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**Building Materials Evaluation
Commission**

**Commission d'évaluation des
matériaux de construction**

BMEC AUTHORIZATION: 23-08-410 Infiltrator ATL System

Date of Authorization: October 25, 2023
Date of Expiry¹: October 25, 2028

1. Applicant

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3. Authorization

The Infiltrator ATL System is a combined treatment and dispersal system. The Infiltrator ATL (Advanced Treatment Leachfield) System primarily consists of a septic tank, an effluent filter, the Infiltrator ATL conduits and a layer of Specified System Sand. The Infiltrator ATL System can be installed in-ground, partially raised, or fully raised.

This authorization is not an approval for the use of the Infiltrator ATL System as a treatment unit, where treatment units are permitted for use with Class 4 sewage systems.

The 300 mm Infiltrator ATL conduits consist of a 100 mm diameter perforated pipe, large diameter synthetic aggregate, coarse geotextile, and small synthetic aggregate all wrapped in a fine geotextile. The Infiltrator ATL conduits are positioned within a layer of Specified System Sand covering a total dispersal area based on characteristics of the native soil. Effluent is filtered and treated by the components of the Infiltrator ATL

¹ This Authorization expires on the date shown. It is the responsibility of Authorization holders to make a complete application considering the time for review and complexity of the new application.

System through a combination of biological, physical, and chemical processes. The Infiltrator ATL System operates as a media network to support bacteria that colonize in the media and decompose organic waste.

Additional descriptive information is provided in documents supplied by the Applicant which are listed in Appendix A.

Reports and assessments provided by the Applicant demonstrate that if the Infiltrator ATL System is manufactured, designed, constructed, installed, tested, and maintained in accordance with the manufacturer's instructions and limitations, and the specific terms and conditions stated in this authorization, the use of the Infiltrator ATL System shall be deemed to not be a contravention of Sections 8.6. "Class 4 Sewage System" and 8.7. "Leaching Beds" of Division B of the Building Code.

All other requirements pertaining to the manufacture, design, construction, testing, and installation are subject to the requirements of the Building Code, and subject to the following terms and conditions contained below.

4. Specific Terms and Conditions

4.1. General

4.1.1. This Authorization is valid only for Infiltrator Water Technologies' Infiltrator ATL System;

4.2. Definitions

- 4.2.1. Raised or Partially Raised means a sewage system in which any part of the system is above the natural ground elevation;
- 4.2.2. Vertical Separation means the depth of unsaturated soil below the system, as measured from the bottom of the ASTM C33 Specified System Sand, to a limiting layer such as a high groundwater table, bedrock, or native soil with a percolation time (T) less than 1 min/cm or greater than 50 min/cm; and
- 4.2.3. Infiltrator Water Technologies' Infiltrator ATL System "Specified System Sand" is defined in Section 4.4.6 of this Authorization.

4.3. Installation Requirements

- 4.3.1. Infiltrator ATL System shall be installed as per the manufacturer's installation instructions as found in the "Design and Installation Manual for the Infiltrator ATL System in Ontario", dated August 2023;
- 4.3.2. The Infiltrator Water Technologies' installation manual "Design and Installation Manual for the Infiltrator ATL System in Ontario" dated August 2023 and this Authorization, shall be placed, and remain on site during the installation of the Infiltrator ATL System.

- 4.3.3. Information required by the Chief Building Official/ Principal Authority as per Sentence 1.3.5.4.(1) of Division C of the Building Code shall be provided prior to the start of construction;
- 4.3.4. No person shall operate the Infiltrator ATL System unless the person has entered into an agreement whereby the servicing and maintenance of the Infiltrator ATL System and its related components will be carried out by either the manufacturer, an authorized representative, or a duly trained service provider to service and maintain the Infiltrator ATL System according to Section 4.6; and who shall:

Inspection

- 4.3.4.1. Conduct and record at least once during every twelve (12) month period, an inspection and servicing, as specified by the Applicant, Infiltrator Water Technologies, "Infiltrator ATL System 3-Year Service Agreement – ONTARIO", and

Testing

- 4.3.4.2. Test in accordance with the requirements set out in Article 8.9.2.4. "Sampling of Treatment Units" of Division B of the Building Code.
- 4.3.5. No reduction in the size of the Infiltrator ATL System shall be permitted with the use of a treatment unit beyond that of a septic tank.

4.4. System Requirements

- 4.4.1. There are six (6) main components to the Infiltrator ATL System:
1. Primary/Septic tank;
 2. Effluent filter;
 3. Distribution Devices;
 4. Infiltrator ATL conduits;
 5. ASTM C33 Specified System Sand; and
 6. Sampling Device (Lysimeter);
- 4.4.2. All raw sewage will enter into a septic tank sized in accordance with Article 8.2.2.3. "Septic Tanks" of Division B of the Building Code;
- 4.4.3. The effluent filter shall meet the requirements of Article 8.6.2.1. "Septic Tank Systems" of Division B of the Building Code and shall be connected to the outlet of the septic tank;
- 4.4.4. The distribution devices may include a distribution box, distribution valve, an equalizer, a header or a low-pressure distribution system;
- 4.4.5. The Infiltrator ATL conduits:

- 4.4.5.1. consists of a 100 mm diameter perforated pipe, large diameter synthetic aggregate, coarse geotextile, and small synthetic aggregate all wrapped in a fine geotextile to form a 3.05 m long x 300 mm diameter cylindrical bundle;
- 4.4.5.2. shall be placed level, end to end, with the white stripe at the 12 o'clock position and form rows;
 - 4.4.5.2.1. Internal pipe couplings are used to connect individual Infiltrator ATL conduits;
 - 4.4.5.2.2. Only full Infiltrator ATL conduits shall be used; conduits shall not be cut;
- 4.4.6. Infiltrator ATL System's Specified System Sand
 - 4.4.6.1. All Infiltrator ATL System configurations require Infiltrator ATL Specified System Sand under and between the Infiltrator ATL conduits;
 - 4.4.6.2. Following the installation of the required Specified System Sand around each Infiltrator ATL Conduit, imported sand or Specified System Sand must be used to fill the area between the ATL conduit rows to cover the complete dispersal surface/contact area. The thickness of imported sand/Specified System Sand between the ATL conduit rows shall be a minimum 530 mm;
 - 4.4.6.3. The Specified System Sand shall:
 - 4.4.6.3.1. meet the sand requirements set out in ASTM C33 "Standard Specification for Concrete Aggregates", as set out in Table 4.4.6.3.1 below:

Table 4.4.6.3.1

Infiltrator ATL Specified Sand Requirements		
<i>Excerpt from ASTM C33 "Standard Specification for Concrete Aggregates"</i>		
Sieve Size	Sieve Square Opening	Specification % Passing
0.375"	9.5 mm	100.0
#4	4.75 mm	95.0 – 100.0
#8	2.36 mm	80.0 – 100.0
#16	1.18 mm	50.0 – 85.0
#30	600 µm	25.0 – 60.0
#50	300 µm	5.0 – 30.0
#100	150 µm	0.0 – 10.0
#200	75 µm	0.0 – 5.0
<i>Request a sieve analysis from the material supplier to confirm that the system sand meets the specifications requirements listed above</i>		

- 4.4.6.3.2. be a minimum depth of 230 mm under the Infiltrator ATL conduit rows;
- 4.4.6.3.3. extend a minimum of 300 mm on both ends of the Infiltrator ATL conduit rows;

- 4.4.6.3.4. extend a minimum of 300 mm horizontally beyond the outer Infiltrator ATL conduit rows;
- 4.4.6.3.5. be a minimum of 300 mm between each Infiltrator ATL conduit row; and
- 4.4.6.3.6. be installed to the top of each Infiltrator ATL conduit rows;
- 4.4.6.4. The imported sand must have a percolation time of 6 to 10 min/cm and not have more than 5% fines passing through a 0.074 mm (No. 200) sieve.

4.5. Design Requirements

4.5.1. Vertical Separation

- 4.5.1.1. The percolation time (T) of the native soil shall determine the minimum vertical distance from the bottom of the Specified System Sand to the high ground water table, bedrock, or soil with a percolation time (T) less than 1 min/cm or greater than 50 min/cm:
 - 4.5.1.1.1. If (T) is less than or equal to 6 min/cm, or greater than 50 min/cm, then the vertical separation distance shall be at least 600 mm, or
 - 4.5.1.1.2. If (T) is greater than 6 min/cm, or less than or equal to 50 min/cm, then the vertical separation shall be at least 450 mm;
 - 4.5.1.1.3. Where the native soil cannot provide for the entire vertical separation, Specified System Sand or imported sand may be provided to achieve the required vertical separation;

4.5.2. Number of Infiltrator ATL Conduits Required

- 4.5.2.1. Each Infiltrator ATL Conduit has the capacity to treat 81L per day;
- 4.5.2.2. The formula to determine the number of Infiltrator ATL Conduits required is $Q/81$. Where Q is the total daily design sanitary sewage flow in litres;
- 4.5.2.3. The number of Infiltrator ATL Conduits must be rounded up at all times;

4.5.3. Conduit spacing requirements

- 4.5.3.1. The Infiltrator ATL Conduits shall be spaced using the following criteria:

- 4.5.3.1.1. The rows shall be spaced a minimum of 300 mm apart, measured side to side;
- 4.5.3.1.2. Each row shall start and stop to provide a minimum of 300 mm inside the perimeter defined by the Specified System Sand;
- 4.5.3.1.3. Where conduits are installed on sites with a slope between 10:1 and 4:1, the 230 mm deep Specified System Sand layer shall extend a minimum of 900 mm horizontally on the downslope side, beyond the conduits;
- 4.5.3.1.4. When multiple rows are used, each row of the Infiltrator ATL conduits shall be evenly spaced over the entire area of the Specified System Sand (QT/400), subject to adjustment to ensure:
 - (a) Minimum clearances are provided in accordance with Article 8.2.1.6. of the Building Code, and
 - (b) Minimum separation distances are provided in accordance with 4.5.3 above;

4.5.4. Dispersal Surface (A) – In-ground, partially raised, or above ground

- 4.5.4.1. The area to be covered by the Specified System Sand used in the Infiltrator ATL System shall be equal to or larger than the area determined by the formula:

$$A = QT/400$$

Where:

- A is the area of contact in m²
- T is the percolation time of the underlying native soil in min/cm to a maximum of 50, and
- Q is the total daily design sanitary sewage flow in litres.

- 4.5.4.2. All Infiltrator ATL System designs shall meet the minimum spacing requirements of Section 4.5.3. above;
- 4.5.4.3. The dispersal surface shall have the long dimension perpendicular to the direction in which effluent entering the soil will move horizontally; and
- 4.5.4.4. When the native soil has a (T) of 50 min/cm or greater, the Infiltrator ATL System shall be raised;

4.5.5. Additional design requirements

- 4.5.5.1. The Infiltrator ATL System shall be designed, installed, and constructed using these criteria:

- 4.5.5.1.1. Infiltrator ATL System shall not be installed in an area where the original ground has a slope in excess of 4 horizontal to 1 vertical;
- 4.5.5.1.2. A minimum total length of 39.6 m of Infiltrator ATL conduit is required for any Infiltrator ATL System;
- 4.5.5.1.3. Each row can reach a maximum length of 30.5 m;
- 4.5.5.1.4. The Infiltrator ATL System shall have a sampling device (Lysimeter), for the purpose of sampling effluent, and it shall be installed as described in the “Design and Installation Manual for the Infiltrator ATL System in Ontario” dated August 2023;
- 4.5.5.1.5. The site shall be protected from erosion by proper grading, mulching, seeding, and runoff control; and
- 4.5.5.1.6. The Infiltrator ATL System, measured from the centre of the conduits, shall meet the setback requirements outlined in Article 8.2.1.4. “Clearances” and Table 8.2.1.6.B. “Minimum Clearances for Distribution Piping and Leaching Chambers” of Division B of the Building Code.

4.6. Servicing, Operation and Maintenance Requirements

- 4.6.1. The Infiltrator ATL System shall be operated and maintained as per the manufacturer’s “Ontario Infiltrator ATL System Operation and Maintenance Guidelines” dated August 2023;
- 4.6.2. Conduct and record at least once during every twelve (12) month period, an inspection and servicing as specified by the Applicant and Infiltrator Water Technologies;
- 4.6.3. Effluent sampling shall be performed in accordance with the requirements of Sentence 8.9.2.4.(1) of Division B of the Ontario Building Code, as follows:
 - (a) initially, once during the first 12 months after the sewage system was put into use, and
 - (b) thereafter, once during every 12 month period, at least 10 months and not more than 18 months after the previous sampling has been completed;
- 4.6.4. The concentration of CBOD₅ and suspended solids in the grab sample described in Section 4.6.3. is deemed to comply with the Building Code requirements when neither exceed 20 mg/L;
- 4.6.5. If the results of a sample do not comply with Section 4.6.4, then the person operating the system shall promptly submit the results to the Chief Building Official/ Principal Authority and inform Infiltrator Water Technologies or an authorized agent, and the course of action to remedy the problem shall be identified. The system shall be resampled within six (6) months of a non-

compliant sample and the results are to be submitted to the Chief Building Official/ Principal Authority; and

- 4.6.6. Infiltrator Water Technologies or their agent shall retain records of the sampling test results for each Infiltrator ATL System received pursuant to the terms and conditions set out in Sections 4.6.1. to 4.6.5. above, for a period of ten (10) years and shall promptly forward copies of those records to the Chief Building Official/ Principal Authority when requested.

5. General Conditions

- 5.1. The use of the Infiltrator ATL System as described in Section 3. and the Specific Terms and Conditions set out in Section 4. must comply with:

- (a) the *Building Code Act, 1992*, (the "Act") as amended or re-enacted,
- (b) except as specifically authorized herein, the Building Code as amended or remade, and
- (c) all other applicable legislation.

- 5.2. A copy of this Authorization shall accompany each application for a building permit and shall be maintained on the site of the construction with the building permit.

- 5.3. The Applicant specified in Section 1. shall promptly notify the BMEC of:

- (a) the failure of the Applicant to comply with any of the Specific Terms and Conditions set out in Section 4.,
- (b) the failure of the material, system or building design that is the subject matter of this Authorization to
 - i. comply with any of the Specific Terms and Conditions set out in Section 4., or
 - ii. provide a satisfactory level of performance in situ, or
- (c) the occurrence of any of the events described in General Conditions 5.4.(a), (b), or (e).

- 5.4. The BMEC may amend or revoke this Authorization at any time on its own initiative, or at the request of the Applicant specified in Section 1. Without restricting the foregoing, the BMEC may amend or revoke this Authorization where it determines that:

- (a) any change has been made to:
 - (i) the name of the Applicant specified in Section 1.,
 - (ii) the address or other contact name information of the Applicant specified in Section 1.,
 - (iii) the ownership of the Applicant specified in Section 2.,
 - (iv) the manufacturing facilities specified in Section 2,
 - (v) the material, system, or building design that is the subject matter of this Authorization, or
 - (vi) a test method relevant to this Authorization,
- (b) the Applicant has failed to comply with any of the terms and conditions set out in this Authorization,

- (c) in the opinion of the BMEC, the use of the material, system or building design authorized herein provides an unsatisfactory level of performance in situ,
- (d) in the opinion of the BMEC, amendment or revocation of the Authorization is appropriate on the basis of potential danger to public health and safety,
- (e) the *Act* or Building Code has been amended, re-enacted or remade in a manner relevant to this Authorization,
- (f) this Authorization was issued on mistaken, false or incorrect information, or
- (g) a revision of an editorial nature is appropriate.

Dated at Toronto this October 25, 2023

BUILDING MATERIALS EVALUATION COMMISSION



CHAIR, BUILDING MATERIALS EVALUATION COMMISSION

attached – “Appendix A – Supporting Information”

Appendix A – Supporting Information

The following is a list of the documents that were submitted and reviewed, but were not limited to:

1. Application, Infiltrator Water Technologies, “APPLICATION FOR EVALUATION TO THE BMEC” as amended;
2. Approval, Alabama Department of Public Health, “State-Issued Product Permit”, dated June 2, 2020;
3. Approval, Commonwealth of Virginia, dated June 17, 2015;
4. Approval, Department of Environmental Protection, “Standard Conditions for Alternative Soil Absorption Systems with General Use Certification and/or Approved for Remedial Use”, dated March 5, 2018;
5. Approval, Department of Health and Human Services Maine Center for Disease Control and Prevention, “Updated Product Registration, Infiltrator ATL System”, dated June 4, 2015;
6. Approval, Illinois Department of Public Health, dated January 27, 2017;
7. Approval, Indiana State Department of Health, “Approval renewal of the Design and Installation Manual for the Infiltrator ATL™ System in Indiana, March 2015, for use in residential and commercial on-site sewage systems”, dated April 13, 2020;
8. Approval, New York Department of Health, “Presby Environmental, Inc (PEI) Advanced Treatment Leachfield and Advanced Enviro-Septic Wastewater System NYSDOH Compliance Determination”, dated April 15, 2021;
9. Approval, North Carolina Department of Health and Human services, dated July 29, 2021;
10. Approval, OHIO Department of Health, dated February 12, 2016;
11. Approval, State of Idaho Department Of Environmental Quality, “Updated Proprietary Wastewater Treatment Product Approval – Infiltrator ATL” dated September 3, 2020;
12. Approval, State of Michigan, “Delta Treatment Systems and Presby Environmental Advanced Enviro-Septic Product Technology” dated April 15, 2021;
13. Approval, Wisconsin Department of Safety, “Powts Component Manual”, dated July 22, 2019;
14. Approvals, Infiltrator Technologies, “Infiltrator ATL (Advanced Treatment Leachfield) System Canadian Provincial Approvals”;
15. Brochure, Infiltrator Water Technologies, “Advanced Treatment Leachfield”, version ATL01ON 0523;
16. Data Table, Infiltrator Water Technologies, “Infiltrator ATL System - Ontario Laboratory Field Test Data Table”, dated May 2023;
17. Design and Installation Manual, Infiltrator Technologies, “Design and Installation Manual for the Infiltrator ATL System in Ontario, as amended”;
18. Engineer’s report, Gunnel Engineering Ltd., “Application for Infiltrator ATL (Advanced Treatment Leachfield) System Certification and Analysis Report”, as amended;
19. Letter, Infiltrator Water Technologies “ON ATL BMEC Response to Comments Round 2” dated August 8, 2023;
20. Letter, Infiltrator Water Technologies, “Answers to BMEC questions” dated July 13, 2023;

21. Operation and Maintenance Guidelines, Infiltrator Water Technologies, "Ontario Infiltrator ATL System Operation and Maintenance Guidelines", dated August 2023;
22. Test report, Massachusetts Alternative Septic System Test Center, "Onsite Wastewater Technology Testing Report", dated February 2017; and
23. Test report, NSF International, "NSF/ANSI Standard 40 – Infiltrator ATL-450- Additional Testing report", dated May 8, 2017.