

HYDRAULIC WORKS

MACRA SOFTWARE

The Macra design software supports engineers in the design of hydraulic protection within channels.

Bespoke cross-sections can be modeled in conjunction with the selected hydraulic erosion protection.

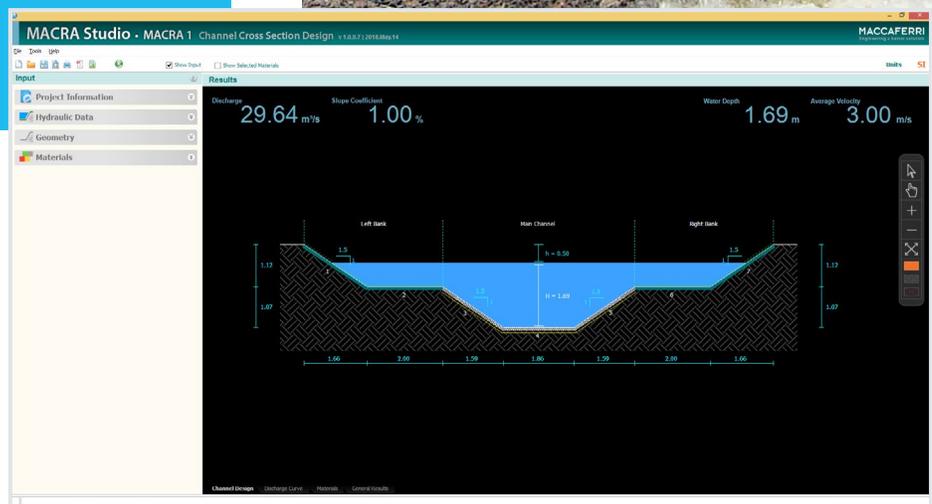
The performance of the channel can be checked for unvegetated and vegetated conditions, alerting the designer to a potential lack of conveyance capacity and overtopping.

A library of channel soil types, natural materials, soil bioengineering techniques and erosion protection materials are included within the software database.

The design criteria are based on scale and full-size model tests.



*Click here to
download our
software*



ENDURING HISTORY

Our experience in hydraulic works started in the 1890's when Maccaferri provided the emergency repairs to a breach in the dam at Casalecchio di Reno; the dam controlled the water supply which powered the industries of Bologna, Italy.

With our specialist knowledge and comprehensive product range, we offer clients a graded, logical range of hydraulic erosion protection techniques from soil bioengineering solutions through robust high-energy capacity structures.



MACCAFERRI'S HYDRAULIC SOLUTIONS

M STRENGTH: our double twist wire mesh has protected generations of people worldwide from hydraulic related disasters; some of our oldest structures are still standing today, over 100 years later.

M PERFORMANCE: our double twist wire mesh solutions are naturally free-draining, ideal for hydraulic solutions. A build-up of water pressure beneath a revetment or behind a structure is dissipated rapidly through the Reno Mattresses and Gabions; vital in tidal rivers or within flood prone areas.

M DURABILITY: our hydraulic solutions feature **PoliMac**, our most advanced and durable coating capable of withstanding highly aggressive environments including long-term UV, chemical exposure, and low temperatures.

M PROVEN: our products are independently tested and certified in accordance with the strictest international standards.

M QUALITY: our solutions use the highest quality raw materials and provide world-class engineering with custom design and manufacturing capabilities.



Channeling Works

These river training works protect the channel banks and bed to limit the effect of hydraulic shear forces, preventing erosion, scour, land-loss and sedimentation. This is particularly important in urban areas, adjacent to communities and infrastructure. Incorporating soil bioengineering techniques within these solutions rapidly promotes vegetation of the banks.

Longitudinal Structures

Revetments are suitable where the slope has localized shallow surface failures that do not affect the global stability. Solutions, including **Reno Mattresses**, **MacMat R** and soil bioengineering, provide immediate erosion protection and the ability to revegetate. Where the river bank is structurally unstable and require retaining, a variety of structures are suitable such as **Gabions**, **Terramesh** and **Green Terramesh**.

Transverse Structures

These structures prevent erosion and contribute to the stabilization of river beds and water quality by dissipating energy of the flow. **Gabions and Reno Mattresses** are perfect for weirs, drop structures, dams, and culverts. They are flexible and simple to install in poor soils and mountainous regions for flood control.



Bridge Protection

Our modular double twist wire mesh **Gabions, Reno Mattresses and Sack Gabions** offer ideal scour protection as they are flexible, permeable and long-lasting. Where the contractor is not able to work in the dry, these units can also be pre-filled and conveniently lifted and placed into the works.



Waterproofing of Reservoirs, Lakes & Channels

Our package of geosynthetics includes **MacLine**, impermeable membranes and geosynthetic clay liners, **MacTex** woven and non-woven geotextiles for protection, filtration and separation, and **MacDrain** drainage geocomposites, which are used in conjunction with our traditional materials to create protected lining systems for hydraulic works.



Soil Bioengineering

Naturalization of our engineering structures is a positive environmental benefit. This additional ecological value can be achieved with the careful selection of solutions to support vegetation either naturally, e.g. siltation of the void volume within Gabions and **Reno Mattress**, or during installation, e.g. **GeoMac**, live-staking and planting.



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Engineering a Better Solution

Maccaferri's motto is 'Engineering a Better Solution'; we don't 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 through the quality of our service and solutions.

OFFICINE MACCAFERRI GROUP PROFILE

Founded in 1879, Officine Maccaferri soon became a technical reference in the design and development of solutions for hydraulic works and retaining structures.

Since then, through technological innovation, geographical expansion and focussed diversification, Maccaferri now offers solutions at a global level for a wide range of civil, geotechnical, and environmental engineering applications.

ORGANIZATIONAL STRUCTURE

Officine Maccaferri is at the heart of the Maccaferri Industrial Group, a corporation with revenues of €1.2B, operating in mechanical engineering, real estate & construction, energy, food & agro-industry and tobacco.

Officine Maccaferri's vision is to become a leading international provider of advanced solutions to the civil engineering and construction market. With nearly 3000 employees, over 30 manufacturing facilities and local operations in 100 countries around the world, Maccaferri can truly claim to have a global presence with local focus.

MACCAFERRI APPLICATIONS

 RETAINING WALLS & SOIL REINFORCEMENT

 SOIL STABILIZATION & PAVEMENTS

 DRAINAGE OF STRUCTURES

 FENCING & WIRE

 HYDRAULIC WORKS

 BASAL REINFORCEMENT

 TUNNELLING*

 AQUACULTURE NETS/CAGES

 ROCKFALL PROTECTION & SNOW BARRIERS

 COASTAL PROTECTION, MARINE STRUCTURES & PIPELINE PROTECTION

 LANDSCAPE & ARCHITECTURE

 CONCRETE FLOORING, PRECAST & OTHER USES*

 EROSION CONTROL

 ENVIRONMENT, DEWATERING & LANDFILLS

 SAFETY & NOISE BARRIERS