

CASE STUDY

BULLER GORGE SNL RAIL SLOPE IMPROVEMENT

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INTRODUCTION

In April 2022, Abseil Access was engaged by the client, with Abseil Access and GEO Advice as consultants, to design and construct an anchored retaining wall below the KiwiRail SNL railway line in the Buller Gorge. The project aimed to provide structural support to the railway line, with Geo Solve consulting assisting in the design of the retaining wall and anchors.

PROCESS

The project involved the design, construction, and installation of a 6m-long by 0.9m-high SG8-H5 timber retaining wall, supported by a system of vertical micropiles and sub-horizontal duplex-coated 40mm SDA rock anchors drilled into 110mm diameter holes. MacMat R retaining mesh was installed to secure the railway ballast and extend below the retaining wall, providing both structural stability and erosion control.

To carry out the works efficiently within the active rail corridor, Abseil Access utilised a 12-ton high-rail excavator to form the wall's support base, drill anchor holes, and position the structure. This approach enabled the team to move safely on and off the railway between train operations, maximising productivity within tight schedule windows. SDA anchors were chosen for their superior performance in variable and collapsible ground conditions, allowing for faster installation and reliable ground reinforcement. Once all anchors were installed, MacMat R mesh was applied across the anchors and retaining wall face to provide effective erosion protection and promote natural vegetation growth.

OUTCOME

The project successfully stabilised the section of the KiwiRail SNL line in the Buller Gorge, ensuring continued safe operation of the railway. The anchored retaining wall and erosion protection measures provided long-term stability while maintaining environmental resilience through vegetation regrowth. Continuous monitoring confirmed that the railway remained secure with no signs of subsidence throughout and after the works.

