PORT DALHOUSIE WWTP - ROAD REINFORCEMENT

Port Dalhousie, ON



Installation of MAcGrid EG-30S over a layer of MacTex MX-225

TYPE OF PROJECT	YEAR OF CONSTRUCTION	CLIENT	CONTRACTOR	DESIGNER
Surface Strengthening And Support	**2016**	**The Regional Municipality Of Niagara**	**Rankin Construccion Inc.**	**INSPEC-SOL**

PROD. RELATED

Biaxial Geogrids (9,875m2 Of MacGrid EG-30S), Nonwoven Geotextiles (10,860m2 Of MacTex MX-225)

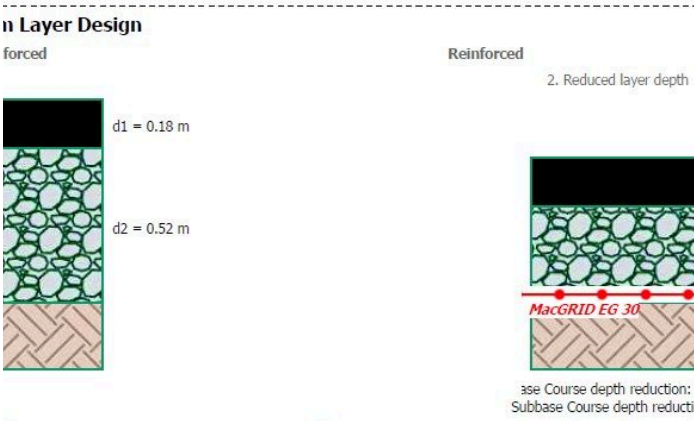
Challenge

Weak subgrade threatened the safety and reliability of WWTP roads.

At the Port Dalhousie Wastewater Treatment Plant in St. Catharines, the Regional Municipality of Niagara identified that the internal laneways no longer met industry standards for safe turning and vehicle maneuvering. Geotechnical investigations revealed very low bearing-capacity soils beneath the pavement, requiring a full reconstruction. The initial design called for complete pavement removal, subgrade regrading and proofrolling, and a thick section consisting of 60 mm HL-3 asphalt, 120 mm HL-8 asphalt, and 520 mm of Granular A base. This heavy granular requirement significantly increased project cost, material demand, and construction time. RMON needed a solution that would improve road performance without relying on excessive granular thickness.



Placing of geotextile MacTex MX-225



MACREAD design output

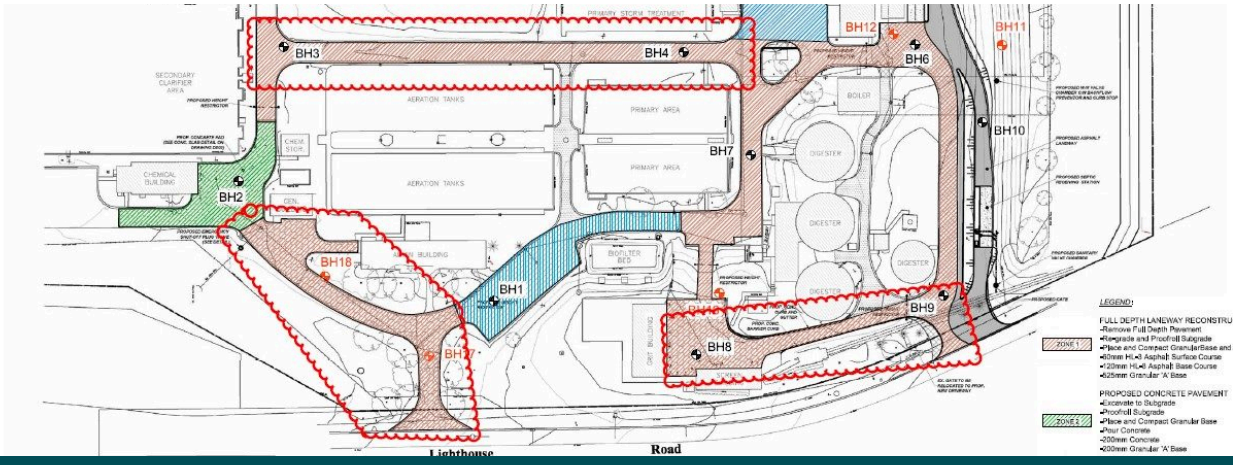
Solution

Inspec-Sol approached Maccaferri seeking a geogrid-based design to reduce the granular base while maintaining the required structural capacity. Using MACREAD Studio, Maccaferri's exclusive pavement-design software for geogrid-reinforced systems, our technical department engineered a reinforced section tailored to the site's weak subgrade conditions.

The optimized design begins with a MacTex MX-225 nonwoven geotextile placed directly on the subgrade to separate the native soils from the granular layers and facilitate horizontal drainage. MacTex MX-225 is a needle-punched polypropylene geotextile offering high dimensional stability and resistance to UV exposure, biological degradation, and natural soil chemicals.

Above the separator, one layer of MacGrid EG-30S is installed at the base of the sub-base, topped with 330 mm of Granular A. MacGrid EG geogrids are high-modulus, biaxial polypropylene grids manufactured through precision extrusion, providing reinforcement in both directions and maintaining full chemical inertness in soil environments.

Through Maccaferri's design optimization, the granular base was reduced from 520 mm to 330 mm while preserving the required structural number, delivering substantial cost savings to both the owner and the contractor and ensuring a safer, stronger internal roadway network for the WWTP.



WWTP borehole location plan

OPEN GOOGLE MAPS

OPEN GOOGLE EARTH

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