUACULTURE NETS/CAGES

CONCRETE FLOORING, PRECAST & OTHER USES +

In 2014, Maccaferri and Bekaert entered a global sales and distribution joint venture: Bekaert Maccaferri Underground. The companies operate in China, Hong Kong, Argentina, Brazil, Paraguay, Peru and Uruguay. In these countries the companies act independently.

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The demand upon railways in the UK and Ireland is increasing. The challenge for civil engineers is to deliver rail infrastructure assets that:

- Are more resilient
- Have superior performance
- Cost less to build and maintain
- Are better for the environment

Whether building a new railway asset or maintaining an existing one, Maccaferri can help clients, designers and contractors achieve these goals.

SUPPORTING RAILWAY INFRASTRUCTURE

Uniquely, we are a manufacturer of construction materials as well as a designer and installer of engineered solutions. We tailor the extent of our involvement on each project to meet the specific needs of our clients and the project.

We offer:

- Material supply only
- Technical support and advice
- Design service and supply
- Design, supply and install
- BIM capable service

Quality Management and control in our factories and technical support services ensure you receive reliable, robust and safe solutions.

OUR SOLUTIONS

Selecting from a broad portfolio of solutions we endeavour to "Engineer a better solution". Our experience enables us to combine products in new ways in order to maximise value for our clients and to enable the re-use of site-won materials whenever possible delivering:

- Lower carbon footprint
- Lower consumption of imported materials
- Being the manufacturer of our materials, we are able to customise products to reduce wastage and optimise solutions.

Many of our products are BBA certified, CE marked and subject to the rigours of European Technical Approval (ETA). This provides reassurance of performance.

Visit maccaferri.com/uk/rail for more information, Technical data sheets, case histories and more.

"Whether building a new railway asset or maintaining an existing one, Maccaferri can help clients, designers and contractors achieve these goals."
LIMITED SPACE
NARROW CORRIDORS OR WIDENING THE ROUTE

Where a restricted permanent way corridor exists, the use of cost-effective retaining walls and soil reinforcement can reduce compulsory purchase and optimise the developable area.

Reinforcing soils with geogrids enables them to perform better than in an unreinforced state: standing steeper, accommodating higher loads and settling less.

We endeavour to reuse site-won materials as structural backfill wherever possible through the use of soil reinforcement, saving costs and reducing carbon footprint.

Terramesh® and Green Terramesh® combine the benefits of a modular, rapid to construct system with the resilience of soil reinforcement. Structures up to 75m high have been constructed using our technology.

For lower height structures, gabion walls are amongst the most cost-effective retaining structures to build. State-of-the-art protective coatings to the wire mesh ensure long design life, even in adverse conditions.

A variety of face-finishes and slope angles are available to suit all project demands. Our MacRes® vertical faced concrete panel structures and MacWall® concrete block walls both feature soil reinforcement geogrids attached to their facing elements.

A softer vegetated slope aesthetic is available with Green Terramesh®. Native species can be planted on the slope.

Our ParaLink®, ParaGrid®, ParaWeb® and ParaDrain® geogrids are made in Yorkshire, England and are among the most tried and tested geogrids in the world.

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SOLUTION PORTFOLIO

MacRes® & ParaWeb® at Reading Viaduct
MacWall® for London Underground

Gabion walls on Borders Rail
Green Terramesh® used for bridge abutment
Green Terramesh® supporting a railway line
Terramesh® System
Mitigating and limiting the effects of natural hazards reduces risks to rail users and expensive line closures.

To suit the wide variety of soil, rock and cutting types across the UK and Ireland, we offer a range of rockfall mitigation meshes. In this way we can optimise the performance of the solution.

Our Dynamic Rockfall Barriers, available up to 8,600kJ energy absorption capacity are certified and CE marked in accordance with ETAG 027.

We even offer digital monitoring systems which trigger alarms in the event of a rockfall barrier or mesh system being impacted. This can assist inspection and maintenance responsibilities and regimes.

Our high-strength/low-strain drapery meshes capture and contain falling rocks; the mesh stiffness minimises deflection under load to keep the kinetic envelope open. Our meshes offer tensile strengths from 50kN/m to 250kN/m, and offer punching resistance up to 400kN with very low deflection.

In the vicinity of the coast, or in exposed locations the use of a polymer protective coating on the rockfall mesh is necessary to deliver long-term reliability.

Erosion control and slope stabilisation

Controlling erosion caused by weathering is important before it causes structural instability of the slope. MacMat® geomats, often in conjunction with soil nails, provide immediate erosion protection and the ability to revegetate the slope.

We offer a graded range of products to suit the erosion risk on the project, from biodegradable mats up to high-strength long-term geomats.
MACCAFERRI | EFFICIENT SOLUTIONS FOR RAILWAY WORKS

UNSTABLE & SOFT GROUND
POOR GROUND AND THE EFFECTS OF WATER

Inevitably, railways have to traverse poor ground conditions. Overcoming these difficulties cost-effectively is a challenge.

The innovative use of ultra-high performance ParaLink® to provide basal reinforcement of rail embankments is increasingly used by forward-thinking clients.

Management of water in the vicinity of the permanent way is an important technique to limit its detrimental effects. Hydraulic works including channeling and river bank protection are common problems we solve with our range of hydraulic works solutions.

ParaLink® geogrids have the toughest protective sheathing, enabling their use in the most challenging geotechnical conditions including:

- Soft ground stabilisation
- Construction over voids, solution features or old mine-workings
- Piled embankments – ParaLink® can enable the pile spacings to be increased saving cost and time

ParaLink® is simple and rapid to install increasing construction efficiency and solving large site problems quickly.

MacDrain® drainage geocomposites placed beneath the embankment or track bed serve to remove water from the soil, improving its characteristics.

In contrast to traditional gravel drains, MacDrain® performance is lab-tested, providing long-term reliable drainage capability. It also removes the need for quarrying and importation of drainage gravels, improving the environmental impact of the solution.

MacDrain® and Reno Mattress® are used extensively to construct weirs and culverts to convey water courses beneath and around railway infrastructure.

Water management

Controlling the effects of water and reducing the impact of flooding, relies on effective design and robust solutions.

Our Reno Mattresse® and gabions made from flexible double twist hexagonal mesh are important solutions to protect against the erosion of river banks, bridge abutments and water courses.

The dynamic hydraulic environment demands a flexible mesh as well as a long-lasting, abrasion resistant polymeric coating to the mesh.

Gabions and Reno Mattress® are used extensively to construct weirs and culverts to convey water courses beneath and around railway infrastructure.
ASSISTING CONSTRUCTION ENABLING A BETTER NETWORK

Access to remote sites
Access tracks to remote construction areas and haul roads often traverse soft ground. Our MacGrid® geogrids and MacTex® geotextiles stabilise these soft soils. Reinforcement within the granular construction layers reduces rutting and maintenance of haul roads. Similar techniques are employed in the creation of working and piling platforms, enabling the access and use of heavy construction equipment.

Stabilising and containing ballast
Large aperture MacGrid® geogrids interlock with track ballast, limiting its movement under cyclical loads. Further improvements are realised when MacDrain® drainage geocomposites, placed beneath the ballast are used to collect and remove unwanted water from the track construction (or embankment) layers.

Safety and noise barriers
Our DURAF® double-faced reinforced soil structures are used as both safety and noise barriers where the line is adjacent to buildings or other infrastructure. Safety barriers with almost limitless impact energy absorption capacity are possible. Our soil reinforcement technology enables the soil to stand far steeper than normal, reducing the required footprint (“land take”) of the barrier.

Railway station structures
Gabion retaining walls, architectural cladding and soil reinforcement are regularly used within the construction of station facilities, car parks and access ways. Our asphalt reinforcement meshes, Road Mesh® and MacGrid® AR, also increase the fatigue life of car parks and housing areas.

Speed of construction
Our Cubiroc units are pre-filled gabions. They are lifted into the works to rapidly form retaining walls, hydraulic works structures, or for emergency repairs. Pre-Filled off-site and transported into the works, Cubiroc adds speed of construction to the traditional benefits of gabions, increasing productivity during track possessions.

ParaFence® at Channel Tunnel

Badger & rabbit protection mesh
Badgers, rabbits and other burrowing animals can quickly damage embankments or cuttings. Our flexible steel meshes and our MacMat® R secure slopes and provide long term prevention against these problems.

System resilience
Excess and sudden wind loading can destabilise rolling stock. Our ParaFence® wind fencing reduces wind loading by up to 90% and can be deployed in critical locations to enhance safety.

Traditional structure performance
Drainage of water, from behind or adjacent to structures (concrete, masonry or tunnels), traditionally uses gravel drains. MacDrain® drainage geocomposites replace these gravels reducing cost yet improving performance. MacDrain® is lab tested to offer long-term drainage function and does not become clogged with fine soils. Finally, less quarrying and transportation of gravels reduces the environmental impact of the solution.