

Case Study



Churchill Airport Runway 15-33 & Taxiway Rehabilitation - 2020



Project:

Churchill Airport Runway 15-33 and Taxiway A Rehabilitation

Location:

Churchill, Manitoba, Canada

Duration:

July/August 2020 (12 working days)

Contractor:

Nelson River Construction

Customer:

Transport Canada

Surface Tech Product:

ACE XP

ACE XP[™]
POLYMER

What We Did

Surface Tech, in collaboration with Nelson River Construction and the project's engineering teams, played a pivotal role in executing the rehabilitation project. Key activities included:

Pavement Design and Production:

The project utilized 7,800 tonnes of PG 52-40 asphalt cement binder, with the incorporation of 38mm ACE XP Polymer Fibers[™]. Surface Tech provided on-site support, including dosing training and certification for the construction team. The portable asphalt plant used on site ensured that the ACE XP was accurately and consistently integrated into the mix, using an airline hose inserted at the RAP collar to inject the fibers into the dry mix before adding the asphalt cement.

Implementation:

Surface Tech provided all necessary consultation and support, including product supply and dosing services, on the day of installation. This support was crucial in ensuring the mix was produced to the highest standards and that the installation process went smoothly.

Execution & Timeline:

Despite the challenges posed by the remote location and harsh weather conditions, the project was completed within 12 working days in late July and early August 2020. The collaborative efforts of Surface Tech, Associated Engineering, and Nelson River Construction ensured the project was executed smoothly and to the highest standards.

Project Scope & Objectives

Churchill Airport, located in Northern Manitoba, serves as a crucial hub for the region, facilitating the transport of supplies, ecotourists, and researchers. The airport's infrastructure, originally built in 1942, has faced significant challenges in recent years due to climate change, which has weakened the permafrost beneath the runways and taxiways. This degradation led to unacceptable levels of bumps, settlement, and drainage issues, particularly on Runway 15-33 and Taxiway A.

Transport Canada required an immediate, short-term repair strategy to address the safety concerns and extend the service life of the runway and taxiway until a comprehensive reconstruction could be planned. The solution needed to provide durability, reduce the need for frequent maintenance, and ensure safe operations at the airport.

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Challenges Overcome

The primary challenge was working in a remote, harsh environment where the degradation of permafrost posed ongoing risks to the integrity of the pavement. The integration of ACE XP Polymer Fibers™ provided the tensile strength needed to withstand these conditions, ensuring a stable and durable pavement surface.



Economic & Environmental Advantages

Economic Advantages:

The use of ACE XP reinforced the pavement, reducing the need for frequent maintenance and extending the service life of the runway and taxiway. This approach provided Transport Canada with a cost-effective solution that delayed the need for more extensive, costly reconstruction efforts.

Environmental Advantages:

By enhancing the pavement's durability, the project minimized the environmental impact associated with ongoing repairs and maintenance. The reduced need for material transportation and construction activities contributes to lower overall emissions and resource use.



Client Feedback & Results

The project was completed successfully, with the new overlay performing exceptionally well under the challenging conditions of Northern Manitoba. The ease of adding ACE XP to the mix, combined with the high level of support from Surface Tech, contributed to the project's success. The final product met all expectations, providing a safer and more durable runway and taxiway for Churchill Airport.

This project underscores the effectiveness of ACE XP Polymer Fibers™ in providing robust, sustainable solutions for critical infrastructure in challenging environments.

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