

CASE STUDY



LOAD SUPPORT

PROJECT AT A GLANCE

APPLICATION:

Unpaved municipal street rehabilitation

LOCATION

Alberta, Canada

DATE OF INSTALL:

2013

CLIENT:

MD of Opportunity



Brimming with cultural and historical treasures, Red Earth Creek is an industrious community situated amidst Slave Lake, Peace River and Wabasca in northern Alberta.

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 & 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.

Rehabilitation of unpaved town street

MD of Opportunity Community of Red Earth, AB

Red Earth Road runs alongside the bicentennial highway in Red Earth Creek in northern Alberta, and is an access road for local businesses and storage yards.

The road saw increasing use as area industry and traffic grew. While in the process of reconditioning this important and heavily-traveled roadway, the MD of Opportunity approached Paradox Access Solutions to ask what could be done to enhance the road's durability going forward and keep future repairs to a minimum.

Paradox proposed a solution using Tough Cell® geocells as reinforcement beneath the road surface. The project went ahead in the summer of 2013. Paradox supplied the geometric design for the road as well as the site preparation and installation of Tough Cell®. The District supplied infill aggregate to project specifications and the roadway capped with a final aggregate course.

FROM THE DISTRICT OFFICIALS:

"Since we used Tough Cell® on our C-Six service road we have only had to "top-up" the gravel once since installation...[which] used to be a regular occurrence for this section of road due to the heavy volume of traffic utilizing it to access the tire shop/bulk fuel station. This road is also unaffected by heavy rain fall as all water is drawn towards the ditches on either side. When we decided to cover the service roads in town, this road accepted the new surface and held up better than any of the other sections due to the fact that there was no trapped water in the road or subgrade...we at the MD #17 look forward to continued expansion of this product to many more of our road systems in the communities."

- B. Clark, Lead Hand, MD of Opportunity #17

Project Highlights

Rehabilitation of unpaved municipal street bearing heavy traffic

THE CHALLENGE

A heavily used town street in the community of Red Earth was being reconditioned by the municipality. "Topping-up" of gravel was a routine occurrence due to the heavy volume of traffic accessing the tire shop and bulk fuel station on this route. The MD of Opportunity sought methods by which the road could be strengthened as previous repair attempts were ineffective.

THE SOLUTION

A Tough Cell® reinforced structure was built on top of the existing road. The design section consisted of a sand base reinforced with 330-150 Type D geocells and then topped with 175mm of locally-sourced gravel supplied by the District.

Total area: 1km length x 8m width

Product(s): 330-150-76 Type D Tough Cell® Geocell; woven geotextile

Infill: locally sourced aggregate supplied by the client.

THE BENEFITS

The Municipal District of Opportunity now enjoys a reliable and durable road that will serve its growing economic and industry needs for years to come. A follow-up site visit in 2017 found Red Earth Road to be in pristine condition and performing to full expectations of the District. The district benefited from this innovative engineering solution in reduced construction costs and the advantage of utilizing local materials to offset material and transportation costs. Officials report that maintenance costs have dropped to nearly nil since the installation, and the MD of has embarked on additional new projects with Paradox Access Solutions after the success of Red Earth Road.



Mud and drainage issues before construction



Installation of geotextile and Tough Cell®



Compaction of sand base



Infilling of ToughCell® with track loader



Completed road, August 2013



Spring 2017



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, and ComplyWorks qualified and employ the highest safety standards.

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