MUNICIPALITY OF RANKIN INLET

Operation & Maintenance Plan for Municipal Water Licence: Solid Waste Disposal Facilities

October 2025

Document Control

Date	Document Title	Author	Details
December 2008	Original O&M Plan for Solid Waste Management Facility	Nuna Burnside	Original O&M Manual
September 2015	Updated Operation and Maintenance Plan for Solid Waste Site	GN-CGS	Previous manual
October 2025	O&M Plan for Solid Waste Management Facility	GN-TIN	Updated Manual (Site attendant, metal shredder, sewage solid treatment)

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A Solid Waste Site Layout

1.0 Site Description

Date this plan was prepared: October 2025

1.1 Location of the Solid Waste Disposal Facility (SWDF)

Municipality:	Rankin Inlet
Latitude:	62°48'16"N
Longitude:	92°04'16"W
Proximity to Town:	(500 m, South)
Landfill Dimensions:	Undefined
Metal Waste Area Dimensions:	Undefined

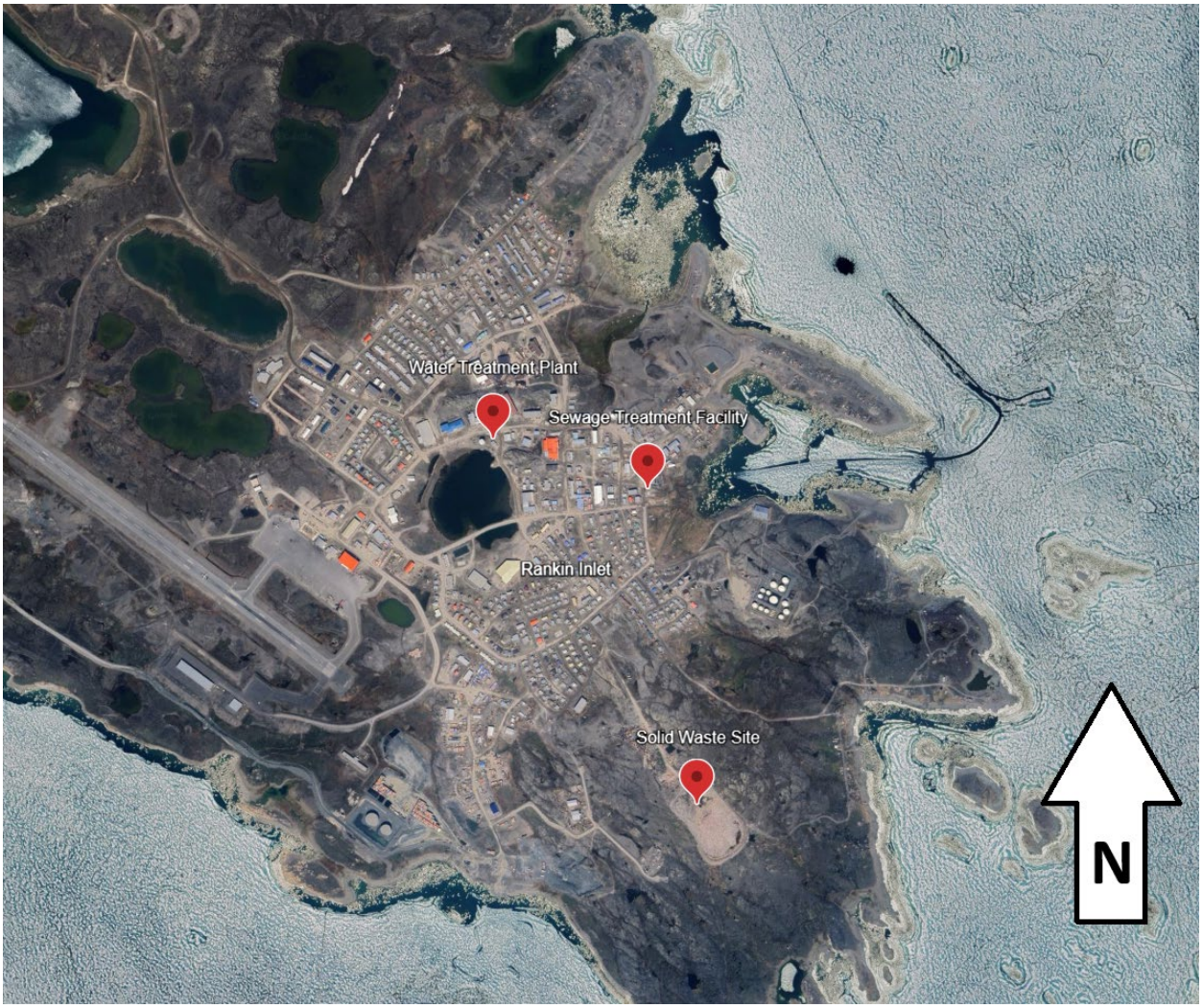


Figure 1: Municipality of Rankin Inlet Solid Waste Disposal Facility. (Google Earth, 2025)

1.2 SWDF Site Summary

Year of commissioning the SWDF: 1993

Design life of the SWDF: Unknown

1.2.1 Site History

The municipality of Rankin Inet is locate within the Kivalliq region of Nunavut, at a general latitude of 62°49'N and general latitude of 92°05'W. The municipality is on the west coast of the Hudson Bay with the closest community being Chesterfield Inlet located 96 km North. Rankin Inlet has a population of approximately 3,280 people as of 2024.

The community of Rankin Inlet operates the Solid Waste Site under the water license 3BM-RAN2025. The Solid Waste site is located approximately 0.5 km South of the community and 0.5km from the Hudson Bay from the East, South, and West.

The water and wastewater infrastructure for Rankin Inlet are operated under a separate water license. Refer to Water License No. 3AM-GRA1631 for more information.

2.0 Staff

2.1 Chief Administrative Officer

Name: Darren Flynn

Phone: (867)-645-2895 Ext. 1008

Email: sao@rankininlet.ca

Responsibilities:

The CAO manages the municipal staff to ensure that:

- Proper operation of the SWDF is carried out
- Sampling and inspections are completed
- Information under the water licence monitoring program is provided to the Government of Nunavut Department of Community and Government Services (GN-TIN) for Annual Report preparation
- (Any further responsibilities of the CAO/SAO related to the SWDF)

2.2 Foreman

Name: Troy Aksalnik

Phone: (867)-645-2517

Email: works@rankininlet.ca

Responsibilities:

- Daily operations and maintenance of the SWDF
- Managing waste collection
- Proper segregation of waste
- Compacting and burning of waste
- Completing inspections and other maintenance activities
- The leachate sampling program at the monitoring stations
- Maintaining signage at the SWDF and monitoring stations

2.3 Solid Waste Site Attendant

Name: Tooma Irkootee

Phone: N/A

Email: N/A

Responsibilities:

- Daily operations and maintenance of the SWDF
- Manage Waste Collection
- Assist community members with waste disposal
- Report to foreman on SWDF operations

2.4 Solid Waste Truck Drivers

Name: Various

Phone: N/A

Email: N/A

Responsibilities: The drivers collect solid waste within the municipality from storage containers and deliver it to the SWDF.

3.0 Health and Safety

All personnel working within the SWDF must follow the Nunavut Safety Act and be made aware of potential health hazards associated with working around solid waste. This is imperative so individuals make a conscious effort to perform all necessary safety procedures to protect themselves, their co-workers and family members at home. Safety precautions include:

- Ensure all equipment is kept as clean as possible
- Protective clothing such as coveralls, gloves, boots, and safety glasses are to be provided to personnel and always worn when working around waste
- Workers must always wear protective gloves
- Work clothing is not worn home
- Workers must wash their hands with soap and water on a regular basis, especially before delivering drinking water, eating, and before going home
- Workers must keep their vaccinations up to date

4.0 Security and Control

Access Control of the facility:

- Perimeter fencing around the SWDF with a gate
- Signage
- Cameras
- 450 m restricted land use development setback surrounding the SWDF

5.0 Facility Operations

5.1 Municipal Waste Disposal

Municipal Waste Collection:	Trucked pick-up
Other Waste:	Drop off
Number of days per week waste is collected:	5
SWDF Type:	Natural attenuation

Type of waste received at the SWDF:

- MSW
- Bulky metal waste
- Hazardous
- Industrial, construction and institutional
- Sewage Solids

Overview of the SWDF:

The Solid Waste site in Rankin Inlet is composed of two main areas. In one area there is a bermed landfill with a road and fence around the perimeter. The other area is a miscellaneous storage area for waste that can not be landfilled. The total area of the site is approximately 7 ha.

The landfill area is used for the municipal waste collected from the community. There is a berm around the facility to contain the landfill with a road and a fence on top of the berm to mitigate waste from escaping the area. The garbage truck dumps the municipal waste in this area which is then compacted and covered with granular fill when enough waste has been accumulated. This fenced area is composed primarily of the bermed landfill, with an additional area in the NE corner for white waste. The landfill site enclosed by the fence around the perimeter has an area of approximately 4 ha.

The miscellaneous storage area is adjacent to the landfill area to the North. This area is used to store waste that is unable to be landfilled. There are multiple distinct piles of waste that ensures that similar wastes are grouped together. These piles consist of:

- Mixed Metals
- End of Life Vehicles (ELV's)
- Construction and Debris materials
- Hazardous Waste

There is a fence at the north end of the miscellaneous storage area with a gate at the road to prevent public access after the hours of operation. The attendant's shelter is located adjacent to this gate within the facility. The total area of the miscellaneous storage area is approximately 3 ha. Appendix A shows the overall layout of the Solid Waste Site.

Generation Data:

A waste audit was conducted by Dillon Consulting in 2019 which forecasted the annual tonnage of waste accumulated in Rankin Inlet. The calculated population used for 2025 in this study was 3,624 persons, which would accumulate 3,486 Tonnes of waste. Additionally Dillon Consulting estimated the annual waste accumulation for Automotive Batteries, ELV's, Tires, and E-Wastes, White Goods, Fuel Tanks, and Wood Waste. The categorized waste accumulation was calculated using a population of 3000 persons, the results are found in the table below.

Table 1: Categorized waste generation for Rankin Inlet assuming population of 3000 persons

Material	Annual Waste
Automotive Batteries	1.2 m^3/year
Tires	12 m^3/year
E-Waste	5.9 m^3/year
White Goods	220 m^3/year
Fuel Tanks	110 m^3/year
Wood Waste	1100 m^3/year
ELV's	380 m^3/year

Operations:

- The SWDF needs to be properly signed to inform operators and residents of the correct location to dispose of or store certain wastes. At a minimum, the SWDF should have disposal/storage areas for:
  - Domestic non-burnable waste (for landfilling)
  - Hazardous waste
  - Bulky Metal waste
  - Domestic burnable waste
- The waste truck driver collects municipal solid waste (MSW) from community buildings five times per week. The freightliner truck has a box size of 25 yards and is used to collect and transport municipal waste to the SWDF.
- The Waste Truck Driver is also responsible for ensuring collected waste is properly segregated and refusing the collection of hazardous waste if present. If properly trained, this

individual may also be required to operate heavy equipment within the solid waste disposal facility

5.2 Open Burning

Operations:

The community utilizes open burning to help relieve the accumulation of waste in the Solid Waste Site. The area for open burning is in the Construction & Debris area, where seacans have been orientated to create a horseshoe shape around the burn pile. These seacans are used to help control the burn and mitigate risk of the fire from spreading throughout the facility.

- Wastes for burning are identified and separated. Burning should only occur at the designated location at the SWDF and when winds are light and blowing away from the community. Which in this case is limited to winds that are blowing from North to South. To prevent incomplete combustion and/or leachate from contaminated ash residual from impacting any surrounding waters, waste that cannot be burned includes:
  - Non-wood building / construction materials (e.g. Styrofoam, roofing materials, electrical wire, insulation, plastics, asbestos, etc.)
  - Treated wood (e.g. telephone poles, pilings, cribbing, foundation wood)
  - Asphalt & asphalt products
  - Tires
  - Hazardous wastes
  - Waste paint
  - Fuel & lubricant contained
  - Aerosol cans & other compressed gas containers (e.g. propane tanks)

- Staff shall burn municipal waste in accordance with the GN's Environmental Guideline for the Burning and Incineration of Solid Waste (2012):

  - Wastes that can be safely open burned include: paper products, paperboard packing including boxboard and carboard, untreated wood including lumber and plywood, and natural fiber textiles.
  - Anything that can be done to reduce the moisture of waste burned will decrease the amount of smoke produced and increase the completeness of combustion. Waste should be covered or stored inside sheds or other secure buildings to keep rain and snow out of the waste. This will also lessen the opportunity for wildlife to access the waste. If wet waste must be burned, the wet waste should be mixed or layered with dry waste to reduce the overall moisture content of the waste burned.

- Large quantities of dark smoke indicate problems and inefficiencies with the combustion process and the generation of pollutants.
- If waste is to be open burned on the ground, the use of deep or steep-walled 'pits' should be avoided as this will prevent the necessary turbulent mixing of oxygen with the burnable gases.
- Any bottom ash not meeting the criteria set out in the *Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities* is considered to be a hazardous waste. This ash is not suitable for landfilling and its management must comply with the *Environmental Guideline for the General Management of Hazardous Waste*.
- Keep records of when, how much and what waste was burned, how the waste was loaded into the burning device or incinerator, the amount of smoke and bottom ash generated, how the fire was started and any other information that would help remind the operator of what worked well, and what didn't.

- The Municipality will also apply for a permit to burn through the Fire Department. Controlling the open burn is extremely important to reduce the risk of uncontrolled fire and hazards to the public, employees, and the surrounding environment.

- The weather forecast must be checked prior to any burning. If heavy rain is or will be present, burning should be postponed (burning during heavy rain events may result in poor or incomplete combustion and the potential to generate harmful contaminants). Confirmation of wind speed and direction prior to any burning. If loose debris can be carried by the wind, burning should be postponed.

- The SWDF must be closed to the public during burn events

- Burning only in the designated burn area and ensuring burning does not occur in landfill piles.

- Presence of an attendant during initial stages of the burn and periodic inspection of the burn once it has been established.

- Maintaining a minimum of 5 m buffer zone around the burning area and all ensuring attendants or personnel remain upwind of the burn area.

- Confirmation the waste is no longer hot or burning prior to the addition of more waste or covering with granular material. This can be accomplished by moving around the ash and remaining materials to ensure the fire is out and material can cool.

After every burn, once the MSW is confirmed to be cold and not burning, the CAT bulldozer should push the ash and remaining material to the landfill tipping face.

5.3 Metal Shredding

With the accumulation of bulky metals in the facility the community purchased a metal shredder in the summer of 2025 to help manage the metal buildup. The Lindner Urraco DK 75 shredder can easily shred most of the bulky waste at the site. The shredded product is blended with the granular fill used for the cover of the landfill.

Operations:

- Before operating the shredder check the machine to make sure it is in proper condition, as well ensure the surrounding area is clear of hazards
- Maintain a minimum of 20 m of buffer away from the shredder while in operation
- The operator should always have the remote controller of the machine on their person in case the machine needs to be shut down
- Metal collected for shredding is scooped in the bucket of a loader and dumped into the shredder, careful not to overload the collection hopper
- The operator should stay in the cab of the loader while the shredder is in operation to prevent risk of being struck by the metal
- In the case of a jam the operator must shut down the machine before assessing the problem, and return a safe distance away before resuming operation

5.4 Hazardous Waste Management

Hazardous wastes are those that are known to be dangerous due to their chemical, physical or biological properties, are no longer used for their original purpose, and are intended for recycling, treatment, disposal, or storage. All hazardous wastes require special handling, storage, and disposal methods to prevent human health and environmental exposure.

The Environmental Guideline for the General Management of Hazardous Waste (GN, 2010) provides information regarding the proper management of hazardous waste in Nunavut. The generator of any hazardous waste is ultimately responsible for ensuring it will be properly managed from is creation to its disposal. Generators typically use carriers to transport the hazardous waste to appropriate receivers for disposal.

The hazardous materials brought to the Solid Waste site are stored in the East side of the road in the miscellaneous storage area. The hazardous wastes collected in the facility are organized by type of hazardous waste.

Hazardous liquids are collected in their original containers, 55 gallon drums, or 1000 L tanks. There are multiple different collection containers for different hazardous liquids as many of these liquids are harmful if they mix. Once the containers are filled with waste liquid they can be sealed shut and grouped with the other full containers. Batteries are stored in crates or on pallets to keep them off the ground. Multiple seacans are in this area for storage and are utilized in backhauling events to reduce the accumulation of hazardous waste.

Typical HHW which may be found in the municipality include:

- Pesticides and herbicides
- Paint
- Solvents (e.g., paint cleaners)
- Flammable liquids
- Corrosive cleaners
- Batteries (wet and dry cell)
- Used fuel and oil
- Corrosive Explosive Flammable Poison
- Certain items considered HHW cannot be stored at the MSW disposal facility, however. These include:
    - Ammunition, flares and explosives (including fireworks) – contact the RCMP for proper disposal
    - Prescriptions, medications, and bio-hazardous wastes (includes syringes) – dispose of these at the Nursing Station and/or Health Care Centre
    - Reactive chemicals – contact the Government of Nunavut Department of Environment (GN-DOE) office for disposal options

Contaminated soil can be accepted in the communities designated landfarm, which is located 4 km NW of the community. This facility is surrounded by a lined berm and is permitted to accept Type B contaminated soils, with no heavy metals, glycols, and heavy oils to be placed in the landfarm. For more information on this facility refer to water license 1BR-RAN2131.

Operations:

- The SWDF needs to have an area set aside as a hazardous waste storage area. This area should be fenced with a lockable gate and have appropriate storage options for expected HHW. This area also needs to be properly signed as the "Hazardous Waste Storage Area". Proper signage helps operators, as well as the general public when residents arrive to dispose of their wastes. This area is intended for storage only, not disposal.

- The bulk metal/hazardous waste storage area is intended for storage only, not disposal. It is expected that hazardous wastes will be stored for up to five years. This should be sufficient time for the community to build up enough waste to make it economical for a back haul out of the community to a licensed waste receiver.

- Since the SWDF is generally accessible to the public, residents can come and drop off HHW throughout the year. However, the general public should not have direct access to the Hazardous Waste Storage Area for health and safety reasons. A designated public drop-off area for HHW should be used. The public drop-off area should be tended to regularly by the Foreman.

- Inspection of the hazardous waste storage area should occur weekly inspections by the Foreman.

5.4.1 Storage

Hazardous waste storage containers are designed to hold, store and transport small quantities of waste. Many different types of containers are available (i.e. barrels, bottles, bags and boxes) and are made from a variety of materials (i.e. aluminum, plastic, steel, and stainless steel). Selecting the proper container requires an understanding of the properties of the waste to be stored. If transport is to be undertaken, the generator should consult the Transport Authority to confirm the container meets all legislated requirements. The following are additional general points for consideration:

- Hazardous waste should be stored in their original containers where possible or in containers specially manufactured for the purpose of storing hazardous waste. The containers must be sound, sealable and not damaged or leaking. Sea can is the best option.

- Containers should be clearly labeled to identify their contents according to requirements of the Workplace Hazardous Materials Information System (WHMIS) and the relevant Transport Authority, if transport is planned.

- Small quantities of compatible hazardous waste should be bulked into 16 gauge or equivalent metal or plastic 205 litre (45 gallon) drums for the purpose of secondary containment.

- Containers should be closed and sealed at all times, except while waste is being added or removed.

It is important to know which types of waste do not mix well when storing them. This helps prevent violent, explosive reactions and toxic fumes. To store wastes safely, different systems have been created. One example is the 'Hazardous Waste Compatibility Chart' adopted by the United States' Environmental Protection Agency.

All HHW collected needs to be properly stored in sea cans to minimize any environmental and human health hazards. The GN-DOE provides information on proper storage of specific HHW; these include:

- **Antifreeze** – use original containers where possible, or bulk-store waste antifreeze into good condition 16 gauge or lower gauge steel or plastic 205 L drums.
- **Batteries** – bulk-store waste batteries into good condition 16 gauge or lower gauge steel or plastic 205 L drums, or other form of containment away from weather; wooden pallets should be used to keep batteries and containers off the ground during storage and transport.
- **Fluorescent light tubes/compact fluorescent light bulbs** – use original containers where possible and prevent breakage of light tubes/bulbs; keep away from weather.
- **Ozone Depleting Substances (ODS)** – do not landfill; wastes with ODS (i.e., refrigerators and refrigeration equipment, vehicle air conditioners, ODS-containing fire extinguishers (typically purchased before 1997) should be diverted to the bulk metal waste disposal area. The Hamlet can hire technicians to remove ODS from stored equipment.
- **Paint** – use original containers where possible, or bulk-store compatible paints into good condition 16 gauge or lower gauge steel or plastic 205 L drums; do not mix different types of paint (i.e., alkyd and latex).
- **Solvent** – use original containers where possible, or bulk-store compatible waste solvents into good condition 16 gauge or lower gauge steel or plastic 205 L drums.

As the Hamlet currently stores waste oil in drums at the bulk metal/hazardous waste storage area (if not burned within BLCS' waste oil burners), it is recommended they register the site as a hazardous waste storage facility with the GN-DOE Environmental Protection Services (R. Eno, pers. comm.).

5.4.2 Sewage Treatment Screened Solids

The sewage treatment facility accumulates screened solids from the treatment process that requires disposal. The GN-TIN is responsible for the collection and delivery of the screened solids. They are collected in bags and loaded in a pickup truck to be delivered to the Solid Waste Site. These loads are brought every 3-4 days, with a volume of approximately 30 gallons per load.

There is a designated area in the Hazardous Waste portion of the Solid Waste site where the screened solids are to be disposed at. This is located at the South end of the hazardous waste area and north of the fence surrounding the landfill. In this area there is a trench that the bags of screened solids are placed in. Once the trench is filled with enough bags the trench is backfilled to contain the odour as well as to prevent exposure from the outside elements.

5.4.3 Classifications of Dangerous Goods:

Class 1 – Explosives
Class 2 – Compressed Gases
- Division 2.1 – Flammable Gases
- Division 2.2 – Non-flammable and Non-toxic Gases
- Division 2.3 – Poison Gases

Class 3 - Flammable Liquids
Class 4 – Flammable Solids
- Division 4.1 – Flammable Solids
- Division 4.2 – Spontaneously Combustible
- Division 4.3 – Water Reactive

Class 5 - Oxidizing Substances and Organic Peroxides
- Division 5.1 – Oxidizing Substances
- Division 5.2 – Organic Peroxides

Class 6 - Toxic and Infectious Substances
- Division 6.1 – Toxic Substances
- Division 6.2 – Infectious Substances

Class 7 - Radioactive Materials 2
Class 8 - Corrosives
Class 9 - Miscellaneous

1. Class 1 substances (Explosives) are regulated by Natural Resources Canada under the Explosives Act.
2. Class 7 substances (Radioactive Materials) are regulated by the Canadian Nuclear Safety Commission under the *Nuclear Safety and Control Act and Nuclear Liability Act.*

6.0 Maintenance

Overview of Maintenance Activities:

- Annual inspections will be undertaken by Crown Indigenous Relations and Northern Affairs Canada (CIRNAC) accompanied by a licensee and/or a licensee representative from GN-TIN. The inspection report and recommendations will be reviewed by a GN-TIN municipal engineer and submitted in the Annual Report submitted to the Nunavut Water Board (NWB).
- Regular visual inspections by municipal staff of the:
  - Berms
  - Fence
  - Signage
  - Presence of water runoff in the SWDF

Any issues identified by municipal staff must be reported to the regional municipal engineer. Follow-up actions will be undertaken by the municipality with technical support from the GN-TIN.

7.0 Monitoring

Regulatory Inspection:

The annual Crown Indigenous Relations and Northern Affairs Canada (CIRNAC) inspection will take place accompanied by the licensee from the Municipality and/or with a licensee representative from GN-TIN. The inspection will be reviewed by a GN-TIN municipal engineer and submitted with the annual report.

Table 2: Licence Requirements Related to O&M of the SWDF

Requirements	Reported
A summary of modifications and/or major maintenance work carried out on the SWDF	Proposal submitted to NWB 60 days prior
A list of spills and unauthorized discharges	Annual report submitted to NWB
A summary of any studies requested for the SWDF and future planned studies planned	Annual report submitted to NWB
The Licensee shall sample water quality at Monitoring Stations RAN-2 monthly during the season of observed flow	Annual report submitted to NWB
A summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year	Annual report submitted to NWB

Table 3: Monitoring Program Station Description and Locations

Station	Description	Latitude	Longitude
RAN-2	Runoff from the Old Landfill	62º47’57.7”	92º04’33.4”

8.0 Surface Water Management

At some point, for a variety of reasons, impacted water may accumulate in the landfill, hazardous waste storage area, or the bulky metals area. The water may or may not be impacted by leachate, hazardous wastes, or contaminants from land farmed soil. In the event this occurs, the following procedures will be followed:

- Collect samples from the water licence monitoring program at stations as outlined in the Environmental Monitoring Program and QA/QC Plan. It is recognized that it may take some time for results to be received from the accredited laboratory.
- Analyze samples for parameters of concern and compare the results to the relevant Canadian Water Quality Guidelines.
- Water should be inspected for odours, stain, or signs of visible impact (sheens, floating scum).
- Consult with the GN-TIN municipal engineer and CIRNAC on discharge options.

9.0 Modifications and Upgrades

Planned modifications or upgrades:

Business Case for a remediations for the Solid Waste Site was approved by the council in September 2025

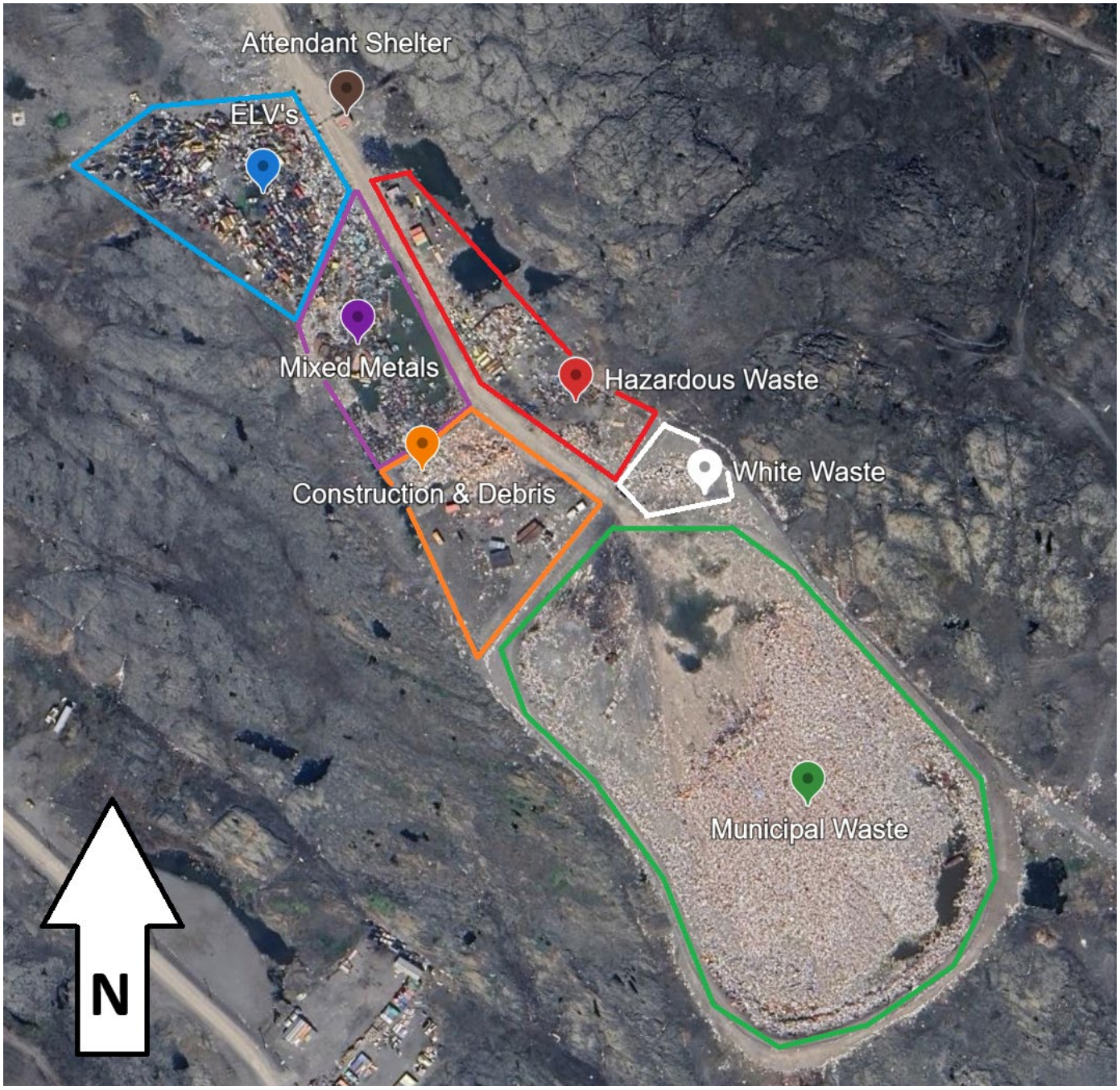
10.0 Previous Reports

- Solid Waste Management Facility Operation and Maintenance (O&M) Plan Hamlet of Rankin Inlet, Nuna Burnside, December 2008

- Operation and Maintenance (O&M) Plan Solid Waste Site Hamlet of Rankin Inlet Nunavut, GN-CGS, September 2015

Appendix A

Solid Waste Site Layout


Attendant Shelter
ELV's
Mixed Metals
Hazardous Waste
White Waste
Construction & Debris
Municipal Waste
N