



Case Study

application | Subgrade Reinforcement
location | Waterloo, Québec
product | Mirafi® RS580i

job owner | MRC de la Haute Yamaska
engineer | Consultants S.M., Inc.
contractor | Excavation CS
date of installation | September 2012

TenCate® develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

THE CHALLENGE

The Waterloo EcoCentre in Québec, Canada is a recycling site that allows residents to rid themselves of their recyclable and reusable goods in order to minimize the use of municipal dumps. These are materials that are not ordinarily collected as part of the municipal waste pick-up program. Residents place these materials into open top containers, and front-end loaders are used to compact and collect the materials to be reused and recycled.

The MRC property is located adjacent to a swamp and the water table is less than 0.5m from the working surface on which the front-end loaders operate. In the spring, the front-end loader traffic caused significant rutting

and pumping of water and fines in front of the containers, which makes for difficult operating conditions for the front-end loader operators.

THE DESIGN

It was recognized by the design engineer that they would require a geosynthetic solution that would reinforce the weak subgrade and eliminate the on-going rutting problems, while allowing water to flow through the geosynthetic while impeding the movement of fines.

The design engineer contacted TenCate Geosynthetics and, after discussing various alternatives, agreed that TenCate Mirafi® RS580i* high strength woven geotextile would be used on the project. Mirafi® RS580i geosynthetic's unique integration of modulus, separation, confinement and water flow made it the best choice of a reinforcement geosynthetic for this project.

THE CONSTRUCTION

The installation of Mirafi® RS580i began at 7:30 am on September 20, 2012. 200mm of MG-20 (20mm minus) granular was excavated and moved to the side for reuse after the installation of the high strength woven geotextile. A single layer of Mirafi® RS580i was installed along the travel path of the front-end loader as well as directly in front of each of the eight containers. A geotextile overlap of approximately 300-500mm was maintained throughout the project. After placement of the geotextile, the previously excavated MG-20 material was then reused and placed back onto the Mirafi® RS580i with the help of a John Deere 550J bulldozer and 27D mini excavator. Operations went smoothly and the backfill and compaction operations were finished by 4:30 that same afternoon.



Site prior to excavation



Rolling out the Mirafi® RS580i.

THE PERFORMANCE

By utilizing TenCate Mirafi® RS580i, excavation was kept to a minimum which was key to not disturbing the high water table. After completion, the surface area showed no distress from truck traffic. The system will be evaluated again the spring of 2013 after the frost has come out of the ground.

*Patent Pending



Installation of Mirafi® RS580i in front of the containers.



Installation of Mirafi® RS580i in front of the containers.



After completion of the work.



Placement of granular backfill on Mirafi® RS580i.

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