Technical Memorandum

Draft for Review

This document is in draft form. A final version of this document may differ from this draft. As such, the contents of this draft document shall not be relied upon. GHD disclaims any responsibility or liability arising from decisions made based on this draft document.

To:	Gerritt Lacey	Ref. No.:	11220779
From:	Rachel Sank & Deacon Liddy	Tel:	604-214-0510
Subject:	CleanBC Organics Infrastructure and Collection Program Grant – Charlie Lake		

1. Introduction

GHD Limited (GHD) was hired to support Peace River Regional District (PRRD) in developing an application for the 2020 CleanBC Organics Infrastructure and Collection Program. PRRD is applying for the organics processing infrastructure grant to help support two-thirds of the project cost for an organic processing facility. The purpose of this memorandum is to provide the necessary supporting documents required for the CleanBC Organics Infrastructure and Collection Program application. The scope of this document includes:

- Project Overview
- Detailed footprint estimates
- Detailed cost estimates
- Detailed project timelines
- GHG reduction emission estimates through BC biogas & composting facility GHG calculation tool
- Licenses, permits, and/or approvals

2. Project Overview

The Charlie Lake Sewage System and Truck Waste Facility is located near Fort St John and North Peace Regional Landfill. A waste composition study was conducted within the PRRD during the spring, summer, and fall of 2017 and the winter of 2018 at all three regional landfills in the PRRD: North Peace, Bessborough, and Chetwynd Regional landfills. The waste composition study identified that compostable organics are the largest contributor to landfill waste. The proposed project is to construct an organic processing facility with all necessary infrastructure on 6 hectares (15 acres) of land nearby Charlie Lake Truck Waste Facility. The facility will be designed to receive organic material from the North Peace area. With the support of the organics processing infrastructure grant, the proposed project will reduce greenhouse gas (GHG) emissions,

expand processing capacity for organic waste in British Columbia (BC) and divert organic waste from landfills.

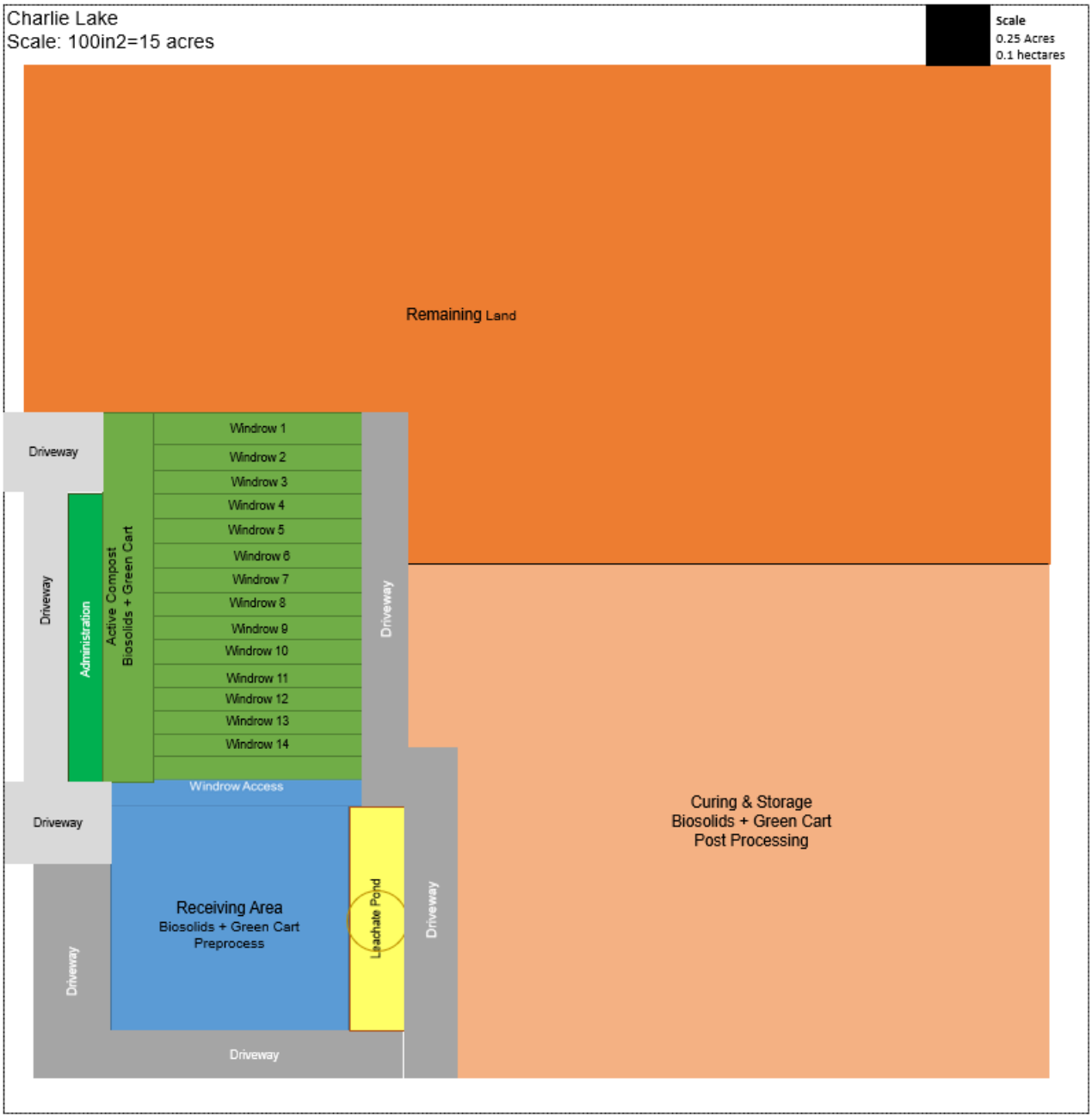


Figure 1: Proposed compost pad for Charlie Lake Waste Water Site.

3. Material Quantities

3.1 Estimate of Organic Tonnage

PRRD Four Season Waste Composition Study (2018) reported that the largest contributing tonnage of landfill waste for North Peace Regional landfill was compostable organics, approximately 32% or 9088 tonnes of the total 28,400 tonnes collected 2018.

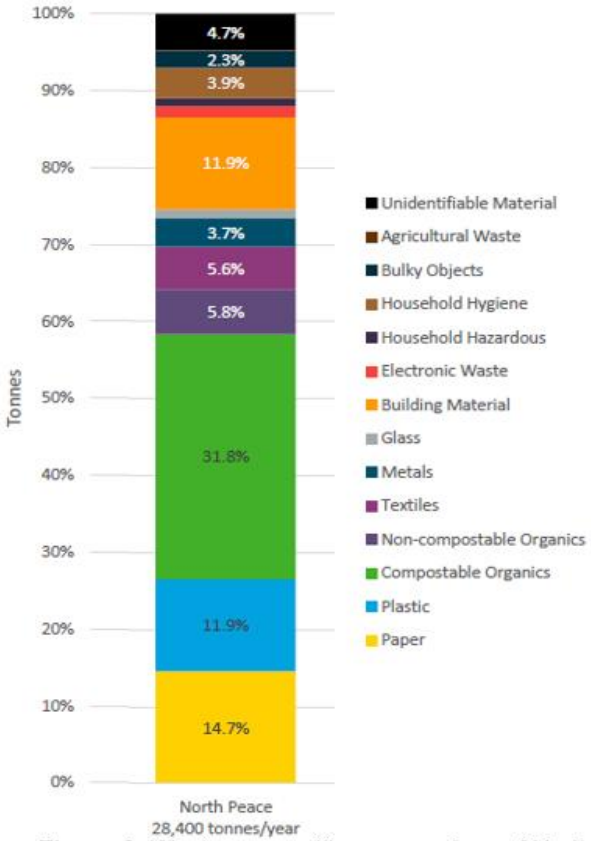


Figure 2: Waste composition comparison of North Peace Regional landfill for all combined sectors.

3.2 Design Capacity

The design capacity for the organic processing facility will incorporate the recovered organics including food, leaf and yard wastes that are currently being landfilled. Each stream will be combined to accurately report on reduced GHG emissions from the recovered organics. For the purpose of this memorandum, 50% of landfilled organics are assumed to be recoverable.

3.3 Assumed Technology

The conceptual design assumes a covered aerated static pile. The covers, aeration equipment and piping, and loaders will be provided by the operations contractor and the PRRD will provide the asphalt base and leachate drainage system.

3.4 Proposed Feedstock

The feedstock for the proposed facility would be organics collected from single and multi- residential sources, composed of leaf, yard and food waste, and some commercial organics. Under Schedule 12 of the OMRR (2002), other possible compost material which can be included in local facility to fill capacity include limited quantities of: animal bedding, biosolids, brewery and winery wastes, domestic septic tank sludge, fish and hatchery wastes, food waste, manure, milk processing waste and whey, plant matter derived from processing plants, poultry carcasses, untreated and unprocessed wood residuals, and yard waste (excluding all SRMs as outlined in Federal Regulations, and Whey). Biosolids will be transferred by the City of Fort St. John and transported to the organic processing facility to be used as feedstock for recovered organics. As biosolids will not remain separate from the food and yard waste stream, the finished compost product will be under Class B of the CCME guidelines.

4. Estimate of Footprint

4.1 Organic Processing Facility

The following section presents GHD's analysis of the forecasted footprint for Charlie Lake Waste Water Sites organic processing facility. Estimates were calculated based on data from the *PRRD Four Season Waste Composition Study* (2018). The estimated quantities are summarized in Table 4.1 (for current design and construction) and Table 4.2 (for future expansion) below.

Biosolids | The biosolids quantities were based on the 2019 tonnage data of 57 tonnes, with an assumed density of 1 tonne/m^3.

Combined Organics | One singular combined organics steam will consist of residential food scrapes and leaf and yard waste from a future City of Fort St. John green cart collection program and biosolids. There may be developments in the future to receive organic materials from electoral districts.

The PRRD *Four Season Waste Composition Study* (2018) determined that of the 28,400 tonnes of waste going to landfill in 2018, 32% or 9,088 tonnes of that material was considered organic. With an assumed recovery rate of 50%, 4,515 tonnes of organic material is anticipated to be diverted from landfilling with the construction of a new organic processing facility. For the purposes of sizing the facility it is assumed that 100% of the recovered tonnage will be compostable. The 4,515 tonnes per annum was evenly distributed over 12-months, with an assumed density of 0.6 tonnes/m^3.

The curbside yard waste was estimated based half of the recovered organic material at 2260 tonnes annually and evenly distributed over 6-months (May-October), with an assumed density of 0.28 tonnes/m^3.

Amendment Material | This stream may consist of any material approved under Schedule 12 of the OMRR (2002). The estimated amendment quantities are based off a 2:1 wood to food scrap ratio. Amendment will only be added during the months in which residential leaf and yard waste is absent (i.e. winter months).

The active composting phase is planned for approximately 6-weeks, so the incoming material volumes at the receiving areas must also allow for 6-weeks (or 1.5-months) of material. The material quantities for the receiving areas were calculated by considering the highest tonnage month multiplied by 1.5-months.

The active compost area quantities were calculated with the same approach of multiplying the highest tonnage month by 1.5-months. A 2:1 amendment ratio is required for food waste; however, since the incoming stream will be a mix of food and yard waste, during May until October, very little, if any, amendment material will need to be added prior to active composting. An additional row will be constructed for windrow turning operations.

The curing area quantities were calculated by taking the highest 6-months (curing duration), and will be designed for an assumed 40 percent volume overall reduction from the active composting phase to the curing phase (i.e. total final volume 40 percent of initial volume).

The storage area quantities were calculated by taking the curing area quantities from the curing phase.

All other infrastructure including administration (office and scale), access roads, and leachate pond is assumed to be four acres.

Table 4.1 Composting Feedstocks – Current Design/Construction

Stage	Combined Organics (m^2)
Material Receiving Area Capacity (1.5-months)	2,290
Active Compost Area Capacity	2,645
Curing Area Capacity (6-months)	5,168

Table 4.2 Composting Feedstocks – Future Design/Construction

Stage	Combined Organics (m^2)
Material Receiving Area Capacity (1.5-months)	3,436
Active Compost Area Capacity	3,900
Curing Area Capacity (6-months)	7,710

4.2 Compost Location

Fifteen acres of land is available nearby the Charlie Lake Truck Waste Facility site to develop the necessary infrastructure for a composting operation. Table 4.3 below summarizes the area, selected location and capacity for each stage of the composting process and Table 4.4 summarizes the future expansion design.

Table 4.3 Composting Operations Area Summary – Current Design and Construction

Area	Location	Combined Organics Capacity (m^3/year)
Material receiving and processing (1)	Adjacent to septage pond	-
Active composting	North of septage pond	3,432.0
Compost curing		6,774

Finished Compost storage		6,774
	Total	16,980
Notes: (1) Receiving material includes green cart waste, yard waste and biosolids.		

Table 4.3 Composting Operations Area Summary – Future Design and Construction

Area	Location	Combined Organics Capacity (m^3/year)
Material receiving and processing (1)	Adjacent to septage pond	-
Active composting	North of septage pond	5,148
Compost curing		10,160
Finished Compost storage		10,160
	Total	22,756
Notes: (1) Receiving material includes green cart waste, yard waste and biolsolids.		

5. Project Cost Estimate

The project cost has been estimated to be $4,839,515 with a 25% contingency cost, bringing it to $6,049,394. The detailed cost estimate and assumptions can be viewed in appendix A. Included in the estimate was the clearing, grading and filling of land, road costs, aggregate placement, asphalt for each pad, leachate management system, security and vector control, professional services and community engagement. Excluded from this cost estimate includes equipment such as aeration equipment, aeration pad and mobile equipment such as loaders, mixers, and screeners as this will be contractor supplied. Water supply is also excluded from the cost estimate.

6. Project Development Timeline

6.1 Organic Processing Infrastructure Timeline

The proposed schedule to complete the organic processing infrastructure is as follows:

Conceptual Design & OMRR Plans – 2 weeks

OMRR Registration and Application for OMRR Intentions Paper Deviations as Required – 2 weeks

Detailed Design of Site Works – 4 weeks

Request for Qualifications – D/B compost equipment & operations – 4 weeks

Request for Proposals – D/B compost equipment & operations – 4 week

Construction – 6 month period commencing summer of 2022

Commissioning – 6 months

Operations – Summer 2023

For detailed timeline see Appendix B

6.2 CleanBC Organics Infrastructure and Collections Grant Timeline

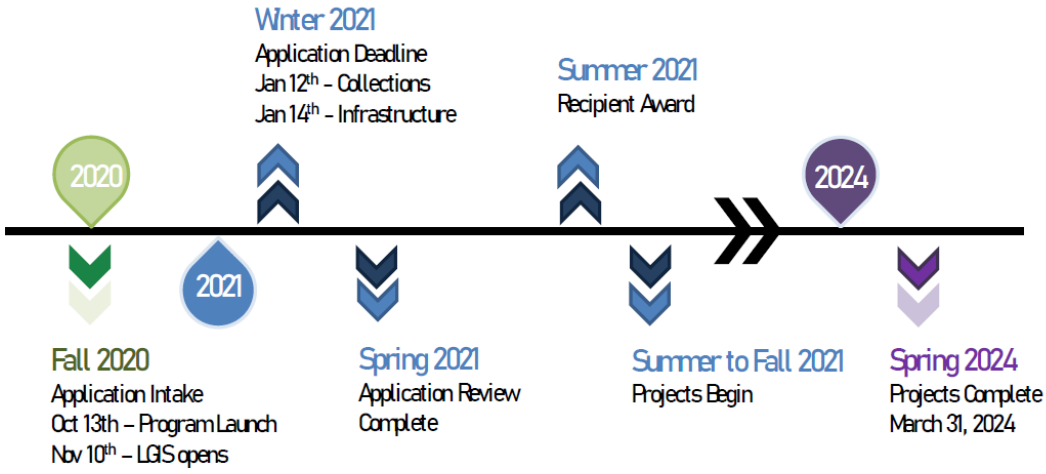


Figure 3: Timeline of CleanBC Organics Infrastructure and Collection program 2020 grant.

7. GHG Reduction Estimate

The greenhouse gas (GHG) reduction estimate was calculated using the B.C. Biogas and Composting Facility Greenhouse Gas Tool to determine the quantifiable GHG reductions from diverting food waste and yard waste from the North Peace Regional landfill to an organics processing facility. The total GHG reductions results from the project over the project timeframe is an average yearly GHG reduction amount of 12,325, for a total of 147,897.

For detailed GHG reduction calculation see Appendix C

8. Licenses, Permits and Approvals

8.1 OMRR

The purpose of this section is to address any requirements set out by the current OMRR (2002) and address any future requirements that may arise from the OMRR Intentions Paper (2020). The CleanBC Organics Infrastructure and Collection Program grant requires all projects, including those on federal land, to comply with the Environmental Management Act and additional regulations for organics in British Columbia. The ENV will be revising the Organic Matter Recycling Regulation (OMRR) made under the Environmental Management Act and the Public Health Act. Licenses, permits and approvals discussed in this section will include the OMRR 2002 regulations and bring forth any mentionable revisal's and/or proposals.

8.2 Permit Process

Permits are required for facilities with a design capacity to produce 5,000 tonnes or more of compost (food waste or biosolids) per annum. Current and future projections of this organic processing facility will produce more than 5,000 tonnes of compost per annum. The ENV is proposing to replace requirements in the OMRR based on the amount of **compost produced** with requirements based on the amount of **feedstock received** by a composting facility, see section 8.3.4 for more detail.

8.3 Registration and Application

The ENV is proposing a registration process that would incorporate greater information sharing and transparency than currently results from giving notice and compliance with the OMRR. A registration process would include an application for registration with information submission and online posting of submitted information. for more information of the proposed registration changes see Appendix E Part I.

The application process for a new compost facility permit under the OMRR requires the submission of a preliminary application. An EPD-OMR-01.2 form may be used for submission under the preliminary application to discharge waste under the *Environmental Management Act* for a new compost facility permit under the OMRR. The EPD-OMR-01.2 form can be reviewed in Appendix D

8.4 New Composting Facility Permit Under the OMRR

A permit application must be submitted for a new compost facility that has the capacity to produce 5,000 tonnes or more of organic material. For more information on the process see Appendix E Part II.

8.5 Notification of Changes to Registration

Information used for registration is required to be kept up to date. Examples of changes to registration can be found in Appendix E Part III.

8.6 OMRR Requirements for Registered Facility

The following sections describes requirements for construction and operation, environmental impact studies, leachate management, and design capacity.

8.7 Construction and Operation of Composting Facility

The construction and operation of a compost facility with a proposed annual production capacity of less than 20,000 tonnes is exempted from Part 5, Division 1, Section 23 of the OMRR. The operation of composting facilities and the products must safeguard human health and the environment. Under Part 5, Division 1, Section 24 of the OMRR, a qualified professional is required to prepare plans and specifications for construction and operation of a new composting facility.

Building permits are required before any construction takes place on the facility site. All provincial and national building codes are required for all proposed site structures and must adhere to WCB worker health and safety regulations.

For more information on plans, specifications, and operational procedures see Appendix E Part IV.

8.8 Environmental Impact Studies

Currently the OMRR requires an environmental impact study (EIS) for any compost facility that produces more than 20,000 tonnes of product per year. However, the ENV is proposing that all composting facilities would be required to prepare a “facility environmental management plan”. Those receiving less than 15,000 tonnes (wet weight) of feedstock per calendar year would be require a “light” facility environmental management plan that consolidates the odour management plan, operating plan, and leachate management plan.

8.9 Leachate Management

The facility must have a leachate collection system designed, constructed, and maintained to reuse or remove leachate from the facility sites. Proper drainage should be used to divert runoff and minimize the amount of leachate produced. All leachate collected and reused during the composting process must not be discharged into the environment unless otherwise authorized under the Environment Management Act and Health Act. For more information about leachate management, see Appendix E Part V.

8.10 Design Capacity

Under section 27 of the OMRR, during operations the amount of organic matter in the facility must not exceed the total design capacity of the facility. The ENV is proposing to replace requirements in the OMRR based on the amount of **compost produced** with requirements based on the amount of **feedstock received** by a composting facility.

The ENV is proposing future odor management plans that would require all composting facilities to prepare a facility environmental management plan (FEMP). Composting facilities receiving less than 15,000 tonnes (wet weight) of feedstock per calendar year would be required to provide a “light” FEMP

For more information on new tonnage requirements, vector controls and enclosed operations see Appendix E Part VI.

8.11 Land Applications

The OMRR relies on qualified professionals to prepare land application plans (including to establish beneficial use, suitable application rates and minimized potential for adverse impacts to human health and the environment). The ENV is looking to strengthen requirements for professional reliance in the OMRR.

8.12 Substitutions under the OMRR

The purpose of substitutions is to allow for flexibility in the regulation, while protecting the environment and human health. For information about substitutions go to Appendix E Part VII.

8.13 Fee Payments

Application fees and annual fees are associated with permits, approvals or operational certificates for composting facilities that process food waste or biosolids and have a design production capacity of 5,000 tonnes or greater (dry weight) of finished compost per year.

8.14 Best Practices and Engagement with First Nations

For information regarding OMRR best management practices and First Nations engagement, see Appendix E Part VIII.

8.15 Organic Matter Suitable for Composting and Quality Criteria

The OMRR list of organic matter suitable for composting under the regulation into Class A or Class B compost, includes animal bedding, biosolids, brewery and winery wastes, domestic septic tank sludge, fish and hatchery wastes, food waste, manure, milk processing waste and whey, plant matter derived from processing plants, poultry carcasses, untreated and unprocessed wood residuals, and yard waste (excluding all SRMs as outlined in Federal Regulations, and Whey).

For more information on future proposed feedstock, changes and quality criteria see Appendix E Part IX.

8.16 Setbacks

Currently all setback in the OMRR are referred to as guidance, however the ENV is proposing to replicate the following setbacks as mandatory. This would include:

- A minimum distance of 30 metres to the nearest watercourse; and,
- A minimum distance of 30 metres to the nearest water supply well.

In addition, setbacks currently contained in guidance would be specified in the OMRR for storage of processed organic material:

- A minimum distance of 15 metres to the nearest watercourse; and,

- A minimum distance of 30 metres to source water used for domestic purposes.

The registration would be required to demonstrate how all applicable setbacks are being met. For more information on sampling, monitoring and record keeping see Appendix E Part X.

For any information on technical standards and additional housekeeping see Appendix E Part XI.

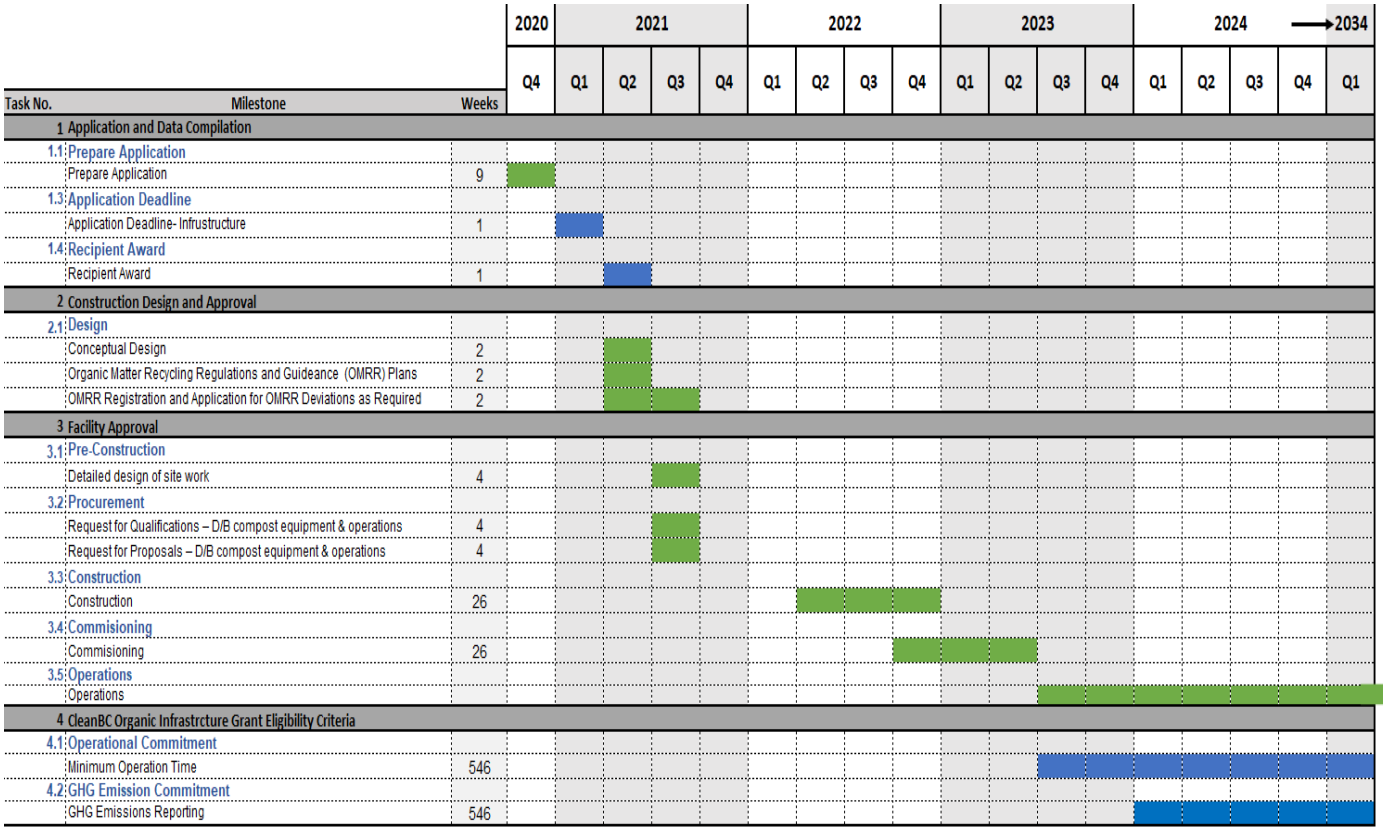
Appendix A – Cost Estimate

Construction / Materials							
Item		**Quantity**	**Unit**	**Rate**		**Cost**	
Site Prep	Clearing/grubbing	63432	m2	$	4.00	$	253,728
Earthworks	Cut/Fill/Grading	12686.4	m3	$	21.00	$	266,414
Roads/Access	New Road	702	m3	$	93.00	$	65,286
	Work/Staging Area Aggregate	21246.05	m3	$	93.00	$	1,975,883
Receiving Area (Combined Organics)	Asphalt	3436	m2	$	70.00	$	240,489
	Lock Blocks (supply + install)	354	ea	$	500.00	$	177,000
Active Compost Area (ASP)	Asphalt	3900	m2	$	70.00	$	273,000
	Aeration Controls, Blowers, and Piping, Concrete	-	-	-		-	
	Controls Shed	-	-	-		-	
Leachate Management System	Extension of electrical	4	ea	$	10,000.00	$	40,000
	Manhole	1	ea	$	15,000.00	$	15,000
	Leachate Transfer Piping	369	m	$	400.00	$	147,600
	Excavation	369	m3	$	7.00	$	2,583
Curing Area	Asphalt	7710	m2	$	70.00	$	539,697
Security/Vector Control	Scale	1	ea	$	54,193.75	$	54,194
	Office	1	ea	$	54,000.00	$	54,000
	Fencing and Gates	984	m	$	100.00	$	98,400
Equipment	-	-	-	-		-	
	-	-	-	-		-	

Construction & Materials Costs	$	4,208,274.06
Professional Services 2022	$	315,620.55
2022/2023 Subtotal	**$**	**4,523,894.62**
Contingency Cost		25%
2022/2023 Total:	**$**	**5,654,868.27**

Other Eligible Costs							
	Item	**Quantity**	**Unit**	**Rate**		**Cost**	
Professional Services	**2021**						
	Public Consultation and Communications Plan						
	Leachate Management Plan						
	Detailed Design (1)					$	315,621
	Curbside Organics Collection Memo						
	Household Education Program						
	End Product Marketing Plan						
	Community Engagement/Education						
	2022						
	Allowance for Updated Odour Modelling of Proposed Concept						
	Tender						
	Construction Contract Administration (2)					$	315,621
	Construction Inspections (2)						
	Commissioning Support						
	Construction Report (3)						
	Operation and Maintenance Manual						
					Subtotal	$	4,839,515.17
					Contingency Cost		25%
					Total	$	6,049,393.96

Appendix B – Timeframe



Task No.	Milestone	Weeks
1	Application and Data Compilation	
1.1	Prepare Application	
	Prepare Application	9
1.3	Application Deadline	
	Application Deadline- Infrustructure	1
1.4	Recipient Award	
	Recipient Award	1
2	Construction Design and Approval	
2.1	Design	
	Conceptual Design	2
	Organic Matter Recycling Regulations and Guideance (OMRR) Plans	2
	OMRR Registration and Application for OMRR Deviations as Required	2
3	Facility Approval	
3.1	Pre-Construction	
	Detailed design of site work	4
3.2	Procurement	
	Request for Qualifications – D/B compost equipment & operations	4
	Request for Proposals – D/B compost equipment & operations	4
3.3	Construction	
	Construction	26
3.4	Commisioning	
	Commisioning	26
3.5	Operations	
	Operations	
4	CleanBC Organic Infrastrcture Grant Eligibility Criteria	
4.1	Operational Commitment	
	Minimum Operation Time	546
4.2	GHG Emission Commitment	
	GHG Emissions Reporting	546

Appendix C – GHG Reduction Calculations

How much **food waste** will be sent to the compost facility in the first year? 4,516 **Tonnes**
How much is the amount of food waste expected to grow each year? 2% **Each Year**

How much of this **food waste** is currently disposed of in which landfills, and how much landfill gas is captured by the landfill's gas capture system?

Capture % = amount of landfill gas captured so that it does not enter the atmosphere. Capture + Loss = 100%. If the landfill doesn't have a gas capture system enter 0%.

Landfill	Percentage	Capture %
Ft. St. John	100%	24%
Remaining waste not landfilled	0%	
Total =	**100%**	

How much **yard waste** will be sent to the compost facility in the first year? 2,258 **Tonnes**
How much is the amount of yard waste expected to grow each year? 2% **Each Year**

How much of this **yard waste** is currently disposed of in which landfills, and how much landfill gas is captured by the landfill's gas capture system?

Capture % = amount of landfill gas captured so that it does not enter the atmosphere. Capture + Loss = 100%. If the landfill doesn't have a gas capture system enter 0%.

Landfill	Percentage	Capture %
Ft. St. John	100%	24%
Remaining waste not landfilled	0%	
Total =	**100%**	

How much **biosolids from wastewater treatment** will be composted in the first year? 57 **Tonnes**
How much is the amount of this waste stream expected to grow each year? 2% **Each Year**

What is the estimated total suspended solids content of the biosolids? 3% **Percentage**
If not known, use the calculator default value of 3%.

What is the volatile solids content of the biosolids? 70% **Percentage**
If not known, use the calculator default value of 70%.

How much of these **biosolids** are currently disposed of in which landfills, and how much landfill gas is captured by the landfill's gas capture system?

Capture % = amount of landfill gas captured so that it does not enter the atmosphere. Capture + Loss = 100%. If the landfill doesn't have a gas capture system enter 0%.

Landfill	Percentage	Capture %
Bessborough	100%	0%
Remaining waste not landfilled	0%	
Total =	**100%**	

What is the lag time between the deposition of biosolids, food and/or yard waste and generation of landfill gas? 1 **Years**
If the lag time is not known, enter 1 year.

Compost Facility Lifetime

Expected year that the compost facility will become operational (i.e., start year): 2023
Calculate GHG emission reductions until (and including) year: 2034
GHG emissions are calculated for 12 years.

Composting

What type of practice will be used to compost the biosolids, food and/or yard waste? Forced aeration compost (basic)

Turned compost (basic) — *non-forced aeration, turned windrows or piles.*
Turned compost (optimized) — *non-forced aeration, windrows covered with 15 cm or more of finished compost for first 3 weeks of composting cycle.*
Forced aeration compost (basic) — *aerated static pile or other forced aeration system.*
Forced aeration compost (optimized) — *• aerated static pile systems using synthetic covers;*
• positive aeration - piles covered with 15 cm or more of finished compost for first 2 weeks of composting cycle; or
• negative aeration - exhaust gas directed through a control system consisting of wood chips or other biofilter.

GHG Calculations

Baseline Emissions (tCO_2e)	
Landfill gas	158,891
Total GHG Emissions	**158,891**
Average Yearly GHG Emissions	**13,241**

Project Emissions (tCO_2e)	
Composting	10,994
Total GHG Emissions	**10,994**
Average Yearly GHG Emissions	**916**

Total GHG Reductions
147,897 tCO_2e

Average Yearly GHG Reductions
12,325 tCO_2e

Appendix D - EPD-OMR-01.2 form

Appendix E – OMRR Details

Note: *Italicized* font indicates OMRR intentions paper proposals.

Part I

It is proposed that registrations would require sign off by a qualified professional and would be evaluated by the ENV.

The following includes the proposed registration changes:

- *The existing requirement for composting facilities to give notice under the OMRR would be replaced by a registration process under the OMRR; and,*
- *The existing requirement to give notice under the OMRR for land application of managed organic matter (Class A biosolids, Class B biosolids and Class B compost) would be replaced by a registration process.*

Part II

The following process describes the preliminary permit application requirements under the OMRR for a new compost facility with the capacity to produce over 5,000 tonnes or more:

- Section 1: Purpose of application
- Section 2: Applicant information, including company information
- Section 3: Applicants contact for technical information, including contact persons information
- Section 4: Authorized agent, whom can be elected by applicate to deal directly with the ENV for the future of the application
- Section 5: Facility Location and Operator Information
- Section 6: Legal Landowner of Facility (if not applicant)
- Section 7: Checklist of additional information required
    - DRAFT Discharge Factors Application Form
    - Location Map Form
    - Rationale Letter (if requesting preliminary application exemption)
    - Documents required later in the application. It is recommended to submit drafts of these documents prior to any meetings with the ENV: Information Requirements Table (IRT) Draft; Environmental Impact Study; Operating Plan; Odor Management Plan; Leachate Management Plan; Site Plan; Environmental Protection Notice Draft; Additional project background information.
- Section 8: Declaration and Signature
- Section 9: Payment of Fees

Part III

With regards to composting facility registrations, changes to a registration may include, but are not limited to:

- A change in name of the authorized party(ies)
- A change in legal address or mailing address of either the discharger or registered owner
- A change in the qualified professional
- A change in the boundaries of the site
- Changes to the total annual mass (wet weight) of feedstock received per calendar year and/or design production capacity, greater than 10 percent
- Changes in the types of organic matter that is or will be processed into compost, e.g., addition of a new feedstock or elimination of an existing feedstock
- A change in the proportion of any type of organic matter feedstock of greater than 10 percent, e.g., from 50 percent yard waste, 30 percent food waste and 20 percent biosolids by weight, to 30 percent yard waste, 50 percent food waste and 20 percent biosolids by weight
- Changes in the types or classes of compost produced

The ENV is proposing that the registration of a composting facility can be transferred from registered party(ies) to new party(ies), provided that the application for transfer is made at least 30 days before the transfer is to occur, and that all applicable changes to information required for registration is provided in the application. The fee for transfer of a registration is to be the same as for a permit transfer: $400.

Part IV

The plans and specifications must include:

- All works to be constructed;
- The design capacities of the facility;
- Leachate management plans;
- Odor management plans; and
- Operating and closure plans.

The qualified professional must affix their seal and/or signature to the plans and specifications of the compost facility and make a signed statement certifying that the facility has been constructed in accordance with the plans and specifications. These requirements are to ensure the safe operations of the compost facility to withstand the site conditions.

Within 90 days prior to operation, the facility owner must provide written notice to the ENV of Water, Land and Air protection (MWLAP), stating:

- The composting facility location;
- Design capacity;

- Name of contact person;
- Type of waste received;
- Intended distribution of compost; and
- A copy of personnel training program plan to address the specific training needed to operate the compost facility in compliance with the OMRR

Part V

OMRR requires an impermeable surface (i.e. asphalt, concrete, etc.) for the receiving, storage, processing and curing sites of a composting facility to prevent the discharge of leachate into the environment. The surface must be capable of withstanding wear and tear of normal operational procedures. These sites may also have a roof or cover to prevent the collection of water around the base of the compost and prevent run-off water from entering different sites at the facility.

The Federal Fisheries Act and Environment Management Act (EMA) prohibits the release of sediment laden or process water, therefore some treatment of run-off and a discharge permit may be required.

An impermeable surface, roof, cover, prepared surface or leachate collection system may not be required if a qualified professional can demonstrate through an environmental impact assessment that the environment will be protected and appropriate water quality criteria will remain satisfied through the use of alternative leachate management processes.

Part VI

Regulatory requirements for composting facilities would be determined based on annual incoming wet weight of feedstock, as measured in wet tonnes, which is easier to measure, record and regulate, and which helps reduce the likelihood of composting facilities accepting more material than can be processed in one year.

Beginning the third year after start-up, at least half of the compost stored at the composting facility must be removed annually. Residuals from the composting process must be stored to prevent vector attraction (i.e wildlife, birds) and be disposed of on a regular basis. Residuals stored at a composting facility must not exceed 15 cubic meters at any given time (OMRR, 2002).

In regards to facilities that compost food waste, the OMRR currently does not require in-vessel or enclosed operations. However, if odors were to become an issue in the environment and to nearby receptors, the director may request that the facility take additional measures to manage the offensive odors, for example through full enclosure, biofilters, or negative pressure buildings. Considering that PRRD has the ability to account for potential OMRR draft changes early, ENV recommends that in-vessel or enclosed operations are considered to avoid and retrofitting costs for the facility in the future.

Part VII

Applications for substituted requirements under the regulation are subject to a statutory decision-making process under the authority of an ENV director. Substitutions can be initiated by proponent via an application or by the director. All substitutions under the OMRR are subject to appeal.

The ENV has proposed that revised regulation will continue; however, the regulation would introduce a process enabling a director to substitute one requirement for another under the OMRR under certain conditions. The ENV has also proposed that:

- *Local First Nations communities would be required to be notified when an application for a substitution is made;*
- *The ENV would charge a fee for processing substitutions;*
- *Substitutions would be transferable on a case-by-case basis, depending on case-specific circumstances; and,*
- *If a substitution is granted, the decision in relation to the substitution is subject to appeal under the Environmental Management Act.*

Part VIII

Composting facility standards contained in the OMRR are minimum requirements to operate in BC. Proponents are encouraged to make the best use of resources, employ best management practices (BMPs), and implement best achievable technology (BAT) in the design of all composting facilities, in order to most effectively manage discharges to the environment.

BMPs are intended to be effective and practical measures to prevent or limit harmful impacts to the environment, and can include: programs, technology, processes, siting, operating methods, measures or devices that control, prevent, remove or reduce pollution. BAT is technology which can achieve the best waste discharge standards and that has been shown to be economically feasible through commercial application.

The ENV is proposing to enhance transparency and engagement with First Nations through the regulation by proposing that proponents provide notification to First Nations communities as follows:

- *For composting facilities, proponents would be required to notify local First Nations communities of the intent to register, and to provide notification of any change in the registration within 30 days of the change; and*
- *For proposed land applications, proponents would be required to notify local First Nations communities of the intent to register, and to provide notification of any change in the registration within 30 days of the change.*

The ENV will be developing guidance that will describe how to address enhanced engagement to achieve notification (including around traditional territory values, hunting and spiritual areas, and valuable resources such as groundwater and wildlife), including new government-to-government engagement tools.

Guidance documents to support First Nations and proponents in notification and engagement with respect to activities under the OMRR will be developed in accordance with legal requirements, ENV policy and government direction.

Part IX

The ENV intends on renaming "untreated and unprocessed wood residuals" as "wood residue". This new category would include wood or wood byproduct that is chipped or ground, the clearing of land with no soil present, and trimming and pruning activities. Wood residue must not contain composite wood products (such as plywood, particle board, fiberboard, etc.) and must not be contaminated or treated with antisapstain, preservative, fire retardant, glue, adhesive, laminate, bonding agents, resin, paint, stain, varnish or any substance harmful to humans, animals, plants or the environment.

The OMRR currently allows composting of "domestic septic tank sludge" and "biosolids", but the ENV aims to include "domestic composting toilet sludge" as defined by "sludge removed from a composting toilet used for receiving and treating domestic sewage".

The ENV aims to include "non-recyclable paper material", defined as "paper material contaminated with organic matter that cannot be reasonably recycled into a paper product, and is not contaminated with any substance harmful to humans, animals, plants or the environment".

The ENV aims to include "compostable plastic" to Schedule 12, defined as organic matter suitable for composting based on the following proposed requirements:

- *Compostable plastic would be required to meet the BNQ 9011-911/2007 or BPI-ASTM D6400 and/or ASTM D6868 standards to be defined as compostable plastic; and,*
- *Composting facilities seeking to include compostable plastic as a feedstock suitable for composting would be required to meet time and temperature standards applicable to the compostable plastics being accepted.*

Currently the OMRR includes standards that apply to feedstock received by a composting facility. The ENV is proposing the following standards that would apply to organic matter suitable for composting under the OMRR (Schedule 12):

- Measure and record the amount (wet tonnes) and type of organic matter accepted by a composting facility, including the total amount of materials received, processed and stored at any time; and,
- Invasive species or noxious weeds found in yard waste will be prohibited from being composted as current composting practices do not effectively kill these organisms.

The ENV intends to amend the OMRR to include (1) a definition to the regulation that clarifies that "residuals" include contaminating materials such as rocks, plastic, metal and garbage, (2) replace the 1% by weight limit on foreign matter content for retail-grade and managed organic matter with a new limit by weight of 0.5 percent dry weight for foreign matter content and (3) introduce a plastic limit as less than or equal to 0.25 percent dry weight.

Part X

The ENV is looking to include provisions on sampling standards and procedures that must be based on the most current manuals or guidelines posted on the ENV website. Where these manuals do not apply, the standards and procedures would follow the current (2015) edition of the British Columbia Environmental Laboratory Manual.

The ENV is proposing sampling and monitoring of the finished product of biosolids, compost and BGM be based on wet weight to facilitate consistency and ease of operation. Additionally, the ENV is proposing to align the sampling methodology for Class A and Class B biosolids, and Class A and Class B compost, and BGM.

The ENV is proposing to clarify the intended sampling requirements applicable to pathogen limits in finished products by describing the types of samples required directly within the regulation. The ENV is proposing to amend Schedule 5 of the OMRR to specify the type of samples, number of samples and method for determining compliance based on expectations stated in guidance for substance concentrations and foreign matter content. A pre-screening requirement is proposed, to remove foreign matter (i.e., non-organic matter greater than 2 mm in any dimension), with a focus on plastic.

Part XI

The proposed amendments to the OMRR will improve alignments between technical standards in the OMRR and current national standards (such as the Canadian Council of Ministers of the Environment (CCME) Guidelines for Compost Quality),federal regulations (such as the federal Fertilizer Act and Regulations), and trade memoranda. It is proposed that the revised OMRR may refer to other regulations, codes, standards and rules set by other jurisdictions by reference rather than by repeating those in the OMRR. These standards and regulations reflect current science and technologies, including those for composting and compost.

The ENV intends to update the OMRR (including Schedules) to improve consistency and currency with CCME standards, including:

- *Adding maximum limits that for Salmonella (as already required by the Canadian Food Inspection Agency T-4-120 trade memoranda for the regulation of compost) into Schedule 3 for Class A compost intended for sale or otherwise;*
- *Deleting references to the carbon to nitrogen ratio for composting and replacing with respiration as a measure of compost maturity to align with CCME compost maturity criteria;*
- *Considering options for extending curing time requirements for compost or a requirement to demonstrate maturity if less than a 14 day period; and,*
- *Replacing the requirement that compost must not re-heat upon standing to greater than 20 degrees Celsius above ambient temperature with the requirement that the temperature rise of the compost above ambient temperature is less than 8 degrees Celsius, to align with CCME compost maturity criteria.*

The ENV is not intending to amend the regulation to require specific methods to measure respiration or curing time, but would enable flexibility in the regulation and the ability to choose methods.

At present the Agricultural Waste Control Regulation (AWCR) is under review. The ENV will work to closely align the OMRR with the AWCR to ensure consistency between regulations, particularly in relation to the land application of soil amendments (i.e., managed and retail grade organic matter) on agricultural land.

Additional "housekeeping" changes to the OMRR proposed by the ENV include:

- *Exempting composting of food waste and yard waste at all sites where production is not greater than 20 m3/year. Local governments would retain the ability to establish bylaws and zoning requirements for composting activities in order to manage any concerns regarding nuisance issues such as odour.*
- *Requiring that operations in all areas that receive greater than 600 mm/year of precipitation must cover compost between October 1st and April 1st of the following year. This requirement would primarily be intended to mitigate the generation of leachate in high precipitation areas of the province.*
- *Adopting the definitions of "water supply system" and "well recharge zone" and other consequential amendments to the Drinking Water Protection Act.*

In keeping with the ENV's approach towards continuous improvement, the ENV will be updating policies and best practices guidance to ensure they are in keeping with proposed revisions to the regulation.