

# SPRUCE TRAIL PORTAL PROTECTION

LAKE CRESCENT, PORT ANGELES, WA

## ROCKFALL PROTECTION - PINNED DRAPERY

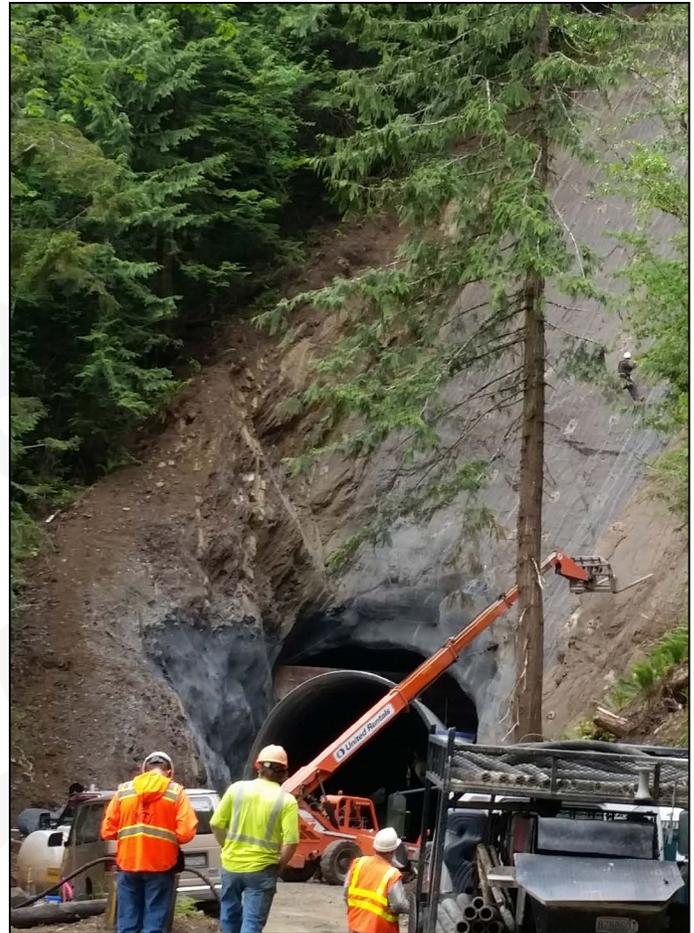
**Product:** [ROCKMESH™ 30100](#)

*The National Park Service and Clallam County, Washington teamed up to rehabilitate sections of the Spruce Railroad Trail including a 450 ft, 100-year-old tunnel. The rock cliffs surrounding the entrance of the tunnel posed a danger to construction crews and delayed the schedule of the project. To solve this, the contractor teamed up with Maccaferri to install a pinned RockMesh™ system to protect from falling rock.*

### Problem

In early 2017, Clallam County, along with the National Park Service, which owns the land around Lake Crescent, began work to realign and widen the 3.5-mile Spruce Railroad Trail for non-motorized use in the Olympic National Park in Washington. The multi-year, federally-funded project included the rehabilitation of the 450 ft, century-old McFee Tunnel on the north shore of Lake Crescent, which was blasted during World War I.

Fractures, the formation dipping in line, direction of the slope, and continuously raveling rockfalls delayed this construction. Large landslides above the McFee Tunnel portal threatened worker safety.



Client:

APEX ROCKFALL

Main Contractor:

BRUCH AND BRUCH

Designer:

DEPARTMENT OF TRANSPORTATION  
WESTERN FEDERAL LANDS HIGHWAY DIVISION

Products used:

ROCKMESH™ 30100

Date of Construction:

FEBRUARY 2017 - PRESENT



## Solution

To ensure a safe working environment for the crews restoring the area, Maccaferri **RockMesh™ 30100** was hung on and around the tunnel portal during construction in late February.

The Maccaferri **RockMesh™ 30100** provides very high tensile strength at low elongations in both the longitudinal and lateral directions. In addition, the **RockMesh™ 30100** provides an in-isolation punch strength in excess of 11,000 lbs force with less than 10 inches of displacement, making it a perfect solution as a flexible wire facing system for the rock bolting application.



When a second and third rockfall event occurred in June, more material was immediately shipped to the construction site and had to be hung the day it arrived. Maccaferri assisted the freight company to bring the material to the remote jobsite.

APEX Rockfall Mitigation out of Grand Junction subcontracted with Bruch and Bruch for the rope access drilling of anchors, rock bolting, and hanging of the **RockMesh™**. The Department of Transportation, Western Federal Lands managed the rail to trail construction along the scenic shores of Lake Crescent.

[Click here to contact our rockfall department for assistance on your project.](#)