



Operating and Closure Plan Community Composting Hub

Located at 4032 12th Ave, New Hazelton, BC

Version 4
September 20, 2024

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Social Media (Facebook): Making Agriculture Sustainable in the Hazeltons

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Introduction

Making Agriculture Sustainable in the Hazeltons (MASH) is a non-profit organization focused on food security in the Hazeltons. Our programs support small-scale farmers and the infrastructure that is critical to making their operations sustainable, and considers the whole food system in their design and implementation. We collaborate with other organizations whenever possible and do our best to deliver community outreach and education with a holistic filter. This includes acknowledging how our services complement efforts to mitigate and adapt to climate change, as well as wildlife/human conflict. We offer three main programs - Community Composting (new in 2024), Apple Pressing (since 2020), and an Equipment Lending Library.

The Community Composting Program is solely delivered by MASH, which consists of an Executive Director, a Board of Directors and 52 members. Over 10 community members have worked or volunteered at the Hub in various roles to date including our Community Advisory Team. We also have remote support from Tamara Shulman Consulting, Belinda Li, PhD candidate, Nicole Kohnert, P.Eng, and John Paul, PhD and composting system expert of Transform Compost Systems.

MASH identified community composting as a priority through a September 2023 community survey ranking potential solutions to improve food security and support climate action in the region. Like other northern communities, the soil quality in the Hazeltons is poor and there is high demand for soil amendment. There is some casual organics management by diverting suitable food scraps to local farmers as animal feed and some farmers and residents engage in backyard composting. There is widespread concern about bears in the region and this has been a barrier to many for backyard composting. The Hazelton area had no formal organics management processing options when we opened up in June 2024. The only option for officially managing organic material is bringing it to the landfill, where it is buried or burned.

This Operations Manual began as part of the requirements to obtain a permit from the BC Ministry of Environment and Climate Change Strategy (ENV) which was received in June 2024. Our application form and letter of authorization are included in the Appendices.

Many thanks to Nicole Kohnert and John Paul for their feedback on the first version of the Operations Plan which was completed before our gates were open to receive food scraps. Even more thanks to the Composting Hub staff and volunteers of 2024 without whom there would be no reason to have an operations plan. The weekly feedback on how we do things at the Hub from our staff are reflected in these pages. As noted on the title page, this is the third version of our Operations Plan.

The Operations Plan is a living document that will be reviewed and updated at least twice per year to reflect changes in our operations.

Site selection and design

Our Community Composting Advisory Team established site selection criteria for a long term site and used it to evaluate the short term site that is being used in 2024.¹ Key design criteria includes:

- Project development - ownership of land, current site use, zoning, compatible land uses, topography, site buffer/proximity to neighbours, and size.
- Utilities infrastructure - availability of three phase power, access to water.
- Transportation infrastructure - location/access to major roadways, access to service levels (winter snow plowing).
- Environmental/cultural - prior environmental impacts, proximity to sensitive receptors, floodplains, wetlands, and archaeological resources.

Our current site has room to grow as the entire property is 33 acres and we are using one acre for our pilot project. There are no other users on the property at this time and the site was formerly a private forestry operation, known locally as “the old chipper yard”. We had an Environmental Consultant (Zenviro) do a preliminary desktop environmental assessment and she identified a salmon bearing stream that is located more than 100 m away from our operation. We were also told that there are some wetlands more than 100 m away from our operation that are popular for bird watching. Neither of these features are visible from our site. We have noticed some people walking their dogs through the property and have taken all of these observations into consideration for our site design.

When we looked at site options last November 2023, a different location was proposed, but due to water, power, and road access, as well as the condition of existing structures that could be used for our operation, we switched to our present site.

Facility design criteria

For our design, we focused on the following criteria:

Traffic flow - a loop road plus ample room for turning, unloading and loading as well as parking for workshops, special events and tours. Signage will be added where and when needed to ensure traffic flow is efficient and safe.

Covered area - a 32 foot wide lean-to structure was modified to include 60 linear feet of metal roofing (the entire lean-to is about 140 feet long); this is for leachate reduction and moisture management.

¹ See meeting minutes from March 4, 2024 - available on request

Proximity to water and power - we are 700 feet away from a potential municipal water connection, which is the closest we could get and still have a covered area. The potential power source is about 200 feet away.

Office/First aid/ Bathroom - we purchased a used Fifth Wheel travel trailer to serve as an office/first aid station with a washroom.

Classroom - benches and a table were built from reclaimed lumber for an outdoor classroom.

Welcoming environment - we are using raised beds and planters, and signage to direct and educate visitors. We also have a Gitksan territory acknowledgement sign.

Sizing/Capacity - our pre-processing, active composting, curing and post-processing area is designed to handle a flow through of 13 cubic metres (480 cubic feet) per week. Our Active Compost boxes are 6 feet wide x 8 feet long x 4 feet high (192 cubic feet or 5.4 cubic metres). We have three boxes and since the system is modular, we can add capacity by building another box.

Method - Semi In-vessel Extended Aerated Turned Static Pile using a 5.4 cubic metre 'box' with perforated ABS pipes for airflow.

Procedures for handling peak and low flows of materials - special deliveries of large volumes must make an appointment at least two or three days ahead of time to allow us to build a new box if needed and to have staffing on site. If our material flows are very low, then we will reduce the number of active boxes in use and/or design smaller boxes.

Volume estimates

The quantities of food scraps and other organics to be composted are challenging to calculate due to a lack of rigorous available data. We are relying heavily on the 2022 numbers submitted to the ENV by the Regional District of Kitimat-Stikine for all solid waste landfilled at the Hazelton Waste Management Facility (Facility). Since there are no scales, material is not weighed at the Facility so all figures are in volume estimates. In 2022, it was reported that 9,143 cubic metres of **organic materials** from all sources were landfilled in a full one year period (or 176 cubic metres per week). Seasonal variations are normal but are not accounted for in this reporting.

The pilot project runs for 4 solid months. We did not count the first three weeks as it takes a while for new habits to form. One-third of the weekly estimate is 58.6 cubic meters as the potential available feedstock. Our best guess is that we will get a 25% capture rate since we are not offering curbside residential service and there are no supporting financial, educational, or policy incentives available to us by the agencies offering garbage collection.

A waste composition study was conducted in Terrace in September 2024 that included a load of municipal solid waste from the Hazelton landfill. This provided valuable data to help us calculate potential capture rates for a permanent composting program in the future.

Material handling

We are collecting from seven food services in the Hazeltons and receiving drop offs from residential sources in the form of food scraps, garden scraps, and yard trimmings/prunings. The basic recipe we are using is about 25:1 Carbon:Nitrogen (C:N).

It is estimated that the food scraps volume will only reduce by 10% due to the high amount of bulking agent (wood) which does not break down that quickly. However, we can expect a weight reduction closer to 40% due to the loss of moisture during the hot composting process in the form of steam. We have three composting boxes, each with a capacity of approx. 5.4 cubic metres. We actively use one box at a time and when it is full, a new box is started. Table 1 presents our timelines for each box.

Table 1 - Timelines for Material Handling

| Box | Collection/ Receiving | Pre processing | Active Composting 4 weeks | Curing 4 weeks | Post-Processing 2 weeks |
|------------|-----------------------|---|---------------------------|-----------------|-------------------------|
| 1 7 wks | June 5 - July 31 | July 31 stop | Aug 1 - Aug 31 | Sept 1- Sept 30 | Oct 15 |
| 2 5 wks | Aug 1 - Sep 18 | Sept 18 stop | Sep18 - Oct 18 | Nov 18 stop | Dec 1 |
| 3 6 wks | Sep 7 - Nov 3 | Apple pulp was put in Box 3 early due to heavy weight. Nov 3 stop | Dec 2 stop | Dec 30 stop | Jan 15 |

There are four main stages of material handling.

- 1. Pre-processing**
- 2. Active composting**
- 3. Curing**
- 4. Post-processing**

Pre-Processing Activities

- Create an entry in our Data Log for each load with a unique source. There are two categories: Workplaces and Residential. Generally we pick up from workplaces but sometimes loads can be delivered to us especially for special events or workplaces that are outside of our pickup area.
- Place the container on our scale (remove lid) and record weight and weigh the container.

- If there is contamination, and it is safe to do so using gloves, pull out problem material and put it in the onsite garbage bin; record contamination in our log book and estimate percentage. Follow up with the person responsible for the container contents to review acceptable materials and come up with a plan to reduce contamination in the future.
- Empty contents of bucket in a layer in the box; if the contents have a really high liquid level, make a bowl of woodchips first to absorb any excess liquid (make sure to record the weight of bulking material added under Monitoring or for the same data entry)
- If this is a MASH bucket, clean it out and save the water to add to our pile later. If it is a customer's bucket, we can give it a quick rinse and save the water. Since we are hauling water in 2024, we should conserve water and ask folks to clean their buckets at home.

Active Composting

Starting a new box

- Assign unique identification (a number or a name) so we can refer to it in our Monitoring data sheets and in conversation; use a black felt marker or make a name plate for the box with the ID and start date (we are just using numbers - Box 1, Box 2, Box 3).
- Scatter a layer of wood chips - 2-3 inches deep over the bottom including the ventilation pipes - this will help prevent food clogging later and absorb excess moisture.
- Be mindful of the pond liner that extends out in front of the boxes. For our leachate containment system, the entire work area has a 36'x36' foot impermeable pond liner that can be a potential hazard as it is very smooth and slippery. Throwing down some wood chips for traction, or placing an outdoor mat on top of the liner in front of the box is recommended.
- Add a layer of food scraps – take care to distribute everything fairly evenly and cutting solids into smaller pieces, e.g., a tennis ball size for large things, and golf ball size for most things; we use a machete for larger items like whole potatoes or squash or chicken.

Filling and maintaining the box

- Add water as needed - if no leachate is observed after a few days then this could be a sign the pile is too dry. Record amount of water added on the Monitoring Data Sheets with the date and note water amount added to the Box..
- At the end of each day, level out the pile and make sure all food scraps are covered by a layer of wood chips and/or shredded food-soiled cardboard (pizza boxes etc. as allowed under the BC Organic Matter Recycling Regulation [OMRR]).
- Check temperature as part of the Opening routine (this is usually every other day) and record; we need to reach 55° Celsius for three consecutive days for pathogen kill. Check temperatures near edges and in the middle to see if there is a big difference - if there is, do more mixing. For example a 25° difference between two parts of the pile is significant.
- If odours are observed, this may mean more oxygen is needed so the pile must be turned - at about the half way full point it is timely to do a big turn of the pile with a front end loader.

Finishing off a box:

- Fill the box up to 8" below top, add 6" of wood chips for odour control and to minimize potential for vectors; put on our ventilated lid.

- Turn the pile thoroughly with a front end loader, add wood chips and water as needed and record anything added on our data sheets.

Turning/Aeration

A combination of box design, layering materials, and heavy machinery is used to achieve a proper blending of materials and sufficient aeration. Each box has 5 ABS perforated pipes to draw in cold air. As the cold air rises, the material at the bottom of the box dries out so when blending the pile using heavy machinery, it is important to add and record water.

Since MASH doesn't own equipment for turning in 2024, we rely on community support. J&K Contracting has a skid steer that can be used, the District of New Hazelton has a Bobcat, and if both of these options are not available, we can use the tractor from Bulkley Canyon Ranch.

Moisture Content Management

Conducting a moisture content test is the only way to accurately know if we are reaching our target of 45-60% moisture content. However, the test is somewhat challenging since we don't have a direct power at the current site. We have an arrangement with a community resident to run our test on their property and use their power. The test consists of getting a two cup sample from the Box and putting it in a foil container. This is weighed and then put on low heat for 24 hours. We then weigh the sample again and use the calculation shown below to determine the percentage moisture content. Ideally these samples are done every week but realistically given the logistics, every 2-4 weeks is our goal. We use visual and tactile observations (i.e., a squeeze with a few drips coming out is a rough indicator for 45-60% moisture) to inform how much water to add water between tests.

$$\text{Moisture Content} = \frac{(\text{Weight of Wet Sample} - \text{Weight of Dry Sample})}{(\text{Weight of Wet Sample})} \times 100$$

Curing

- Once the box is full or the cut-off date for the box is reached based on our Batch Test Dates, put the CURING sign on the box with the start date.
- Mix the material again and adjust moisture to 45-60% before curing starts.
- The curing box will be covered by a breathable layer to protect the quality of the finished product (e.g. airborne particles and weed seeds).
- Curing may take from two to four weeks and will be finished when there is a lack of odour (other than an earthy smell) and no significant changes in material properties such as temperature (stability)
- OMRR requires that Class A compost be retained in curing piles for at least 21 days. After the 21 day period, the C:N ratio of the Class A compost must be greater than or equal to 15:1 and less than or equal to 35:1 and must not re-heat, upon standing, under the following conditions:
 - (i) compost is aerated and formed into a pile no smaller than 3 metres in diameter and 2 metres high with compost having a moisture content between 35 percent and 60 percent;
 - (ii) the pile must be formed in a location where the ambient temperature remains in the range of 5° to 30° Celsius;

- (iii) 3 days after the pile has been formed, the temperature of the compost is measured at a depth of 60 cm into the pile from the outside surface of the pile;
- (iv) the compost must not re-heat upon standing to greater than 20° Celsius above ambient temperature.

Post-Processing

- Screen finished compost and remove any large particles using a grain screener and/or cement mixer with a screen attached
- Weigh and record large particles removed and add to active compost pile
- Store cured compost under a tarp, weighed down with tires or other object
- Follow the Sampling and Analysis Plan and send away sample for analysis including maturity
- If needed we will simply store all our cured compost until spring but we hope to distribute some this year as a community engagement activity.

Sampling and Analysis Plan

As contents within each Box complete the curing phase, we test a sample of the finished compost in accordance with OMRR requirements. See Table 1 for an estimated schedule. We use a Courier to send our sample in a cooler to A & L Labs in Ontario for a full CQA Test Package.

<https://www.alcanada.com/content/solutions/soil-analysis>

Record-keeping plan

Record keeping is an essential element of this project and the collection and analysis of data is part of everyone's job. We have partnered up with Belinda Li, PH.D. candidate at Simon Fraser University's Food System Lab who specializes in data analysis to assist. Belinda came twice during the pilot; first from June 6-13 during project launch to ensure record keeping systems were properly set up and running, and again in September for a waste composition study based in Terrace.

There is an on-site office, and all records are kept in that office, as well as an extra copy off-site at the Executive Director's home office, and digital copies on our laptop shared on Google Drive.

The data we track includes:

1. Material

- a. Incoming, outgoing, non-compostable material, compost, bulking agents
- b. Origin, name and address, date and type of material
- c. Unacceptable waste (not organic), origin, kind, location where transferred to
- d. Weight (kg)

- e. Volume reductions during the composting process
- f. Contents of each box (using records to show weights - food scraps, bulking material, water)

- 2. Moisture content and air-filled porosity of mixes going into the boxes**
- 3. Temperatures**
- 4. Time required to produce the compost**
- 5. Inventory of supplies/equipment**
- 6. Maintenance record of equipment including repairs, modifications and upgrades**
- 7. Expenses and Revenues**
- 8. Permits, Approvals and Letters of Support**
- 9. Personnel - safety training, health monitoring, accidents**
- 10. Community Relations - complaints, education, information sharing, collaborations**
- 11. Major problems and emergencies**
- 12. Weather data (for significant events that affect our operation)**

This data is summarized monthly and will be used for the pilot project summary (20 weeks/4 months).

Air Quality Control Plan

Emission sources include fumes from gas-powered equipment, dust from chipping/shredding, dust from vehicle traffic, and potentially dust from mixing during pre-processing. Since there is great ventilation, dust and fume build-up should be minimal and any emission-related events are short-lived.

Equipment is operated on low speeds to reduce dust - particularly from the chipper/shredder. N-35 masks are available for staff and whenever practical, we will use electric tools that will run off a generator further away from our immediate working area. Anyone other than operators are kept away from running machines that are running. Efforts to reduce dust include:

- Add moisture when mixing materials. slower speeds and wet down roads when needed to reduce road dust.

- If needed, A speed limit will be posted for vehicles of 20 km/hr inside our one acre boundaries.
- Observe the weather and check forecasts for scheduling chipping activities. Prioritize calm, cool days.
- Confine our “dusty” and noisy activities to avoid holidays and weekends out of consideration to other users of the larger property (note we are not near a residential area).
- Add vegetation in containers for dust control as well as to add a pleasing aesthetic. Clean surfaces including equipment at the end of each day.

Wildlife Management and Control Plan

Vectors include flies, rats, mice, larger animals (bears and dogs), birds, other insects, etc. that have the potential to carry and transport diseases. The magnitude of vector problems depends on the feedstock materials but also on the effectiveness of the composting process and general housekeeping. Yard debris has a low risk, but food scraps have a high potential risk for vector attraction therefore we must be vigilant, and advise our pilot project participants on how to help avoid vector challenges.

Odour management is our best defence so attention to moisture, temperature, C:N ratio, and aeration is our primary strategy.

Physical design strategies implemented include:

1. Electric bear rated fencing around our active working area.
2. Securely fastened hardware ¼ inch hardware cloth on our composting boxes.

We reduce vector attraction using one of the two methods outlined in OMRR as follows:

Class A compost must be treated in an aerobic process for 14 days or longer. During that time, the temperature of the compost must be higher than 40° Celsius and the average temperature of the compost must be higher than 45° Celsius. After the vector attraction reduction process is completed, the C:N ratio of the compost must be greater than or equal to 15:1 and less than or equal to 35:1;

- a) Class A compost must be retained in curing piles for at least 21 days. After the 21 day period, the C:N ratio of the Class A compost must be greater than or equal to 15:1 and less than or equal to 35:1 and must not re-heat, upon standing, under the following conditions:
 - (i) Compost is aerated and formed into a pile no smaller than 3 metres in diameter and 2 metres high with compost having a moisture content between 35 percent and 60 percent;
 - (ii) The pile must be formed in a location where the ambient temperature remains in the range of 5° to 30° Celsius;
 - (iii) 3 days after the pile has been formed, the temperature of the compost is measured at a depth of 60 cm into the pile from the outside surface of the

pile; and,
(iv) The compost must not reheat upon standing to greater than 20° Celsius above ambient temperature.

Equipment operation, maintenance and safety procedures

Equipment used includes:

- Personal vehicles (one tonne pickup truck and passenger vehicles)
- Layfield EL1030 pond liner
- Wheelbarrow
- Chipper/Shredder (two units - Echo 3 inch, 208CC and Wallenstein 4 inch BXMT 4238)
- Generator or battery bank to supply power when needed
- Chainsaw during construction (completed)
- Shovel, pitchfork
- Industry standard scale
- Compost thermometer
- Toaster oven for calculating moisture content
- Skid steer or Bobcat operated by a third party with their own insurance
- Garden hose
- Various sizes of buckets based on contents
- A screener for post-processing operated by a third party

Only personnel who are properly trained and demonstrate competence to safely and effectively use a specific piece of equipment will be directed to perform tasks requiring that equipment.

WCB compliance

MASH is registered with WorkSafe BC - account number 201369799 effective March 25, 2024 - for Composting (classification #701004). We are required to report our payroll and make a payment annually in March. We use the free resources available at worksafebc.com which include newsletters, booklets, posters, and videos.

A Safety Officer will be appointed each day that the site is open.

Our WCB information will be kept in a Safety Binder inside our office.

Equipment maintenance and Security

Chippers

We have two chippers - a Wallenstein wood chipper for materials up to 5" in diameter that is highway towable and an Echo chipper/shredder for materials up to a 3" diameter.

Manufacturer recommendations are followed for the chipper/shredders. The Data Binder sheet is used to record information on each chipper use. There is also a maintenance schedule in the data binder for recording the date each time maintenance is performed. The first scheduled maintenance is at 8 hours of use.

The Chippers must be secured - the Echo chipper can be locked inside the equipment trailer and the Wallenstein can stay outside chained up so that it cannot be towed away.

Security

We have one camera attached to the equipment trailer. This is checked once a week to make sure it is recording properly and batteries are replaced if needed. The camera must be removed before moving the trailer.

Equipment is locked up inside our stock trailer except for the large wood chipper. This unit is chained and locked to posts or else stored off-site.

Employee Training Plan

Technical Training course

A 1.5 day Composting Facility Operator training course was offered May 2-3 and five people attended that are affiliated with MASH. These people were Laurie Gallant (Executive Director), Bill Crosson (Operations Manager), Mark Fisher (Community Advisory Team/Canada Summer Jobs advisor), Vance Barritt (Board of Directors), and Liz Gaunt (member). Along with the instructor, Dr. John Paul, these people can be called on for troubleshooting and brainstorming on new systems and ideas. Laurie, Bill and Vance will take the lead on training new staff on composting procedures and setting policies.

Onboarding

At MASH we believe that each individual should be given the opportunity to be trained in all aspects of our operation so they understand the bigger picture. As new staff are hired, they will be given appropriate training in each of the areas needed to successfully perform their jobs including:

- Who is MASH and composting project overview
- Materials Handling (preprocessing, active, curing)
- Safety (using the chipper, fire plan, common first aid needs)
- Maintenance (facility, site, tools, trailers, water, equipment)

- Community Engagement (customer relations, community relations, policy makers, media)
- Special events (Open Houses - promotions, set up, serving food, demonstrations, tours etc.)

Everybody will be required to read our Operations Plan including the Leachate Plan and Odour Management Plan and there is a test to confirm understanding and physical ability to carry out the Plans.

Each employee is in training for the first two weeks of their employment. If it seems like a good fit, then they are offered a letter of employment.

Workplace Collections

Training for this service consists of reviewing the list of customers we pick food scraps up from, using a map to identify their locations, and reviewing specific instructions for pick up as shown in the table below. Instructions include the number of bins, frequency of pickup, and location of bins. Each driver is given a laminated copy of the schedule to keep in their vehicle.

Staff wear the MASH team shirt and use our MASH car 'Got Food Scraps' magnet for easy identification. Additional training on community engagement with our participants is provided to help communicate important information regarding contamination, changes to our schedule, and pilot duration. This is our schedule as of September 1, 2024.

| MONDAY | WEDNESDAY | FRIDAY | NOTES |
|--|--|--|--|
| Hospital (1 large) Tasty (2 large) BC Eagle(3 large) | Hospital (1 large) Tasty (2 large) BC Eagle(3 large) Zelda's (1 large) Mercedes (2 large) Bakery (1 large, 1 small) | Hospital Tasty (2 large) BC Eagle(3 large) Zelda's (1 large) Bakery (1 large, 1 small) | Kispiox River Lodge delivers to the Hub but please record them under Workplaces, not Drop-offs. Park and Pick up around back for Mercedes, Zelda's and Tasty. Hospital pick up is in Kitchen beside cafeteria. |

Safety Plan

Safety and First Aid trainings were offered in June and again in August for new staff and as a practice drill. During the training we will cover off emergency plans, including evacuation due to wildfires, how to use a fire extinguisher, how to treat common workplace injuries (e.g., scenario: deep cut, lots of blood).

The site is located 6 km from the hospital.

Safety equipment on site includes:

- Eye protection
- Ear protection
- Dust/mould respiration masks
- First aid kit
- Eye wash station
- Fire extinguishers (3)
- Bear Spray
- Spill kit (wood chips, sawdust shovel)
- Sater
- Shovel, spade, rake

Risks and Action

1. Aggressive animals - Bears, dogs

We have an electric fence around the active composting work area that is turned on during non-working hours. We have bear spray on site to use in case of aggressive bear behaviour. If it's a black bear, making lots of noise should scare it away - get inside a vehicle and honk the horn, make yourself big and shout at the bear. For grizzly bears - protocol is to get inside a vehicle or in one of the trailers, and call for help. Use bear spray if needed.

2. Fire

a) Approaching Site

If fire is encroaching the site from a surrounding area - lock up and leave the area. You will smell and see the smoke and should have enough time to evacuate. If it's too smoky or dangerous, close up and go home. Report to senior staff.

b) From the Composting Pile

Composting materials ignite at temperatures between 96°C and 205°C. An extremely hot pile combined with a low moisture content (20 to 40%) can be dangerous. We will monitor temperature and moisture at least every three days, more during a heat wave/drought.

Maintaining moisture content of the organic material above 40% significantly reduces the potential for fire.

If there is a fire, use water to put it out first. Do not use a fire extinguisher as this will make our compost unusable. Other on site fire related to equipment or other structures and ignited by sparks, could involve flammable liquids such as gasoline or diesel fuel..

In case of a small fire away from the compost pile:

- Wet material to remove heat
- Remove combustible items
- **Use a fire extinguisher - located in equipment trailer and staff trailer (unless it's in the compost box - use water instead)**

In case of large fire:

- **Call for help - (250) 842-6571 District of New Hazelton or 9-1-1**
- Leave location

Our Address is 4032 12th Avenue aka North Railway Ave. If coming from hospital go down Churchill, cross the highway, continue on Churchill towards Stegyoden mountain. Look for Composting Hub signs and Yellow Gate plus shed.

Spills/ Environmental contamination

There is very little danger of a spill from our composting operation. The response required depends on what the material is and the size of the spill. For example, flammable liquids like fuel must be reported if over 100 litres but a corrosive material must be reported if over 5 litres e.g., sulphuric acid, ammonia.

Spills of all sizes should be contained immediately. If it's on the ground (gas or diesel spill) then use absorbent materials like sawdust or wood chips, and then shovel it into a bucket and dispose of properly or burn it under safe conditions. We are not near any open water so there is no real threat to water bodies.

Learn more:

<https://www2.gov.bc.ca/gov/content/environment/air-land-water/spills-environmental-emergencies>

Any spill that threatens the environmental quality of water, land or air must be reported. When a serious spill or the risk of a spill occurs, report it immediately by calling 1-800-663-3456

Facility Maintenance Program

To keep our operations running smoothly and our work site safe, we review the task list once per week and add any other tasks as needed. A chart similar to this one is used to keep track of our efforts on site and is located in our Time Log binder. We also use a White Board to communicate

needs and wish items. Our staff have also consented to communicating by text to ensure messages about maintenance are received in a timely way.

| Date | Task | Who? |
|---------|--|------|
| Aug 21 | water tank filled | Bill |
| Sept 4 | Third box built and started. Second gate installed on bear fence | Bill |
| Sept 13 | Water tank filled | Bill |

Tasks to complete

- shredding and composting of cardboard
- cleaning and organizing of the RV Office (contents and trailer)
- cleaning and organizing of the Equipment Trailer (contents and trailer)
- **examine work areas for tripping hazards** and rake to keep the ground smooth
- make sure PPE and safety equipment is accounted for and in good condition
- check all inventory, update records, and note anything missing or needing repairs
- fill up water tank

Marketing Plan Summary

A full marketing strategy will be completed in 2025 when funding is secured to continue the project. We do not expect to have much finished compost to sell this year but will be doing research to support sales in 2025 when we will have a consistent quality and quantity of mature and tested product available.

Preliminary ideas include:

- Our market is mainly LOCAL 50 to 100 km and SEASONAL (spring and fall).
- We will be selling a BULK product that is nutrient-rich.
- Our customers will be farmers and gardeners who are growing food in the Hazeltons, many of which are users of the Community Composting Hub and are also MASH members. We will evaluate the idea of product sales through a Community Support Agriculture (CSA) model and may even team up with local farmers also using CSA models.
- Our products will include soil amendment grade compost for field application, and potting media grade compost.
- Some of the finished product will be used for edible and drought resistant landscaping at our permanent composting facility.
- We will consider sales for site remediation, understanding that FOOD SECURITY is the focus of our organization.

- Pricing will be cost-effective to reflect the cost of production and the cost of purchasing imported products from local retail outlets.

Community Relations Plan Summary

Community relations are supported through promotion, convenient access to the site, and direct engagement:

1. Monthly ads in our community publication “The Bulkley Browser” with FAQs and additional announcements of special events and opening days.
2. Daily or Weekly updates on our website and social media page.
3. Monthly tours and workshops.
4. Checking in with the closest neighbour on 11th Ave before the project starts - a letter was dropped off and included an in-person conversation. We also checked in with the neighbour half-way through the project and she agreed to provide asked a letter of support for the continuation of the project. (Note the neighbour uses the Composting Hub as well).
5. Monthly check-ins with property owners and local government (District of New Hazelton).
6. Monthly or by request meetings with Gitxsan Hereditary Chief (Norm Stevens) and his family for the Traditional Territory House.
7. We are open Mon, Tues, Wed from 9 am to 12 pm. Additional openings are added for special events and large loads as needed. 24/7 secure drop off access is also available.
8. With our workplace partners, we began initial contact in May, then followed up in June to deliver buckets and sign a pledge. There was follow up as needed to acknowledge changes in scheduled pickups and containers needed in July and August. In September we shared collection data with them and got feedback regarding the future of the program. Letters of support will be requested as needed for grant applications.

Complaint and Response Procedure

- Be polite and compassionate
- Obtain:
 - Name(s), address, and telephone number of the complainants
 - Time, date and nature of complaint
 - Operation occurring during the complaint
 - Weather conditions at time of complaint
 - Response made by facility personnel
- Inform complainant of action take
- Record action taken for future reference

Closure Plan

We are fortunate to have landlords that support our project and are flexible with timelines. While our lease technically ends November 30, adding on two extra weeks will not be a problem whether or not we decide to enter into a longer term lease. Variables affecting permanent versus temporary closure include:

- Financial support
- Staffing
- Community support
- Outcomes of Town of Smithers feasibility study (our site is being evaluated for a central RDBN composting facility)
- Discussions with property owners

Permanent closure - after November 3

- Remove all equipment and store (potentially a sea-can)
- Clean and store all impermeable liners
- Remove all signs and plant containers and store
- Remove our RV office and store under cover
- Finished compost storage plan will depend on volumes and results of analysis. If the product is suitable for growing, we will store it off-site undercover. A final plan will be made with our Composting Advisory Team and MASH members. Distribution would be in spring regardless due to winter conditions.
- All unprocessed organic matter will be removed from the facility and stored until we can actively compost again in the spring.
- Remove and store or sell the roofing we installed

Temporary closure - November 3 - Spring 2025

- Remove any assets not designed to withstand winter conditions and store off-site in an appropriate storage space (will be determined in October).

Appendices

Leachate Management Plan

Leachate is water, either from rainfall, snowmelt or intentional addition, which has come into contact with organic materials within the composting facility. Our leachate management focuses on reduction and re-use and it is unlikely that we will have to do any treatment for this pilot project. We prefer to use the term Compost Tea as this liquid is full of nutrients and is a desirable byproduct.

REDUCE

We collect material from food services in the community and are highly engaged with the community. Each source of material has at least one contact person that has a strong relationship with a member of the MASH team who is involved in the pickup. No contaminants of concern are expected other than produce stickers or food packaging, which will be reviewed and mitigated through follow up with program participants.

We reduce leachate by having a roof over the pre-processing, active composting and curing areas. In addition, the water that we add to our compost blends is calculated and measured so that the moisture content of our active pile is in the 45 - 60% range.

COLLECTION FOR REUSE

We empty food scraps into a bowl of dry wood chips to absorb excessive moisture and the wood chips become part of the compost blend to also add porosity in the pile.

Collection of leachate is done using a combination of curbing and a sunken holding tank (donated by a member of our team who seconded a travel trailer tank). We use a pump or wet vacuum to return leachate to drier blends and meet our moisture content objectives.

MANAGEMENT

We have an impervious surface under the pre-processing, active composting and curing areas. We went with a geosynthetic product ordered through Layfield Canada Ltd out of Edmonton. Specifically the EL1030 valued at \$734.00 before shipping and taxes and is a stock item measuring 36'x36'.

MASH maintains a minimum 15 metre setback from surface water. We also maintain a minimum 1 metre vertical buffer. The distance to groundwater may be higher this year due to dry conditions.

Our site layout is set up to reduce the distance that materials are moving between stages to reduce the risk of spills and make it easier to clean up if there is a spill. There is an impervious surface under all working areas. Our active composting system is also contained in modular,

scaleable boxes. The tops are set at an angle so precipitation is redirected away from the material being composted.

There is a slight slope toward our working area so a small swale has been created to prevent water from entering our site and making contact with our pre-processing and active compost boxes. We also sloped our liner covered area to make sure there is a central collection point where the water is directed to the collection tank.

Inspections of the composting areas are conducted at least every three days. When we observe any standing water we cover it with wood chips to absorb the liquid. The woodchips can then be added back into an active box and the quantity recorded on our data sheets.

Odour Management Plan

As this is a pilot project to pave the way for a permanent facility, it is critical that we manage odours successfully. We understand that even a well-constructed and well-operated compost system will not be odour-free, but it should be managed well to avoid producing offensive odours. We are focussing on having optimum process conditions as our main prevention strategy, which is why five people on the MASH team have been trained as Compost Facility Operators.

Good housekeeping

Wet feedstocks can be a source of odour so we are lining our collection buckets with wood chips and we have a concave pile of wood chips in our pre-processing area to catch excessive liquid in our collection pails.

Any food scrap litter is cleaned up immediately upon observing at and around the site, and non-putrescible garbage is kept in containers with lids.

Proper drainage and slope is maintained to avoid stagnant water. The overhead roof also prevents standing water.

Aeration

We designed compost boxes to facilitate natural aeration. Perforated piping at the bottom will allow cold air in to replace the warm air leaving the boxes. This helps promote oxygen transfer and aerobic conditions.

C/N Ration, Moisture content and Porosity

We manage our moisture content to be 45-65% using wood chips and we have a roof over our working area. We also have a chipper/shredder on site and there are two mills nearby with an abundance of free wood chips if needed. Periodic tests are conducted for porosity and moisture content. If needed, we can add a weekly cover of finished compost or wood chips that are a larger size - ¾ " x 4-6 ". We maintain an air-filled porosity of 30-50%..

Record Keeping and Complaints

We track odour complaints in a record book and also have on-site personnel record time/date of odours themselves for cross-referencing. Any corrective measures are also recorded and information is relayed to the complainant.

Composting Boxes

Our active composting boxes provide constraints for pile size and on average 8 feet x 4 feet x 6 feet high (2.4 m x 1.2 m x 1.8 m - 5.2 m³) with an upper size that does not exceed legal highway limits, as we may be transporting our boxes if we change locations following the pilot project.

ENV Notification



June 3, 2024

Tracking Number: 434795
Authorization Number: 112125

Society for Making Agriculture Sustainable in the Hazeltons (dba MASH)
PO BOX 126
359 Bulkley Canyon Stn Road
New Hazelton, BC V0J 2J0

Dear MASH,

Re: Notification for the operation of a composting facility under the Organic Matter Recycling Regulation

Receipt of your completed notification under the Organic Matter Recycling Regulation (OMRR) is acknowledged. The effective date of notification is March 22, 2024. Ninety days following the effective date of notification you are exempt from section 6(2) and 6(3) of the Environmental Management Act so long as compost is produced and used only in accordance with the regulation.

Please indicate the ministry authorization number shown above on all future correspondence with the ministry regarding this facility.

Your attention is respectfully directed to the terms and conditions specified in the regulation. Contravention of any of the conditions is a violation of the Environmental Management Act and may result in prosecution. If the regulation does not cover all waste streams at the site, additional authorizations may be required under the Environmental Management Act.

This acknowledgement of your notification should not be construed as a representation that the works are adequately designed or will satisfy the regulation requirements. It is the responsibility of the discharger to ensure that the facility is adequately designed, constructed and operated to ensure compliance.

Acknowledgement of your notification under the regulation is without prejudice to any additional requirements that may be specified by the Director. The Director may also issue Orders under the Environmental Management Act.

Acknowledgement of your notification under the regulation does not authorize

Ministry of Environment and
Climate Change Strategy
www.gov.bc.ca/env

Environmental Protection Division
[Waste Discharge Authorizations](#)

ENV Reporting Mailbox:
ENVAuthorizationsReporting@gov.bc.ca

Compliance Reporting Mailbox:
EnvironmentalCompliance@gov.bc.ca

entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with the operator. It is also the responsibility of the operator to ensure that all activities conducted under this regulation are carried out with regard to the rights of third parties and comply with other applicable legislation that may be in force. The operator must also obtain any necessary approvals from other agencies.

Administration of this regulation will be carried out by ministry compliance staff. Plans, data, and reports pertinent to the regulation are to be submitted to the Director in accordance with the procedures specified at the following website: <https://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/comply#submitroutinereport>

Sincerely,



Jesse Francisco
Environmental Protection Officer – Communities, IPM & AgriFood
Authorizations & Remediation Branch | Environmental Protection Division
Jesse.Francisco@gov.bc.ca

ENCL: None