



Detour Gold GCL's Installation



Geosynthetic Clay Liners (GCL's) are high performance environmental liners used in environmental containment applications. One truck load of GCL's is equivalent to 150 truckloads of compacted clay.

LOCATION:

*Detour Lake Gold Mine, near
Cochrane, Ontario*

PRODUCT:

Geosynthetic Clay Liners (GCL's)

PROJECT PARTNERS:

Owner

Detour Gold Corporation

Consultant

BGC Engineering Inc

Contractor

North Rock Construction

Completion Date

April, 2019

Detour Lake Gold Mine, an open pit mine in northern Ontario, commenced gold production in 2013. With an expected mine life of about 22 years, water needs to be constantly removed from the mine site in order to keep mining operations running.

Challenge

In early 2019, run-off water caused an area of the mine to flood. Due to this challenge, water needed to be diverted from that area to a cofferdam. To make this task even more of a challenge, the presence of high groundwater created saturated soil conditions.



Solution

Nilex built two swale-ditches to divert the water, and Geosynthetic Clay Liners (GCLs) product was pre-specified by the consultants. GCLs consist of two layers of geotextiles surrounding a layer of low permeability sodium bentonite, needle punched together for better internal shear resistance.

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The geotextiles offer long-lasting resistance to physical or chemical break-down in harsh elements, while the bentonite's high swelling capacity and low permeability provide an effective hydraulic seal. GCLs provide an excellent alternative to conventional Compacted Clay Liners by replacing a thick section of compacted clay with a thin layer of pure sodium bentonite. With the anticipated high groundwater, GCLs were chosen for ease of installation, better hydraulic performance and resistance to varying weather conditions.

Installation

The two swale-ditches comprised a total of almost 22,000 square meters of GCL with a length of approximately 4,600 linear meters. The prefabricated rolls were delivered on site and the liners were installed with a crew of seven installers using an excavator, spreader bar, and bobcat.

The installation took place in harsh winter conditions with temperatures dropping to -40C and strong winds. The crew worked toward the sun and away from wind to prevent freezing. In addition, the installed material needed to be covered daily before the water hit.



Results

Nilex provided on-site consulting, quality assurance, installation labor and technical support. With hard work, determination and excellent communication with the client, the team met the schedule demands and the water channel was diverted in 21 days.



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 40 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.