

Holding Tank Planning and Installation Guidelines

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Under no circumstances is sewage from a holding tank to be discharged onto the surface of the ground, into groundwater, or surface water(s).

A. GENERAL INFORMATION

1. What Is A “Holding Tank”?

A holding tank is a large watertight vessel that allows for the collection and temporary storage of sewage effluent from a residence or building for future removal and transport to an approved treatment and disposal site.

Holding tanks may be constructed of a variety of materials. Tanks can be prefabricated or they can be constructed (engineered) in place. Tanks that are prefabricated must meet the current CAN/CSA B66 standard for design, material, and manufacturing requirements for prefabricated septic tanks and sewage holding tanks. See [Part B - Holding Tank Guidelines – Construction and Installation](#) for specifics. Tanks constructed in place must be overseen by an engineer. Proper sizing of tanks will vary depending on intended usage. See [Part B - Table 1: Minimum Holding Tank Capacities based on Estimated Daily Design Flow](#) for specifics.

See [Section B: Holding Tank Guidelines](#) for specific information about design, siting, and installation of holding tanks.

Improper use and/or maintenance of holding tanks may lead to raw sewage discharges onto the ground and/or into water bodies, presenting significant health hazards to the public. To ensure that sewage holding tanks do not cause or contribute to a public health hazard, they are regulated under Section 4 and 5 of the [B.C. Sewerage System Regulation](#) (B.C. Reg 326/2004).

A person must **not** install, repair, or alter a holding tank unless they hold a permit to construct issued by an Environmental Health Officer (EHO), in accordance with the [B.C. Sewerage System Regulation](#). Applications for a permit to construct a holding tank are evaluated on a case-by-case basis. However, prior to issuing a permit, the EHO must be satisfied that the use of a holding tank will be adequate to deal with the domestic sewage generated at a particular site and that it will not cause or contribute to a health hazard.

Due to the inherent risk of a health hazard associated with the relocation of raw sewerage for treatment, an EHO will review other available options as part of their risk assessment. A holding tank is typically not an acceptable means of sewerage disposal when other options for onsite treatment or community sewer are available.

Note: Proposed subdivisions must still meet the requirements of the [B.C. Subdivision Regulations](#) (B.C. Reg. 262/70).

2. How Do I Apply For A Holding Tank Permit?

Submit the following information along with a \$400 permit application fee to EA@interiorhealth.ca:

- A completed [“Holding Tank Permit Application”](#). Include information about the manufacturer and construction Material. See [Section B3 - Construction and Installation](#) for more information.
- Holding tank plans and specifications (should be prepared and provided by an authorized person). Authorized persons include, but may not be limited to, a Registered Onsite Wastewater Professional (ROWP), or a BC Professional Engineer who has self-declared with Engineers & Geoscientists British Columbia (EGBC). See the [B.C. Subdivision Regulations](#) for more information and [Section B3 - Construction and Installation](#).

- Site plan showing the location of the proposed holding tank in relation to (see [Appendix A – Example of a Site Plan](#)):

- Buildings (with labels).
- Surface water bodies (lakes, rivers, streams, creeks, etc.).
- Drinking water source(s) and water lines.
- Property boundaries with separation distances clearly marked. A surveyor is not required or recommended.
- Proposed Maintenance Plan for the holding tank (see [Section B: Maintenance Plan](#)).
- And, any other information requested by the Environmental Health Officer.

Note:

Local or regional governments may have bylaws which prohibit or regulate the construction of a sewage holding tank. Applicants should be aware of these bylaws and reach out to local or regional governments to discuss their options before submitting application with IH.

Note: Due to differing holding tank site locations each application is assessed on it's own merits. Information requested by the EHO during the application process may differ from one location to another.

3. What Happens Next?

With receipt of payment and a complete application package, the EHO may issue a permit to construct if satisfied that the holding tank is adequate to deal with the domestic sewage originating from the structure and that the use of the holding tank will not, if the maintenance plan is followed, cause a health hazard. Conditions may be attached to the permit as appropriate. When the Holding Tank Construction Permit is approved and signed by the EHO, the applicant may proceed with the construction and installation.

B. HOLDING TANK SPECIFICATIONS

1. Holding Tank Capacity

A holding tank receives wastewater from toilets, baths, washbasins, showers, sinks, and washing machines. Water from roofs, yards, or foundation drainage must not enter the holding tank and must be diverted away from the location of the tank.

The capacity of the holding tank shall be at least seven times the estimated minimum daily sewage flow, but **not less than** 4900 litres/1295 gallons (see [Table 1](#) below).

Notes: Home owners should review the hauling costs associated with local wastewater hauler truck capacities to get the most efficiency out of the tank. Consider a larger tank that provides more days of storage. In some circumstances, (i.e. remote areas) an EHO may require a holding tank capacity greater than those listed in [Table 1](#).

Reduction in water consumption will benefit the environment and reduce hauling costs by researching ways to conserve water usage. For example, do not let water run unnecessarily and install low flow shower heads and toilets.

Table 1. Minimum Holding Tank Capacities based on Estimated Daily Design Flow.

Capacities are listed in litres and US gallons

| Number of Bedrooms | Estimated Daily Sewage Flow (litres/Gallons) | Holding Tank Capacity |
|---------------------------|---|------------------------------|
| 1 | 700 l. (185 gal.) | 4900 l. (1295 gal.) |
| 2 | 1000 l. (264 gal.) | 7000 l. (1850 gal.) |
| 3 | 1300 l. (343 gal.) | 9100 l. (2404 gal.) |
| 4 | 1600 l. (423 gal.) | 11 200 l. (2959 gal.) |
| 5 | 1900 l. (502 gal.) | 13 300 l. (3514 gal.) |
| 6 | 2200 l. (581 gal.) | 15 400 l. (4069 gal.) |

* Add 300 l/day for additional bedrooms

2. Setback Distances (Minimum)

Table 2. Minimum Setback Distances From Holding Tank Location

Note: Install the tank in a location that provides easy access for pump-out, any time of the year.

Site the tank a minimum distance from the following:

| | |
|-----------------------|--|
| 15 m. (50 ft.) | Surface Source of Drinking Water (includes lakes, rivers, etc.) |
| 15 m (50 ft.) | Domestic water supply well |
| 1 m. (3 ft.) | Property line |
| 1 m. (3 ft.) | Building or structure (where there is not a perimeter drain) |
| 1 m. (3 ft.) | Buried utility service |
| 1 m. (3 ft.) | Drinking water supply cistern, at or above ground |
| 3 m. (10 ft.) | Domestic water pipeline |

* Source: [Sewerage System Standard Practice Manual Version 3](#) (September 2014)

3. Construction and Installation

a. Tank Selection

Holding tanks can be constructed from a variety of materials and must be designed for its intended usage. They can be prefabricated or they can be poured in place. Septic tanks are generally not acceptable as holding tanks, but dual purpose tanks may be available. Acceptable tanks can be identified as having the current CAN/CSA B66 approval with designation as a holding tank; visible by the "H" on the CSA approval stamp.

The type of tank that you choose may require additional information to be submitted with your application. For example:

- **CAN/CSA approved prefabricated tank** – A photograph of the CSA certification stamp on the tank specifying the Holding Tank Designation “H” is required. Include the photo and a copy of the CSA certification document specific to that tank with your application. See [Appendix B – Tank Marking](#) (CAN/CSA Standard) for more information.

CAN/CSA B66

If proposing to use a prefabricated tank that is not the current standard (CAN/CSA-B66), a report from a Professional Engineer should accompany the design stating that the tank is equivalent to CAN/CSA-B66 current standard and will not constitute a health hazard.

See [Appendix B](#) for holding tank certification (marking) information.

Tanks that are constructed on-site will require a Professional Engineer. This includes tanks that are poured in place and may include those that come in pieces and are assembled on-site. Registered Onsite Wastewater Professionals (ROWPs) cannot engineer a design in place. The application will require a tank design and state that the tank is equivalent to CAN/CSA-B66 current standard and will not constitute a health hazard.

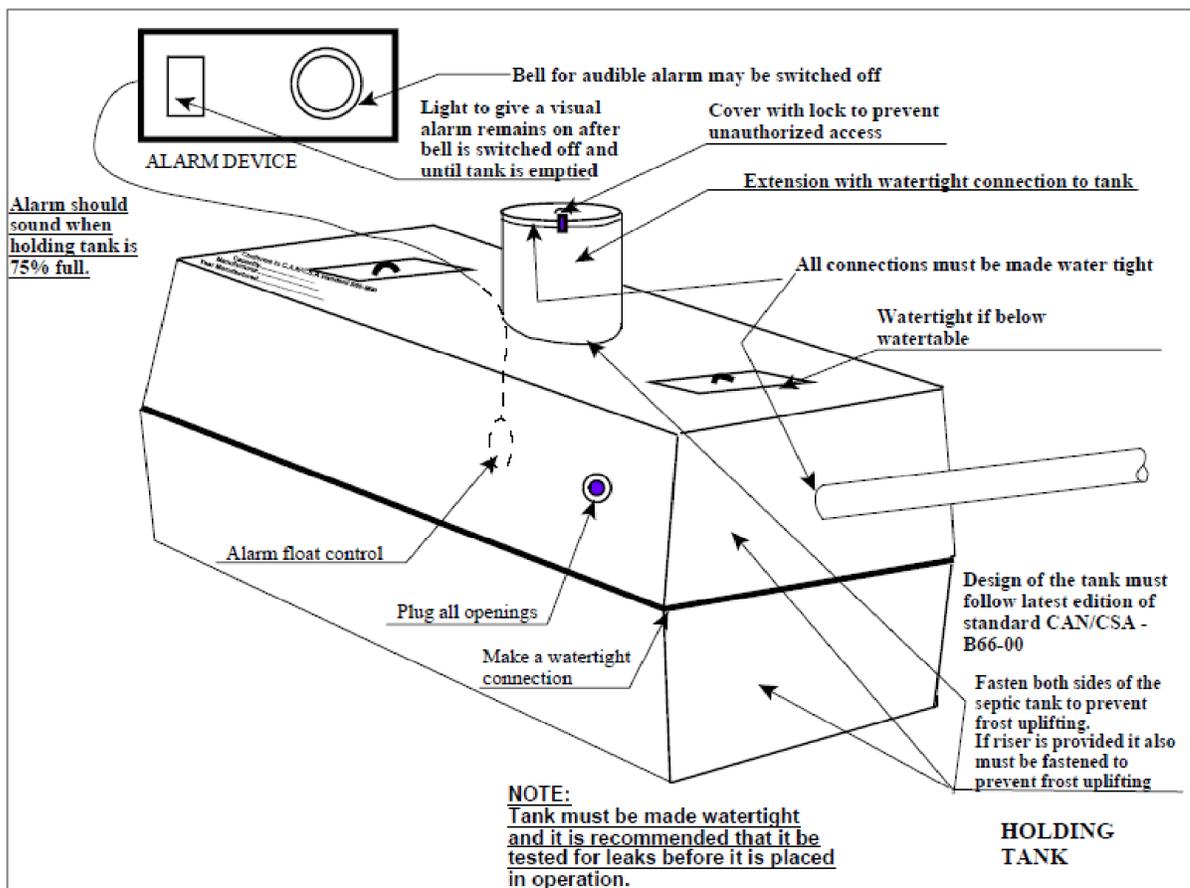


Figure 1. Typical Holding Tank Sewage System and general information.

b. Sizing

Proper sizing of a tank varies depending on intended usage. See [Table 1: Minimum Holding Tank Capacities based on Estimated Daily Design Flow](#).

c. Location

Locate the tank to protect it from physical damage and to allow for easy access for the pumping truck. In areas where a high water table exists, additional precautions may be required (i.e. anchoring that would require a Professional Engineer).

d. Installation

If required by the EHO, the installation of the holding tank and related works shall be completed and inspected by an Authorized Person. After installation, but prior to use, the water tightness of the tank must be tested.

e. Access

Holding tanks must have access openings at or above finished grade and with the ground graded to slope away to divert surface water. Access risers must be water tight at the connection to the holding tank and at the joints between all sections. To prevent unauthorized or accidental entry into a holding tank, openings must be equipped with a secure lid or cover. In extremely cold climates, the access riser must be insulated to prevent freezing.

f. Tank Bedding and Backfill Information

Follow the manufacturer's standards, including maximum depth for burial. Ensure any bedding layer below the tank is compacted before installing. Holding tanks should be backfilled evenly on all four sides in 30 cm lifts, with compaction, to final grade. Risers and lids are not to be shifted or distorted when backfilling. Tanks and piping must be adequately protected from freezing.

g. Piping

The inlet piping (sewer pipe) connected to the holding tank must be protected from distortion caused by settling of the backfill material. The excavation for a tank should not be any larger than is necessary to install the tank. This provides undisturbed earth closer to the tank to support the sewer line leading into the holding tank. Piping connected to the holding tank must be supported to within 30 cm of the tank on a solid base. In addition, holding tanks buried in the ground require the installation of a flexible coupling near the entrance to the holding tank and at the point at which the pipe to the holding tank exits from the building.

4. Alarm

A functional audible and visual high level alarm will alert the owner/resident if the tank needs to be pumped out. The sewage alarm level should be activated at 75% capacity and the audible alarm setting at no greater than 90% of the tank capacity. The alarm shall be connected to the water supply pump switch to automatically shut off the pump when the sewage level is a maximum of 90% of the tank capacity. A qualified electrician must ensure a proper high water alarm system and connection to a separate circuit from the pump. In situations where a continuous source of electricity is not available, the holding tank must be equipped with some form of visual indicator that alerts the owner/resident if the tank needs to be pumped.

5. Maintenance Plan

A written "[Holding Tank Maintenance Plan](#)" must be developed and forwarded to the EHO with the Holding Tank Permit Application. The Maintenance Plan should include the following information:

- Contact information for sewage hauler,
- Availability of sewage hauler,
- Distance to sewage hauler and estimated response time,
- Contact information for approved waste disposal site,
- Estimated frequency of pump out,
- Scheduling for routine inspections of alarm system,
- Emergency contact information (e.g. owner, electrician, plumber, sewage hauler's "after hours" contact number, EHO, etc.),
- Any other items as requested by an EHO.

A copy of the "[Holding Tank Maintenance Plan](#)" should be kept on-site as a reference for the homeowner/occupants.

The owner must keep operational and maintenance records, including information about pumping frequency, sewage volume pumped, disposal site, proof of acceptance by treatment and disposal site, and system servicing and repairs. A copy of the "[Holding Tank Maintenance Plan](#)" and other important records must be maintained for reference. **These records may be requested for review by an EHO.**

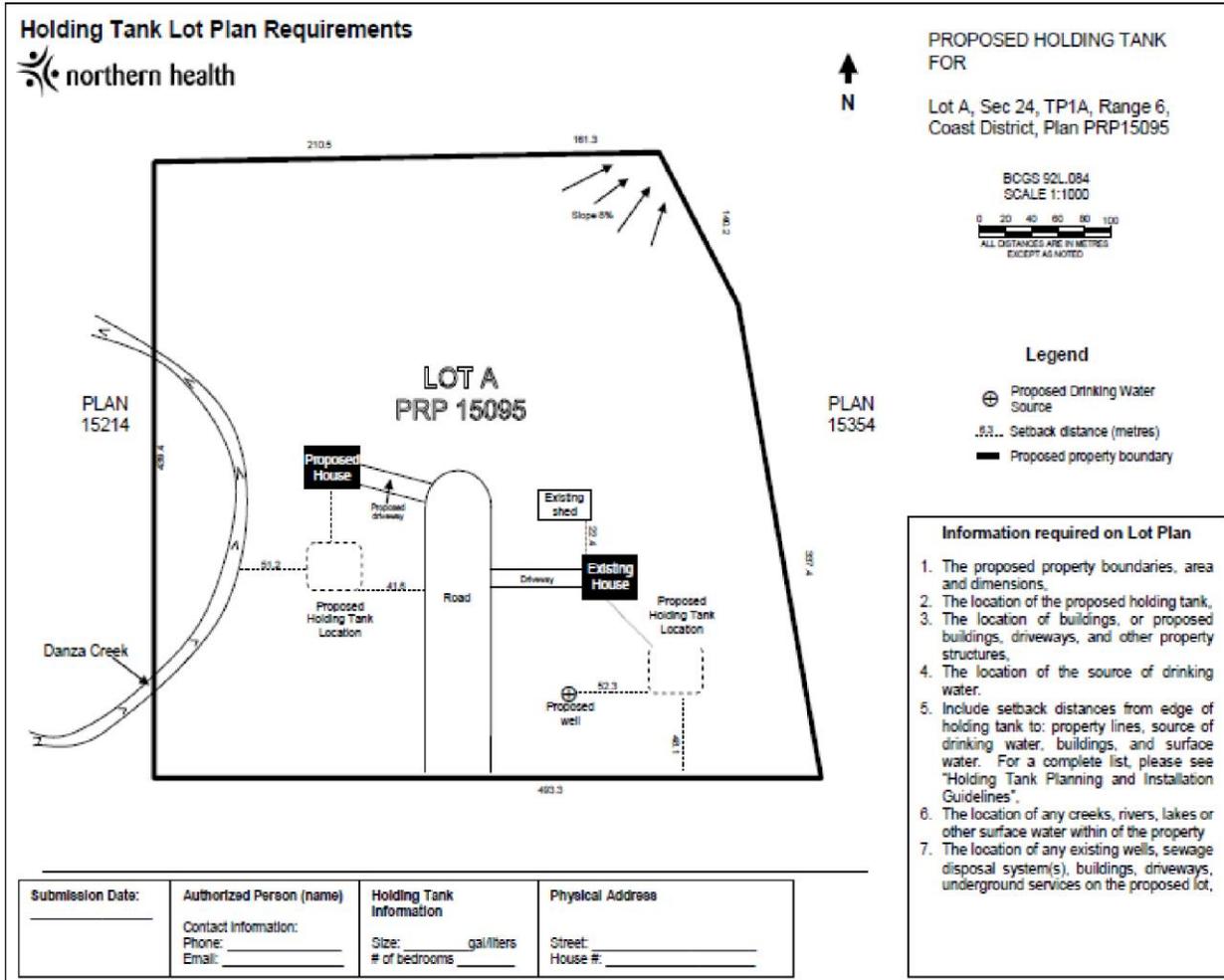
Under no circumstances is sewage from a holding tank to be discharged onto the surface of the ground or into groundwater or surface water(s).

6. Large Flow Holding Tanks- Additional Considerations

All holding tanks fall under jurisdiction of the [B.C. Sewerage System Regulation](#), regardless of their daily design flow (DDF). Holding tanks designed to handle the flow from multiple connections/dwellings, industrial camps, or other industrial uses which produce more volume of discharge than a single family dwelling will need to meet the following additional requirements:

- A written agreement with the sewage treatment facility where the sewage will be disposed of must be included with each application. It must clearly state that the facility can accept the DDF for the duration of the operation plus a minimum 6 month buffer.
- Application must be prepared, stamped, and signed by an Authorized Person.
- Ensure the holding tank capacity is at least seven times the estimated daily sewage flow unless a clearly written plan is provided to explain how a smaller storage capacity will be managed. **Note** that with very high daily sewage flow it is unlikely that the holding tank capacity will allow for seven days of storage, so the Maintenance Plan must be thorough and include emergency response measures. The plan should also include a waste water hauling contract, specifying the hauling frequency, expected daily sewage flow, and the estimated distance from the camp to receiving facility to ensure there is a hauler available at all times throughout the duration of the camp operation that can manage this volume of effluent.
- Include alarm information in the Maintenance Plan. The alarm shall be connected to the water supply pump switch to automatically shut off the pump when the sewage level is 90% of the tank capacity.

Appendix A – Example Of A Site Plan



Appendix B – Tank Marking

CAN/CSA Standard (as of March 05, 2015)

Source: CSA Group Class Number 6921-01 Plumbing Fixtures – Septic and Sewage Holding Tanks for Plumbing Systems

TANK MARKING:

Each tank shall be permanently marked, legible and readily visible and located on top of the tank near the access opening or at the end of tank near the inlet. In addition, the inlet and outlet shall be marked to indicate the direction of flow. The marking or label shall include the following:

- manufacturer's name or trademark;
- the last two digits of the year of manufacture;
- the working capacity of the chambers (in litres);
- the volume of the chamber(s) per centimeter of depth, expressed in liters;
- the type of tank, i.e., sewage holding tank (H), trickle-type septic tank (T), septic tank with siphon (S), septic tank with pump (P), effluent chamber with siphon (ES), or effluent chamber with pump (EP);
- the maximum burial depth for which the tank is designed, expressed in metres;
- the liquid depth of the septic tank if less than 1200 mm, expressed in millimeters;
- for a concrete tank, a marking to indicate whether it is suitable for sulphate or nonsulphate soils, i.e., "SUL" or "NON-SUL";
- " above ground installation not permitted " or " AGINP " (**where applicable**); and
- the CSA monogram.

Tank marking shall also include a permanent warning advising against entry into the tank and the word "DANGER". The warning shall be in English and French and shall be located on the access opening lid(s), applied at the factory.