Building a Waste Transfer Station, a Road, and Our Environmental Assessments

Whitefish Lake First Nation #128

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[Event name] · [Date]

Who We Are

Acknowledgement

Whitefish Lake First Nation #128 (WLFN #128)

Treaty Six Territory

Our Community

- Approximately 200 km NE of Edmonton, Alberta
- ~2,250 community members on-reserve

Why This Matters to Us

The need for waste management has exponentially grown as our community continues to grow in population and success. The circular economy (recycling) needs to be prioritized to meet sustainability goals.



Agenda

01	Our Project: **Waste Transfer Station**	JAMES
02	Our Project: **Road**	JAMES
03	Our Project: **Environmental Assessments**	REBECCA
04	**Lessons Learned:** Recommended Order and What We Would Change About the Process	JAMES & REBECCA

Whitefish Lake First Nation #128

01

Our Project

Waste Transfer Station · Road · Environmental Assessments

MOTHER EARTH ENVIRONMENTAL SERVICES

A FIRST NATION COMPANY

Current, Unmanaged WLFN #128 Landfill

Site History

- Opened as a free-range dump around 1990
- Accumulated approximately 35 years of waste

What We Knew

- No documentation
- Waste was buried in lined cells

Concerns Raised

- Garbage pickers
- Fires lit
- Free-range animal access

Why We Acted

- Facilitate road construction
- Fence off and reclaim the land to natural surface
- Address any contamination / leaching to nearby areas



We built the WTS to Serve ~2,250 People

The Need

WLFN #128 has lacked a formalized landfill facility and/or processes, instead utilizing a free-range dump with no recycling or hazardous waste management.

What We Built

- Located immediately north of current landfill
- Building Size: 75’L x 40’W x 20’H
- Site Size: 90 m x 90 m
- 7 x 40-Yard Bins
- Various Site Equipment

Who it Serves

- ~330 Households
- Multiple Businesses
- Proposed Hours of Operation – 8 AM to 8 PM



The WTS Cost $11M and Can Handle 600 Tonnes of Waste Annually

8,100

m^2 Site

7 x 40-Yard Bins

300 m^2 Shop

600

Tonnes Annually

- Household Waste
- Demolition/Construction Waste
- Bulky Waste
- Recycling
- NO Hazardous Waste

$11M

Total Cost

Indigenous Service Canada (ISC) Funded

The WTS Went From Idea to Opening in Nearly 20 Years – *Long Process*

1

Need Identified

2010

Concern of Leaching and Contamination

2

Funding Secured

2019

Indigenous Services Canada (ISC)

3

Tender

2020

Engineer and Contractor Selected

4

Design

2020

Site Chosen

Building and Site Size Planned

5

Construction

2022

1.5 Years of Site Works

6

Opening

GOAL: 2027

Must Determine Maintenance Plan

Decision Points: Project Was Delayed Until WLFN #128's Other Capital Infrastructure Projects Closed Up – 1 Major Project With Indigenous Services Canada (ISC) at a Time!

Waste Moves Through the WTS in 4 Steps

01 DROP-OFF

Residents Drop Off

- Inform Community Members on Operating Hours
- Educate Community Members on New System

02 SORTING

Sorting

7 x 40-Yard Bins:

- Household Waste
- Demolition / Construction Waste
- Bulky Waste
- Recycling
- NO Hazardous Waste

03 HAULING

Hauling Out

- Determine Which Company Hauls Which Material and to Where
- Determine Hauling Out Schedule

04 RUNNING IT

Operations

Determine:

- Staff
- Training
- Operating Costs

We Have Planned to Build 1.2 km of Road to the WTS

The Need

The road is needed to connect current WLFN #128 roads to the WTS.

What We Will Build

- Length – 1.2 km
- Width – 20 ft – 2-Way Traffic
- Gravel
- 2 Culverts

Who it Serves

- Residents
- Waste and Recycling Haulers
- Emergency Access



The Road will be 1.2 km Long and Will Cost $3M

1.2

km of Road

20 ft Wide – 2-Way Traffic, Gravel Road

2

Culverts and Crossings

Run-Off, Drainage

$3M

Total Cost

Indigenous Services Canada (ISC) Funded

Source: [Road design report or close-out, year]

The Road Will Take 2 Years From Route Selection to Handover

1

Funding Secured

2025

Indigenous Services Canada (ISC)

2

Tender

2025

Engineer and Contractor Selected

3

Route Selection

2025

3 Options Provided

4

Design and Permits

2025

Detailed Planning

Culverts

5

Construction

GOAL: Spring 2027

Must Factor in Potential Weather and Other Delays

6

Handover

GOAL: Summer 2027

Must Determine Maintenance Plan

Decision Points: **Realized the Road Was Needed to Get to the Waste Transfer Station, But Could Not Be Built Until Environmental Clearance Was Obtained**

4 Design Choices Shaped the Road

01 ROUTE

Alignment

Must Factor In:

- Slopes and Ease of Winter Access
- Environmental Assessments
- Overhead Utilities – Power Poles/Lines

02 WATER

Drainage and Culverts

Must Factor in Surroundings When Determining Drainage Needs and Run-Off Patterns

03 SURFACE

Base and Surface

Must Determine:

- Gravel Type
- Thickness
- Load Rating for Haul Trucks and Equipment
- Winter Access

04 UPKEEP

Maintenance

Must Determine:

- Grading
- Snow Clearing
- Capacity and Funding

10,000 Tonnes of Surficial Waste to Be Removed

The Need

The landfill site must be reclaimed and remediated to try bring the site back (as close as possible) to its original environmental state.

What We Will Reclaim / Remediate

- 3.5 Hectares
- Surficial Waste Scattered Throughout
- Unfenced

Nearby Considerations

- 2 Lakes
- Multiple Smaller Waterbodies / Wetlands
- Agricultural Land
- Forests
- Residences



Our Environmental Assessments Will Follow 5 Steps Over 2.5 Years

1

Background

Summer 2025

Initial Site Visit

Site History and Documentation

Interviews with Leadership

2

Field Work

Summer 2025 – Fall 2026

Soil

Groundwater

Surface Water

Sediment

3

Assessment

Fall 2025 – Fall 2026

Results With Limited Site Patterns

Very Difficult to Analyze

4

Options Review

Winter 2026

Remedial Options Analysis (ROA)

Remedial Action Plan (RAP)

5

Site Works

Summer 2027

Excavation

Attempting to Excavate Only What is Needed

Seed / Plant Vegetation

+

Follow-Up

Annually

Ongoing Groundwater Monitoring

Decision Points: **10,000+ Tonnes of Surficial Waste From an Unmanaged Landfill of ~35 Years is Neither Quick Nor Easy to Manage and Assess – The Reality is it is Going to Take Time, and it Will Be Costly**

The Landfill Remediation Involved Hundreds of Samples Taken and Cost $400K

100's

Samples Taken

- Soil
- Groundwater
- Surface Water
- Sediment

100's

Parameter Exceedances

- Petroleum Hydrocarbons (PHCs)
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Volatile Organic Compounds (VOCs)
- Metals

$ 400K

Total Cost of Remediation

(Does NOT Include Reclamation)

Indigenous Services Canada (ISC)

4 Steps To Reclaim a Contaminated Site

01 PAST

Site History

Must Factor In:

- Complexity of Site
- Any Prior Assessments or Documentation – *Likely None*

02 PRESENT

Remediation

Sampling:

- Soil
- Groundwater
- Surface Water
- Sediment
- Then, How They All Interact

03 PLANNING

Remedial Action Plan (RAP)

- Figure Out the VERY Complicated Puzzle!
- Determine a Cost-Efficient, Yet Environmentally-Responsible Plan

04 FUTURE

Reclamation

- Excavate and Haul Off Contaminated Soils
- Replace with Healthy, Local Soil
- Re-Vegetate With Grass Seeds and Plant Trees
- *Very Expensive*

WLFN #128 Set the Direction; 4 Partners Funded, Designed, and Approved the Work

Whitefish Lake First Nation #128 – Leadership + Project Management Team

FUNDER

Indigenous Services Canada (ISC)

- Waste Transfer Station
- Road
- Environmental Assessments

ENGINEERING

Consulting Firm

Road Design

Waste Transfer Station Design

REGULATORS

Federal

Indigenous Services Canada (ISC) – Facilitated

CONTRACTORS

Construction Company
Waste Transfer Station

Mother Earth Environmental Services
Environmental Assessments

02

Lessons Learned

The Right Order;

Then 5 Lessons Each for the WTS, Road, and Environmental Assessments

Whitefish Lake First Nation #128

MOTHER EARTH ENVIRONMENTAL SERVICES

A FIRST NATION COMPANY

We Built the WTS First; *Next Time, We Would Start With the Environmental Assessments*

WHAT WE DID	1 Waste Transfer Station	2 Road	3 Environmental
WHAT WE WOULD DO	1 Environmental	2 Road	3 Waste Transfer Station
	Environmental Assessments Need to be the Baseline Before Starting Any Project Work	Route the Road Around What the Environmental Assessments Found and Based on the Remedial Action Plan (RAP)	Have Road Built and Site Reclaimed so WTS Can Open Immediately With No Delays

What the Wrong Order Cost Us: **Significant Amount of TIME and FUNDS; Remove Surficial Waste First and Foremost**

Environmental Assessments: *Start as Step 1*

TOPIC	WHAT HAPPENED	WHAT WE WOULD DO INSTEAD
Setting Expectations	RFP allotted 6 months for remediation program	Convey the complexity of an unmanaged landfill
Assess First	Playing catch-up after WTS and before Road	Avoid delays for Road construction and WTS opening
Site Knowledge	No site plans or documentation	Start with an Electromagnetic (EM) Survey
Sampling Plan	Conservative sampling plan	Generous sampling plan
Follow-Up	No current ongoing monitoring plan	Formalized annual monitoring plan

Road: *Step 2*

TOPIC	WHAT HAPPENED	WHAT WE WOULD DO INSTEAD
Surficial Waste	Surficial waste is still left on site	Remove surficial waste first and foremost
Site Familiarity	Lack of site visits by road engineers	Insist on regular site visits as seasons alter landscape
Overhead Utilities	Power company mis-placed lines	Wait for environmental clearance and road design
Route Design	Time spend discussing 3 routes	Clarify what route you prefer and why it may not work
Maintenance Plan	Currently no plan for grading, snow clearing	Start planning for maintenance well in advance

Waste Transfer Station: *Finish as Step 3*

TOPIC	WHAT HAPPENED	WHAT WE WOULD DO INSTEAD
Equipment Consideration	Gate size was not properly accounted for	Ensure gates / entrances will fit equipment
Building Warranty	Building sat unused and slightly deteriorated	Ensure extended warranty on building
Funding	Recycling bins could not be funded	Try to find recycling funding beforehand
Temporary Landfill	Discarded waste left at gates, on roads, etc.	Set up a temporary area where residents can dispose
Community Use	Lack of communication with community	Public notice to inform community of process

4 Lessons for Any Nation Planning to Begin Work on a Contaminated Site

1 Allot Realistic / Generous Timelines

- Factor in uncooperative weather / delays
- Factor in the complexity of the site; an unmanaged site for 30+ years cannot be remediated/reclaimed in 1 year

2 Fund it Phase-by-Phase

- Funding can get confusing per phase
- Organization and management of funding is key

3 Data in the Nation's Hands

- Documentation can get lost or mishandled, especially with high turnover of key staff
- Organization and management of documents, data, maps, and reports is key

4 Budget for Follow-Up From Day One

- Annual monitoring should be completed for the first few years after reclamation of the site
- Secure funding within the plan, or at the very least, have it on everyone's radar

Whitefish Lake FIRST NATION #128

MOTHER EARTH ENVIRONMENTAL SERVICES
A FIRST NATION COMPANY

Questions?

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