

ROCKFALL DRAPERY PROTECTS POWER STATION CENTRAL MANIC 2 (BAIE COMEAU), QUEBEC, CANADA

Rockfall Protection

Product: Steelgrid® HR30 Mesh + HR-Link Connectors

Problem

The Jean-Lesage generating station, formerly known as Manic-2, is a dam located 22 km from Baie-Comeau and is built on Manicouagan River.

Following a series of minor rockfall events, a geomechanical rock slope investigation and analysis was undertaken by Hydro Quebec in order to assess the condition and stability of the near vertical rock cuts around the generating station infrastructure.

Solution

Following the results of the analysis and investigation, it was determined by Hydro Quebec that a rockfall drapery system would be required to mitigate the rockfall hazards. Maccaferri Steelgrid® HR30 was ultimately selected as the most appropriate drapery system.

The Class A Zn/Al galvanisation was important to achieve the required design life for the project. Additionally, the geocomposite nature of Steelgrid® HR30 was deemed to mean that the mesh could be installed more efficiently than a conventional mesh+cables installation.

Steelgrid® HR30 was installed on the 120m long rock slope, with runs of mesh covering the slope for heights of up to 40m.

HR-Link connectors were used for the selvedge-selvedge (beta) connection - at nominal 160mm spacing in accordance with the manufacturer's instructions.



General overview of rock slopes protected with Steelgrid HR



Detail of the 8 mm longitudinal cable of Steelgrid HR

Owner/Operator

HYDRO QUEBEC

Designer:

LOCAL CONTRACTOR

Products used:

5,000m² Steelgrid HR30 + HR Links

Date of construction

September - October 2012

The **Steelgrid® HR** system is a new woven steel geocomposite mesh for geotechnical, rockfall mitigation and slope stabilisation applications. The Class A Zinc-5% Aluminium alloy coated ropes and wires offer a considerable extension in design life even in adverse environments.

Steelgrid® HR is a geocomposite product, based on "Double Twist" mesh technology. The double twist construction of the mesh prevents it unravelling (unlike single twist or 'chain link style' meshes) in the event of accidental wire breakage or damage during use. **Steelgrid® HR** is made by interweaving high tensile steel wire ropes longitudinally into high resistance double twist mesh during the manufacturing process to form a single "geocomposite" product. The ropes lie straight within the finished mesh providing exceptional strength and stiffness (high strength at low strain). **Steelgrid® HR** mesh is made from wires and ropes both protected with a Zn-5%Al alloy - Galmac® - galvanised coating to Class A levels. **Steelgrid® HR** is available in a range of variants, 30, 50 and 100, each offering different strengths.

Note that in North America, Steelgrid HR is known as Rockmesh M4000.



Steelgrid HR30 mesh after installation



Steelgrid HR30 mesh with ice accumulation



Steelgrid HR30 mesh with ice accumulation

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