

Hydrogeological Assessment, Strathy Landfill

August 10, 2021



Prepared for:

Tulloch Engineering

Cambium Reference: 13562-P

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Table of Contents

1.0	Introduction	1
2.0	Scope of Work	3
2.1	Site Reconnaissance	3
2.2	MECP Consultation	3
2.3	Field Investigation	3
2.3.1	Waste Delineation	3
2.3.2	Well Drilling and Installation	4
2.3.3	In-Situ Hydraulic Conductivity Testing	5
2.3.4	Environmental Monitoring	5
2.3.4.1	Groundwater Sampling	5
2.3.4.2	Surface Water Investigation	6
2.4	Contaminant Attenuation Zone (CAZ) Impact Assessment	6
2.5	Feasibility Report for Expansion	6
2.6	Development and Operations Plan (DOP) Update	7
2.7	Expansion Public and First Nation Consultation	7
2.8	ECA Amendment Application	7
3.0	Estimated Associated Costs	8
3.1	Summary of Assumptions	8
4.0	Cambium Inc.	10
4.1	Environmental Services	10
4.2	Cambium Accreditation & Memberships	11
4.3	Cambium Competitive Advantage	11
4.4	Cambium Project Risk Management	11
4.5	Cambium Quality Control	12
4.6	Health and Safety	13
5.0	Closing	15

List of Tables

Table 1	Professional Services Schedule of Costs	8
Table 2	Schedule of Costs to be Paid Directly by Client	8

Note: This proposal has been developed for Tulloch Engineering in response to the Hydrogeological Assessment, Strathy Landfill and contains proprietary and confidential information exclusive to Cambium Inc. Content should not be disclosed in any manner to a third party without the prior written consent of Cambium.



List of Appendices

Appendix A Client Engagement Documents

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1.0 Introduction

Cambium Inc. (Cambium) is pleased to provide our proposal to Chris Stilwell of Tulloch Engineering (Client) for a Feasibility Report for Expansion of the Strathy Landfill (the Report). The Strathy Landfill is 4.5 km west of Highway 11, north of Milne-Sherman Road, Township of Strathy, District of Nipissing (the Site).

Cambium has reviewed the documentation provided and understands the following:

- The Site is owned by the Ministry of Natural Resources and Forestry services (MNR) and operated by the Municipality of Temagami (Municipality) under Certification of Approval or Environmental Compliance Approval No. A724901 (ECA).
- The property is 30.25 ha with an approved 2.56 ha landfill footprint
- The geology around the Site is interpreted to be shallow till with a bedrock high outcropping. The landfill is thought to be on a bedrock high adjacent to an esker deposit.
- There are no existing groundwater monitoring wells at the Site.
- Based on previous reports groundwater is interpreted to flow southeast.
- A site visit in 2013 identified a water course flowing from the northwest across the northern part of the Site and eventually flowing east.
- Landfill capacity and waste footprint have been estimated. No on-site investigations to confirm the approximate depth and extent of waste have been conducted outside of a topographic survey in 2012.
- In 2014, a proposed legal description of the 30.25 ha property boundary was drafted but is yet to be finalized. It is also understood that the proposed boundary may be amended based on the results of a Contaminant Attenuation Zone (CAZ) assessment.
- Since 2017 Story Environmental Inc. has completed a semi-annual surface water monitoring program of two surface water locations at the Site.
- In 2018 an ECA application was submitted to the Ministry of Environment Conservation and Parks (MECP) to expand the existing landfill capacity to add an additional 39,999 m³ of site capacity. The MECP's initial review of the application noted the requirement to provide a more comprehensive hydrogeological and surface water study including site specific information and monitoring plans.
- The MECP provided direction in an email dated March 25, 2019
 - Hydrogeological assessment is inadequate to support and expansion
 - Must include site specific hydrogeological information, monitoring program and contingency plans
- The MECP Technical Memo dated March 28, 2019 listed a series of requirements to support an expansion application including:
 - Provide a site plan labelled with surface water features, seep locations, groundwater flow direction and extent of the CAZ;
 - Delineate the extent of the stream and identify where the stream runs to;
 - Characterize the current impacts from landfill operations on surface waters and propose mitigation measures;
 - Provide a surface water monitoring plan;
 - Estimate leachate production rate; and
 - Quantify the anticipated impact of landfill expansion on surface waters.



Cambium has prepared the attached scope of work to complete the Report and address MECP requirements to consider a landfill expansion at the Site. Provided the Report supports the proposed landfill expansion, Cambium has also included in the scope of work provisions for updating the Development and Operations Plan prepared by AECOM (2013), completing additional consultation requirements, and completing the required ECA amendment application for the Site.



2.0 Scope of Work

The proposed scope of work outlined below was developed based on our expertise in conducting hydrogeological field investigations, environmental monitoring, landfill design and operation plans, environmental approval applications, and information provided by the Client.

2.1 Site Reconnaissance

Prior to engaging the MECP and conducting field investigations, Cambium proposes to send a Hydrogeologist to the site. The intent of the Site reconnaissance will be to:

- Confirm and GPS/stake appropriate well drilling locations
- Delineate surface water features and record location of other potential surface water monitoring points for consideration. Cambium anticipates an additional 4 to 6 locations may be recommended based on site reconnaissance (background, adjacent landfill, seep(s), north watercourse, downstream receiving location(s))
- Visually confirm on-site topographic and geologic characteristics
- Characterize existing landfill operations and complete a visual confirmation of the extent of landfill
- Revise scope of work (SOW) as required, based on Site Reconnaissance

2.2 MECP Consultation

Cambium will provide a copy of the SOW to the MECP for review and comment prior to completing any field investigations. If necessary, the SOW will be updated and provided to the Client for approval of the noted revisions.

2.3 Field Investigation

The field investigations are intended to provide the information required to support an on-site assessment of the hydrogeology and surface water of the Site as well as address MECP requests in order to consider a landfill expansion. Specifically, this task will include:

- Waste Delineation
- Well Drilling
- Environmental Monitoring
- Boundary and Attenuation Zone Impact Assessment

Buried utility clearances will be obtained as necessary for all drilling and testing pitting prior to undertaking field work using Ontario OneCall. Cambium recommends that private locates be acquired if the Client is unsure of underground services on-site. In the event that private locates are not requested by the Client, the Client will be held solely responsible for any utilities damaged during the investigation.

2.3.1 Waste Delineation

In order to confirm the depth and extent of waste and current site capacity, Cambium proposes to complete a test pitting program. Cambium will provide one field technician to record test pitting activities including: documenting waste profile and material type, depth of waste observed, and survey the waste area and test pit locations. It has been assumed that the Client would supply an excavator on-site for



one day to complete the test pitting. A total of 5-6 test pits within the waste mound and 15-20 test pits around the expected perimeter of waste are recommended to delineate the waste area.

The data collected from the test pitting and site survey will be uploaded into AutoCad and used to provide a more accurate delineation of the waste mound and landfill capacity.

2.3.2 Well Drilling and Installation

Based on the proposed work area and information provided by the Client, a number of monitoring wells are recommended to obtain sufficient information the hydrogeological assessment.

Five days of drilling will be scheduled to complete 12 monitoring wells throughout the site, in accessible locations. Cambium will attempt to install a total of six multi-level wells at the site: 4 down-gradient wells, 1 leachate well, and 1 background well. The shallow wells will extend to an estimated depth of 3.5 m below grade (bg) and the bedrock wells will be installed in the upper 3 m of bedrock, which is typically the weathered zone. Well locations will be chosen to reflect the suspected path of leachate migration to the southeast and well access.

Prior to well drilling, access roads will need to be cleared to the proposed well locations. Cambium has assumed that the Client would be able to coordinate this tree clearing requirement prior to the start of Cambium's Field Investigations. Road clearances should ensure that trees and large rocks are removed providing access to the drilling location and a sufficient clearing of the proposed borehole location to permit drill rig operation. Stumps should be sufficiently removed to allow travel of the drill rig to the proposed well location. Mapping will be provided by Cambium to support this requirement. Cambium hopes to access at least two of the downgradient locations via the hydro right of way. Cambium will select locations to limit the tree removal requirements and access road development wherever possible.

The new monitoring well installation will be completed by a licensed well driller in accordance with Ontario Regulation 903 under the direct supervision of Cambium staff. Air hammer technology will be used to advance a borehole into bedrock. The use of an air hammer does not allow for the collection of core samples. The air hammer will be advanced to a water bearing fracture and a monitoring well installed therein. Wells will be constructed of PVC piping and an above ground, lockable protective casing will be installed over the well pipe in each location.

One sample from each borehole location, where overburden materials are encountered, will be submitted to an accredited laboratory for grain size analysis.

Following installation, wells will be developed to remove any sediment within the well sand pack. The purpose of developing the well prior to sampling is to improve the water yielding capabilities of the wells and to help ensure a representative sample of water within the geologic unit.

Cambium staff will survey the top of well risers and the ground elevation for each monitor using a Topcon Real Time Kinematic enabled HiPer II system with an FC-25 field controller. The wells will be surveyed relative to a geodetic datum and/or an established site benchmark and tied into the available survey data for the Site using AutoCAD software.



2.3.3 In-Situ Hydraulic Conductivity Testing

Cambium will return to monitoring wells at least 24 hours after installation to complete hydraulic conductivity testing to ensure wells have returned to static levels. A slug test will be performed at each well by inserting a solid slug of a known volume and monitoring the water level recovery over time (i.e., falling head slug test). Following well recovery, the slug will be removed and the water level recovery will be monitored over time (i.e., rising head slug test). The tests will be terminated when the cumulative recovery of each well reaches at least 70% of the difference between its static water level and its initial water injection or drawdown level.

2.3.4 Environmental Monitoring

For the purpose of this proposal it is assumed that Cambium will conduct one initial field sampling event for groundwater and surface water following establishment of the wells and the expanded surface water monitoring program. Following the first monitoring event it is assumed that the Client will engage a local consulting firm to conduct the annual monitoring program. The environmental monitoring program will be completed consistent with **Guidance Manual for Landfill Sites Receiving Municipal Waste** (MOEE, 1993) and **Monitoring and Reporting for Waste Disposal Sites, Groundwater and Surface Water, Technical Guidance Document** (MOE, 2010). It is anticipated sampling will be required a minimum of three times per year for both groundwater and surface water, until an appropriate data set is collected.

Field tasks should follow recognized standard procedures such as those listed above and **Guidance on Sampling and Analytical Methods for use at Contaminated Sites in Ontario** (MOEE, 1996).

Surface water and groundwater samples should be stored in coolers with freezer packs and maintained at less than 10°C during transport to an accredited laboratory such as the Canadian Association for Laboratory Accreditation Inc..

2.3.4.1 Groundwater Sampling

Following well development, dedicated polyethylene tubing equipped with inertial-lift foot valves will be placed in each well for water quality sampling. The following methodology should be followed for each monitoring event:

- Prior to sampling, measure water levels at each monitoring well using an electronic water level tape.
- The purge volume will be calculated on-site during each monitoring event using the measured water level, well depth, and the borehole diameter. Each groundwater monitoring well to be sampled should be purged of approximately three well bore volumes. For wells with low recovery, at least one saturated borehole volume will be purged prior to sampling. Dispose purge water on-site, down-gradient of each respective well.
- Collect samples using dedicated polyethylene tubing equipped with inertial-lift foot valves.
- Field filter samples for metals analysis.
- Recorded field measurements for pH, conductivity, temperature, dissolved oxygen (DO), and oxygen reduction potential (ORP).
- Photograph each monitoring well location.



Groundwater monitoring well should be monitored three times annually until a sufficient sample size is obtained. The samples should be submitted to an accredited laboratory to analyze for Landfill Standard parameters listed in Schedule 5 Column 1, plus hardness (MOEE, 2010).

2.3.4.2 Surface Water Investigation

Each surface water monitoring location will be surveyed once the locations are confirmed by the MECP. The following methodology should be followed for the surface water monitoring program.

- Sample container will be immersed into the water body.
- When sample bottles are prefilled with preservatives, a clean bottle will be used to collect and decant the water directly into the sample bottle.
- Surface water samples for mercury (0.45 µm) and aluminum (0.20 µm) analysis will be filtered by the laboratory.
- Record field measurements including pH, conductivity, temperature, DO, and ORP at each surface water location.
- Where possible, depth, width, and flow velocity measurements should be collected at each surface water location.
- Photographs should be taken of each monitoring location at the time of sampling.

Surface water monitoring wells should also be monitored three times annual until sufficient data is available to characterize the site. The samples should be submitted to an accredited laboratory to analyze for Landfill Standard parameters listed in Schedule 5 Column 3, plus hardness (MOEE, 2010).

2.4 Contaminant Attenuation Zone (CAZ) Impact Assessment

Establishing an appropriate CAZ ensures that there is an adequate buffer area surrounding the landfill for groundwater attenuation so that groundwater resources on lands or properties adjacent to the landfill are sufficiently protected. The assessment will identify and comment on the contaminating life of the landfill, leachate indicator parameters, contaminant migration, expected leachate migration pathway, and predicted boundary/zone impact.

The assessment will be based on the results of Field Investigations, and consider the available groundwater flow and geochemical data for the Site. The assessment will produce a delineation of the leachate plume emanating from the landfill based on several leachate indicator parameters. The assessment will include CAZ estimations based on dilution calculations and will follow requirements outlined in the MECP's Reasonable Use Policy (Guideline B-7). Calculations of the required CAZ will be completed based on the distance and the observed abatement of the Site leachate parameters from the source to a number of down-gradient well locations in order to define an adequate buffer area surrounding the landfill.

2.5 Feasibility Report for Expansion

Based on the work completed in Sections 2.1 to 2.4, Cambium will prepare a Feasibility Report for Expansion. The report will include an evaluation of the surface water and groundwater impacts from the existing operation and estimate the potential for increased future impacts from expansion. The report is intended to provide the supporting information identified by the MECP and discussed in Section 1.0 of this proposal.



As letter of support is required from the Technical Support Section prior to submission of the site expansion application, a copy of the Report will be provided to the MECP Technical Support Section for review and comment.

2.6 Development and Operations Plan (DOP) Update

The existing DOP was prepared by AECOM in October 2013 to guide operations of the Site for an additional 20 years. Following concurrence from the MECP Technical Support Section, this DOP will be updated to reflect the on-going and proposed operations at the Site. The DOP will consider the results of the Field Investigations and recommendations made in the Feasibility Report for Expansion, as described in Sections 2.3 to 2.5. Additionally, subsequent sampling and MECP correspondence received between submission of the Feasibility Report and the preparation of the DOP will be considered. The updated DOP will be prepared in accordance with the MECP document **Landfill Standards: A Guideline on the Regulatory and Approval Requirements for New and Expanding Landfilling Sites** (MOE 2012).

2.7 Expansion Public and First Nation Consultation

As part of the DOP update and ECA application, Cambium will prepare and send a letter to all of the owners and tenants of adjacent properties (including vacant properties) within 500m and other interested groups such as the Temagami First Nations. The public notification letters will inform recipients of the details of the proposed operation and request that concerns and/or objections be addressed to the MECP. A copy of the letter and the names and addresses of all the adjacent landowners and tenants to whom the letter are sent will be included as part of the application package.

In addition to the consultation noted above, Cambium recommends consultation with any associated First Nations Groups. This may occur as soon as the project is approved to provide the opportunity for First Nations Groups to be present for the on-site investigations if they are interested. Cambium proposes to send a letter to the Temagami First Nations outlining the intent of the project and proposed scope of work upon project award.

Additional consultation further to that noted above can be coordinated with Cambium as needed but is not included in the costs of the proposal.

2.8 ECA Amendment Application

Cambium will prepare the application forms required for submission of the updated DOP to the MECP. The MECP submission cost for the ECA amendment application is not included in the proposal costs and is expected to be \$4,700.



3.0 Estimated Associated Costs

The Estimated Cost for the proposed scope of work is \$85,140. The Estimated Cost is based on the identified scope of work and is exclusive of taxes and external fees, unless otherwise indicated. Schedules of Professional Services are provided as Table 1. Professional services costs include professional fees, consumables, communication, and printing. Although costs may vary between parts of the work program, the Estimated Cost for the items quoted will not be exceeded without Client authorization. The costs presented in this proposal are effective 8/10/2021 and will be honoured for 60 days.

Table 1 Professional Services Schedule of Costs

Service	Notes	Cost	
1	Reconnaissance	Section 2.1	\$ 3,035
	Pre-consultation	Section 2.2	\$ 870
1	Waste Delineation	Section 2.3.1	\$ 4,675
	Well Drilling	Section 2.3.2	\$ 46,700
2	Environmental Monitoring	Section 2.3.4	\$ 5,690
	CAZ Assessment	Section 2.4	\$ 2,655
	Feasibility Report	Section 2.5	\$ 6,210
	DOP	Section 2.6	\$ 6,580
	Public Consultation	Section 2.7	\$ 2,440
	ECA Amendment Application	Section 2.8	\$ 1,945
	Contingency		\$ 5,000
	Total		\$85,800

Table 2 Schedule of Costs to be Paid Directly by Client

Item
Excavator for test pitting
Tree Clearing for well Installation
ECA amendment application submission fee

3.1 Summary of Assumptions

Cambium has developed the costs presented above based upon the best information available and previous experience conducting this type of work and the following assumptions:

1. Copies of all relevant information including historical correspondence and reports, design reports, records, site plans, AutoCAD files etc. will be provided to Cambium by Tulloch Engineering of the Municipality.



2. Cambium has assumed that full, unrestricted access to all areas of the site(s) and adjacent land areas, watercourses, et cetera will be available during sampling, monitoring, and site visit events.
3. The Client will arrange access to the Site for Cambium personnel and its subcontractors. Tree clearing and roughed access roads will likely be required for access for drilling rigs and the backhoe.
4. The test pit locations will be accessible and free from obstructions.
5. Small amount of spoils created during the drilling of the test pits may be left on-site.

This proposal, the work program, and report are governed by the attached Qualifications and Limitations. It is possible that unforeseen or unknown conditions or occurrences will be encountered, which could alter the services described above. If it is anticipated that the Estimated Cost will be exceeded as a result of a change in the program scope or additional services, Cambium will promptly notify and consult with Tulloch Engineering.



4.0 Cambium Inc.

Cambium Inc. (Cambium) is a consulting and engineering company, focused on providing innovative and practical solutions for sustainable development and environmental stewardship. We offer integrated professional services designed to provide governments, corporations, and individuals with innovative, sustainable answers to everyday issues. Cambium works with clients to provide solutions grounded in a sound conservation ethic, designed with leading edge technologies, and tailored to reflect legislative and regulatory realities. Our philosophy is such that each client and project deserves an effective, sustainable, and affordable solution.

Cambium offers integrated high-quality expertise for new and existing developments in the built and natural environment across a wide variety of services including:

Environmental | Geotechnical | Building Sciences | Construction Monitoring

Cambium is one of the largest and fastest growing independent, employee-owned consulting firms in Ontario with offices in Peterborough, Kingston, Oshawa, and Barrie. In addition, Cambium owns and operates a Canadian Council of Independent Laboratories (CCIL) certified materials testing laboratory for soil, aggregate, concrete, and asphalt analysis. Our services are founded on the skills and expertise of our diverse team of over 115 people that includes engineers, geoscientists, hydrogeologists, biologists, ecologists, noise and vibration specialists, laboratory analysts, construction control inspectors, geographic information system (GIS) and drafting specialists, surveyors, technologists, and technicians.

Why Choose Us?

Cambium provides personal quality service and work collaboratively with clients from start to finish. We are responsive and provide clients with value, practical solutions, and quality work without compromise to budget and project goals. We welcome the opportunity to work with clients that value the importance of mutual understanding, communication, and quality services. Cambium is large enough to have world-class expertise, but remains responsive and creative, delivering exceptional customer service to guide good decisions. These are just some of the many things that make Cambium unique.

4.1 Environmental Services

Cambium's team of engineers and technicians specialize in all things related to Environmental Compliance, including the ECA application and approval process, developing operations plans to meet compliance requirements, and reviewing operations and environmental monitoring data (including air, noise, surface water, groundwater) to assess regulatory compliance. We have a proven record of success in assisting companies with the preparation of ECA applications, and the development of operations that work to achieve the MECP standards and guidelines. Our team goes the extra mile and will liaise with MECP review engineers to assess any further requested compliance measures. Cambium provides solutions that meet and surpass operational and legislative requirements of commercial, industrial, institutional and municipal markets across Canada. Our knowledge and understanding of the MECP regulations is a standard component of our services.



4.2 Cambium Accreditation & Memberships

Cambium holds Certificates of Authorization with the Professional Engineers of Ontario (PEO) and the Association of Professional Geoscientists of Ontario (APGO). In addition, both Cambium and various staff hold professional accreditations and memberships with:

- Professional Engineers of Ontario (PEO)
- Association of Professional Geoscientists of Ontario (APGO)
- Ontario Association of Certified Engineering Technicians and Technologists (OACETT)
- Ontario Waste Management Association (OWMA)
- Municipal Waste Association (MWA)

4.3 Cambium Competitive Advantage

Cambium Services Schedule of Costs reflects our firm commitment to quality, attention to detail, practical solutions, and cost certainty.

Needs Assessment – Cambium professionals know how important it is to understand context, therefore our first step is always to develop a familiarity with the client organisation, its operations, and its structure. As a result, projects are tailored to offer a service that will address specific needs, rather than provide stock answers.

Cost Certainty – Cambium stands behind the associated costs offered in every proposal issued based on the specific background contextual knowledge. Hidden disbursements charges and administrative fees are not added later. The scope of a project is designed in logical stages to limit and predict additions and unexpected costs before they are incurred.

Sensible, Pragmatic Solutions – Cambium is committed to providing sound, practical advice to clients. Drawing on our expertise and professional relationships we are able to understand what is required, we can recognize trouble spots quickly and we can identify solutions to address concerns both effectively and promptly. We offer pragmatic solutions to real world issues.

Value – Cambium clients can expect the best value for their dollar and know that their interests will be fairly represented. It is important that you can trust your consultants to provide the professional service you expect. Cambium professional and technical staff is available by phone, e-mail, or in person to address the issues that may arise.

4.4 Cambium Project Risk Management

Cambium understands the sources of risk associated with completing projects on behalf of municipal and other clients. As such, Cambium has a number of measures in place to ensure that all Clients can be assured that Cambium will adhere to all contract requirements and schedules. A detailed description of our accountability is outlined in our Quality Assurance Manual; however, a brief summary of some of the risk management policies Cambium has in place to ensure the project is completed on schedule and budget are included herein.



Staff Absenteeism

Recognizing that individuals may periodically be unable to participate in project activities for reasons including illness and vacation, Cambium has structured back-up personnel into the project team. At all times, persons knowledgeable of the project will be available to ensure that the project is completed on schedule and within the agreed upon budget while still maintaining the rigorous quality standard required by Cambium.

Cross-Trained Field Staff - Cambium has developed a talented and well-rounded group of field technicians available to complete a multitude of tasks. Across all Cambium office locations, many of our technicians cross-trained in both geotechnical and environmental drilling and sampling techniques, well installation, testing, and sampling; and surveying (RTK and laser level). In this way, Cambium is well positioned to complete the field investigations simultaneously for multiple discipline purposes with a minimal number of field staff, which results in a cost and time savings for clients.

Staff Error

Delays to project schedules and increases to the overall cost of a project can be caused by errors made in the field and by technical personnel. At Cambium, these risks are mitigated by the comprehensive project planning process that is implemented in advance of all environmental undertakings. During this process, all members of the project team are made aware of the requirements of the project and the specific details for which they are responsible. Training needs are identified at the onset of the project and personnel are required to be fully trained and competent before undertaking tasks. Field staff is supervised by senior staff to ensure that detailed field notes are completed on a daily basis and that site inspection forms and laboratory Chain of Custody forms are completed accurately and in full. In addition, Cambium cultivates a culture of personal accountability to foster pride in our employees and ensure the highest quality product for our clients.

Equipment Failure

Field equipment is subject to harsh conditions and may fail despite routine preventative maintenance. Cambium invests in robust field equipment that is able to provide precise and accurate measurements under harsh conditions. All equipment is thoroughly inspected on a regular basis and, when necessary, is calibrated prior to use. Field instrument back-ups are available at all times.

Field Conditions

Extreme weather conditions can cause unavoidable interruptions in the project schedule. The schedule proposed by Cambium has sufficient flexibility to allow for this type of delay without affecting the ability of Cambium to provide the deliverables to the client by the stated deadline.

4.5 Cambium Quality Control

Cambium understands the sources of risk associated with completing projects on behalf of Tulloch Engineering and other clients. To efficiently and effectively address all quality and schedule concerns, Kevin Warner will be the assigned Project Lead responsible for the managing the project with work carried out under their supervision. If required, the non-client workload of the listed key personnel will be alleviated through the collaboration of other Cambium team members to ensure the project will be completed on schedule and by the identified key personnel.



To ensure the project is progressing at the schedule and quality required, weekly team meetings will be held to check on progress made, particularly when staff external to Cambium are participating in the commission (e.g., drilling sub-contractors, accredited laboratories), to resolve problems encountered, and to track budget versus actual expenses. If the Project Lead determines that the project may fail to meet targeted deadlines and milestones, they will call on additional resources and /or request staff to work overtime and/or on weekends to meet project targets.

To ensure the quality of the project is satisfactory to the Client the field works will be carried out by experienced field technicians certified for soil and groundwater investigations, field-testing, and sampling. All technicians are trained for proper sampling procedures, field observation documentation, inspections, and oral and written communication skills. Field findings will be communicated frequently with the Project Lead, and other pertinent technical staff. To ensure availability of experienced staff, Cambium will structure back-up personnel into the project team so that, at all times, persons knowledgeable of the project will be available to ensure that the project is completed on schedule and within the agreed upon effort while still maintaining the rigorous quality standard required by Cambium. It is noted, where sub-contractors or alternative staff is required for the project, these team members will first be approved by the Client.

4.6 Health and Safety

Cambium is committed to protecting the health and safety of all employees. Protection of employees from injury or occupational disease is of paramount importance. To accomplish this, all employees are required to work in a safe manner and are responsible for reporting unsafe or unhealthy conditions to their supervisors and/or worker/management representative of the Joint Health and Safety Committee. Management is responsible for ensuring to take the appropriate steps to control or eliminate all potential hazards and to ensuring that safe and healthy work conditions are maintained throughout the facilities of Cambium. To accomplish this, Cambium adheres to all legislative requirements including the Occupational Health and Safety Act and its regulations.

Cambium ensures that our field personnel are trained to assess and avoid hazards as they relate to each site. Prior to field personnel visiting the project site, the Cambium Project Manager/Coordinator will review the identified hazards with the field personnel. Based on the scope of work outlined herein, the review is anticipated to cover topics such as:

- Use of Personal Protective Equipment (PPE) anticipated to be required at the project site, such as Hard Hats, Reflective Vests, Steel Toe Safety Footwear, Hearing Protection, Safety Glasses, Fall Protection.
- Emergency Response, Emergency Plans and First Aid Measures.
- Confined Space Entry, Working in a Confined Space, Entry Permits.
- Other Hazards: Flammable Materials Handling and Storage, Safe Lifting, Safe Storage and Handling.
- Equipment and Machine Safety.
- Boaters Safety.

A site-specific health and safety plan (HASP), which consists of two parts, is created prior to the initiating the work program.



- Part I of the HASP includes site location information, a map indicating the closest hospital, directions to the work site from the nearest major intersection, emergency contact numbers, hazard identification form, and a site compliance agreement form. All employees are required to participate in the safety talks and tailgate site safety meetings and they will sign their name on the site compliance agreement form within Part I of the site-specific health and safety plan.
- Part II of the HASP identifies the health and safety objectives, site access and PPE, generic field hazards and controls, emergency response and first aid procedures, preliminary incident report form, and any applicable material data safety sheets. At the commencement of each day at the site, all Cambium employees are required review the health and safety materials prepared for the work site.



5.0 Closing

Cambium trusts that this proposal meets with your expectations and we look forward to working with you. Cambium will begin work on the project following receipt of signed copy of the Client Engagement Letter, a completed Client Project Information Form (Appendix A), and arrangements for payment of the retainer. If you have any questions or require clarification of any aspect of this submission, please do not hesitate to contact the undersigned at (705) 312-3867.

Respectfully submitted,

Cambium Inc.



Heather Dzurko, M.Sc.
Project Manager – Solid Waste Management

HD/sr

End. General Terms of Client Engagement
Financial Terms of Engagement
Statement of Qualifications and Limitations
Contact Details Form
How to Make Payments to Cambium

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Appendix A
Client Engagement Documents



General Terms of Client Engagement

We thank you for the opportunity to provide service to you and your business. It is Cambium's policy that our customers review and sign the General Terms of Client Engagement when accepting our services. Please review this document, which sets out our terms of engagement, to ensure you understand the scope of our business relationship and expectations. We feel this is a prudent exercise to make certain we have the resources necessary to maintain healthy working relationships with our service providers and suppliers; a critical component of Cambium's prompt delivery of service to clients such as you.

Purpose and Scope

Cambium is to provide Tulloch Engineering with the scope of service described in the proposal Hydrogeological Assessment, Strathy Landfill dated 8/10/2021 and submitted to Charles Fournier. Subject to any written agreement to the contrary, the scope is limited to the services described therein.

Responsibilities

Clients are to arrange for reasonable access by Cambium to the subject site(s), relevant individuals, and documents, and shall be responsible for both the completeness and accuracy of the information supplied to us.

It is possible that unforeseen or unknown conditions or occurrences may be encountered at a site, which could alter the timing of the delivery of services. If this occurs, Cambium Inc. will promptly consult with *Tulloch Engineering* for a satisfactory resolution but will act on the sole judgement of Cambium where risk to study team personnel is identified.

Confidentiality

In conducting our scope of service, information acquired by us in the course of the engagement is subject to strict confidentiality requirements. We will not disclose that information to other parties except as required or allowed for by law or with your express consent.



Financial Terms of Engagement

Estimated Pricing

Unless otherwise stated in writing, any estimates that we provide to you of our anticipated fees, disbursements, and charges for any services are only indicative of the amounts you can expect to be charged. Estimates are not quotes and are not binding on us.

Professional Services Fees

The fee arrangement is based on the expected effort and the skill level of staff required within the presumed circumstances to complete the agreed scope of services. Where we have provided quotations for specific services within a proposal, the proposal will offer adequate detail of scope and schedule. In the event that circumstances of the services to be provided materially change from the original proposal, a revised quotation between the two parties will be agreed before any further work is undertaken.

Payment

Please refer to 'How to Make Payments to Cambium' in the attached Client Project Information Form. The terms of payment are strictly 30 days from the invoice date. Overdue accounts (outstanding greater than 30 days) will incur a financing service fee of 1.5% per month. When Cambium is acting as a sub-consultant, the Client will honour our direct engagement and not convey any delays of payment experienced by the Client.

Should you not possess the current funds and/or are subject to a draw schedule that will impair your ability to meet your financial obligations with Cambium, we trust you will make the necessary arrangements to secure access to the appropriate funds independently. Cambium reserves the right, without penalty, to discontinue services in the event of non-payment that exceeds a reasonable limit of credit that we are able to extend to you.

Retainer Requirement

Given the value of the proposed scope of services, Cambium will require the Client to provide prompt payment of a retainer in the amount of \$21,450 which reflects 25% of the project budget, prior to the start of work.



Acceptance of Obligations and Terms of Service

This engagement will start upon acceptance of the terms and obligations by Tulloch Engineering as noted by execution of this letter. Alternately, in cases where the Client has issued a Purchase Order Number, Cambium will consider this an acceptance of the terms of our engagement as per the proposal scope of services and estimate of fees. Where time is of the essence, Cambium staff may begin service by special request of the Client and/or the presence of Cambium staff at the project site. However, until this letter is executed, or a Purchase Order Number is issued, Cambium reserves the right to discontinue service.

Please confer with me immediately to clarify or discuss any aspect of the terms of this engagement. If the terms are acceptable, please sign this Engagement Letter and forward it to me as evidence of your acceptance of the terms of our engagement. We also ask that you also send a completed Client Project Information Form at the same time to ensure our contact information for this specific project is accurate and complete.

We, Tulloch Engineering agree to all of the terms and conditions as noted in this letter.

Hydrogeological Assessment, Strathy
Landfill

13562-P

Project Name

Cambium Reference

Authorized Signature of Tulloch Engineering

Printed Name

Position

Date



Statement of Qualifications & Limitations

Limited Warranty

In performing work on behalf of a client, Cambium relies on its client to provide instructions on the scope of its retainer and, on that basis, Cambium determines the precise nature of the work to be performed. Cambium undertakes all work in accordance with applicable accepted industry practices and standards. Unless required under local laws, other than as expressly stated herein, no other warranties or conditions, either expressed or implied, are made regarding the services, work or reports provided.

Reliance on Materials and Information

The findings and results presented in reports prepared by Cambium are based on the materials and information provided by the client to Cambium and on the facts, conditions and circumstances encountered by Cambium during the performance of the work requested by the client. In formulating its findings and results into a report, Cambium assumes that the information and materials provided by the client or obtained by Cambium from the client or otherwise are factual, accurate and represent a true depiction of the circumstances that exist. Cambium relies on its client to inform Cambium if there are changes to any such information and materials. Cambium does not review, analyze or attempt to verify the accuracy or completeness of the information or materials provided, or circumstances encountered, other than in accordance with applicable accepted industry practice. Cambium will not be responsible for matters arising from incomplete, incorrect or misleading information or from facts or circumstances that are not fully disclosed to or that are concealed from Cambium during the provision of services, work or reports.

Facts, conditions, information and circumstances may vary with time and locations and Cambium's work is based on a review of such matters as they existed at the particular time and location indicated in its reports. No assurance is made by Cambium that the facts, conditions, information, circumstances or any underlying assumptions made by Cambium in connection with the work performed will not change after the work is completed and a report is submitted. If any such changes occur or additional information is obtained, Cambium should be advised and requested to consider if the changes or additional information affect its findings or results.

When preparing reports, Cambium considers applicable legislation, regulations, governmental guidelines and policies to the extent they are within its knowledge, but Cambium is not qualified to advise with respect to legal matters. The presentation of information regarding applicable legislation, regulations, governmental guidelines and policies is for information only and is not intended to and should not be interpreted as constituting a legal opinion concerning the work completed or conditions outlined in a report. All legal matters should be reviewed and considered by an appropriately qualified legal practitioner.

Site Assessments

A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Cambium's work or report considers any locations or times other than those from which information, sample results and data was specifically received, the work or report is based on a reasonable extrapolation from such information, sample results and data but the actual conditions encountered may vary from those extrapolations.

Only conditions at the site and locations chosen for study by the client are evaluated; no adjacent or other properties are evaluated unless specifically requested by the client. Any physical or other aspects of the site chosen for study by the client, or any other matter not specifically addressed in a report prepared by Cambium, are beyond the scope of the work performed by Cambium and such matters have not been investigated or addressed.

Reliance

Cambium's services, work and reports may be relied on by the client and its corporate directors and officers, employees, and professional advisors. Cambium is not responsible for the use of its work or reports by any other party, or for the reliance on, or for any decision which is made by any party using the services or work performed by or a report prepared by Cambium without Cambium's express written consent. Any party that relies on services or work performed by Cambium or a report prepared by Cambium without Cambium's express written consent, does so at its own risk. No report of Cambium may be disclosed or referred to in any public document without Cambium's express prior written consent. Cambium specifically disclaims any liability or responsibility to any such party for any loss, damage, expense, fine, penalty or other such thing which may arise or result from the use of any information, recommendation or other matter arising from the services, work or reports provided by Cambium.

Limitation of Liability

Potential liability to the client arising out of the report is limited to the amount of Cambium's professional liability insurance coverage. Cambium shall only be liable for direct damages to the extent caused by Cambium's negligence and/or breach of contract. Cambium shall not be liable for consequential damages.

Personal Liability

The client expressly agrees that Cambium employees shall have no personal liability to the client with respect to a claim, whether in contract, tort and/or other cause of action in law. Furthermore, the client agrees that it will bring no proceedings nor take any action in any court of law against Cambium employees in their personal capacity.



CONTACT DETAILS FORM

Primary Client Project Contact

Cambium Reference: 13562-P

Company: _____
Contact: _____ Title: _____
Phone: _____ Fax: _____
Email: _____

Physical Address:

Mailing Address: Same as Physical

Street: _____ Street: _____
City: _____ City: _____
Province/State: _____ Province/State: _____
PC/ZIP: _____ PC/ZIP: _____
Country: _____ Country: _____

Billing / Payment Client Project Contact

Same as Primary

P.O. Number: _____

Company: _____
Contact Name: _____ Title: _____
Phone: _____ Fax: _____
Email: _____

Physical Address:

Mailing Address: Same as Physical

Street: _____ Street: _____
City: _____ City: _____
Province/State: _____ Province/State: _____
PC/ZIP: _____ PC/ZIP: _____
Country: _____ Country: _____

Please copy the Primary Contact on all billing correspondence.



Project Reporting Distribution List

In addition to Primary Contact, the following people should be copied on reporting:

Name: _____	Email: _____
Name: _____	Email: _____
Name: _____	Email: _____
Name: _____	Email: _____
Name: _____	Email: _____

Cambium Senior Management Contact Information

In addition to your Cambium Project Lead, should you ever feel the need to speak with any senior staff, below they may be reached as follows:

Phone: 866.217.7900

Email Format: *firstname.lastname@cambium-inc.com*

Name	Title	Email	Extension
John Desbiens	President/CEO	john.desbiens	202
Jim Bailey	Vice President, External Operations	jim.bailey	201
Dave Bucholtz	Director - Environmental	david.bucholtz	208
Stu Baird	Director - Geotechnical & CT&I	stuart.baird	332
Braden Glasbergen	Finance Manager	braden.glasbergen	242



How to Make Payments to Cambium

Retainer and invoice payments to Cambium can be made by cheque, credit card, email transfer, or wire transfer.

Cheque

Please make the cheque payable to "Cambium Inc." and send to our Main Office in Peterborough:

Postal Delivery:

PO Box 325, Peterborough, ON K9J 6Z3

Courier or Hand Delivery:

52 Hunter Street East, Peterborough, ON K9H 1G5

Credit Card


When paying by credit card either in person or over the phone, please ask to speak with anyone from our accounting department; Evan Black at extension 231, Terri Crough at extension 206, and Braden Glasbergen at extension 242. Note that for your protection, we do not retain client credit card information on file.

Email Transfer

Transfers of funds via email from your banking platform sent to ar@cambium-inc.com. Please contact Terri Crough (ext. 206) by phone to notify us that we should expect payment by e-transfer and the password that will be required to receive it.

Wire Transfer

Payments sent by wire transfer (also known as Electronic Funds Transfer or EFT) should be sent to our RBC Royal Bank receiving account using the following information:

Cambium Inc. P.O.Box 325, 52 Hunter Street East Peterborough, ON K9J 6Z3			
PAY TO THE ORDER OF _____		\$ _____	
		/DOLLARS	
	ROYAL BANK OF CANADA 401 George St. N. Peterborough, ON K9H 3R4	VOID	
MEMO _____			
	003 (Financial Institution#)	03782 (Transit)	1013317 (Account)



