



PROJECT: **Flying Dust First Nation Railway Lands Remediation**

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Abstract

Flying Dust First Nation engaged PINTER & Associates Ltd. in the remediation of 27 parcels of land with the purpose of transferring this land back to the reserve with clean environmental status. A total of just over 130,000 tonnes of contaminated soil was removed from the site via remedial excavation. The multi-year, massive cleanup was a collaborative effort with extensive Flying Dust First Nation involvement and will benefit the community far into the future through economic development opportunities.



Flying Dust First Nation Railway Lands Remediation

1. Introduction

Flying Dust First Nation (FDFN), Indigenous Services Canada (ISC) and Canadian National Railway Company (CN) retained PINTER & Associates Ltd. (PINTER) in 2018 to undertake Remedial Excavations required across multiple sites prior to the transfer of the lands back to the First Nation for future use and development. Flying Dust emphasized the use of local resources and the employment and mentorship of local personnel over the course of the project.

Flying Dust First Nation is a progressive, forward thinking, and environmentally conscientious Cree reserve located in northwestern Saskatchewan. PINTER is a privately-owned, full service, environmental engineering consultant based in Saskatoon, SK. The Project Management Team (PMT) for this project included Flying Dust representatives, an independent project manager hired by Flying Dust, ISC project officers, CN environmental personnel and PINTER personnel.

Contaminants across the sites included polycyclic aromatic hydrocarbons (PAHs), metals, and petroleum hydrocarbons (PHCs). Unique to this area was the presence of a burned coal ash material that was widespread and contained high levels of PAHs.

1.1. Project Objectives

The main objective across all impacted sites was to provide federal environmental closure which would allow for the transfer of lands to Flying Dust First Nation without environmental liability. These objectives were to be met through the remedial excavation of contaminated soil to satisfy Tier 1 CCME criteria. The project was to employ local resources and provide employment and membership to local First Nation personnel.

As the project was underway, increasing areas and locations were added to the scope of work to fully incorporate all impacted soils into the clean-up efforts. Due to incomplete assessment work provided to PINTER by others at the beginning of the project, assessment had to be carried out concurrently with remedial activities in order to maintain the project schedule. All work was to be completed by the end of ISC's 2021 fiscal year.

2. Remedial Activities

PINTER initiated clean-up efforts in June 2018 using FDB Gravel Inc. equipment, operators, and subcontractors. FDB Gravel Inc. (FDB), a FDFN owned contracting company, provided excavators, loaders, dump trucks, and other equipment and supplies as needed to carry out all the project contracting. FDB also provided a helper to PINTER to assist with excavation supervision, supply provision, and environmental sampling.

Remedial activities were originally planned for just over 40,000 tonnes of impacted soils. Over the course of the project this total more than tripled to approximately 130,000 tonnes as additional impacts and impacted locations were identified. The project expanded from 14 surface parcels to 27 surface parcels across 5.5 km of former railway.

Remedial activities included an extensive plume of PHC impacts at the location of multiple former bulk fuel stations, a combined plume of PHC and PAH impacts at the location of a former

coal storage area, a vast amount of PAH and metals impacts along the length of the former rail line and in some locations adjacent to the rail line, and a variety of impacts at a former auto salvage area. A burned coal ash material with high PAH concentrations was encountered across much of the project area.

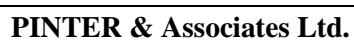
Soils were hauled to multiple suitable disposal facilities over the course of the project, as arranged by FDB. Backfill for the excavations was arranged for or provided directly by FDB and was placed by FDB prior to project completion. PINTER provided all excavation supervision, excavation sampling, backfill sampling, and other environmental consultation services as needed throughout the project.

PINTER provided formal closure reports on all remedial activities for each Site that were reviewed by federal regulators prior to finalization. Federal Contaminated Sites Action Plan (FCSAP) Site Closure Reports were prepared for each surface parcel to facilitate environmental clearance.



3. Results

A total of approximately 130,000 tonnes of impacted soils were removed from the Site over the course of four years from 2018 to 2021. The soils were effectively remediated, and environmental closure was provided to all of the parcels included within the scope. The 27 parcels along the 5.5 km former railway lands are now able to be used and redeveloped by Flying Dust. The parcels that were remediated are outlined in green in Figure 1 (four stacked overhead images in order from west to east).



4. Project Highlights

4.1. The Innovation

Flying Dust First Nation (FDFN), Indigenous Services Canada (ISC) and Canadian National Railway Company (CN) requested the remediation of all impacted soils across 27 land parcels via excavation. The lands had been impacted by former rail operations, bulk fuel stations, fertilizer storage and other contaminant sources across 5.5 km of former railway. The purpose of this remedial work was to remediate soil impacts to facilitate the transfer of lands back to the reserve with clean environmental status. They were previously borrowed from FDFN for railway use with the condition they be returned in environmentally sound condition when they were no longer needed for railway purposes.

The remediation of these impacted soils was the first railway reversion project to be completed in Canada according to ISC and will likely be the largest. In total, just over 130,000 tonnes of impacted soils were remediated over four years 2018 through 2021. The sheer size of this project required extensive planning and coordination.

Remedial efforts were to meet Tier 1 CCME Criteria for Residential/Parkland land use. Soil exceeding these criteria were found across almost all parcels for various contaminants including polycyclic aromatic hydrocarbons (PAHs), metals, and petroleum hydrocarbons (PHCs). A unique feature across much of the lands was the presence of a burned coal ash material that was widespread.

FDFN was involved in every aspect of this project and were a critical contributor in the remediation of their own lands. Flying Dust First Nation is a forward-thinking, environmentally conscientious band. Flying Dust contributed project management, coordination, contracting equipment and operators, assistant assessors, and materials to the project. The innovation in this project lies in the extensive collaborative efforts and involvement of band resources which maximized the economic benefits to the community.

FDB Gravel Inc., a FDFN owned contractor, carried out all excavation, stockpiling, and backfilling activities while also subcontracting for disposal and other items as needed. Of the approximately \$12.1 million total project cost, approximately \$9.8 million was paid to FDB Gravel Inc. for their local personnel, equipment, materials, subcontractors and profits which were reinvested for the benefit of the community.

Remediation of these lands was successful and closure was provided along with freedom to redevelop for a wide variety of potential land uses. Many of the parcels have already been transferred to FDFN, with the remainder being transferred shortly. FDFN plans for development of the area are already underway.

4.2. Complexity

The project overcame numerous logistical and administrative hurdles over the course of execution. The resources, personnel, and time required to properly remediate these lands required dedicated project management and coordination by Flying Dust and PINTER team members. Ensuring communication was effective between the Band, PINTER, regulators, and all other stakeholders required increased efforts and regular meetings. Project delays due to

budget and funding uncertainties as well as more traditional challenges such as site access during winter and spring added to the complexity of managing this multi-year remediation effort.

The funding deadline of the 2021 fiscal year end provided a definitive deadline that had to be met. Assessment information provided to PINTER by others prior to the initiation of remediation was very incomplete. Ongoing assessment had to be carried out concurrently with remediation to keep the schedule on track. This led to additional volumes and locations for remediation. Continued adaptability and clearly communicated scope changes were crucial to ensure all discovered impacts were remediated.

In many areas, wet conditions prohibited access for large portions of the year. Scheduling and planning was key in coordinating efforts and ensuring timely completion of all phases of the project. The sheer size of the clean-up called for organized resource planning and usage. This included space for temporary stockpiles, local trucks and operators for hauling to disposal locations, field equipment, and sampling supplies. Data and information management for thousands of samples from thousands of discrete locations was important to ensure the lands were properly remediated and reporting was thorough and accurate.

4.3. Social and/or Economic Benefits

The project had impactful social and economic benefits to Flying Dust First Nation over the course of its lifespan and will continue to provide benefits to the Band into the future. Flying Dust's involvement in the clean-up of their own lands further instills a sense of ownership and environmental responsibility. The Band's direct involvement in this process helps contribute to an even deeper understanding of environmental health for the lands and the people that inhabit them.

Over the course of the project, \$9.8 million of the \$12.1 million project total was paid to FDB Gravel Inc, a FDFN owned contractor, to provide contractor services and procure subcontractors for disposal, hauling, labor and other items as needed. FDB Gravel Inc. was able to expand their operations and grow their business significantly due in large part to their role in this project. They were also able to reinvest profits for the good of the overall community. Using all locally sourced equipment and operators provided employment over the course of the four years for many band members. In addition, the community's economy was further stimulated through the supply of resources, supplies, accommodations, and subsistence.

The 27 parcels along the 5.5 km of former railway are now suitable for transfer to FDFN with clean soils. FDFN is now able to develop these previously vacant environmentally unsafe lands to benefit their community socially and economically. This is a vast area, adjacent to Meadow Lake, that will provide extremely valuable opportunities for social and economic growth.

4.4. Environmental Benefits

The immediate environmental benefit of this project is the provision of clean soils across the project area. Soils were remediated to Tier 1 CCME residential/agricultural guidelines that will allow for flexibility in future zoning and land use.

Included on the project team was a local laborer that assisted directly in assessment, sampling, and other fieldwork activities. The local laborer was taught environmental practices, methods, and gained valuable experience and knowledge in the fields of environmental remediation and

sustainability. This knowledge was also extended to the other operators, project team members, and band members that were directly or indirectly involved in the project.

Land is the foundation for the social, spiritual, environmental, and economic health of all peoples and the prevention and management of contaminants is a key component in protecting and preserving the land for current and future generations. The results of this remedial effort will contribute to the effective and responsible use and management of land and resources into the future on FDFN lands.

The remediation efforts occurred both east and west of the Meadow River, including removal of a trestle bridge within the river. Most of the runoff from these previously impacted lands flows into the Meadow River, from which some FDFN members catch fish for sustenance or recreation. With the surrounding environmental concerns addressed, the Meadow River is better protected.

4.5. Meeting Client's Needs

The underlying need for this project was to facilitate the transfer these lands back to the First Nation so they could utilize and develop this significant area adjacent to the City of Meadow Lake and connected to reserve lands. The transfer of these lands required environmental compliance to federal standards. Flying Dust and PINTER were able to remediate the impacted soil and meet the federal standards to allow for this transfer.

Flying Dust preferred that soils were removed via excavation to provide more immediate results, avoid land use restrictions, and employ more local resources. Flying Dust also requested that most of the parcels were cleaned to residential/parkland land use standards to prevent restrictions on potential development options. The project was successfully completed while satisfying these requests.

The Client, FDFN, can take back these lands and develop them for the benefit of their people, their economy, and their future. On the road to environmental closure, PINTER was able to pay over 80% of the overall project dollars directly to FDFN through their wholly owned company FDB gravel, which led to meeting and exceeding the client's goals for economic participation and benefit from the project. The upcoming redevelopment of much of the land will also be able to be completed by FDFN due to the capacity built through this project. The construction jobs and long term hospitality/retail jobs created with the new developments will also serve to bring in rental income and employ more and more local band members over time.