The purpose of this manual is to provide the minimum specifications for design and installation of the Infiltrator ATL (Advanced Treatment Leachfield) System in the State of Idaho. All local ordinances, requirements, and procedures must be followed. Each revised version of this manual supersedes the previous version.

The systems presented in this document are common configurations and are provided for illustrative purposes. They are not intended to restrict the use of other configurations.

For more detailed design and installation information, please contact Infiltrator at 1-800-221-4436.
The Infiltrator ATL System
The Infiltrator ATL System (ATL System) is a patent-pending, proprietary system consisting of six components. Upon entering the ATL System, septic tank effluent progresses through each component as follows:

- nominally 12-inch-diameter conduit
  - 4-inch-diameter pipe
  - large-diameter synthetic aggregate
  - coarse geotextile
  - small-diameter synthetic aggregate
  - fine geotextile
- 12-inch depth specified system sand

System Sand
“System sand” is the term used to describe the specified sand material that is placed between, beside and below and the ATL conduits. Acceptable system sand shall be material that conforms with the description of “medium sand” as specified in Section 3.2.8.1.2 of the Technical Guidance Manual.

The following minimum system sand dimensions are required for all ATL System configurations:

- 12 inches below the ATL conduit rows;
- 12 inches between adjacent ATL conduit rows;
- 12 inches beside (outside) any ATL conduit row with no adjacent ATL conduit row; and
- 12 inches extending beyond both ends of the ATL conduit rows.

There is no minimum requirement for system sand on top of the conduit rows.
The ATL System is certified by NSF International as complying with NSF/ANSI Standard 40 for production of Class I effluent. As a result of this certification, the ATL System is approved for use in the State of Idaho as a Proprietary Wastewater Treatment Product (PWTP) by the Water Quality Division of the Idaho Department of Environmental Quality (DEQ) in accordance with Section 1.4.2.4 of the Technical Guidance Manual (TGM). The DEQ approval allows for design and installation of the ATL System in the State of Idaho with residential-strength effluent (Table 3-1 of the TGM) in accordance with the specifications and instructions in this manual. If design, installation, operation, or maintenance specifications are not specifically addressed in this manual, relevant requirements in the current edition of the TGM shall be applicable.

This Manual is intended to provide system design, installation, and use information to the users in Idaho, including system designers, local health officials, system installers, and system owners. Illustrations presented in this manual are common configurations and are not intended to restrict the use of other configurations.

Daily Design Flows
Daily design flows shall be in accordance with IDAPA 58.01.03.007.08.

Maximum daily design flow to any individual ATL subsurface sewage disposal module shall be 1,500 gallons.

System Sizing
The minimum area in square feet of bottom surface required for use of the ATL System is specified in Table 3 on page 10 of this Manual. The areas presented in this table are calculated utilizing the daily design flows in IDAPA 58.01.03 and the loading rates specified in Table 4-22. Secondary biological treatment system hydraulic application rates, in the current edition of the TGM.

<table>
<thead>
<tr>
<th>Soil Design Subgroup</th>
<th>Application Rate (gallons/square foot/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1</td>
<td>1.7</td>
</tr>
<tr>
<td>A-2a</td>
<td>1.2</td>
</tr>
<tr>
<td>A-2b</td>
<td>1.0</td>
</tr>
<tr>
<td>B-1</td>
<td>0.8</td>
</tr>
<tr>
<td>B-2</td>
<td>0.6</td>
</tr>
<tr>
<td>C-1</td>
<td>0.4</td>
</tr>
<tr>
<td>C-2</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Table 1: Secondary biological treatment system hydraulic application rates

Trench Systems
Minimum trench width is 3 feet. Maximum trench width is 6 feet. Minimum center-to-center spacing of the ATL conduit rows in trench configuration is 2.0 feet. Maximum center-to-center spacing of the ATL conduit rows in trench configuration is 3.0 feet.

The total area of the trench configuration cannot exceed 1,500 square feet— in standard (gravity) drainfields (IDAPA 58.01.03.008.04). Drainfields exceeding 1,500 square feet in total trench bottom area must be pressure dosed (Section 4.19 Pressure Distribution of the TGM).


**Bed Systems**

Beds systems are only allowed when trench systems cannot be designed within the constraints of the site. Beds may not be utilized on any site which include slopes greater than 8%. All absorption beds must be approved to be used by the permitting Idaho Public Health District prior to design or installation.

Minimum center-to-center spacing of the ATL conduit rows is 2.0 feet. Maximum center-to-center spacing of ATL conduit rows within the bed is 3 feet.

**Sand Extensions**

“Sand extension” is the term used to describe the system sand placed on the outside aspect of the outermost ATL conduit row(s), and on each end of the ATL conduit row(s). Sand extensions along the side aspect of the outermost ATL conduit row(s) must be a minimum of 12-inches wide and a maximum of 3 feet wide. Sand extensions on each end of the ATL conduit row(s) shall be 12 inches long.

**Effluent Distribution**

The ATL System can accommodate all methods of effluent distribution, including gravity, pump-to-gravity, serial, and pressure distribution.

- **Pressure Distribution**
  If pressure distribution is used with the ATL System, all aspect of the pressure distribution system shall be designed and installed in accordance with Section 4.19 Pressure Distribution System of the TGM, with the exception of orifice orientation. The orifices in the distribution lateral shall be oriented towards the top of the pipe. See page 22 for detailed pressure distribution installation instructions.

- **Serial Distribution**
  The use of raised connections is recommended in serial distribution designs. The raised connection should be designed to increase the invert of the ATL conduit row up to, but no higher than, the top of the ATL conduit. See page 22 for more information.

- **Dosed Systems**
  If effluent is pumped to the ATL System, the maximum volume per cycle shall not exceed 20% of the estimated daily design flow. If the total dose volume is too small, then the pipe network will not become fully pressurized or may not be pressurized for a significant portion of the total dosing cycle and may need to be adjusted.

**Distribution Boxes**

A distribution box is recommended to be used to separate flows equally between multiple trenches or separate beds. The distribution box shall meet all requirements of Section 3.2.5.2 Distribution Box of the TGM. The inlet port from the septic tank to the distribution box shall be higher than the outlet ports to allow for proper drainage to the ATL conduit rows.
Fill and Cover Materials
All cover and fill materials must conform to the requirements of the current edition of the TGM.

DEQ requires covering the drainfield with topsoil with a minimum of 12 inches and maximum of 36 inches (IDAPA 58.01.03.008.04 and TGM 3.2.7.2 Soil Cover). A geotextile barrier shall be placed between the uppermost sand layer and ATL conduit row and topsoil prior to backfilling.

Minimum Separation Distances
Horizontal separation distances (setbacks) shall meet the requirements of the TGM and shall be measured from the outside aspect of the system sand.

Vertical separation distances shall meet the specifications detailed in Table 4-19. Recirculating gravel filter vertical separation to limiting layers (feet), and Table 1 below. Vertical separation distances shall be measured from the bottom of the 12-inch layer of system sand below the conduit rows. The bottom of the installed system sand shall be a minimum of 12 inches from the seasonal and normal high water table.

<table>
<thead>
<tr>
<th>Limiting Layer</th>
<th>Flow &lt; 2,500 GPD</th>
<th>Flow ≥ 2,500 GPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impermeable layer</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Fractured rock or very porous layer</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Normal high ground water</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Seasonal high ground water</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 2: ATL System vertical separation to limiting layers (feet)

Minimum Conduit Lengths
The minimum design length of ATL conduit in residential applications is 70 linear feet, or 1 bedroom. Each additional bedroom requires an additional 70 linear feet of ATL conduit. For large-flow, non-residential applications, ATL conduit length shall be calculated at 2.14 gallons per day per linear foot (GPD/lf). All wastewater discharging to a subsurface system must be pre-treated to domestic strength effluent prior to discharge to the field.

<table>
<thead>
<tr>
<th>Number of Bedrooms</th>
<th>Minimum ATL Conduit Length (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>70</td>
</tr>
<tr>
<td>2</td>
<td>140</td>
</tr>
<tr>
<td>3</td>
<td>210</td>
</tr>
<tr>
<td>4</td>
<td>280</td>
</tr>
<tr>
<td>5</td>
<td>350</td>
</tr>
<tr>
<td>Each Additional</td>
<td>70</td>
</tr>
</tbody>
</table>

Table 3: Minimum ATL conduit lengths

Note: Individual ATL conduits shall not be cut or modified.

Minimum System Size
Each ATL System in any application shall be comprised of trench or bed bottom area and linear feet of ATL conduit to meet the design requirements for a 1-bedroom home in the system design soil group.

Contact Infiltrator at 1-800-221-4436 for additional technical and product information.
3-Foot Wide Trench

5-Foot Wide Trench
6-Foot-Wide Trench

Trench Configuration – Plan View
Contact Infiltrator at 1-800-221-4436 for additional technical and product information.

SYSTEM CONFIGURATIONS

Bed Configuration

![Diagram of Bed Configuration]

NOTES:
1. Drawings are not to scale.
2. Number and length of conduits per design.
3. Venting is not required but is optional at the discretion of the designer.
4. Pumping is not required unless gravity flow cannot be achieved.
5. Observation ports are optional, per design.
6. The ATL System is intended for use in non-traffic applications.
Above-Grade Capping Fill System

NOTES:

1. Bottom of the system sand below the ATL conduit must be at least three inches below the native soil grade.
2. Minimum separation distances must be maintained between excavation bottom and limiting layer.
3. All aspects of Section 4.3.3 Above-Grade Capping Fill System in the TGM are applicable to design and installation.
TRENCH SYSTEM DESIGN

TRENCH SYSTEM

Designing the ATL System in Idaho in trench configuration is a five-step process.
1. Determine the minimum total ATL conduit length required
2. Determine the minimum area in square feet of bottom surface required
3. Select a trench width
   a. minimum 3 feet; maximum 6 feet
4. Calculate the total trench length required
5. Modify design trench length and/or width as necessary

Step 1: Determine the minimum total ATL conduit length required
Use Table 2 to determine the minimum length of ATL conduit per bedroom required:

<table>
<thead>
<tr>
<th>Number of Bedrooms</th>
<th>Minimum Total ATL Conduit Length (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>70</td>
</tr>
<tr>
<td>2</td>
<td>140</td>
</tr>
<tr>
<td>3</td>
<td>210</td>
</tr>
<tr>
<td>4</td>
<td>280</td>
</tr>
<tr>
<td>5</td>
<td>350</td>
</tr>
<tr>
<td>Each Additional</td>
<td>70</td>
</tr>
</tbody>
</table>

Table 2: Minimum total ATL conduit length

Step 2: Determine the minimum area in square feet of bottom surface required
Based upon the soil type determined in the site investigation, reference Table 3 below to determine the minimum area in square feet of bottom surface required:

<table>
<thead>
<tr>
<th>Minimum Area of Bottom Surface Required (sf)</th>
<th>Application Rate (GPD/sf) / Soil Design Subgroup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bedrooms 1.7 / A-1 1.2 / A-2a 1.0 / A-2b 0.8 / B-1 0.6 / B-2 0.4 / C-1 0.3 / C-2</td>
<td></td>
</tr>
<tr>
<td>1 89 125 150 188 250 375 500</td>
<td></td>
</tr>
<tr>
<td>2 118 167 200 250 334 500 667</td>
<td></td>
</tr>
<tr>
<td>3 148 209 250 313 417 625 834</td>
<td></td>
</tr>
<tr>
<td>4 177 250 300 375 500 750 1000</td>
<td></td>
</tr>
<tr>
<td>5 206 292 350 438 584 875 1167</td>
<td></td>
</tr>
<tr>
<td>Each Additional 30 42 50 63 84 125 167</td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Minimum area of bottom surface required (sf)

Step 3: Select a trench width
Individual trenches shall be a minimum of 3-feet wide and a maximum of 6-feet wide. The system should be designed as long and narrow as site conditions allow.

Divide the minimum area in square feet of bottom surface required by the minimum length of ATL conduit per bedroom required to get guidance on an appropriate trench width for the ATL System.

Step 4: Calculate the total trench length required
Divide the minimum area in square feet of bottom surface required as determined in Step 2 by the trench width selected in Step 3 to calculate the total trench length required.
Step 5: Modify design trench length and width as necessary

The design trench width or length may be modified in order to maximize the relationship between the total ATL conduit length required and the minimum area in square feet of bottom surface required, while meeting the following trench design requirements:

NOTES:
1. Minimum trench length is 30 ft; maximum trench length is 100 ft.
   a. If the total trench length required is less than 30 ft, either:
      i. increase the length of the trench to 30 ft; or
      ii. decrease the selected width of the trench (Step 3) to increase the length to beyond 30 ft.
   b. If the total trench length required is greater than 100 ft; either:
      i. divide the trench into multiple trenches; or
      ii. increase the selected width of the trench (Step 3) to decrease the length to less than 100 ft.
2. ATL conduits come in 10-foot lengths; all ATL conduit-length calculations shall be rounded up to the nearest 10-foot increment.
3. ATL conduit rows must extend to 12 inches of each end of the trench.
   a. Final trench lengths will include the 12-inch-wide sand extension on each end of the trench.
4. The system should be designed as long and narrow as site conditions allow.
The following sample system design calculations are intended to illustrate the methodology for designing the ATL System. The sample system design calculations are provided in the step-by-step format described above.

Example I.

System sample specifications:
- 4-bedroom home
- Soil: B-2; 0.6 GPD/sf hydraulic application rate

**Step 1: Determine the minimum total ATL conduit length required**
Referencing Table 2, the minimum total length of ATL conduit required is 280 ft.

<table>
<thead>
<tr>
<th>Number of Bedrooms</th>
<th>Minimum Total ATL Conduit Length (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>70</td>
</tr>
<tr>
<td>2</td>
<td>140</td>
</tr>
<tr>
<td>3</td>
<td>210</td>
</tr>
<tr>
<td><strong>4</strong></td>
<td><strong>280</strong></td>
</tr>
<tr>
<td>5</td>
<td>350</td>
</tr>
</tbody>
</table>

Table 2: Minimum total ATL conduit length

**Step 2: Determine the minimum area in square feet of bottom surface required (sf)**
Referencing Table 3, the minimum area in square feet of bottom surface required is 500 sf.

<table>
<thead>
<tr>
<th>Application Rate (GPD/sf) / Soil Design Subgroup</th>
<th>Bedrooms</th>
<th>1.7 / A-1</th>
<th>1.2 / A-2a</th>
<th>1.0 / A-2b</th>
<th>0.8 / B-1</th>
<th>0.6 / B-2</th>
<th>0.4 / C-1</th>
<th>0.3 / C-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>89</td>
<td>125</td>
<td>150</td>
<td>188</td>
<td>250</td>
<td>375</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>118</td>
<td>167</td>
<td>200</td>
<td>250</td>
<td>334</td>
<td>500</td>
<td>667</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>148</td>
<td>209</td>
<td>250</td>
<td>313</td>
<td>417</td>
<td>625</td>
<td>834</td>
<td></td>
</tr>
<tr>
<td><strong>4</strong></td>
<td><strong>177</strong></td>
<td><strong>250</strong></td>
<td><strong>300</strong></td>
<td><strong>375</strong></td>
<td><strong>500</strong></td>
<td><strong>750</strong></td>
<td><strong>1000</strong></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>206</td>
<td>292</td>
<td>350</td>
<td>438</td>
<td>584</td>
<td>875</td>
<td>1167</td>
<td></td>
</tr>
<tr>
<td>Each Additional</td>
<td>30</td>
<td>42</td>
<td>50</td>
<td>63</td>
<td>84</td>
<td>125</td>
<td>167</td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Minimum area of bottom surface required (sf)

**Step 3: Select a trench width**
500 sf (minimum area in square feet of bottom surface required – Step 2) divided by 280 ft (minimum length of ATL conduit per bedroom required – Step 1) = 1.8 ft.

Select 3 ft.

**Step 4: Calculate the total trench length required**
500 sf (minimum area in square feet of bottom surface required - Step 2) divided by 3 ft (trench width selected - Step 3) = 166.7 ft (total trench length required).
**Step 5: Modify design trench length and width as necessary**

Utilizing a 3-ft-wide trench, 166.7 linear feet of trench will require use of 170 linear feet of ATL conduit (**ATL conduits are 10-feet long and may not be cut**).

Check that minimum total length of ATL conduit requirement is being met:

A 4-bedroom house requires a minimum of 280 linear feet of ATL conduit. As a result, the minimum trench length of 170 linear feet must be adjusted to 280 linear feet.

Proposed design: Four 3-foot-wide trenches, each 72 feet in length (70 feet of ATL conduit and 2 feet of sand extension - 1 foot on each end). 4 rows times 70 lf/row = 280 lf of ATL conduit.

Check that minimum area in square feet of bottom surface requirement as designed is being met:

72 lf of trench X 3-ft-wide trench = 216 sf/trench X 4 trenches = 864 sf.
500 sf required. Minimum area in square feet of bottom surface requirement is met.

---

**Example II.**

System sample specifications:
- 3-bedroom home
- Soil: C-1; 0.4 GPD/sf hydraulic application rate

**Step 1: Determine the minimum total ATL conduit length required**

Referencing Table 2, the minimum total length of ATL conduit required is 210 ft.

<table>
<thead>
<tr>
<th>Number of Bedrooms</th>
<th>Minimum Total ATL Conduit Length (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>70</td>
</tr>
<tr>
<td>2</td>
<td>140</td>
</tr>
<tr>
<td>3</td>
<td>210</td>
</tr>
<tr>
<td>4</td>
<td>280</td>
</tr>
<tr>
<td>5</td>
<td>350</td>
</tr>
<tr>
<td>Each Additional</td>
<td>70</td>
</tr>
</tbody>
</table>

**Table 2: Minimum total ATL conduit length**
**Step 2: Determine the minimum area in square feet of bottom surface required**

Referencing Table 3, the minimum area in square feet of bottom surface required is 625 sf.

<table>
<thead>
<tr>
<th>Minimum Area of Bottom Surface Required (sf)</th>
<th>Application Rate (GPD/sf) / Soil Design Subgroup</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bedrooms</strong></td>
<td><strong>1.7 / A-1</strong></td>
</tr>
<tr>
<td>1</td>
<td>89</td>
</tr>
<tr>
<td>2</td>
<td>118</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td><strong>148</strong></td>
</tr>
<tr>
<td>4</td>
<td>177</td>
</tr>
<tr>
<td>5</td>
<td>206</td>
</tr>
<tr>
<td>Each Additional</td>
<td>30</td>
</tr>
</tbody>
</table>

Table 3: Minimum area of bottom surface required (sf)

**Step 3: Select a trench width**

625 sf (minimum area in square feet of bottom surface required – Step 2) divided by 210 ft (minimum length of ATL conduit per bedroom required – Step 1) = 2.97 ft.

Select 3 ft.

**Step 4: Calculate the total trench length required**

625 sf (minimum area in square feet of bottom surface required - Step 2) divided by 3 ft (trench width selected - Step 3) = 208.3 ft (total trench length required).

**Step 5: Modify design trench length and width as necessary**

Utilizing a 3-ft-wide trench, 208.3 linear feet of trench will require use of 210 linear feet of ATL conduit (ATL conduits are 10-feet long and may not be cut).

Check that minimum total length of ATL conduit requirement is being met:

A 3-bedroom house requires a minimum of 210 linear feet of ATL conduit. The minimum trench length of 210 linear feet meets the 210 linear feet of ATL conduit requirement.

Proposed design: Three 3-foot-wide trenches, each 72 feet in length (70 feet of ATL conduit and 2 feet of sand extension - 1 foot on each end). 3 rows times 70 lf/row = 210 lf of ATL conduit.

Check that minimum area in square feet of bottom surface requirement as designed is being met:

72 lf of trench X 3-ft-wide trench = 216 sf/trench X 3 trenches = 648 sf.
625 sf required. Minimum area in square feet of bottom surface requirement is met.
BED SYSTEM

Designing the ATL System in Idaho in bed configuration is a five-step process.

1. **Determine the minimum total ATL conduit length required**
2. **Determine the minimum area in square feet of bottom surface required**
3. **Select an ATL conduit row length**
   - ATL conduit rows within the bed must be of equal length.
4. **Calculate the required bed width**
5. **Modify design bed dimensions as necessary**

**Step 1: Determine the minimum total ATL conduit length required**

Use Table 2 to determine the minimum length of ATL conduit per bedroom required:

<table>
<thead>
<tr>
<th>Number of Bedrooms</th>
<th>Minimum Total ATL Conduit Length (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>70</td>
</tr>
<tr>
<td>2</td>
<td>140</td>
</tr>
<tr>
<td>3</td>
<td>210</td>
</tr>
<tr>
<td>4</td>
<td>280</td>
</tr>
<tr>
<td>5</td>
<td>350</td>
</tr>
<tr>
<td>Each Additional</td>
<td>70</td>
</tr>
</tbody>
</table>

**Table 2: Minimum total ATL conduit length**

**Step 2: Determine the minimum area in square feet of bottom surface required**

Based upon the soil type determined in the site investigation, reference Table 3 below to determine the minimum area in square feet of bottom surface required.

<table>
<thead>
<tr>
<th>Application Rate (GPD/sf) / Soil Design Subgroup</th>
<th>Minimum Area of Bottom Surface Required (sf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.7 / A-1</td>
<td>89  125  150  188  250  375  500</td>
</tr>
<tr>
<td>1.2 / A-2a</td>
<td>118 167  200  250  334  500  667</td>
</tr>
<tr>
<td>1.0 / A-2b</td>
<td>148 209  250  313  417  625  834</td>
</tr>
<tr>
<td>0.8 / B-1</td>
<td>177 250  300  375  500  750 1000</td>
</tr>
<tr>
<td>0.6 / B-2</td>
<td>206 292  350  438  584  875 1167</td>
</tr>
<tr>
<td>0.4 / C-1</td>
<td>250 356  438  564  750 1000 1250</td>
</tr>
<tr>
<td>0.3 / C-2</td>
<td>304 425  500  630  840 1250 1667</td>
</tr>
</tbody>
</table>

**Table 3: Minimum area of bottom surface required (sf)**

**Step 3: Select an ATL conduit row length**

Select an appropriate length of the ATL conduit rows based upon the minimum length of ATL conduit required and site considerations. Long and narrow systems are recommended.

Divide the minimum area in square feet of bottom surface required by the ATL conduit row length selected to determine the number of ATL conduit rows. Each ATL conduit row within the bed must be of equal length.
**Step 4: Calculate the required bed width**
Divide the minimum area in square feet of bottom surface required as determined in Step 2 by the ATL conduit row length selected in Step 3 to calculate the approximate required bed width.

**Step 5: Modify design bed dimensions as necessary**
The bottom surface area of the proposed bed design (system sand footprint) must meet or exceed the minimum bottom surface area required as determined in Step 2 (Table 3). If the proposed bed design does not result in a system sand footprint area greater than the minimum bottom surface area required, adjustments must be made to the bed design.

In all ATL System bed designs, the following requirements must be met:

**NOTES:**
1. Minimum ATL conduit row length is 30 ft; maximum ATL conduit row length is 100 ft.
   a. If the total ATL design bed length is greater than 100 ft, either:
      i. the number of ATL conduit rows must be increased in order to reduce the length of each individual row to less than 100 feet; or
      ii. the bed must be divided the into multiple beds.
2. Individual ATL conduit rows must be separated by a minimum of 12-inches of system sand, with a maximum center-to-center spacing of 3 feet.
3. ATL conduits come in 10-foot lengths; all ATL row lengths in a given bed shall be in 10-foot increments.
4. ATL conduit rows must extend to 12 inches of each end of the trench.
   a. Final bed length will include the 12-inch-wide sand extension on each end of the ATL conduit rows.
5. The outermost ATL conduit rows must be no greater than 36 inches from the edge of the bed.
6. The system should be designed as long and narrow as site conditions allow.
The following sample system design calculations are intended to illustrate the methodology for designing the ATL System in a bed configuration. The sample system design calculations are provided in the step-by-step format described above.

**Example I.**

System sample specifications:
- 4-bedroom home
- Soil: C-1; 0.4 GPD/sf hydraulic application rate

**Step 1: Determine the minimum total ATL conduit length required**

Referencing Table 2, the minimum total length of ATL conduit required is 280 ft.

<table>
<thead>
<tr>
<th>Number of Bedrooms</th>
<th>Minimum Total ATL Conduit Length (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>70</td>
</tr>
<tr>
<td>2</td>
<td>140</td>
</tr>
<tr>
<td>3</td>
<td>210</td>
</tr>
<tr>
<td>4</td>
<td>280</td>
</tr>
<tr>
<td>5</td>
<td>350</td>
</tr>
<tr>
<td>Each Additional</td>
<td>70</td>
</tr>
</tbody>
</table>

Table 2: Minimum total ATL conduit length

**Step 2: Determine the minimum area in square feet of bottom surface required**

Referencing Table 3, the minimum area in square feet of bottom surface required is 750 sf.

<table>
<thead>
<tr>
<th>Application Rate (GPD/sf) / Soil Design Subgroup</th>
<th>Minimum Area of Bottom Surface Required (sf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.7 / A-1</td>
<td></td>
</tr>
<tr>
<td>1.2 / A-2a</td>
<td></td>
</tr>
<tr>
<td>1.0 / A-2b</td>
<td></td>
</tr>
<tr>
<td>0.8 / B-1</td>
<td></td>
</tr>
<tr>
<td>0.6 / B-2</td>
<td></td>
</tr>
<tr>
<td>0.4 / C-1</td>
<td></td>
</tr>
<tr>
<td>0.3 / C-2</td>
<td></td>
</tr>
<tr>
<td><strong>Bedrooms</strong></td>
<td><strong>Minimum Area of Bottom Surface Required (sf)</strong></td>
</tr>
<tr>
<td>1</td>
<td>89 125 150 188 250 375 500</td>
</tr>
<tr>
<td>2</td>
<td>118 167 200 250 334 500 667</td>
</tr>
<tr>
<td>3</td>
<td>148 209 250 313 417 625 834</td>
</tr>
<tr>
<td>4</td>
<td><strong>177 250 300 375 500 750 1000</strong></td>
</tr>
<tr>
<td>5</td>
<td>206 292 350 438 584 875 1167</td>
</tr>
<tr>
<td>Each Additional</td>
<td>30 42 50 63 84 125 167</td>
</tr>
</tbody>
</table>

Table 3: Minimum area of bottom surface required (sf)

**Step 3: Select an ATL conduit row length**

280 ft (minimum length of ATL conduit per bedroom required – Step 1) ÷ 4 = 70 ft.

Initial design shall include 4 rows of ATL conduit at 70 linear feet each. Add minimum sand extension on each end of 12 inches to create 72-foot-long bed length.

With 12 inches of systems sand between each row, and a 12-inch-wide sand extension on each side of the bed design, the bed width is 9 feet. The system sand footprint is 72’ X 9’ = 648 sf.
**Step 4: Calculate the required bed width**

750 sf (minimum area in square feet of bottom surface required - Step 2) ÷ 72 ft (length of ATL conduit rows selected - Step 3) = 10.4 ft (width of bed required).

**Step 5: Modify design trench length and width as necessary**

The minimum bottom surface area required (Step 2, Table 3) is 750 sf. The proposed bed design offers 648 sf of bottom surface area. Adjustments must be made to increase the design bottom surface area to meet or exceed the required bottom surface area.

Adjustment calculations:

- Divide the required absorption bed area by the length of the system sand footprint (proposed bed design).

  \[ \frac{750 \text{ sf}}{72 \text{ ft}} = 10.42 \text{ ft} \]

- Subtract the system sand footprint width from the required width as calculated above to determine the total sand extension required.

  \[ 10.42 \text{ ft} - 9 \text{ ft} = 1.42 \text{ ft} \]

  **NOTE:** Round up to feet/ inches for ease of installation.

- The design system width must be widened by 1.42 ft, by adding 9-inch-wide sand extensions on each side, resulting in a total bottom surface area of 756 sf:

  \[ 72 \text{ ft} \times 10.5 \text{ ft} = 756 \text{ sf} \]
INFORMATION FOR SYSTEM OWNERS

Basic rules of onsite sewage treatment system use and care apply to the ATL System. System owners shall operate the system in accordance with the procedures and specifications described in the TGM, all local regulations, and the following:

System Use and Abuse
Your ATL System is intended for use with residential-strength wastewater within the design daily flow volume. To ensure long-term function of your system:

- Keep daily wastewater flow within design parameters.
- Do not connect the rainwater management system to the ATL System.
- Direct water from the rainwater management system away from the ATL System.
- Solvents, paint, pharmaceuticals, aggressive cleaning products, and non-biodegradable items should not enter the ATL System.
- Solids, such as but not limited to, cigarette butts, diapers, feminine hygiene products, cat litter, and paper towels should not be introduced into the ATL system.
- Introduce only normal residential wastewater into the system
- Maintain leak-free household plumbing fixtures, such as faucets and toilets.
- Do not utilize a garbage grinder.
- The ATL System is intended for use in non-traffic applications.

Operation and Maintenance
Your ATL System has no specific operating instructions. Proper use of the system as noted above is the primary operating concern.

Maintenance of the ATL System includes the following:

- If the septic tank has an effluent filter, it should be cleaned by a qualified professional on an annual basis.
- The septic tank should be pumped on a regular basis and, if concrete, checked for leaks and cracks. The interval for septic tank pumping varies depending upon use. Check with a qualified professional or your local health department for the appropriate pumping interval.
- If present, the alarm system should be tested annually by a qualified professional to ensure that it is functional.

If at any time you have concerns about the use, operation, or maintenance of your ATL System, contact the Infiltrator’s Technical Services Department at 1-800-221-4436.

System Start-up
There are no specific requirements for placing the ATL System into service. If the system has an alarm, a qualified professional should, after system use has been initiated, test the alarm to ensure it is functional.

Intermittent Use
The ATL System is designed for intermittent use and requires no special attention if it is to be placed out of use for extended periods of time.
INFORMATION FOR SYSTEM OWNERS

Trouble Shooting
In the event that any of the following indicators arise, contact a qualified professional.
  • Wastewater back-up into the dwelling
  • Persistent septic odor
  • Unusually wet area atop and/or around the system
  • “Breakout” of effluent along the side of a slope or other landscape feature

Repair
A qualified professional shall be contacted when there are indications of malfunction with the ATL System. When visiting the site, the qualified professional should, at a minimum, do the following:

  • Assess the present condition of the ATL System and the surrounding area
  • Research the history of use, including:
    o water volume use
    o contaminants
  • Evaluate the site for groundwater intrusion
  • Inspect the septic tank
  • Inspect the conduit rows
  • Check faucet and toilet function

Upon completion of the site visit, the qualified onsite wastewater system professional should contact the Infiltrator’s Technical Services Department with the inspection report.
These installation instructions are for the ATL System in Idaho. ATL Systems may only be installed according to this manual, IDAPA 58.01.03, and any other local regulations.

If unsure of the installation requirements for a site, contact the qualified professional responsible for the design. If unsure of the use of the ATL System, contact Infiltrator. A permit which includes the soil evaluation and the design of the onsite system must be filed with and accepted by the local health department before installation.

Before You Begin

<table>
<thead>
<tr>
<th>Materials and Equipment Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ conduits</td>
</tr>
<tr>
<td>□ System sand</td>
</tr>
<tr>
<td>□ PVC pipe and couplings</td>
</tr>
<tr>
<td>□ Backhoe</td>
</tr>
<tr>
<td>□ Laser or transit</td>
</tr>
<tr>
<td>□ Shovel and rake</td>
</tr>
</tbody>
</table>

Common practices shall apply to the installation of the ATL System. These include, but are not limited to:

- avoid soil compaction on the infiltrative surface area, including all areas downslope of a sloped system; and
- install the conduits and system sand on the same day that the system footprint is excavated/exposed.

The use of tracked vehicles for material installation is preferred.

Excavating and Preparing the Site

**NOTE:** The ATL System may not be installed during periods when the soil is sufficiently wet to exceed its plastic limit, as this causes machinery to smear the soil.

1. Stake out the locations of tank(s), pipes, conduit rows, and corners of the system to be scarified/excavated, per design. Set the elevations as shown on the approved plan.  
   **[NOTE: The proper elevation of solid PVC header line going to each conduit row should be determined to ensure compliance with the required system bottom depth as shown on the approved permit. This height may vary dependent on system height and configuration used.]**

2. Install sedimentation and erosion control measures.  
   **[NOTE: The installation of temporary drainage swales/berms (surface diversions) may be necessary to protect the site during rainfall events.]**

3. Excavate the trench or bed area per design.

4. Rake the trench or bed bottom and sides if smearing has occurred during excavation. Remove large stones and cut off protruding roots, fill voids with compacted system sand.  
   **[NOTE: Smearing does not occur in sandy soils, so raking is not necessary. In fine textured soils (silts and clays), avoid walking on the excavation bottom to prevent compaction and loss of soil structure.]**

5. Verify that the trench or bed area is at the proper slope from side-to-side and from end-to-end using a transit or laser.

Installing the System

1. Install the system sand over the entire ATL System trench or bed area as per design. System sand should be leveled and stabilized prior to introduction of the conduits. The installer should retain records verifying that system sand meets the specifications for medium sand in Section 3.2.8.1.2 of the TGM.

2. Remove plastic stretch wrap from conduits.

3. Place conduits on the surface of the system sand with the white stripe/seam in the 12 o’clock position, arranged in the configuration shown on the system design. Using the provided 4-in-diameter internal pipe couplings, connect the conduits end-to-end to create rows of the required length.

4. Conduits shall be installed level. A laser level or transit is recommended to ensure proper alignment.

5. Conduit rows shall be:
   - installed on a level plane with one another;
INSTALLATION INSTRUCTIONS

- be installed parallel to any contours;
- be separated by a minimum of 12 in of system sand; and
- be installed with the white stripe/seam oriented in the 12 o’clock position.

**NOTE:** Individual ATL conduits shall not be cut or modified.

6. In serial distribution applications, use of a raised connection is recommended. One example of a raised connection is shown below:

7. Install a cap on the end of each conduit row that is not connected with piping.
8. Once the conduit is placed on the surface of the system sand and distribution piping is connected to the conduits per design, additional system sand shall be ladled beside and between, and to the top, of each of the conduit rows. System sand shall also be installed on each side and at each end of the backfilled conduit rows, per the design. This additional system sand shall be stabilized. Where possible, all machine work should be done from the uphill side of the infiltration area to reduce possible compaction of the receiving soil area.

Installing Vents

**NOTE:** If design of the ATL System includes venting, the following instructions are provided.

For gravity systems:
1. A low vent is installed through an offset adapter at the end of each section, bed, or attached to a vent manifold, with a minimum 3-ft pipe extending above final grade.
2. The internal house plumbing and roof vent act as the high vent for the system.

For pressurized and pump-to-gravity systems:
1. A low vent is installed through an offset adapter at the end of each section, bed, or attached to a vent manifold, with a minimum 3-ft pipe extending above final grade.
2. A high vent must maintain a minimum 10-ft vertical separation from the low vent, and may be installed in one of the following locations:
   - directly at the d-box; or
   - located remotely (along a nearby tree line, or other less conspicuous spot).

**NOTE:** In pump-to-gravity applications, the internal house plumbing and roof vent may act as the system’s high vent. To accomplish this, a minimum 3-inch diameter pipe must be installed between the d-box and septic tank to bypass the small diameter pressure distribution main.

Installing Observation/Monitoring Ports

If observation or monitoring ports are specified in the system design:
1. Cut a 6-inch PVC pipe to the desired length, ensuring the pipe will extend a minimum of 6 inches above final grade.
2. Drill a minimum of ten ¼” to ½” holes within ½ to 6 inches of the bottom of the pipe, and wrap the bottom end of the pipe in filter fabric.
3. Install the monitoring pipe at the appropriate location, based on site conditions, and
INSTALLATION INSTRUCTIONS

ensure the bottom of the pipe is at the bottom of the system sand footprint (at the system sand/native soil interface).

4. Install a removable, water-tight, secure cover cap.

Installing Pressure Distribution

If pressure distribution is preferred, the pressure distribution system shall be designed and installed in accordance with Section 4.19 Pressure Distribution System of the TGM, with the exception of orifice orientation. The orifices in the distribution lateral shall be oriented towards the top of the pipe.

The distribution laterals should be placed within the 4-inch-diameter ATL conduit distribution pipe for the entire length of each ATL conduit row, as shown below.

In order to ensure that the small-diameter laterals are placed at the bottom of the 4-inch distribution pipe within the ATL conduit row, drill an appropriately-sized hole in the 4” end cap at its bottom (see picture below):

Covering the System

NOTE: Before backfilling, the system shall be inspected as required in the TGM and in compliance with all local ordinances and procedures.

1. Material placed around the system sand and atop the conduits may be additional system sand or material which meets the requirements of the TGM.

2. Backfill the trench(es) or bed by pushing material over the ATL System. Cover material shall be a minimum of 12 inches and a maximum of 36 inches deep. It is best to mound several extra inches of soil over the finish grade to allow for settling. This also ensures that runoff is diverted away from the system.

   [NOTE: Do not drive over the system while backfilling in sand.]

3. After the system is covered, the site should be seeded or sodded. Ensure that sand-based sod, and not clay-based sod, is used to mitigate the potential for erosion.

NOTE: If the system is for new home construction, it is important to leave marking stakes along the boundary of the system.
WARRANTY

INSECTOR WATER TECHNOLOGIES, LLC ("Infiltrator")
ATL SYSTEM STANDARD LIMITED WARRANTY

(a) The structural integrity of the Infiltrator ATL System conduits manufactured by Infiltrator (collectively referred to as “Units”), when installed and operated in a leachfield of an onsite septic system in accordance with Infiltrator’s installation instructions, is warranted to the original purchaser (“Holder”) against defective materials and workmanship for one year from the date upon which Letter of Certification is issued for the septic system containing the Units provided, however, that if a septic permit is not required for the septic system by applicable law, the one (1) year warranty period will begin upon the date that installation of the septic system commences. In order to exercise its warranty rights, Holder must notify Infiltrator in writing at its corporate headquarters in Old Saybrook, Connecticut within fifteen (15) days of the alleged defect. Infiltrator will supply replacement Units for those Units determined by Infiltrator to be defective and covered by this Limited Warranty. Infiltrator’s liability specifically excludes the cost of removal and/or installation of the Units.

(b) THE LIMITED WARRANTY AND REMEDIES IN SUBPARAGRAPH (a) ARE EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE UNITS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

(c) This Limited Warranty shall be void if any part of the ATL System components is manufactured by anyone other than Infiltrator. The Limited Warranty does not extend to incidental, consequential, special or indirect damages. Infiltrator shall not be liable for penalties or liquidated damages, including loss of production and profits, labor and materials, overhead costs, or other losses or expenses incurred by the Holder or any third party. Specifically excluded from Limited Warranty coverage are damage to the Units due to ordinary wear and tear, alteration, accident, misuse, abuse or neglect of the Units; the Units being subjected to vehicle traffic or other conditions which are not permitted by the installation instructions; failure to maintain the minimum ground covers set forth in the installation instructions; the placement of improper materials into the system containing the Units; failure of the Units or the septic system due to improper siting or improper sizing, excessive water usage, improper grease disposal, or improper operation; or any other event not caused by Infiltrator. This Limited Warranty shall be void if the Holder fails to comply with all of the terms set forth in this Limited Warranty.

Further, in no event shall Infiltrator be responsible for any loss or damage to the Holder, the Units, or any third party resulting from installation or shipment, or from any product liability claims of Holder or any third party. For this Limited Warranty to apply, the Units must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and Infiltrator’s installation instructions.

(d) No representative of Infiltrator has the authority to change this Limited Warranty in any manner whatsoever, or to extend this Limited Warranty. No warranty applies to any party other than the original Holder.

The above represents the standard Limited Warranty offered by Infiltrator. A limited number of states and counties have different warranty requirements. Any purchaser of Units should contact Infiltrator’s corporate headquarters in Old Saybrook, Connecticut, prior to such purchase, to obtain a copy of the applicable warranty, and should carefully read that warranty prior to the purchase of Units.

* * * * * * *

P.O. Box 768 • Old Saybrook, CT 06475
800-221-4436

Contact Infiltrator at 1-800-221-4436 for additional technical and product information.