CASE STUDY

LOAD SUPPORT

Unpaved road rehabilitation

RM of Britannia 502 Lloydminster, SK

The Rural Municipality of Britannia is located to the northeast of the City of Lloydminster, Saskatchewan. A rural access road, servicing 11 residences and a commercial transport business had been in place for approximately 26 years. Its route crossed over a 'slough bed', an area of high water table with multiple expanses of open water of varying sizes.

The roadway experienced frost boils and seasonal flooding. The traffic included light duty vehicles as well as daily movement of 17 tridem fluid trucks owned by the transport company. Even underweight, these trucks created heavy rutting, and had no alternate route to reach a main connecting road.

In August of 2017, Paradox Access Solutions pre-graded the road surface and supplied Tough Cell® Geocell reinforcement essentially overtop of the existing road. A 25mm type A infill was applied to a 200mm depth and the finished road sloped and crowned to client specifications.

PERFORMANCE RESULTS:

The residents and business operators now have a durable, reliable and low-maintenance road that will allow them to safely and efficiently enter and exit their community for years to come.

PROJECT AT A GLANCE

APPLICATION:
Unpaved road rehabilitation

LOCATION
Saskatchewan, Canada

DATE OF INSTALL:
August 2017

CLIENT:
Rural Municipality of Britannia

Britannia No. 502 is a rural municipality in west-central Saskatchewan, located in the heart of the heavy oil industry with a highly skilled workforce and a growing population of 1734 residents.

CONSTRUCTION:
Paradox Access Solutions

The authorized Tough Cell® Master Distributor in North America, specializing in the supply and installation of high quality access solutions and services to customers in the pipeline, utility, municipal, general construction and oil and gas industries.

ENGINEERING DESIGN
Stratum Logics Inc.

Global geotechnical engineering design specialists exceptionally proficient in the deployment of cutting-edge geosynthetics for civil engineering across North America in all types of challenging soils and climates.

Project Highlights

Unpaved road rehabilitation through wetland near Lloydminster, SK

THE CHALLENGE

The Province of Saskatchewan boasts many lakes and wetland areas in addition to prairie farmlands. Aging roadways that chiefly serviced agricultural enterprises are now taxed with the increased traffic of a diversifying economy. In the RM of Britannia, a rural road built over a marshy lowland or 'slough', was being literally 'driven' into the surrounding water by repetitive loading of commercial light vehicles as well as multiple axle transport trucks over its weakened base.

Encroachment of water to roadway

Loss of road material into surrounding water

THE SOLUTION

After pre-grading the existing road surface, a separation layer of woven geotextile was installed to inhibit water infiltration into the subgrade, on top of which a 120mm layer of Tough Cell® geocell webbing was applied. The cells were infilled with 25mm gravel to a 200mm depth.

Total area: 360m x 8m

Product(s): 330-120 Type D Tough Cell® geocells; 200ST Woven Geotextile

Infill: 200mm Type A 25mm gravel

Completion: Capped with Type 33 road crush

Site restoration: existing 500mm culverts upgraded to 600mm; crowned road to customer specifications of 3% or greater.

Typical placement of geotextile and Tough Cell® geocells

Tough Cell® infilled with 25mm gravel fill

THE BENEFITS

The construction and rehabilitation of the road was completed in two days, benefiting the community by incurring little to no downtime due to closure of the road. Traffic quickly resumed its normal pattern without interruption, and the residents now enjoy year-round reliable and comfortable access to their homes and business without the concerns of periodic flooding or continued degradation of their only access route.

Roadway 2 weeks after completion, following 2in. of rainfall and resumption of heavy traffic.

PARADOX ACCESS SOLUTIONS

An industry leader in innovative access solutions, Paradox Access Solutions has provided industrial access and ground reinforcement for the oil and gas, pipeline, utility, municipal and construction industries since 2004. We are COR, CQN, PICS, ISN, ACSA, ARHCA, AVETTA and ComplyWorks qualified, and employ the highest safety standards.

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