



Berthoud Pass Diversion Channel



CDOT finds SmartDitch ideal for high mountain diversion channel.

LOCATION:

Berthoud Pass, Colorado

PRODUCT:

SmartDitch™

PROJECT PARTNERS:

Owner/Consultant

Colorado Department of Transportation (CDOT)

Contractor

Yenter Companies

Completion Date

October 2011

The Colorado Department of Transportation (CDOT) was facing drainage issues behind existing retaining walls along a section of Highway 40 as it climbs over the 11,307 foot summit of Berthoud Pass, just west of Denver, Colorado. Over time, hydrostatic pressure and freeze/thaw caused sections of the walls to fail. To solve this problem, CDOT planned to divert water away from the walls using a channel that would capture run-off.

Challenge

The installation area for the new diversion channel was extremely difficult to access. It was to be installed on the ridge above two retaining walls which were 100 feet up at a 45 degree slope. There was no road access and there was a constant water flow down the mountain. Soil conditions were poor and unable to support heavy equipment or the weight of a rock or concrete diversion channel. In addition, the construction area was part of an environmentally sensitive zone with strict construction guidelines.

The client was looking for a solution that would provide minimal disturbance to the area and provide effective drainage away from the existing retaining walls during constant and high flow water events.

Solution

Working with our dealer, Wagner Rents in Granby, Nilex recommended the SmartDitch system, a lightweight, engineered plastic ditch liner that can be easily installed on difficult terrain that is virtually maintenance free. SmartDitch is a completely sealed system that will not leak or crack with freeze and thaw cycles.



Unearthing better results.

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The system costs considerably less than a rock or concrete lined channel and will not degrade with exposure to sunlight or chemicals normally found in soil. CDOT selected the SmartDitch system as a viable solution to the drainage issues on Berthoud Pass and Nilex provided design and installation support.

Installation

The SmartDitch system comes complete with all installation hardware, including earth anchors, a foam rubber strip to seal between sections and self tapping screws to secure the sections together. Minimal ground preparation is required to achieve the trapezoidal shape of the preformed sections.

Due to the extreme location of the diversion channel, the contractor used a mini excavator to shape the channel and install SmartDitch in 10 foot increments. To provide further protection to the channel, a layer of 30 mil PVC liner was installed on the upslope side of the channel and overlapped the edge of the SmartDitch to ensure the run-off water ran directly into the diversion channel.



Results

The 170 foot SmartDitch channel was completed in three days and just before the first snowfall of the season. As of March 1, 2012, four months after the SmartDitch installation, the Berthoud Pass area had received 157 inches of total snowfall. The SmartDitch system has worked without issue, capturing run-off, enduring freeze/thaw cycles and supporting the weight of ice and snow.

As a result, the extensive retaining walls along the roadway are protected. Water is being routed away and not building up behind the walls, improving safety and minimizing future maintenance costs.

The Nilex Advantage

Nilex is committed to unearthing better results. Whether it's for a civil, resource or environmental project, we offer the latest engineered and technically superior materials and techniques to save our customers time and money, and minimize the need to move or remove earth, and reduce the need for granular materials.

With over 35 years experience, a long-standing commitment to the environment and highly qualified staff, Nilex delivers the products and technologies that give clients an economic advantage with environmental benefit.

