

MANAGEMENT PLAN FOR THE BRENDA RENEWABLES PROJECT

Report prepared for:

Glencore Canada Corporation 718, 22-2475 Dobbin Road Westbank, British Columbia V4T 2E9

Report prepared by:

ECOMETRIX INCORPORATED www.ecometrix.ca Mississauga, ON

Ref. 19-2611 4 February 2022



MANAGEMENT PLAN FOR THE BRENDA RENEWABLES PROJECT

Nichole Wiemann Author

Dicheto

Jason Dietrich

Project Manager and Reviewer

eff Martin

J. Plietie/

Jeff Martin Project Principal



TABLE OF CONTENTS

			<u>Page</u>
1.0	Backg	round	5
1.1	Project	Overview	5
1.2	Investi	gative Work	10
1.3	First N	ations Consultation	12
2.0	Locati	on	15
2.1	Descri	otion	15
2.2	-	on Justification	
2.3	Seaso	nal Expectations of Use	17
3.0		ructure and Improvements	
3.1	Facilitie	es and Infrastructure	19
3.2	Access	S	22
3.3	Utility F	Requirements and Sources	22
3.4	Water	Supply	23
3.5	Waste	Collection Treatment and Disposal	23
4.0	Enviro	nmental	24
3.5	Land Ir	npacts	24
	4.1.1	Vegetation Removal	
	4.1.2	Soil Disturbance	
	4.1.3	Riparian Encroachment	25
	4.1.4	Pesticides and Herbicides	26
	4.1.5	Visual Impacts	26
	4.1.6	Archaeological Sites	26
	4.1.7	Construction Methods and Materials	27
4.2	Atmos	oheric Impacts	28
	4.2.1	Sound, Odor, Gas or Fuel Emissions	28
4.3	Aquatio	c Lands	29
	4.3.1	Drainage Effects	29
	4.3.2	Public Access	29
	4.3.3	Flood Potential	29
4.4	Fish ar	nd Wildlife Habitat	29
	4.4.1	Disturbance to Fish/Wildlife and Fish/Wildlife Habitat	29
5.0	Socio-	Community	30
5.1	Land U	Jse	30
		Land Management Plans and Regional Growth Strategies	





Appendix A	Figure Attachments	A.1	
5.2.2	Existing Services	33	
5.2.1	Adjacent Users or Communities	32	
5.2 Socio-G	Socio-Community Conditions		



1.0 Background

1.1 Project Overview

The overall objective of the Brenda Renewables Project is to provide organic waste management services to the region and enhance and stabilize the previously reclaimed areas of the Brenda Mine site. The Brenda Renewables Project will be beneficial in several ways. The production of Class A compost will provide an onsite opportunity to utilize a brownfield site and existing infrastructure (roads and utilities) to further the Brenda Mine Site rehabilitation and sustainable vegetation enhancement. The project will also benefit the local community as diversion of organic waste from local landfills will reduce landfill demand and assist in commitments to reduce GHG emissions and meet provincial climate and clean environment initiatives and plans. A more detailed discussion of project benefits is provided in Section 2.2.

The Brenda Renewables Project will be developed over three phases and have an approximate operating life of 20 plus years. During Phase 1 of the project, Brenda Renewables will construct and operate a Pilot composting facility. Once the composting feedstock and product characteristics have been developed for use at the Brenda Mine site, the Brenda Renewables Project envisions construction of anaerobic digestion facilities and additional capacity (Phase 2 and 3) to support the receipt of a broader range of organic materials, increase the production of compost, and to produce Renewable Natural Gas (RNG).

To implement Phase 1, Glencore proposes to build a Pilot Composting facility) that will include the construction and operation of a: site office, truck scale, composting buildings, Impermeable Curing Pad and associated water management features. The Pilot (Phase 1) infrastructure will be constructed within the disturbed footprint of the former Brenda Mine plant site. It is anticipated the Pilot (Phase 1) project will have an approximate footprint of 1-2 ha.

The Brenda Renewables Project will collect feedstock including food waste, yard and garden waste, agricultural residuals, biosolids as well as wood chips from various local municipalities and regional districts. During this phase, the Class A Compost that will be produced will be used to construct vegetative cover test plots prior to widespread distribution at the mine site. The purpose of the test plots will be to ensure the Class A product is successful in enhancing vegetation and that Constituents of Potential Concern (COPCs) are not released from the mine materials (e.g., tailings) following placement of the compost and vegetative covers.



The feedstock will be customized as necessary to assure that the compost being produced is not only a Class A Compost, but also meets any additional criteria identified (water quality, plant metal update) to make it suitable for application to support reclamation and advance the revegetation program at the Brenda Mine.

Under the Environmental Management Act and Public Health Act, the Organic Matter Recycling Regulation (OMRR) (B.C. Reg. 18/2002) defines Class A compost. As per Division 5, Schedule 12 of the OMRR

(https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/18_2002#section12), Class A compost must meet the following criteria:

Source

- Be produced solely from yard waste or untreated and unprocessed wood residuals, or from both
- Or if not solely from yard waste or untreated and unprocessed wood residuals, the compost must meet additional pathogen reduction, sampling and analysis and record keeping protocols
- Only produced from organic matter
- Biosolids used as feedstock to produce Class A compost must meet the standards for Class B biosolids (set out in Column 3 of Schedule 4 of the OMRR which stipulates maximum metal concentrations in the biosolid)
- As a result, the Class A compost is generally from uncontaminated and high grade sources, thereby initially reducing the potential for environmental impacts prior to processing and curing. Care will be taken in the sourcing and transport of materials to site to avoid introduction of invasive or noxious weeds to the site.

Processing

- The material must undergo reductive processes and meet quality criteria prior to classification as Class A compost. These include:
- Pathogen Reduction Processes, vector attraction reduction, and quality testing for deleterious substances. Specifically, to be considered Class A, compost must be treated in a thermophilic aerobic process for 14 days or longer. During that time, the temperature of the compost must be higher than 55° Celsius. The piles will be turned repeatedly to assure that all portions of the pile reach the temperatures necessary to destroy pathogens and seeds.



 For seeds unavoidably included in feeds such as yard and garden waste are rendered non-viable by the complete thermophyllic processing required to meet the designation of Class A compost

Distribution

 Once designated as Class A compost under OMRR, the material can be distributed without further regulation by ENV.

In addition to the release by ENV, the Ministry of Energy, Mines and Low Carbon Innovation (EMLI) will use its authority to monitor and regulate the distribution of Class A compost on reclamation areas of the Brenda Mine Site. The authorization is administered through amendment to the Brenda Mine Reclamation Permit M-12 (M-12 Permit Amendment).

To implement Phase 2 of the Brenda Renewables project, Glencore plans to install and operate a Wet Anaerobic Digester (Wet AD) system, adjacent to the Phase-1 composting operation at the former plant site of the Brenda Mine site. The Brenda Renewables Project will collect local organic material to produce renewable natural gas (RNG). CH Four's Biogas Wet anaerobic digestion (AD) technology has tentatively been selected and can process the low solids organic feedstock (e.g., commercial food waste, source separated organics from packaged food waste, etc.). Feedstock that is comprised of more than 4% solids will be processed at the hydrolyzer prior to entering the Wet AD.

The biogas produced will be upgraded to FortisBC's specifications using Pressure Swing Adsorption (PSA) technology. FortisBC is evaluating transporting the produced RNG utilizing a pipeline in the easement that previously serviced the mine. Alternatively, the RNG produced will be compressed and stored in on-site CNG trailers for FortisBC to transport to their offsite injection point in West Kelowna for final injection into the local FortisBC natural gas distribution system.

In Phase 3, the Brenda Renewables Project anticipates construction of a High Solids Anaerobic Digester (HSAD). A Thöni digester has tentatively been selected and can process the high solids feedstocks (e.g., municipal yard/garden and food waste). The HSAD will typically process feedstocks that have a solids percentage typically in the range of 30-35%.

The entire system has been designed to ensure that there will be no odour, noise or liquid discharge emissions that exceed local regulations as set out by the province, the regional district, and local communities including but not limited to Peachland, Kelowna and Penticton, British Columbia. It is estimated that up to 90% of the total feedstock will be sourced from within a 100 km radius of the Brenda Mine site.



Phase 1 of the project does not require Authorization under the OMRR, yet does require notification under the regulation which was provided to the Ministry of Environment and Climate Change Strategy (ENV) and accepted on November 16, 2020 (Approval #110536, Tracking #398287). A Waste Discharge Authorization (WDA) will be required from ENV for Phases 2 & 3 (as per the expanded compost capacity and addition of anaerobic digestion) of the project (Current Status: Preliminary Application submitted). A summary of the required approvals and authorizations is provided below.

The entirety of the renewables project will be constructed on pre-disturbed lands utilized in earlier mining operations. Currently OMRR requires an environmental impact study (EIS) to be completed prior to approval and operation of a composting facility (as planned for Phases 2 and 3). The EIS must include measures that can be taken to reduce, alleviate and monitor potential impacts. Mitigation measures will be included with respect to erosion and sediment control and air quality (including odour) as part of this EIS documentation submitted to ENV to support the WDA. Potential mitigation information is provided as part of the crown land application as applicable for completeness with respect to environmental considerations (Section 4.0).



Table 1: List of Project Approvals and Authorizations

Phase / Activity	Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD)	Ministry of Environment and Climate Change Strategy (ENV)	Ministry of Energy, Mines & Low Carbon Innovation (EMLI)		
Phase 1 - Compost Pilot	Land Tenure Agreement (Crown Land Lease) Water Licence under WSA (Water Sustainability Act) for potable water source	Notification under OMRR (Organic Matter Recycling Regulation)	 M12 Permit Amendment required to: Turn over land tenure to FLNRO (Crown Land Lease) Allow for application of compost to mine site Change in tenure has the following additional jurisdictional effects: Potential discharges associated with the compost operation itself to be governed by WDA (Ministry of Environment). Employee safety to be governed by WorkSafe BC rather than the Health, Safety and Reclamation Code for Mines. 		
Phase 2 - Compost Expansion & Wet Anaerobic Digestion/RNG	No Additional Requirement. Additional use included on same parcel leased for Phase 1.	WDA (Waste Discharge Authorization) required for both larger compost facility and the anaerobic digester operation.	No Additional Requirement.		
Phase 3 - Compost Expansion and High Solids Anaerobic Digestion/RNG	No Additional Requirement. Additional use included on same parcel leased for Phase 1.	Revision to WDA (Waste Discharge Authorization) required for the larger compost facility and the additional anaerobic digester operation.	No Additional Requirement.		



1.2 Investigative Work

Activity	Brief Description of Activity	Status (e.g. Complete, incomplete, ongoing)	Comments / Milestones
Geotechnical Investigation and Report for Brenda Renewables Organic Processing Facility, Brenda Mines Site, Peachland, B.C.	Based on the conceptual site plan, prepared by CH Four Biogas, geotechnical recommendations related to the proposed Brenda Renewables Organic Processing Facility were assessed. The report addresses the following specific items: a) Site description and surficial geology b) Geotechnical field and laboratory investigations carried out for the project c) The engineering properties and characteristics of the subsoils at the site d) Groundwater and temporary excavation considerations e) Potential reuse of existing materials within the proposed construction f) Preliminary recommendations for foundations and ground preparation for foundations g) Frost protection for foundations h) Site, roof, and perimeter foundation drainage i) Recommendations for pavement structure design, and construction methods and procedures j) Cut and fill recommendations k) Recommendations for trench excavations and backfill procedures	Complete	It is concluded that, from a geotechnical point of view, the proposed constructions can safely proceed provided the recommendations made in this report are followed. It is recommended that: a) The items contained in Section 5.0 through 12.0 of this report be followed. b) The geotechnical engineer inspect all soils, and soils related work on the project to assure that: i) all soils conditions are as good or better than those inferred in this report, and that ii) all soils and soils related construction conforms to this report, designs provided, and the appropriate specifications for the work. c) Any design(s) or other work for soils or for soils related structures connected with this project and prepared by others be submitted to the geotechnical engineer for review regarding conformity to the requirements and intent of this report.
Archaeological Overview Assessment Report for the Brenda Renewables Anaerobic Digestion and Composting, August 20, 2020	This AOA consists of a desk-based review of the study area. A search for previously recorded archaeological sites near the study area was conducted using the Archaeology Branch's Remote Access to Archaeological Data (RAAD) application. The Provincial Archaeological Report Library (PARL) was also searched for information on archaeological assessments that may have been completed near the study area. Ground-based and satellite imagery throughout the study area was examined using Google Street View and Google Earth. Historical air photos of the study area from 1938 and later were borrowed from the University of British Columbia's Geographic Information Centre and examined. To confirm the findings of the AOA, a PFR, consisting of judgemental pedestrian survey, was completed. Two crew members traversed the project area while spaced approximately 10 m apart. Pedestrian survey was conducted over the entire development footprint.	Complete	No further archaeological work is recommended prior to construction due to the low archaeological potential throughout the project area. In the event that unanticipated archaeological finds are observed during any phase of construction, all work in the vicinity should stop immediately, and a professional archaeologist should be contacted for advice. If the archaeologist determines that the finds are archaeological, work may only resume with approval from the Archaeology Branch.



Activity	Brief Description of Activity	Status (e.g. Complete, incomplete, ongoing)	Comments / Milestones
	Archaeological potential was assessed based on proximity to waterways (both past and present); proximity to documented archaeological sites; the presence of level to gently sloping, well-drained terrain with moderate-to-good soil development; and evidence of past land uses that might affect the integrity of buried archaeological remains or above ground archaeological features.		
	Local First Nations may maintain records of cultural heritage information, including geographically referenced data, which can be useful for determining the potential for archaeological remains at specific locations throughout their territories. Terra Archaeology Limited (Terra) did not solicit this type of information for this study.		



1.3 First Nations Consultation

Glencore recognizes the value of local community participation associated with the planning and implementation of their operations. Glencore initiated engagement with area First Nations and stakeholders during the planning phases of the Brenda Renewables Project at the Brenda Mine. Future engagement will continue throughout the construction and operation of the Brenda Renewables Project.

Glencore engaged with First Nations through a variety of methods including:

- Meetings to provide information on the Brenda Renewables Project and respond to questions; and,
- On-going dialogue to address questions and provide updates.

Letters for the notice of the Brenda Renewables Project were sent to the majority of the identified First Nations (below) on October 9, 2019. A letter of notice was sent to the Nicomen Indian Band for the Brenda Renewables Project on September 30, 2020. The Nicomen Indian Band was identified as an additional First Nation to be consulted while renewing leases for the mine site after our initial engagement campaign.

First Nations

- Ashcroft Indian Band;
- Oregon Jack Creek Band;
- Coldwater Indian Band;
- Lower Nicola Indian Band;
- Boothroyd Indian Band;
- Lytton First Nation;
- Siska First Nation;
- Skuppah Indian Band;
- Spuzzum First Nation;
- Penticton Indian Band;
- Okanagan Nation Alliance;
- Nooaitch Indian Band;
- Esh-hn-am Cultural Resources Management Services;
- Cook's Ferry Indian Band;



- Lower Similkameen Indian Band;
- Shackan Indian Band;
- Scw'exmx Tribal Council;
- Nlaka'pamux Nation Tribal Council;
- Westbank First Nation;
- Upper Nicola Band; and,
- Nicomen Indian Band.

The following meetings were held with First Nations.

Westbank First Nation Engagement

- July 30, 2019: Meeting with Westbank First Nation to provide project overview and answer questions;
 - Attended by Brenda Renewables, Glencore and Global Public Affairs (GPA);
 - At the meeting Westbank First Nations noted that they would want to do an archeological study. The study was subsequently completed in 2020 by Terra Archaeology with reimbursement for the expense paid by Glencore.
 - Westbank First Nation also expressed interest in a visit to Renewables
 Organics Management's (ROM) Seabreeze farm;
 - It was also offered that if Westbank First Nations has a need for Class A
 Compost that this could be provided once facility is up and running;
- May 5, 2021: Received letter of conditional approval of the project pursuant to a meeting to discuss accommodation agreement;
- May 10, 2021: Background information on the Brenda Renewables project provided to WFN;
- July 9, 2021: Written response to questions provided by Referrals Officer;
- October 27, 2021: WFN representatives attended a tour of the Brenda Mine Site with Peachland Council, Peachland District Staff and members of the Peachland Watershed Protection Alliance:
- Current Status (as of December 13, 2021): WFN is waiting for the referral of the project from FLNRORD.



Penticton Indian Band Engagement

- November 27, 2019: Meeting with Penticton Indian Band to provide a project overview and answer questions:
 - Attended by Brenda Renewables, Glencore and GPA;
 - The Penticton Indian Band expressed concern over the Brenda Mines site road, Glencore responded that access is sufficient for the project;
 - Penticton Indian Band inquired about the risk of invasive species and seeds form the project, Brenda Renewables identified that the Class A Compost will be tested before placement;
 - The Penticton Indian Band expressed an interest in potential economic involvement with the Brenda Renewables Project;
- On June 24 and July 14, 2020, meetings were held with Penticton Indian Band;
- On July 14, 2020, the Brenda Renewables Project received a letter of conditional approval from the Penticton Indian Band;
- On February 10, 2021, a Memorandum of Understanding was drafted and Glencore discussed operating policies;
- July 30, 2021, a follow-up meeting to update the MOU and discussed the involvement of key entities (Brenda Renewables and Glencore);
- Current Status (December 13, 2021): Awaiting updated MOU.

Upper Nicola Band Engagement

October 10, 2019: Request for geomatics file (KMZ) of the exact location of proposed project

October 11, 2019: Replied to request and provided KMZ to Upper Nicola Band

February 24, 2020: Met with Upper Nicola Band;

March 22, 2021: Request to submit KMZ files of BR CT Request to NationsConnect. CT Letter and KMZ submitted.



2.0 Location

2.1 Description

The Brenda Mine site is located 35 km west of Kelowna in south central British Columbia (**Attachment 1**). Access for the mine site is immediately off of Hwy 97C (**Attachment 2**). The principal access to the Brenda Mine site will be by driving west 22 km on the paved highway 97C (Coquihalla Connector), travelling from the 97C exit that leaves highway 97 just north of Peachland, and exiting at the Brenda Mine exit. Site access will be through a controlled gate.

The Brenda Renewables project will be located within the disturbed footprint of the former Brenda Mine plant site as shown in Attachments 2 and 3. The Brenda Renewables Project location was selected such that no additional disturbances to the mine, waste rock piles, tailings facilities or other sensitive sites will occur. The planned Brenda Renewables Project infrastructure, including all site buildings, anaerobic digesters, water management features and utilities, will occupy an approximate footprint of 9 ha primarily within the former plant site. This area had been reclaimed as part of the Mine closure. The area that is identified as the Crown Land lease application totals 13.32 ha and includes additional reclaimed area directly surrounding the Project infrastructure. The 13.32 ha will provide the required space for the direct footprint of the composting facility infrastructure, curing areas, transportation and reasonable set-backs. Prior to construction, the area will require minor vegetation removal (recent herbaceous growth) and grading will be necessary to support preparation prior to pouring of foundations, concrete pads and roadway construction. This location also would have the advantage of being close to Brenda Mine's existing road infrastructure, electric utilities, and within the overall site's water collection and treatment area.

The project will not require any specific diversion of surface flows specific to the Brenda Mine site. However, localized run-on and run-off water on the composting facility envelope will be controlled via berming and ditching. Overall, site drainage currently reports to the existing tailings pond and mine pit and then ultimately to the water treatment plant. There will be no change to the overall water management onsite as part of this project.

2.2 Location Justification

The Brenda Renewables project will be located within the disturbed footprint of the former Brenda Mine plant site as shown in **Attachments 2 and 3**. The Brenda Renewables project location was selected such that no additional disturbances to the Brenda Mine will occur. The planned Brenda Renewables infrastructure, including all site buildings, anaerobic digesters, water management features and utilities, will occupy an approximate



footprint of 9 ha primarily within the former plant site. The area that is identified as part of the Crown Land lease application totals 13.32 ha and includes additional reclaimed area directly surrounding the Project infrastructure. Prior to construction of the Brenda Renewables project, the area will require some clearing and stripping but would have the advantage of being closest to Brenda Mine's existing infrastructure, utilities, people, water source and water treatment capability.

The Brenda Renewables Project will have environmental benefits as well as positive impacts to the public and local governments. The Class A Compost produced as a component of the Brenda Renewables project will be utilized to further the Brenda Mine Site rehabilitation and enhance the revegetation of the site by creating sustaining vegetative covers.

Local organic waste will be diverted from landfills and will be converted at the Brenda Renewables Project into value-added products (i.e., RNG and nutrient rich compost). This will decrease the demand on landfill facilities in local municipalities and regional districts, as well as fulfill the region's commitment to reduce GHG emissions and move towards a Zero Waste society.

The facility will benefit the entire Okanagan valley, by providing a local, long term, reliable organic processing service. Local communities will also be able to utilize the locally generated RNG through FortisBC to offset their community's carbon footprint through the reduction of overall GHG emissions from the decomposition of organic waste and utilization of the low carbon fuel, RNG.

Additionally, the compost produced from the Brenda Renewables Project will be used to enhance and stabilize the active vegetation at the Brenda Mine site. Prior to placing the compost material, Glencore will evaluate test plots to ensure that the compost cover will promote vegetation and not inadvertently affect the Brenda Mine Site water quality by mobilizing COPCs.

The Brenda Renewables Project also supports two sections of the climate plan. These sections "Reducing Waste and Turning It into a Resource" and Clean BC renewing British Columbia's existing bioenergy strategy support a boarder policy goal of encouraging the circular economy. British Columbia has set a provincial waste disposal target to lower the municipal solid waste disposal rate to 350 kg per person. 2017 levels were 506 kg of municipal solid waste per person - down 61 kg per person since 2012. The Brenda Renewables Project helps to support the Clean BC plan.



2.3 Seasonal Expectations of Use

Project Phase (Construction / Operations)	Brief Description of Activity / Works	Season
Phase 1 Construction	Level/prepare site.	Commencing as soon as weather conditions permit and
Q2 2022 through Q4, 2022	Construct Composting Building and curing pad.	authorization is received.
	Set up Office, scale facilities (modular/ pre-fabricated)	Construction to be completed before onset of significant snow accumulation in the Fall.
Phase 1 Operations	Operations to produce up to 5,000 tonnes/year of Class A	Year round operation but with significant seasonal variation.
Q3 2022 through life of facility, ~+20 years (2042)	Compost.	
Phase 2 - Construction	Construct Wet Anaerobic Digester and natural gas	Commencing late Spring as weather conditions permit.
Q1 2024 through Q4 2024	cleaning compression and storage infrastructure, Construct additional compost buildings and curing pads.	Construction to be completed before onset of significant snow accumulation in the Fall.
Phase 2 - Operation	Operation to receive about	All
Q4 2024 through life of facility, ~+20 years (2042)	95,000 tonnes /year of locally sourced organic waste to produce up to 10,000 tonnes of Class A compost and 85,000 GJ/year of RNG.	
Phase 3 - Construction	Install High Solids Anaerobic Digester.	Commencing late Spring as weather conditions permit.
Q2 2026 through Q4 2027		Construction to be completed before onset of significant snow accumulation in the Fall.



Project Phase (Construction / Operations)	Brief Description of Activity / Works	Season
Phase 3 - Operation Q4 2027 through remaining life of facility, ~+20 years (2042)	Operation of expanded of compost facilities and anaerobic digesters diverting in total about 145,000 tonnes /year of locally sourced organic waste to produce up to 170,000 GJ/year RNG. The Brenda Renewables	All
	project is anticipated to have a lifespan of 20 years or more.	



3.0 Infrastructure and Improvements

3.1 Facilities and Infrastructure

Facility / Infrastructure / Process	Construction Methods / Materials	Construction Schedule					
Phase 1, Compost Facility (Pilot) and General Infrastructure							
Composting Buildings	Reinforced concrete floor with built in channels for compost aeration and leachate collection						
	Reinforced concrete or concrete block building foundation and push walls supporting a modular steel frame-flame retardant dome roof cover						
Impermeable Curing Pad / Compost processing areas	Resilient asphalt pavement, on a stable granular base						
Site Office / Change-room	Modular prefabricated structure(s) to accommodate site office and changeroom including; manager office, file storage, gate access and scale readout controls, small group training/meetings, lunch, toilet, lockers and hygiene facilities.						
Truck Scale	Certified for trade to determine received weights and calculate tipping fees	Phase 1 Construction – Q2, 2022 through Q4, 2022					
Fuel Storage	Double walled fuel storage tank with secondary concrete containment system	Phase 1 Operations - Q3, 2022 through life of facility, ~+20 years (2042)					
Transformer	Specifications to be determined with detailed engineering. Adequate power is available from the nearby high voltage substation which supplies the mine site.						
Groundwater Well (Potable Water)	A small well similar in size to a residential well would be adequate. Water taking will be approved by FLNRORD through a Water Licence						
Site run-on/run-off control, Site Drainage, Truck Turnaround,	Earthen berms and ditches to direct stormwater around curing pads and buildings. Overburden, granular material and road surface material HDPE or CSP culverts						



Facility / Infrastructure / Process	Construction Methods / Materials	Construction Schedule
Site Entrance	Modify existing entrance gate to allow remote monitoring and access control from Brenda Renewables Project site office Provide appropriate signage directing traffic to Brenda Renewables site or Mine Site Offices as required.	
Phase 2 and 3, Anaerobic Digesters and Natural	Gas Handling Infrastructure	
Wet Anaerobic Digester (Phase 2)	CH Four Biogas's Technology is planned model.	
High Solids Anaerobic Digester (Phase 3)	Thöni is anticipated model for handling a higher solid content mix of organic waste.	
Hydrolyzer Tank with Chute	In ground, covered tank to receive organics from trucks.	Phase 2 – Construction – Q1 2024 through Q4, 2024
Receiving Hall / Processing Building / Dewatering Area / Boiler	Steel truss sheet metal sheathing Dewatering Area includes equipment to separate residual solids from liquid digestate. Solids are introduced to composting system. Digestate is held in onsite storage tank, land applied as fertilizer or trucked for disposal at POTW. Boiler is anticipated to be provided as a pre-fabricated skid mounted package requiring limited assembly and connection to the digestion facilities once placed on site.	Phase 2 – Operation - Q4, 2024 through life of facility, ~+20 years (2042) Phase 3 – Construction- Q2, 2026 through Q4, 2027 Phase 3 – Operation -
Biofilter / Sump	Concrete basin holding substrate media to adsorb and break down odorous compounds in ventilation exhausted from portions of digester building	Q4, 2027 through remaining life of facility, ~+20 years (2042)
Gas handling infrastructure CNG Compression Station	Compressor and tanks for on-site accumulation and storage of produced RNG. Biogas Upgrader to separate undesirable sulfur compounds from RNG stream Pressure relief system with flare in the event of equipment failure or excess gas Gas is transferred via virtual pipeline (trucks) to Fortis BC facilities.	



Facility / Infrastructure / Process	Construction Methods / Materials	Construction Schedule
Storage Tank	Prefabricated and assembled onsite storage tank for leachate with secondary containment features.	

Note: Attachments 5a, 5b, and 5c show dimensions and conceptual details of the Facilities and Infrastructure for the Brenda Renewables Project.



3.2 Access

Roadway / Proposed Connection	Existing / Proposed	Existing Road Classification	Road Permittee Traffi Information and Road Use				Traffic Volume	
			Agreements	Construction Phase	Operations Phase			
The principal access to the Brenda Mine site will be by driving west 22 km on the paved highway 97C (Coquihalla Connector), travelling from the 97C exit that leaves highway 97 just north of Peachland, and exiting at the Brenda Mine exit.	Existing	Highway to mine access road	Private road operated by the Brenda Mine Site Road accessed by Brenda Mine Site. Access will be controlled by a secure gate.	Minor increase in heavy truck traffic is expected to deliver construction equipment and materials. This will be over a short duration. The existing road network including the highway and site access roads are currently fit for use for such traffic and for industrial use.	All incoming material will be allowed entry to the Brenda Renewables site via a video monitored secured gate. Appropriate signage will be installed to direct the driver(s) to the composting facility. Trucks (approximately 18 per day) will be weighed when entering and exiting the site to control the amount of material entering the site.	Traffic will be subject to the established Brenda Mine traffic controls between the Highway 97C and the Brenda Renewables site. This includes stop signs and speed control. Access to the site will continue to be controlled by a secure gate.		

3.3 Utility Requirements and Sources

The power supply for all phases of the Brenda Renewables Project will be connected from the existing hydro corridor to the Brenda Renewables Transformer. The approximate hydro connection and transformer location are illustrated in **Attachment 3**.



3.4 Water Supply

Project Phase (Construction / Operation)	Water Requirement (e.g., Surface water or groundwater, etc.)	Source / Location	Volume	Infrastructure Description	Agreements
General Sanitation	Groundwater	A small well similar in size to a residential well would be adequate. Water taking will be approved by FLNRORD through a Water Licence.	TBD	Trucking water in from off site is a feasible alternative for the small staffing anticipated	NA
Equipment washdown				Ç .	

3.5 Waste Collection Treatment and Disposal

Project Phase (Construction / Operation)	Is there a water requirement (e.g., Surface water or groundwater, etc.)	Discharge distance to closest body of water (well, lake, etc.)	Volume of daily discharge	Infrastructure Description	Existing Agreements
Composting Operations – Leachate formation in active composting piles inside dome structures.	No	Zero discharge. In the unlikely event that there is an excess amount of leachate collected, it will be disposed offsite, at an approved facility.	Heat from composting activity drives off moisture in the form of water vapor. Proper operation (feedstock, mixing and ventilation management) prevents generation of excess leachate	Leachate from the active composting operation will gravity drain to underground collection tanks. Pump and hoses will recycle leachate back to the top of compost piles to maintain optimal moisture.	N/A
Anaerobic Digester – Filtered Digestate	No	Varies – To be determined. Liquid digestate may be used as fertilizer to enhance vegetation growth on portions of the Brenda Mine site. Prior approval of the Ministry of Mines will be required in accordance with the M-12 reclamation permit.	Land application will be done in periodic campaigns. If land application is not authorized, liquid digestate will be trucked to permitted off site facility.	Holding tank.	NA



4.0 Environmental

4.1 Land Impacts

4.1.1 Vegetation Removal

Is any timber removal required?

Yes No

Are any areas of vegetation to be cleared, outside of timber removal?

Yes No

The entirety of the renewables project will be constructed on pre-disturbed lands utilized in previous mining operations. Minor vegetation removal (recent herbaceous growth) and grading will be necessary to support preparation prior to pouring of foundations, concrete pads and roadway construction.

4.1.2 Soil Disturbance

Will there be any areas of soil disturbance, including clearing, grubbing, excavation and levelling?

Yes No

Disturbance Type	Impacts	Proposed Mitigation
Clearing, stripping, grading	Removal of vegetation and	Limit surface disturbance as
and fill.	upper soil on previously	applicable
	disturbed land to support	
	construction of infrastructure	Implementation of localized water collection system to
	Increased siltation to surface	report back to existing site
	water run off	water collection and settling
		system
	Increase in atmospheric dust	
		Use of erosion and sediment
	NOTE: work to occur in area of	control measures as
	previously disturbed footprint.	applicable for surface flow (i.e.,
		silt fencing and hay bales)
		Stabilization, cover (geotextile)
		and revegetation of exposed



Disturbance Type	Impacts	Proposed Mitigation
		soils and stockpiles to reduce sedimentation and dust creation
		Development of a fugitive dust management plan as per BC including best management practices of:
		- Wetting active/unpaved areas
		- Minimizing drop heights
		- Minimizing dust generating activities during high wind periods
		- Cover / enclosing stockpiles and storage areas

Note:

Final mitigation measures will be approved by ENV through the submission of a site-specific EIS to meet requirements of WDA under OMRR.

Is the area to be excavated a Brownfield site or has the potential to be contaminated?

Yes No

The entirety of the renewables project will be constructed on pre-disturbed lands utilized in previous mining operations. No contamination is anticipated since the proposed construction area was reclaimed in accordance with an EMLI approved plan.

Is there potential for disturbance of archaeological, paleontological fossils or historical artifacts?

Yes No

4.1.3 Riparian Encroachment

Will any works be completed within or adjacent to the riparian zone of any water body? If your project is within 30 meters of a watercourse and you intend to: disturb soil, remove



plants, construct, install works for flood protection, develop drainage systems or service sewer or water systems the Riparian Areas Regulation may affect your development.

Yes No

4.1.4 Pesticides and Herbicides

Will there be any use of pesticides or herbicides during construction, operations and/or maintenance?

Yes No

No herbicides will be used in conjunction with the compost facility.

4.1.5 Visual Impacts

Will there be any adverse effects of the projects, and any potential adverse effects on sight lines to the project area from surrounding areas likely to be used for scenic viewing by residents or other users?

Yes No

4.1.6 Archaeological Sites

Are there any known or high potential (Arch Procedure) archaeological sites within the project area?

Yes No

Have you conducted an AIA or engaged an archaeologist to assist with your investigations?

Yes No

As a result of consultations with the Westbank First Nation, an archaeological review was requested (**Section 1.3**). This study was completed and can be found in the report Archaeological Overview Assessment Report for the Brenda Renewables Anaerobic Digestion and Composting, dated August 20, 2020.

The conclusions of the report are as follows: No further archaeological work is recommended prior to construction due to the low archaeological potential throughout the project area. In the event that unanticipated archaeological finds are observed during any phase of construction, all work in the vicinity should stop immediately, and a professional archaeologist should be contacted for advice. If the archaeologist determines that the finds are archaeological, work may only resume with approval from the Archaeology Branch.



Full report is available upon request.

4.1.7 Construction Methods and Materials

Construction Material / Method	Impacts	Mitigations
Clearing, stripping, grading and fill.	Removal of vegetation and upper soil on previously disturbed land to support construction of infrastructure Increased siltation to surface water run off Increase in atmospheric dust NOTE: work to occur in area of previously disturbed footprint.	Limit surface disturbance as applicable Implementation of localized water collection system to report back to existing site water collection and settling system Use of erosion and sediment control measures as applicable for surface flow (i.e., silt fencing and hay bales) Stabilization, cover (geotextile) and revegetation of exposed soils and stockpiles to reduce sedimentation and dust creation Development of a fugitive dust management plan as per BC including best management practices of: - Wetting active/unpaved areas - Minimizing drop heights - Minimizing dust generating activities during high wind periods



Construction Material / Method	Impacts	Mitigations
		- Cover / enclosing stockpiles and storage areas
Concrete foundations	Previously disturbed footprint. Water used in concrete mixing and cleaning may increase potential for sedimentation	Implementation of localized water collection system to report back to existing site water collection and settling system

Note:

Final mitigation measures will be approved by ENV through the submission of a site-specific EIS to meet requirements of WDA under OMRR.

4.2 Atmospheric Impacts

4.2.1 Sound, Odor, Gas or Fuel Emissions

Will the project construction or operation cause any of the following to disturb wildlife or nearby residents?

Sound? Yes No

Odour? Yes No

Gas? Yes No

Emission Source	Current Conditions	Project Impacts	Proposed Mitigation/Management
Wet AD (Anaerobic Digestion) / HSAD (High Solids Anaerobic Digestion)	NA	None	Safety Flare to be operated in accordance with the requirements of the MOE permit.
			Odour Management Plan as required under WDA.

Note:

Final mitigation measures will be approved by ENV through the submission of a site-specific EIS to meet requirements of WDA under OMRR.



Currently OMRR requires an environmental impact study (EIS) to be completed prior to ENV providing a WDA for operation of a composting facility (as planned for Phases 2 and 3). The EIS details the nature and scale of the facility, how the project will impact the physical, chemical and biological environment (including air quality) and its receptors, and the measures that can be taken to reduce, alleviate and monitor these impacts. Mitigations to dust (particulate) mobilization during construction may be relevant as part of this EIS documentation submitted to ENV for WDA Authorization.

The Organic Matter Recycling Regulation (OMRR) under the Environmental Management Act (EMA) governs production, quality and land application of certain types of organic matter. The EMA and the OMRR are the two primary regulatory documents that govern odour management related to processing organics waste in BC as administered by ENV. ENV's WDA (Waste Discharge Authorization) is the regulating mechanism for monitoring and ensuring the odour, noise, liquid and solid discharges do not exceed the local regulations set out by the province. An odour management plan is part of the submission package for such an Authorization.

Fuel Emissions? Yes No

4.3 Aquatic Lands

4.3.1 Drainage Effects

Will the project result in changes to land drainage?

Yes No

4.3.2 Public Access

Will the project result in changes to public access?

Yes No

4.3.3 Flood Potential

Will the project result in a potential for flooding?

Yes No

4.4 Fish and Wildlife Habitat

4.4.1 Disturbance to Fish/Wildlife and Fish/Wildlife Habitat

Will the project result in adverse effects to wildlife or wildlife habitat? (BC Wildlife Act)



Yes No

Will the project (construction or operations phase) occur in and around streams, lakes, estuarine or marine environments?

Yes No

Is the project (construction or operations phase) likely to increase erosion or sedimentation?

Yes No

Will the project (construction or operations phase) require water diversion?

Yes No

Will the project threaten or endanger species at risk in the area? Species At Risk Act

Yes No

It should be noted that the proposed renewables project will be contained within the previously disturbed Brenda Mine Site and will constitute a small proportion of this larger area. The overall scale of the carve out within the context of contiguous habitat and ecological land use is small and of low impact. Additional impact assessment will be undertaken as part of the EIS to meet requirements of the ENV WDA. Reclamation of the larger mine site landscape features is governed by EMLI.

5.0 Socio-Community

5.1 Land Use

The Brenda Mine site is located 35 km west of Kelowna in south central British Columbia as shown in **Attachment 1**. Access for the mine site is immediately off of Hwy 97C, as shown in **Attachment 2**. Situated at an elevation of 1500 metres above sea level (masl), the Brenda Mine area straddles the divide between the headwaters of Peachland Creek and Trepanier Creek, both of which drain southeastwards into Okanagan Lake at Peachland.

The Brenda Mine was developed as an open pit copper and molybdenum mine. Ore extraction began in 1967, with an official opening in April 1970. The Brenda Mine produced almost 20,000 tonnes/day of copper/molybdenum ore during early operations, ramping up to approximately 30,000 tonnes/day before closure. Production ceased in June 1990. There were two intervals when the mine was shut down for economic reasons, an eightmonth period in 1983/84 and a nine-month period in 1984/85. The land uses and claim boundaries at the Brenda Mine are illustrated in **Attachment 4**.



The Brenda Renewables project will be primarily located within the former plant site area of the Brenda Mine as shown in **Attachments 2 and 3**. The plant site and location of the majority of the project infrastructure will be located within Claim 20054 (**Attachment 4**). The proposed drainage ditch drains towards the Tailings Pond and crosses the Brenda Mine claims 20054, 20057, 2005B and 2005D as shown in **Attachments 3 and 4**. During the Pilot (Phase 1) the project will have an approximate footprint of 1-2 ha. Following construction of the full project, the Brenda Renewables will have a footprint of 13.32 ha.

Glencore initiated engagement with area First Nations and stakeholders during the planning phases of the Brenda Renewables Project at the Brenda Mine. Details regarding the interaction with identified First Nations and subsequent meetings are available in **Section 1.3**.

The purpose of the engagement activities was to share the Brenda Renewables Project related information with the identified parties of interest. The parties identified as having an interest in the project include:

Municipalities

- Kamloops;
- Kelowna;
- West Kelowna;
- Vernon;
- Regional District of North Okanagan;
- Regional District of Okanagan Similkameen;
- Regional District of Central Okanagan; and,
- Peachland.

Glencore held meetings to share information on the Brenda Renewables project with the municipalities of interest. Below, is a description of the meetings, the notes from the meetings are available upon request.

- Vernon: August 21, 2019;
- Regional District of Okanagan Similkameen: July 30, 2019;
- Peachland: July 30, 2019;
- Regional District of Central Okanagan: July 31, 2019; and,
- West Kelowna: July 31, 2019.



5.1.1 Land Management Plans and Regional Growth Strategies

Are there any land and resource management plans, coastal plans, provincial, regional growth strategies or local government plans with zoning, or management policies or use restrictions in place that could limit or preclude your proposed use of the land? (Please refer to the Union of BC Municipalities (UBCM), and check the websites of the municipality, regional district or other organization with jurisdiction including your project area.)

Yes No

The iMapBC website was used to identify all Resource Management Zones identified in the Okanagan Shuswap LRMP that overlap the proposed lease area.

Basic and Enhanced Levels of Coarse Woody Debris were identified as coving most of the project site and proposed compost application areas (rock piles, dams and tailings beach). This is only marginally accurate as following clearing of the site for mine development, regeneration has been consistent with graminoid and herbaceous cover.

Pine Marten - High Capability habitat surrounds the mine site and is applicable to some of the rock piles. The area proposed for development of the Organics facility does not provide such habitat following clearing for mine development and lack of coniferous forest cover.

Intensive Recreation and Tourism (Winter and Summer Motorized Vehicle Use) RMZs are located to the South and East of the mine site. No impact from the organics recycling operation is anticipated since the proposed project is within the perimeter of existing controlled access for the mine site.

No other wildlife RMZs (Moose, Sheep, Caribou, Elk, Grizzly, Mule Deer, or Fisher) were identified as applicable to the site.

Within this context, use of the proposed project site is neutral with regard to the LRMP. Overall, the project will have a positive impact to existing landscape in that it will enhance the vegetative cover of the reclaimed rockpiles and other disturbed features of the mine site.

5.2 Socio-Community Conditions

5.2.1 Adjacent Users or Communities

Is the project likely to restrict public access, or the ability, or the ability of adjacent landowners or tenure holder to access their property or tenures?

Yes No

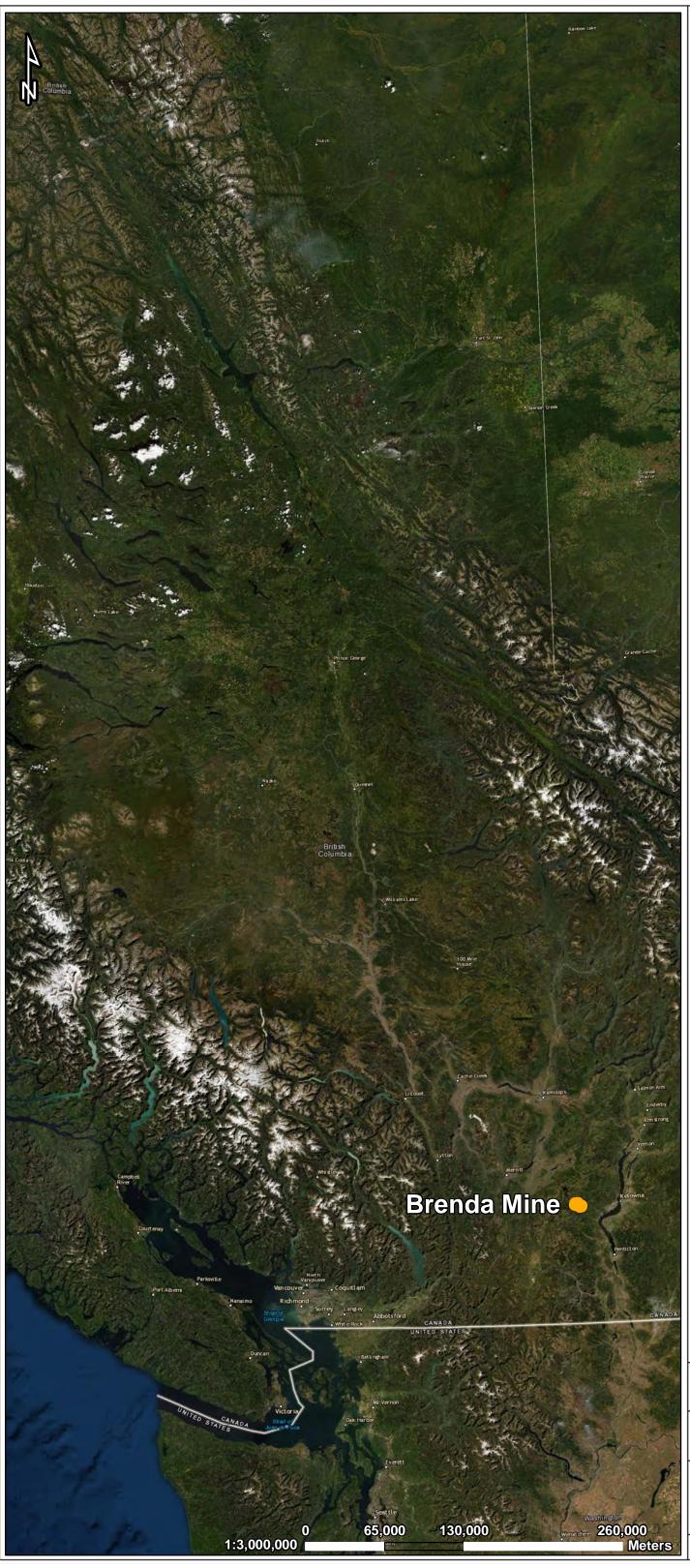


5.2.2 Existing Services

The Brenda Mine site is in a state of closure / reclamation, that current onsite and local fire protection and health services are consistent with the level of activity that will occur as part of the Renewables Project.



Appendix A Figure Attachments



Notes:

Coordinate System:
NAD_1983_BC_Zone_10
Projection: Transverse_Mercator

Legend



BRENDA MINE SITE LOCATION

Ecometrix

BRENDA RENEWABLES PROJECT
- BRENDA MINE RECLAMATION
PERMIT M-12 AMENDMENT

GLENCORE

GLENCORE

January, 2021

Scale As Shown

Attachment 1a





BRENDA MINE SITE



CITY

Notes:

- 1. This Figure illustrates the general area that feedstock will be sourced from to support the Brenda Renewables Project.
- 2. The feedstock will be sourced from approximately 100 km radius of the Brenda Mine Site, based on communications with ROM.
- 3. The base imagery in this Figure was provided by ArcGIS online 'World Imagery' Layer.
- 4. This Figure is to be read in conjunction with the accompanying figures and report.

BRENDA MINE SITE LOCATION

Ecometrix

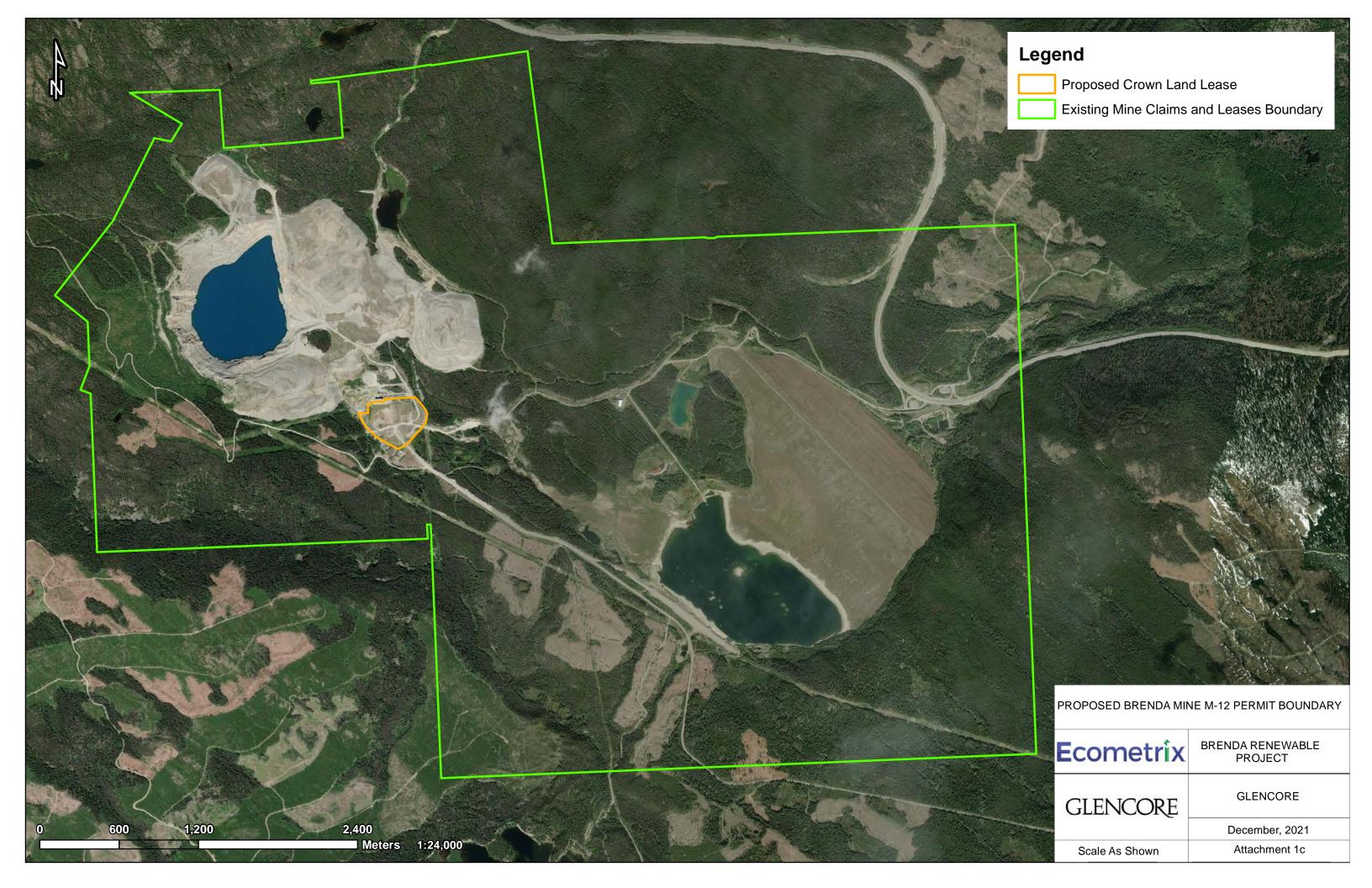
BRENDA RENEWABLES PROJECT
- BRENDA MINE RECLAMATION
PERMIT M-12 AMENDMENT

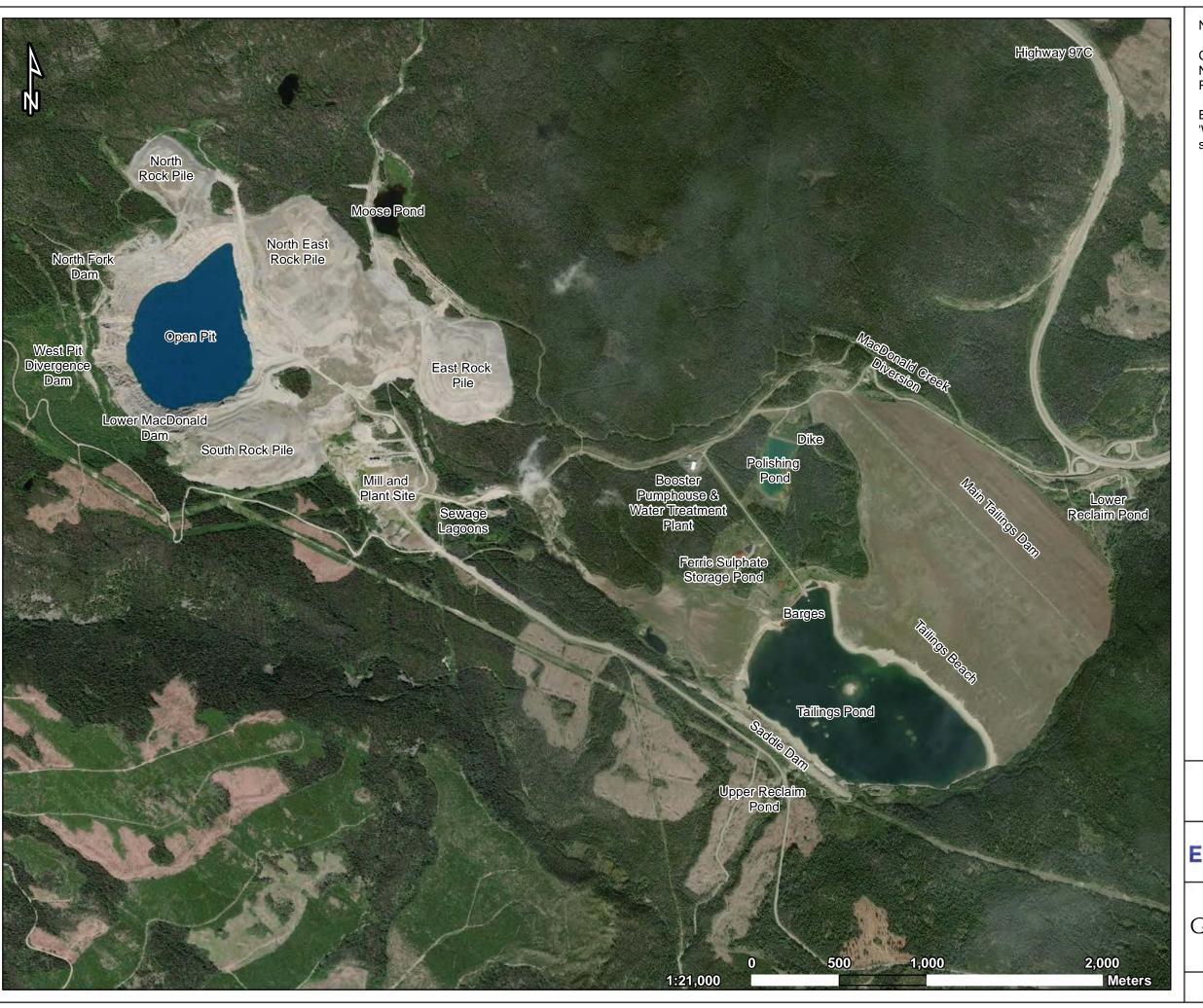
GLENCORE

GLENCORE

January, 2021

Scale As Shown Attachment 1b





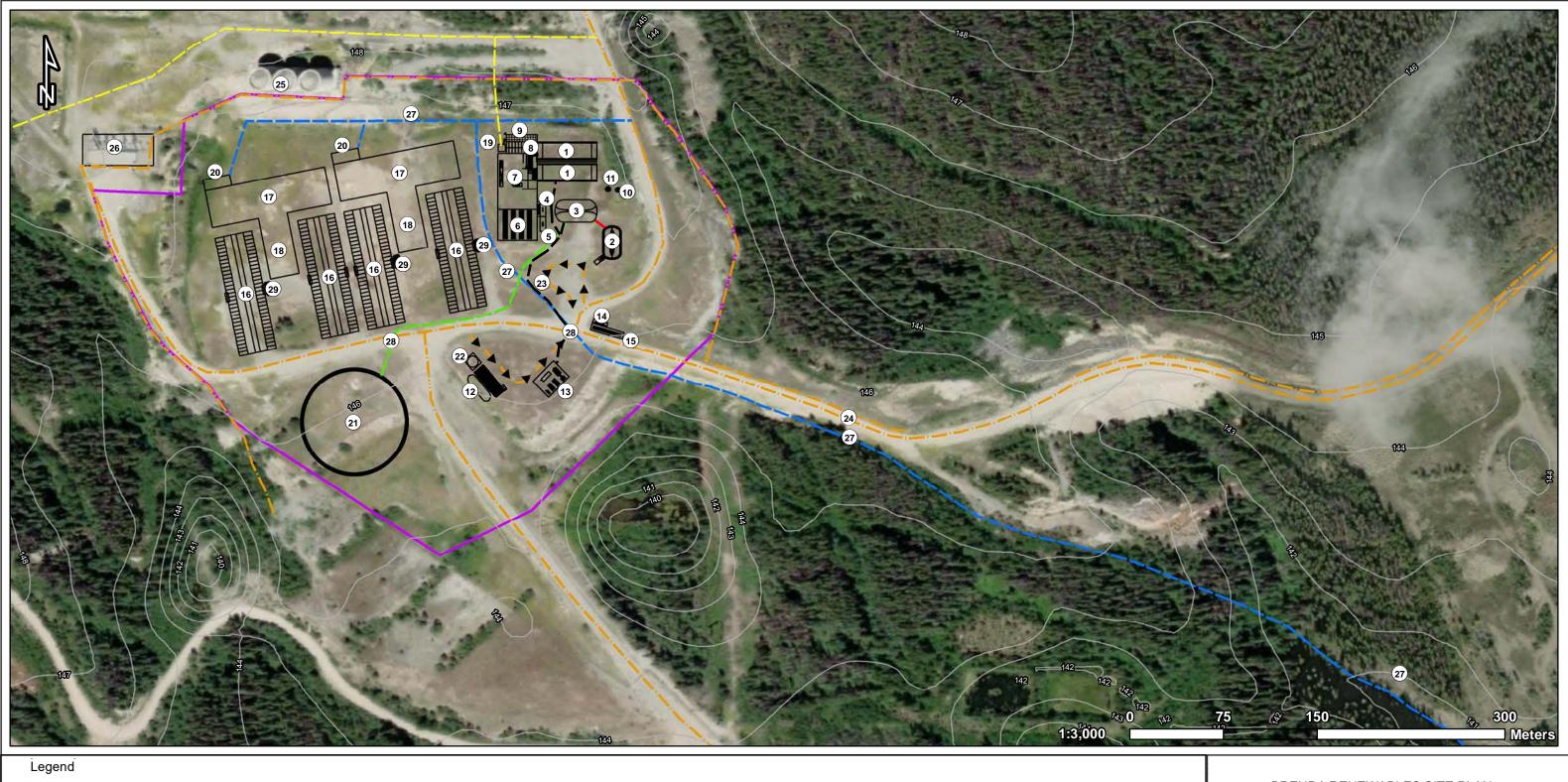
Notes:

Coordinate System:
NAD_1983_BC_Environment_Albers
Projection: Transverse_Mercator

Base imagery provided by ArcGIS online 'World Imagery' layer. 'World Imagery' provides satellite Images within the past 3-5 years.

BRENDA MINE LAYOUT

Ecometrix	BRENDA RENEWABLES PROJECT - BRENDA MINE RECLAMATION PERMIT M-12 AMENDMENT
GLENCORE	GLENCORE
	January, 2021
Scale As Show	vn Attachment 2



10 SAFETY FLARE (5) WOOD FIRED BOILER (12 m CONTAINER) (1) CONDENSATE WELL 6 RECEIVING HALL (12) CNG COMPRESSION STATION (18)

- BIOGAS UPGRADER SITE OFFICE (40ft CONTAINER)
- TRUCK SCALE
- COMPOSTING BUILDING (95m x 30m)
- IMPERMEABLE CURING PAD COMPOST PROCESSING
- TRUCK TURNAROUND SITE ENTRANCE ROAD

TRANSFORMER

FUEL STORAGE

STORMWATER BASIN

20

22

- EXISTING SILOS (UNUSED) 26) ELECTRICAL STATION (EXISTING)
- (27) DRAINAGE DITCH

HYDRO CORRIDOR

- DRAINAGE DITCH

PIPELINE (LIQUID) PIPELINE (GAS)

DIGESTATE PIPELINE

--- ROADS

- STORAGE LAGOON (28,400 m³) HDPE CULVERT
 - 29 SITE DRAINAGE
 - LEACHATE HOLDING TANK

BRENDA RENEWABLES SITE PLAN PROPOSED CROWN LAND LEASE

Scale As Shown

Ecometrix	BRENDA RENEWABLES PROJECT - BRENDA MINE RECLAMATION PERMIT M-12 AMENDMENT
GLENCORE	GLENCORE
	December, 2021

Attachment 3

- 1. This Figure illustrates the Brenda Renewables Project Site Plan and supporting infrastructure.
- The Brenda Renewables Infrastructure requirements and location were provided by Renewables Organics Management on 15 January 2020.
 All elevations and Grid Coordinates are in metres UTM NAD 83 Zone 11 Datum. Contour intervals are at 1 m.
 Existing contours were created from data provided by Glencore on 18 February 2020 to support this drawing.

DEWATERING

BIOFILTER

PROCESSING BUILDING

7

- 5. The base imagery in this figure was provided by ArcGIS online 'World Imagery' Layer.
- 6. This figure is to be read in conjunction with the accompanying figures and report.

INTEGRATED HSAD SYSTEM (2100 m³)

WET ANEROBIC DIGESTER (2500 m³)

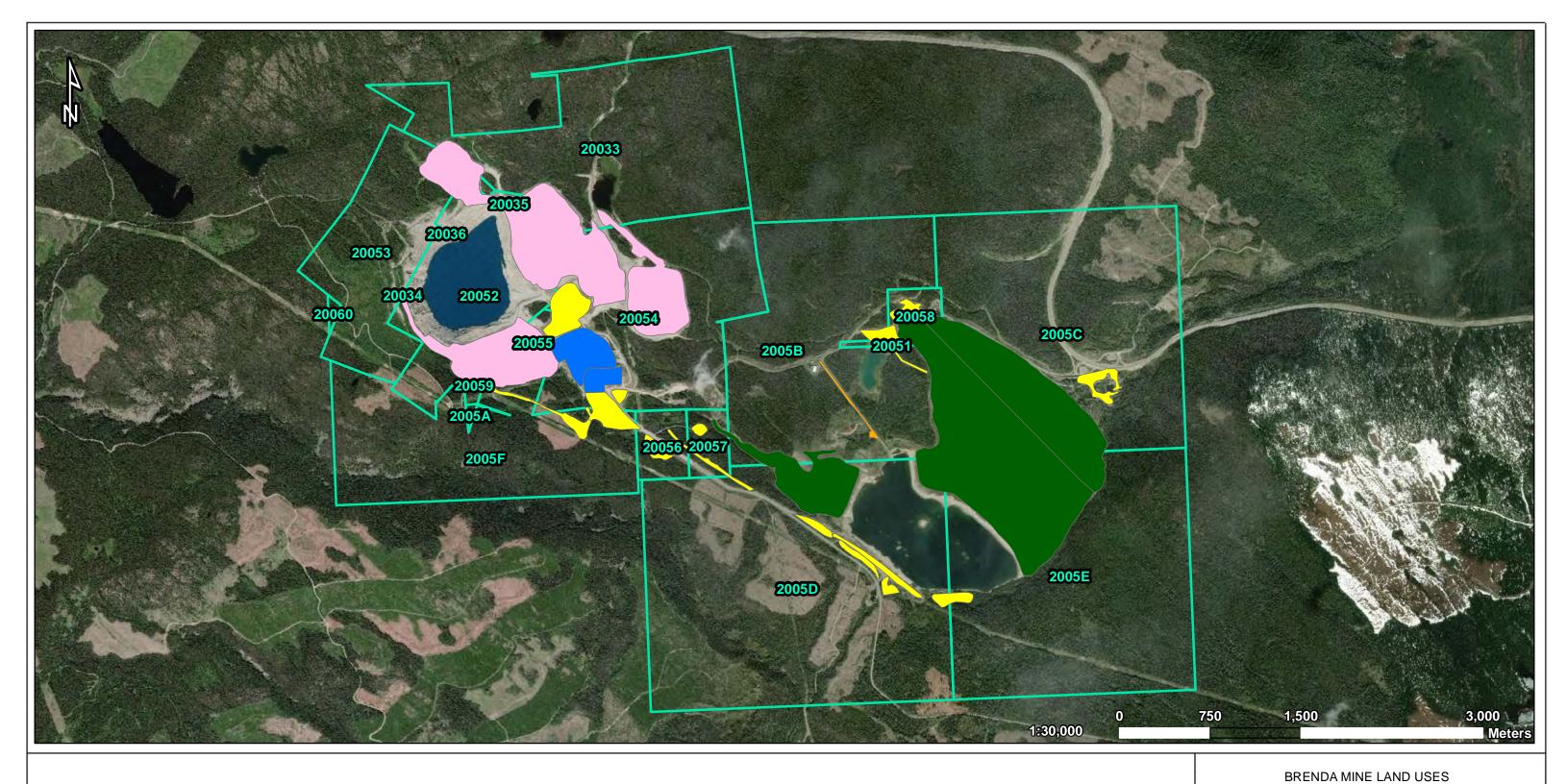
HEATING, ELECTRICAL, CONTROLS

2

3

4

HYDROLYZER TANK WITH CHUTE (600 m³)

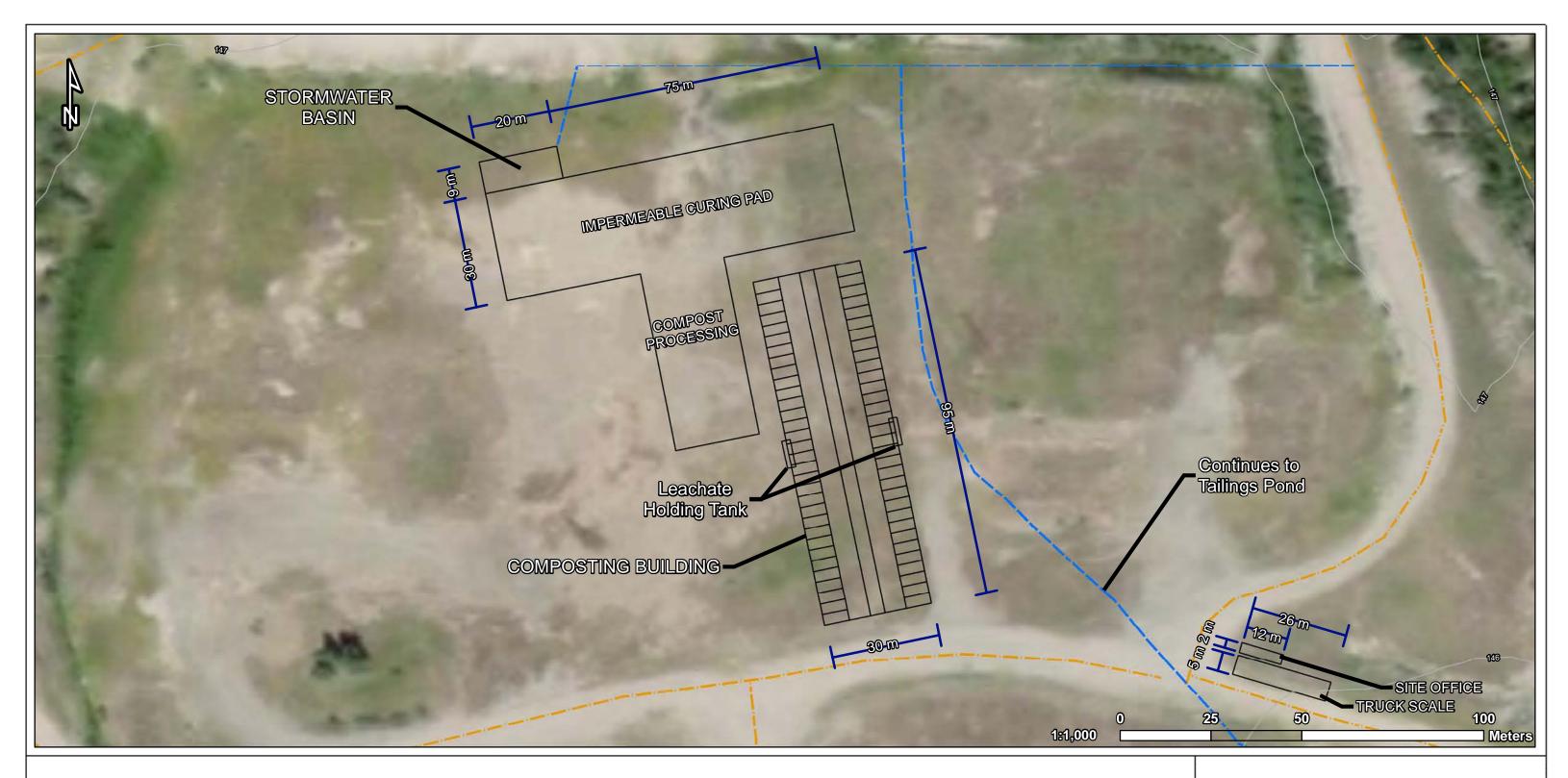




Notes:

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and

AND CLAIM BOUNDARY			
Ecometrix	BRENDA RENEWABLES PROJECT - BRENDA MINE RECLAMATION PERMIT M-12 AMENDMENT		
GLENCORE	GLENCORE		
		January, 2021	
Scale As Shown		Attachment 4	



CONTOURS (1 m INTERVAL)

--- DRAINAGE DITCH

---- ROADS

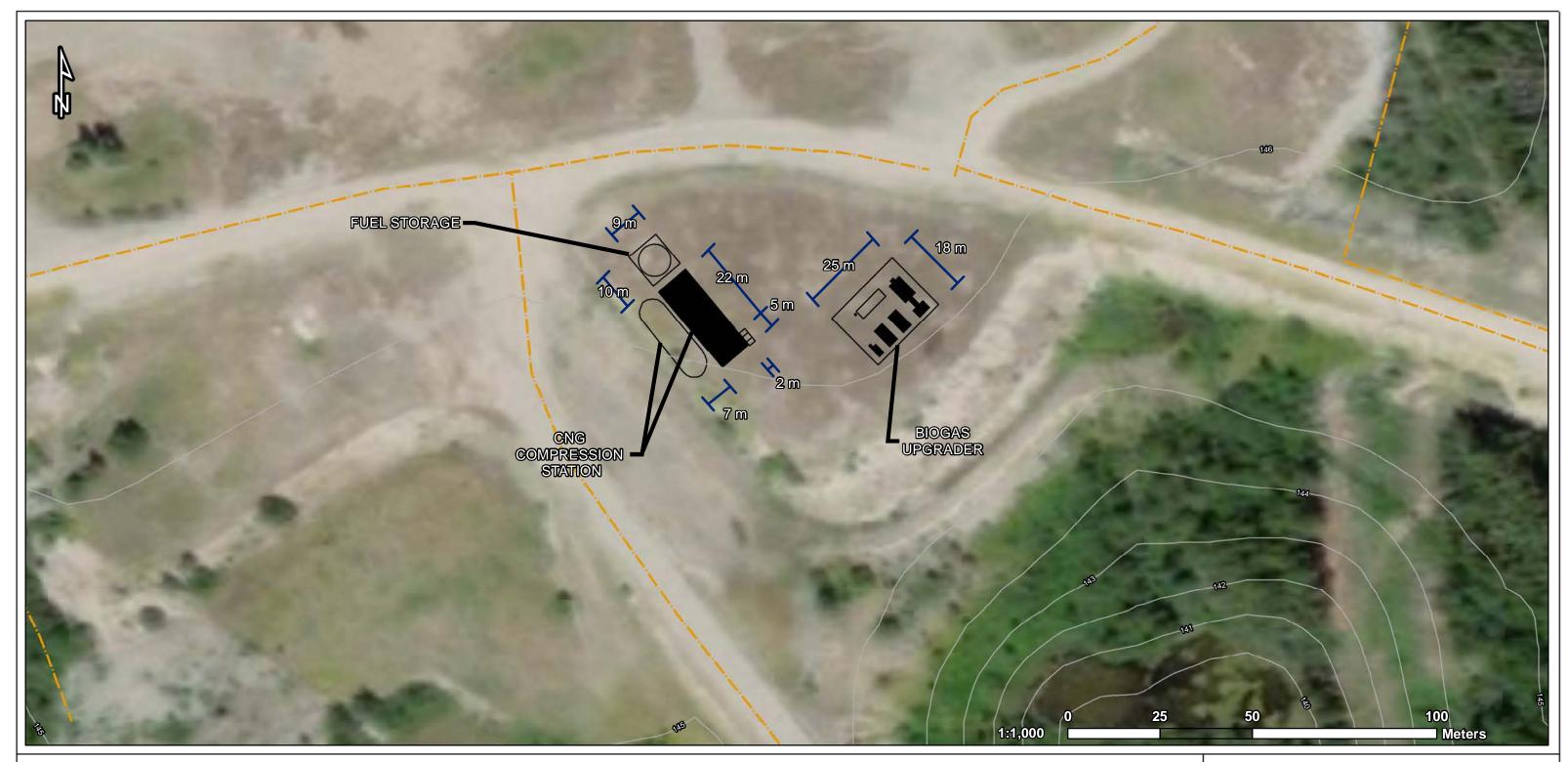
PROPOSED BUILDINGS

Notes:

- 1. This Figure illustrates the Brenda Renewables Pilot (Phase I) Site Plan and supporting infrastructure.
- 2. The Pilot Site Plan was developed based on information provided by Renewables Organics Management on 15 January 2020...
- The dimensions illustrated in this figure are in metres unless otherwise noted.
 The dimensions of the Pilot infrastructure were provided by Renewables Organics Management on 15 January 2020.
- 5. Existing contours were provided by Glencore on 18 February 2020.
- 6. Contours are provided at a 1 m interval.
- 7. This Figure is to be read in conjunction with the accompanying document and figures.
- 8. This Figure is not to be used to support construction.

BRENDA RENEWABLES PILOT (PHASE I) SITE PLAN

Ecometrix	BRENDA RENEWABLES PROJECT - BRENDA MINE RECLAMATION PERMIT M-12 AMENDMENT		
GLENCORE	GLENCORE		
	January, 2021		
Scale As Shown		Attachment 5a	



CONTOURS (1 m INTERVAL)

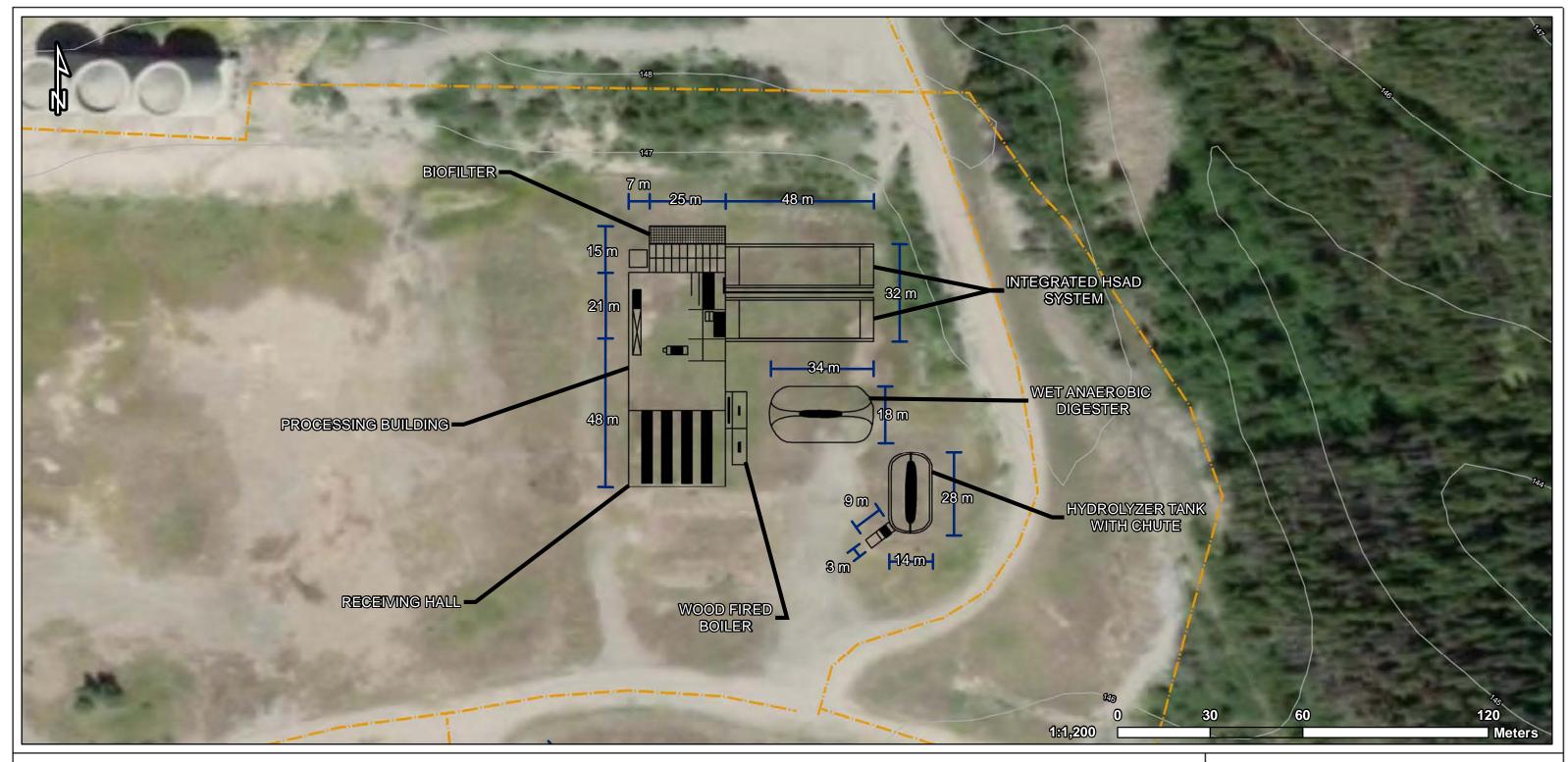
---- ROADS

Notes:

- This Figure illustrates the schematic of the Site Buildings and Compressed Natural Gas Infrastructure.
 All dimensions were provided by Renewables Organics Management and are approximate.
- 3. All dimensions are in meters unless otherwise specified.
- 4. Contours are provided at a 1 m interval.
- 5. This Figure is to be read in conjunction with the accompanying document and figures.6. This Figure is not to be used to support construction

DIMENSIONS AND CONCEPTUAL DETAILS OF THE SITE BUILDINGS AND COMPRESSED NATURAL GAS INFRASTRUCTURE

Ecometrix	BRENDA RENEWABLES PROJECT - BRENDA MINE RECLAMATION PERMIT M-12 AMENDMENT		
GLENCORE	GLENCORE		
	January, 2021		
Scale As Shown		Attachment 5b	



CONTOURS (1 m INTERVAL)

---- ROADS

Notes:

- 1. This Figure illustrates the schematic of the Integrated High Solids Anaerobic Digester and Wet Anaerobic Digester Infrastructure.
- 2. All dimensions were provided by Renewables Organics Management and are approximate.3. All dimensions are in meters unless otherwise specified.
- 4. Contours are provided at a 1 m interval.
- 5. This Figure is to be read in conjunction with the accompanying document and figures.
- 6. This Figure is not to be used to support construction.

DIMENTIONS AND CONCEPTUAL DETAILS OF THE INTEGRATED HIGH SOLIDS ANAEROBIC DIGESTER INTEGRATED FACILITY AND WET ANAEROBIC DIGESTER

Ecometrix - BREI		RENEWABLES PROJECT IDA MINE RECLAMATION MIT M-12 AMENDMENT
GLENCORE	GLENCORE	
	January, 2021	
Scale As Shown		Attachment 5c