

CONSTRUCTION OF BUILDINGS ON FORMER LANDFILL SITES

- Authority: Building By-law 7258
- Covers: All persons required to obtain a Building Permit and/or a Development Permit for the construction of a building within Brandon on or within 400m of a landfill.
- Effective: November 15, 2022
- Purpose: Landfill gas has the potential for long-term impacts which may result in potential human health or ecological effects as well as risk associated with the explosive properties of methane and other landfill gases.
- The purpose of this regulation is to establish consistent direction to staff and the public with respect to the construction of buildings or additions on or within 400m of an active or abandoned landfill. This policy only applies to new construction, including additions, to ensure consistent approval for construction of a building or addition on or within 400m of a landfill and to provide public information that promotes awareness of land use development.
- Author: Murray Fischer, Manager of Building Safety and designated Authority Having Jurisdiction with respect to the Building By-law

1. **Definitions**

- (a) Unless otherwise expressly provided or unless the context otherwise requires, words and expressions in this Regulation have the same meaning as the same words and expressions in the Building By-law.
- (b) In this Regulation:
- (1) “Authority Having Jurisdiction” means the Building Safety Manager of the Planning Property & Building Department, being the City’s designated agent in accordance with section 130 of The Municipal Act.
 - (2) “Building” means anything constructed or erected with a fixed location or in the ground or attached to something having a fixed location on the ground and including any interpretation of the terms in the Code, other than a structure used in the operation or maintenance of a waste management facility.
 - (3) “Landfill Sites” means all sites identified on the most current edition of the Landfill Sites Atlas showing the approximate location of suspected and confirmed former landfill sites and the location of existing landfill sites within the City’s boundaries. Said landfill sites being used for the disposal of residential, commercial, institutional, and industrial wastes.

- (4) “Permanent Monitoring Well” is a device for the monitoring of methane gas consisting of a slotted PVC well pipe, fiberglass sock, and connections and outside metal casing as shown in detailed *Drawing No. 1* of this regulation.
- (5) “Owner” means the registered owner of land, property or premises whose estate or interest in the land is defined and who is named in respect of that interest, and includes any agents acting in interest of the owner including any developer, and/or builder, or any other person appointed by the owner to act on their behalf.
- (6) “Professional Engineer” means an engineer or firm licensed by the Engineers Geoscientists Manitoba to practice in the province of Manitoba and skilled in the appropriate section of work concerned.
- (7) “Report” means a Preliminary Methane Soil Vapour Assessment (PMSVA) prepared by a Professional Engineer.
- (8) “Save Harmless Agreement” means an agreement between the owner and the City of Brandon that lists specific criteria for the development within the designated methane zone and protects the City from future litigation. Any such agreement shall be binding upon all present and future owner of the lands.
- (9) “Suspected Landfill Site” means any building site or parcel of land which the City of Brandon has determined may contain a former landfill site.
- (10) “Test Probe” means either a driven or an open bore hole tested for the presence of methane by use of an explosive meter as shown in detailed *Drawing No. 2* of this regulation.
- (11) “Zone 1” means the former or current landfill site.
- (12) “Zone 2” means area from the outer perimeter of Zone 1 to a distance of 75 metres from said perimeter.
- (13) “Zone 3” means the area from the outer perimeter of Zone 2 to a distance of 150 metres from the outer perimeter of Zone 1.
- (14) “Zone 4” means the area from the outer perimeter of Zone 3 to a distance of 400 metres from the outer perimeter of Zone 1.

2. Save Harmless Agreement

- (a) Any owner wishing to construct a building within Zones 1, 2 or 3 shall be required to enter into a Save Harmless Agreement with the City of Brandon prior to the issuance of a development or building permit.

3. Development within Zones 1 and 2

- (a) The construction of any building within Zones 1 and 2 requires, at the expense of the owner, a full report and development proposal prepared by a Professional Engineer, acceptable to the Authority Having Jurisdiction. The report and development proposal shall include preliminary test probe

results, proposed location of permanent monitoring wells which are to be integrated into all structural designs for the proposed sites, and provide for maintenance of structural designs. The City of Brandon will conduct periodic ongoing monitoring of the monitoring wells, at the City's expense and should an indication of methane gas be discovered the City of Brandon the right to order inspections by the Building & Safety Manager or the Fire Inspector or both.

- (b) All construction within Zones 1 and 2 shall include a system to deal with any potential generation or migration of methane gas prepared by a Professional Engineer, and shall be approved by the Authority Having Jurisdiction.
- (c) Depending on the report and development proposal prepared by the Professional Engineer, construction of any building on the site may be prohibited by the Authority Having Jurisdiction.
- (d) Upon completion of construction and prior to occupancy, the Professional Engineer is required to submit to the Authority Having Jurisdiction, a letter certifying that the building has been constructed in accordance with the approved drawings and specifications and requirements of the Manitoba Building Code, Manitoba Fire Code, this Regulation and any other applicable codes and regulations.

4. Development within Zone 3

- (a) The construction of any building within Zone 3 requires, at the expense of the owner, one of the two following;
 - (1) Follow the prescribed actions described within Section 3 of this regulation, or
 - (2) Include as part of the design, a sub-slab depressurization system rough-in consisting of
 - i) Clean granular material installed below the floor-on-ground consisting of not less than 100mm of coarse clean granular material containing not more than 10% of material that will pass a 4 mm sieve,
 - ii) A minimum 15 MIL geomembrane impervious barrier that meets or exceeds ASTM E1745 Class A, B & C— *Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs* shall be installed immediately below the concrete slab, and
 - iii) A 100mm solid pipe that penetrates the floor-on-ground that extends vertically above the floor level not less than 300mm, in a room containing no ignition source, open flame or gas appliance installed such that
 - a. Its bottom end opens below the floor-on-ground at or near the center of the floor,
 - b. Its top end permits connection to depressurization equipment and is provided with an airtight cap, and

c. The pipe is clearly labelled at or near the cap.

5. Development Within Zone 4

(a) Any development within this area would be at the discretion of the owner.

6. Required Inspections

(a) The owner is required to arrange for the City of Brandon Building Department to inspect the sub-slab membrane and depressurization system described in 4(a)(2) prior to being covered.

7. Landfill Sites

(a) Confirmed and suspected landfill sites, including buffer zones and monitoring well locations shall be identified and mapped in an atlas of former and current landfill sites developed by the Department of Engineering.

(b) The boundaries of buffer zones pursuant to 1(b)(10, 11, 12 & 13) may vary upon consultation with an Environmental Engineer.

(c) The City may consult with an Environmental Engineer to review the location and risk of suspected former landfill sites in accordance with the following indicators:

- (1) Historical Research
- (2) Testing Levels
- (3) Risk Assessment

(d) Upon recommendation from the Environmental Engineer described in Clause C, the sites may be removed from the inventory as approved by the Authority Having Jurisdiction.

8. Responsibilities

(a) The owner shall be responsible for the following:

- (1) To execute a Save Harmless Agreement, which shall be prepared by the City of Brandon prior to the issuance of a development or building permit.
- (2) To submit to the City of Brandon certified drawings, stamped by a Professional Engineer skilled in the appropriate section of the work concerned, at the owner's expense, showing the design specifications are in compliance with this regulation, the Manitoba Building Code, the City of Brandon Building By-Law and any other applicable codes and standards.
- (3) To assume all costs associated with the installation of soil gas barriers and sub-surface soil gas depressurization systems.
- (4) To submit to the City of Brandon a letter from the Professional Engineer stating that the building has been constructed in accordance with the approved drawings and specifications and

requirements of this regulation, the Manitoba Building Code, the Manitoba Fire Code and any other applicable codes and standards.

- (b) The City of Brandon shall be responsible for the following:
- (1) To establish a priority list for testing of suspected landfill sites.
 - (2) To establish a procedure for the elimination of suspected landfill sites.
 - (3) To ascertain the existence, if any, of methane gas either due to generation on or mitigation in, upon, or under such former landfill sites as can be determined in accordance with this regulation.
 - (4) To develop and maintain a Landfill Sites Atlas in which to map identified landfill sites.
 - (5) To establish an inventory of all permanent monitoring wells, whether they are within structures or not, and establish a schedule for testing and logging of the results of such testing.
 - (6) To assume all costs associated with the monitoring the permanent monitoring wells on lands to be assessed as a landfill site.
 - (7) To ensure the owner has completed their responsibilities in accordance with Sections 3 and 4 of this regulation prior to the issuance of a development permit, building permit, or occupancy certificate.

Related Information:

Manitoba Sustainable Development Policy on the Construction of Buildings
on or Within 400m of a Landfill
Building By-law 7258
The Building and Mobile Homes Act, C.C.S.M. 1987, c.B93
The Manitoba Building Code
Compliance By-law 7198

Conflict: Where there is a conflict or inconsistency between this Regulation and provisions contained within a statute or regulation of the Government of Canada or the Province of Manitoba, the Federal or Provincial statute or regulation shall supersede those impacted provisions of this Regulation.