

Waste Management Plan
Arctic Kingdom Wilderness Holdings Inc.
Blachford Lake Lodge

Project	MV2017L3-0005
Location	Latitude – 62* 09' 55" N, Longitude – 112* 40' 59" W
Date of Submission	July 8 th , 2024,
Version #	Arctic Kingdom Version 1
Submitted by	Amy Isaikina (Blachford Lake Lodge)
Submitted to	Erica Janes - MBLWB

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Waste Management Plan

1 – Introduction

a) This is the Waste Management Plan for Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge)

Company – Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge)

Contact – Amy Isaikina, Manager, amy.isaikina@arctickingdom.com

Site Location – Latitude – 62° 09' 55" N, Longitude – 112° 40' 59" W, Map Sheet Number – 85 I-2

Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge) has prepared this waste management plan for operating our commercial fishing lodge, on our land lease agreement in the Mackenzie Valley. This plan demonstrates that BLL has appropriate regulations, plans, guidelines, equipment, and training in place to safely reduce, reuse, recycle, recover, treat, and handle and waste created onsite. Our site is located 60 air miles east of Yellowknife at the gps coordinates mentioned above, situated on Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge) in the Mackenzie Valley.

The Lodge is strictly a tourism business with the purpose of operating a lodge for tourists of various nature to temporarily visit the specific plot of land outlined in the lease. The nature of their visits and activities varies, but includes aurora, nature, wilderness, northern environment, education, family, retreat, conferences etc. A camp of 22 buildings supports the lodge, all off grid in a remote location. Other points of interest pertaining to waste management are our recycling organizer, garbage bin, four fuel storage areas, one hazardous materials storage area, four fuel pumping sites, one covered sump, two industrial composting toilets, five self contained composting toilets, several plots of composted soil, a composter, and five outhouses. The effective date of this waste management plan for Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge) is June 25th, 2024. Although we do note that the waste management has been carried out in this fashion since the existence of our lease on the property.

From this date forward the WMP will be reviewed annually, factoring in any stills that have occurred during the year, and amended as needed. This plan has a review date of November first of each forthcoming year. This plan applies to all operations within our legal land lease and complies with the guidelines and regulations that we are under.

b) Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge) is held under and holds various regulated and personal environmental policies. In accordance with the Mackenzie Valley Lands and Water Board the operation is bound to comply with existing regulations, to provide such protection of the environment as it is technically feasible and economically practical, to cooperate with other groups on the protection of the environment and to keep employees, government officials, and the public informed

In addition to our licensing, permits, and applications, the operation is required under our lands lease, under the section 'Environmental' it is stated, and we comply that:

- The lessee shall always keep the land in a condition satisfactory to the minister.
- The lessee shall not unduly interfere with the natural drainage pattern of the land, except with the permission of the minister.
- The lessee shall not do anything which will cause erosion of the banks of any body of water or adjacent to the land and shall provide necessary controls to prevent such erosion.

Under the section 'Waste Disposal' it is stated, and we comply that:

- The lessee shall dispose of all combustible garbage and debris by burning in an incinerator approved by the Land Agent and remove all non-combustible garbage and debris to an authorized dumping site.
- The lessee shall dispose of human waste in a manner satisfactory to the Minister.
- The lessee shall not discharge or deposit any refuse or other waste materials in any body of water, or the banks thereof, in will, in the opinion of the Minister, impair the quality of the waters or the natural environment and any areas designated for waste disposal shall not be located within thirty-one meters of the ordinary high water mark of any body of water, unless otherwise authorized by the Minister.

Please also refer to all the sections under the lands lease definitions for our required outlook and care of the land, community, and environment associated with our operation.

On a separate entity, Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge) strives to exist as environmentally and sustainably as possible. We note our initiatives and goals pertaining to the community and environment later in this plan as well as on our website, and in company policies.

The waste undertaking is as simply as Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge) trying to live as sustainable and environmentally on the land as possible. This relates to the

coverage of waste management as it is in our interest and diligence to responsibly break down our waste as much as possible. We use and reuse most materials and all inorganic materials are broken down and shipped back to Yellowknife for proper disposal. This covers all wastes like garbage, all types of recycling, hazardous waste, foods, fuels and oils, etc.

c) The purpose and scope of the Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge) waste management plan is to outline the active management processes for our facility to reduce the amount of sources needed, reuse, and recycle as much of our created waste as possible, to treat any matter that is handled and disposed onsite, and ship out the remaining waste that we are unable to handle onsite for proper disposal in the designated facilities in Yellowknife.

Source Reduction: The lodge and camp exist in a remote area in which goods, services, and people are only able to access the site via aircraft, specifically summer floats, winter skis, or helicopter. With our geographical location it is in our best interests, and cost, to eliminate anything that is non-essential from coming to the site, strictly monitor and control our inventories, substitute and simplify materials for better space and environmental concern, and to train our staff on and off site to be mindful of usages, impacts and efficiencies. With these steps, we only ship what is efficient, environmentally friendly, and needed to the location of the site.

Reusing: All and any materials that can be reused onsite, and off are. This includes materials just as container for storage, materials for construction, and simple day to day equipment. We often have the motto “use it up, wear it out, make it do, or do without” posted in all areas of our camp.

Recycling: Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge) hold green policies that state that all material that can be, must be recycled. We have a small recycling organizer onsite in which we breakdown our recycling into categories in accordance with the NWT recycling systems, bag and store the recycling until the next available aircraft back to the refundable and non-refundable centers in Yellowknife.

Treatment: Blackwater generated at the site is managed and pumped out to a sump for disposal.

Release to the Receiving Environment: No waste is disposed of, deposited or released into the environment. Separately and covered in a later section of the waste management plan, Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge) does operate a covered sump for the safe and healthy release of black water back to the land.

As stated in section c) part of the purpose and scope of our plan is to comply with all applicable acts, regulations, authorizations, LUPs, Water Licenses, and Lease Agreements that we are bound to.

Feel free to browse our website for the many environmental initiatives that we operate with (www.blachfordlakelodge.com) that attribute to our waste management goals and objectives.

d) The operation of Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge) is currently in action and has been since the existence of the camp and lodge, starting in 1981.

Blachford Lake Lodge tries to live as sustainable and environmentally on the land as possible, this includes breaking down our waste as much as possible. We use and reuse most materials and all inorganic materials are broken down and shipped back to Yellowknife for proper disposal. This covers all wastes like garbage, all types of recycling, hazardous waste, foods, fuels and oils, etc.

All organic human waste is handled via two types of systems. One being composting toilets, the clivus multrum is an industrial sized composting toilet that is in the main lodge, and we five additional self-contained composting toilet units in our Eagles, Ravens, Beaver, Trappers and Point guest cabins. Second being deep pit outhouses. The composting toilets turn the waste into food grade soil after two years, which is then transferred into our local gardens. Please note that bulk from composting toilets has its own composting station separate from the 5 stage organics composter listed below. Liquid effluent is pumped out of the clivus multum composter daily and filtered into the lodge's black water system. The self-contained units burn off the effluent, so it does not need to be pumped out. The composters produce aerobic gas, which cannot be turned into methane, there for is ventilated out through stink chimneys at the top of the lodge.

The pit outhouses only contain waste, paper and sawdust for smell deterrent and decomposition. Upon being filled they are then covered, and a new pit is dug.

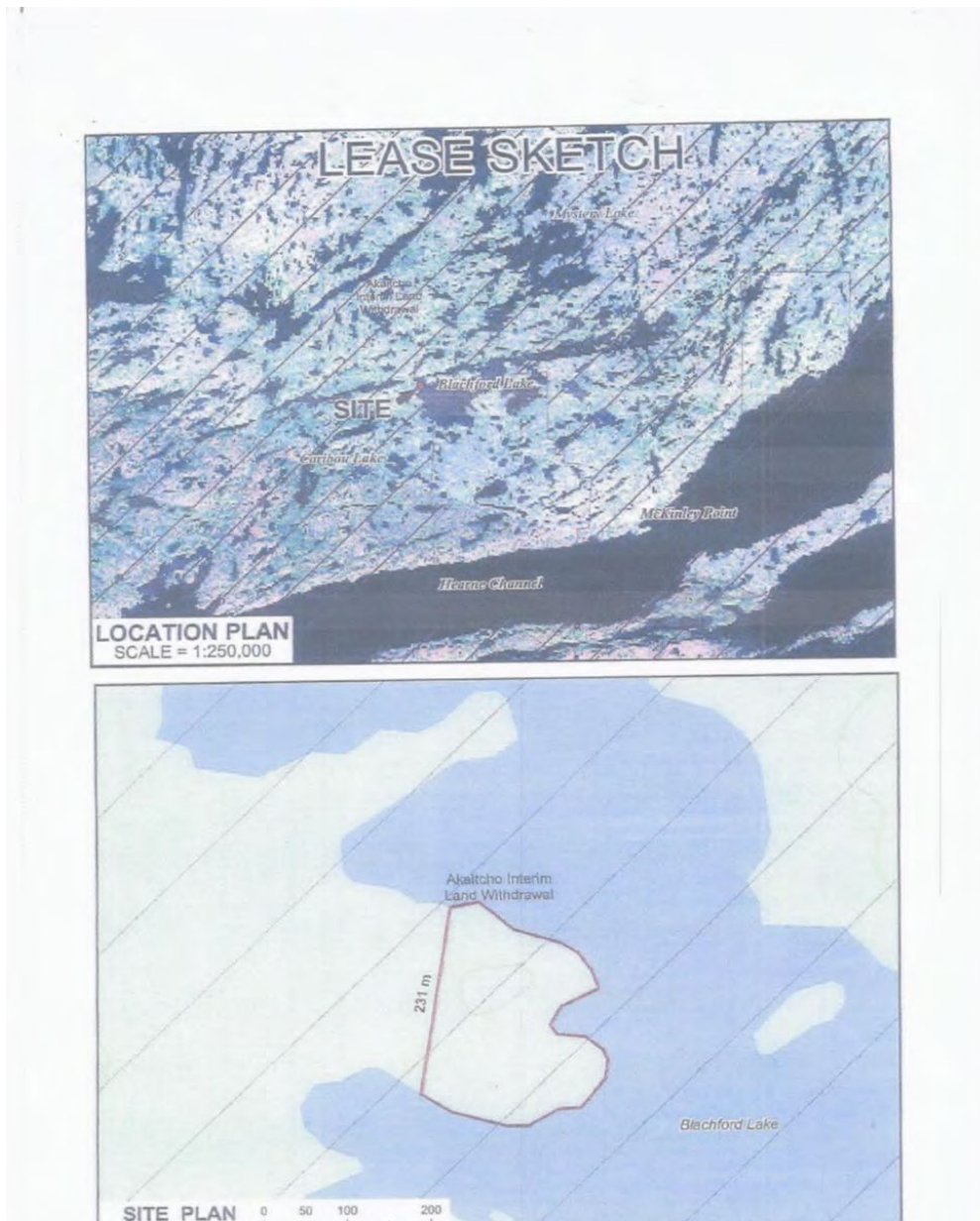
Brush, trees, and organic overburden are all processed through our five bin stage compost system. This mixes the organics with compost, and carbon ash from the woodstoves, and lets it decompose over time until the result is soil. The soil is then used for gardening.

Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge) does its best to order only environmentally friendly products, as well as all it can with ordering, usage and disposal of all other items to try and minimalize our waste of all kinds.

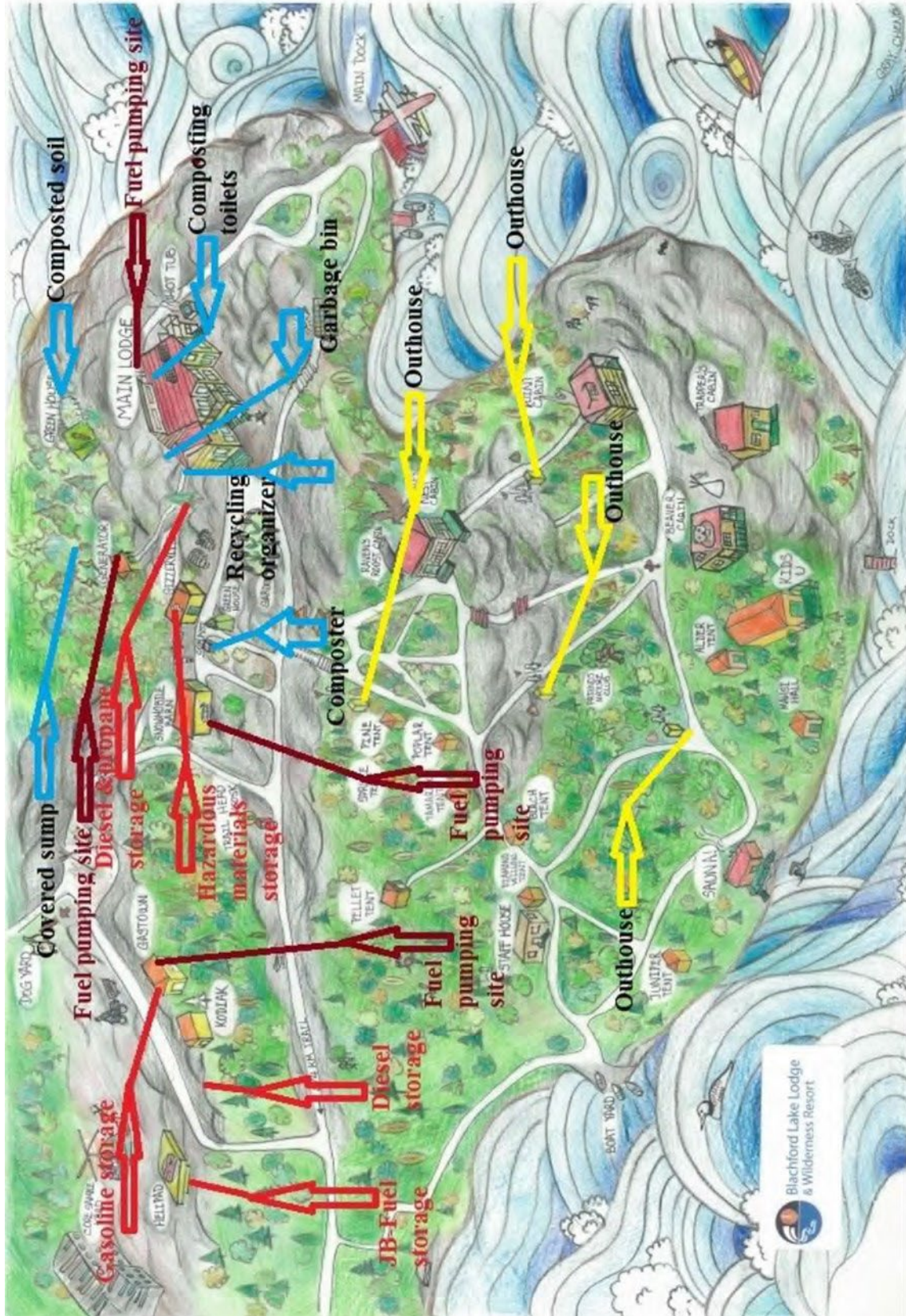
The only substance that is released into the environment is the organic gas from the composting toilet, it is natural and has no impact on the environment.

e) Most waste management activities and processes take place at the onsite location. Please see the following two maps for reference:

- 1) Lands Lease Sketch (Latitude 62° 09' 55" N, Longitude – 112° 40' 59" W, Map Sheet Number – 85 I-2, Scale 1:250,000 and 1:5,000) showing the location for all on site activities.



2) Our site plan that provides specific locations of waste management areas.



Blachford Lake Lodge – Waste Management Plan – Version 1

f) All other inorganic materials that are not actioned on site, are packed in appropriate containers, and shipped via aircraft back to Yellowknife for disposal at designated waste facilities. Garbage, and food waste is taken to the YK dump, refundable recycling is taken to the YK bottle depot, non-refundable recycling is disposed of at the YK coop, hazardous waste is taken to the dump on allocated HW dates that occur in the spring and fall of each year, and any fuels or oils are taken by Basset Fuels. \

WASTE GENERATION AND MANAGEMENT AT BLACHFORD LAKE LODGE

Type of Waste	Source Generation	Volume Used / Created	Storage	Disposal	Potential Environmental Effects
Human Waste	Humans	Approximately 800 liters annually, fluctuating in the number of people onsite throughout the term	Stored in either the industrial clivus multrum composting toilets or outhouses.	The clivus is empty annually into soil plots, and composted for 2 years as per health and safety regulations from the GNWT health department, before being used for gardening. Outhouse pits are covered when full and a new pit is dug. (Human waste needs to freeze for 2 years before its food grade soil classified.	Positive impact of creating garden soil
Black Water	Entire camp water usage, sinks, showers, drains, and effluent pumped out of the clivus composting toilets.	1800 liters daily	Stored in liquid tanks until full, then pumped out on reoccurring cycles	Pumped out to covered sump for natural evacuation into the ground.	No impact on site

Recycling	All materials that can no longer be used after purchase	4 standard bags per week	Stored in the recycling organizer until the next available flight to YK	Refundable are taken to the YK bottle depot, nonrefundable are taken to recycling centres.	No impact on site
Chemical Waste	Paint cans, some cleaner containers etc.	Approximately 15 paint cans and 15 other containers per year	Stored in containers until shipped back to YK on appropriate dates.	To be disposed of at KBL Environmental on allocated dates.	No impact on site
Hazardous Materials	Batteries etc., all other hazardous waste material byproducts	50 lbs per year	Stored in containers until shipped back to YK on appropriate dates.	To be disposed of at KBL Environmental on allocated dates.	No impact on site
Electrical Equipment	Expired, broken, unrepairable electrical devices	50 lbs per year	Stored in containers until shipped back to YK on appropriate dates.	Disposed at the YK dump on allocated dates. Electronics recycled at The GNWT's Bottle Shop.	No impact on site

Scrap Metal	Breakdown of metal that cannot be repaired	100 lbs per year	Stored in containers until shipped back to YK on appropriate dates. No impact on site dates.	Disposed at the YK dump on allocated dates.	No impact on site
Rubber Products	Breakdown of Garbage	10 lbs per year	Stored in containers until shipped back to YK on appropriate dates.	Disposed at the YK dump on allocated dates.	No impact on site
Construction Materials	Leftover material from any carried out projects	Reused onsite. Not usable 5 standard garbage bags per year	Stored in the garbage bin until next available flight to YK	Disposed of at the YK dump.	No impact on site
Used oil, fuels, solvents	Barrels are reused for fuel. One time oils and solvents for machinery maintenance	10 gallons of waste fuel per year. 1 Gallon of other solvent per year	Stored in sealed containers in appropriate fuels areas until container are full then shipped back to YK.	Oil and fuels disposed of by Basset Fuels. Solvents disposed of at KBL Environmental.	No impact on site

Antifreeze	Needed for liquid lines in the winter	12 liters per year	Stored in sealed containers in appropriate Hazardous Materials areas until container are full then shipped back to YK.	To be disposed of at KBL Environmental.	No impact on site
Carbon Material	Mainly cardboard from shipping, the lodge also breaks down and separates its paper waste	10 lbs per week	Stored in the recycling organizer or allocated bins in the lodge.	All reused as fire starter on site.	No impact on site
Food Waste	Kitchen Scraps	2 5 gallon pails per week, sorted by compostable and non compostable.	Stored in pails until the pails are full.	Compostable are added to our composting systems. Non compostable food wasted is shipped back to Yellowknife for disposal at the dump.	No impact on site
Organic Waste (brush, ash etc.)	Trail maintenance, wood stove ashes etc.	6 square meters per year	Stored in the composter	Added to the composter	No impact on site

Garbage	All other material that cannot be reused or classified in this table.	4 standard bags per week	Stored in the garbage bin until next flight to YK	Disposed of at the YK dump	No impact on site
Appliance Equipment	Unrepairable breakdown of appliances	1 appliance every two to three years	Stored in containers until shipped back to YK on appropriate dates.	Disposed at the YK dump on allocated dates.	No impact on site
Contaminated Soils, Ice or Snow	Should a spill or contamination occur	N/A	Stored in containers until shipped back to YK on appropriate dates.	Disposed of at allocated facility in accordance with Lands and ENR	If cleaned up properly, there should be no impact on site with waste removed.

Off-site Disposal: If waste is proposed to be disposed of off-site within the NWT, written confirmation (e.g., an email, letter, etc.) from the facility/facilities indicating they will accept the waste is required. Include it/these in your Application Package. Please note this information will be required by the Board prior to commencement of activities.

Please note that the YK SWDF does not provide written confirmation for us as a user of their site. We are a residential user, not a contractor account holder. Blachford does an excellent job at reducing its refuse with composting and environmental initiatives. There are only a few garbage and recycle bags, and a couple food waste buckets sent back on a monthly basis. These are transferred to the YK SWDF in the van by our expeditor. We pay for a vehicle load per trip. Please reference the following information from their website: <https://www.yellowknife.ca/en/living-here/garbage.aspx#Commercial-Contractor-Access-Hours-to-the-Solid-Waste-Facility-SWF->

Residential Public Access to the Solid Waste Facility

Monday: Closed

Tuesday to Sunday: 11:00 a.m. to 4:15 p.m.

Closed: Holidays

Any vehicle that accesses the site for disposal must ensure they are off site for closure at 4:15 p.m.

To ensure this takes place, large loads (such as a full truck load, a trailer, etc.) will not be accepted during the last 15 minutes of operation time or after 4:00 p.m.

Tipping Fees	Effective as of March 1, 2024	Effective as of June 1, 2024
Vehicle Charge for the disposal of residential waste and other waste such as yard waste and construction waste, good clean scrap wood	\$16.50 per vehicle	\$16.50 per vehicle
Organics, Grass Clippings and Leaves	No charge	No charge
Unsecured Load (at the discretion of Gatehouse Attendant)	\$82.25 additional charge	\$82.25 additional charge

g) There is no official physical site description other than that which is stated in the land lease. Physically the camp is located on an approximate three-acre peninsula on the west end of Blachford Lake, located in the Akaitcho / Mackenzie Valley area. Surface wise the land is bare rock, with minimal soil or treed areas. The bulk of the land is an elevated rocky outcrop rising in elevation from the surrounding body of water. There are no naturally occurring flows or drainages of water that occur on the land.

Water usage at Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge) is for the purpose of municipal usage by the persons on site. The water specifically is only used for drinking, showering, and dishes.

The collection of water is done via two systems pending on the season. In the summer seasons with no ice on the lake a submersible pump is placed in the lake 10 meters from shore. The pumps are connected to a 40 meter above ground pipeline that runs to our storage tanks. The pump is powered by

electricity that is produced on site. The pump is manually turned on and off once per day to fill the tanks. Prior to entering the tanks, the water is run through a water usage meter, an automatic bleach injector, and two filters between the end of the water line and the opening of the tank. The storage tanks are two 1000 liter tanks that are stored in the crawlspace of the lodge and feed the water system to the only building on site. Monitoring the water is done in various ways including daily testing of chlorine levels in the drinking water onsite, reading and recording the volume of usage daily and updating the record of usage log, weekly water samples sent to YK labs for bacteriological testing and water cleanliness, and the automatic bleach injector ensure that the water is accurately chlorinated as per code required by the Stanton Regional Health Board.

All waste is dealt with in non-water systems including a composting toilet, food composter, and the rest of the waste is shipped back to Yellowknife to be disposed of properly.

Waste water from sinks, and showers is collected in two large tanks, 1000 liters and 500 liters. When the tanks are full the black water is then pumped out a 400 meter to an on land covered sump that is located adequate distances from all buildings, water sources and supplies. The black water is treated with environmentally approved bacteria to encourage smell reduction and environmental stability.

2 – Identification of Waste Types

Please refer to Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge)'s Spill Contingency Plan for all details of waste type spills onsite.

3 – Management of Each Waste Type

Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge) does not have any other waste types onsite that require separate waste management plans.

It is noted that for all the simple waste types that are actioned in section 3.2 above that the management of the lodge, as well as the additional support in Yellowknife, do continuously monitor the need, sourcing, shipping, reduction, reuse, handling, storage, processing, collection, separation, transportation, and disposal of the materials. This is to ensure maximum efficiency and quality of care for our waste management and environmental policies.

Please refer to section 3.1.d) for the rationale for the methods that we have in place for each waste type. Our entire system is based on the premise that the lodge and camp exist in a remote area in which goods, services, and people are only able to access the site via aircraft, specifically summer floats, winter

skis, or helicopter. With our geographical location it is in our best interests, and cost, to eliminate anything that is non-essential from coming to the site, strictly monitor and control our inventories, substitute and simplify materials for better space and environmental concern, and to train our staff on and off site to be mindful of usages, impacts and efficiencies. With these steps, we only ship what is efficient, environmentally friendly, and needed to the location of the site.

For the three types of waste that are actioned on site our explanation for rationale is as follows:

Human Waste – Prior to the creation of the main lodge facility, much research was carried out to obtain the best method in which to handle larger amounts of human waste with the least number of resources needed, least environmental impact, least amount of energy used, etc. The main options that were available to us were composting toilets, a septic system and leeching pit, or pump able tanks that would require transport back to a facility for disposal. For our options and our interests, the composting toilets were the best option on all levels for the management of human waste. They have a positive environmental impact, allowing us to great garden soil from the by-product, require no water, power or other resources for the use or maintenance of the system, and were the best option in the feasibility of construction of the systems.

Black Water – As with the human waste management the design of the lodge had the same considering factors of with the least amount of resources needed, least environmental impact, least amount of energy used, the simplest and cost effective construction etc. With the location of the site and the environmental policies, the only liquid effluent in the black water is from sinks, showers, drains, etc. As the lodge uses only environmentally friendly products the black water is a safe content according to regulations to dispose of by a covered sump, located 500 meters from the main lodge, in which the water evacuates back into the ground through a natural depression.

Carbon Material – Part of the reducing and reusing processes at Blachford is the burning of all carbon material that is brought to or created on site. This rationale is complete common sense and satisfies the need to source fire started as well as the need to dispose of the carbon material. A mutual win situation. Items included in the carbon designation are cardboard boxes, egg cartons, news papers, shipping paper, etc.

4 – Infrastructure Required for Waste Management

Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge) has a small, covered sump used for disposal of black water in accordance with regulations.

4.1 – Sump Infrastructure and Management

In addition to the general information described in section 3.4 above, the following information is specific to the onsite covered sump at Arctic Kingdom Wilderness Holdings Inc. (c/o Blachford Lake Lodge):

- a)** There is approximately 1800 liters of black water pumped to the sump daily, for 10 months of the year. The additional two months of the year would see 400 of black water pumped to the sump daily. The properties of this water contain the effluent from the lodge drains, sinks, showers, effluent from the clivus composting toilets, etc., which are used with only environmentally friendly products.
- b)** The black water waste volume is pumped 1000 liters at a time, when the holding tanks reach full, on a regularly re occurring basis. The sump has been maintained at the same size since its creation, showing that it was designed to handle the same balance of water deposited into the sump and back into the ground.
- c)** Local environment it a rocky outcrop where the main lodge is located that slops downhill into a natural depression where the covered sump is located. There are no other drainage or natural land occurrences in the area.
- d)** Construction of the sump was completed through the following process:
 - Natural depression in the land located 500 meters behind the main lodge
 - Analysis and design created with owner, lands officer, engineers and contractors
 - Record of the natural depression, surrounding flora and fauna done to me able monitor any environmental changes
 - Pipe was installed from the basement of the main lodge to the sump location to pump the black water
 - Sump was covered with wood chips and saw dust, which are added to annually factoring decomposition.

e) The covered sump is actively monitored by the onsite management staff, as well as the local lands inspector on their regular visits. Testing is done to all surrounding water bodies, marking is done to note and changes in size, or environmental impact to the immediate area, sight, color and health of the surrounding flora and fauna are all monitored regularly. We note that there have not been any changes or negative impact but continue to monitor should there be any changes we can analyze, assess, and reassess the sump if need.

5 Effective Date

This Plan, Version 1 is effective as of July 8th, 2024. While this Plan is undergoing a public review, the previous version of the Plan shall take precedence and be acted in accordance with until the Board approves a subsequent Plan version.

6 Revisions

This Plan is a living document that will be reviewed annually, at a minimum, and prior to the start of any site activities, with additional reviews as warranted. Updates should be made to reflect changes in engagement plans and practices, new personnel and associated contact information, and to regularly update the engagement log. Table 1 presents a summary of the versions of this Plan and any revisions made; it is updated each time a revision is made to the Plan. This ensures stakeholders have the most current copy of the Plan.

Table 1: Version and Revision History

Version #	Date	Sections/Pages revised	Summary of Changes/Comments
Version 1	July 8 th , 2024	First Version updated by Arctic Kingdom	Contact information and formatting updated.

