



City of Vernon

**FLOODPLAIN
MANAGEMENT
BYLAW**

5896

THE CORPORATION OF THE CITY OF VERNON

BYLAW 5896

A bylaw to regulate development in and around floodplain areas

WHEREAS the City of Vernon may enact a floodplain management bylaw pursuant to Section 524 of the *Local Government Act* where it considers that flooding may occur on land;

AND WHEREAS the City of Vernon is in possession of Provincial Guidelines, maps and other documents that identify areas which may be subject to flooding in addition as well as the maps, reports and studies defined as the "Reference Documents" that identify areas which may be subject to flooding;

NOW THEREFORE, the Municipal Council of the City of Vernon enacts as follows:

1.0 TITLE

This Bylaw may be cited as the "City of Vernon Floodplain Management Bylaw 5896, 2022"

2.0 APPLICATION

2.1 This Bylaw shall apply to all persons who

- (a) construct, reconstruct, move, extend or locate a Building, manufactured home or unit, modular home or structure or any part of them on land within the areas as 'Floodplain' as specified in Section 5.1 of this Bylaw; or;
- (b) subdivide land within the floodplain.

2.2 Nothing in this Bylaw shall preclude anyone from complying with the provisions of any other local, provincial, or federal enactment.

2.3 An enactment referred to in this Bylaw is a reference to statute of British Columbia or Canada, and the regulations thereto, and any bylaw referred to herein is a reference to an enactment of the Council of the City of Vernon, as amended, revised, consolidated, or replaced from time to time.

3.0 ADMINISTRATION

- 3.1 No Building or Structure or part of a Building or Structure shall be constructed, reconstructed, altered, moved or extended by the owner, occupier or other person so that it contravenes the requirements of this Bylaw.
- 3.2 No parcel shall be created through subdivision unless it can be proven to the satisfaction of the City Representative that the lot can be developed in accordance with this Bylaw.
- 3.3 The City Representative, Building Inspector, Bylaw Enforcement Officer or other persons appointed by the City may enter at all reasonable times on any property to which this Bylaw applies to inspect and determine whether the regulations, prohibitions and requirements of this Bylaw are being met.
- 3.4 A City Representative, Building Inspector or Bylaw Enforcement Officer who observes a contravention of this Bylaw may issue applicable notices and orders to any owner, occupier or other person who appears to have committed or allowed the contravention.
- 3.5 No person shall prevent or obstruct a City Representative, Building Inspector or Bylaw Enforcement Officer from performing his or her duties under this Bylaw.
- 3.6 A person who contravenes a regulation or requirement of this Bylaw commits an offense, is punishable on summary conviction, and is liable to a fine not exceeding \$50,000.00, and not less than \$200.00, plus the costs of prosecution.
- 3.7 Each day during which a violation is continued shall be deemed to constitute a new and separate offense.
- 3.8 If any section, subsection, sentence, clause or phrase of this Bylaw is for any reason held to be invalid by the decision of any court of competent jurisdiction, the invalid portion shall be severed and the decision that it is invalid shall not affect the validity of the remainder.
- 3.9 By the enactment, administration or enforcement of this Bylaw, the City of Vernon does not represent to any person that any Building or Structure, including a mobile home, located, constructed or used in accordance with the regulations and requirements of this Bylaw or in accordance with any advice, information, direction and guidance provided by the City in the course of the administration of this Bylaw will not be damaged by flooding.

4.0 DEFINITIONS

For the purposes of this Bylaw, the following definitions apply:

BUILDING means any structure used or intended for supporting or sheltering any use or occupancy.

BUILDING INSPECTOR means a person appointed, employed or contracted from time to time by the City of Vernon in the capacity of a Building Official. The terms “Building Inspector” and “Building Official” can be considered interchangeable within this document.

BYLAW ENFORCEMENT OFFICER means a person appointed, employed or contracted from time to time by the City of Vernon in the capacity of a bylaw enforcement officer.

CITY means The City of Vernon.

DESIGN FLOOD means a flood event selected for establishing design criteria and defined by some form of magnitude (generally including flow or water level) and often associated probability of occurrence. The specific design flood events used for Vernon Creek, B.X. Creek and Okanagan Lake are further defined within the Flood Mapping.

DESIGN FLOOD LEVEL means the observed or calculated elevation for the Design Flood and other relevant factors such as climate change effect and/or wave effect which is used in the calculation of the Flood Construction Level.

EGBC means the Engineers & Geoscientists of British Columbia.

FLOOD CONSTRUCTION LEVEL means the Design Flood Level plus the allowance for freeboard.

FLOOD MAPPING means the following reports, documents, and maps in their entirety:

- “City of Vernon: Detailed Flood Mapping, Risk Analysis, and Mitigation, Part 1,” prepared by Northwest Hydraulic Consultants Ltd., dated August 25, 2020;
- “City of Vernon: Detailed Flood Mapping, Risk Analysis, and Mitigation, Part 2,” prepared by Northwest Hydraulic Consultants Ltd., dated October 29, 2021;
- “Okanagan Mainstem Flood Mapping”, prepared by Northwest Hydraulic Consultants Ltd., dated March 31, 2020; and

- “Flood Hazard Development Permit Map”, prepared by the City of Vernon, dated July 12, 2022

FLOODPLAIN means the land adjacent to a waterbody that may be submerged by floodwaters, in this case during the Design Flood. The Floodplain as it relates to this document is designated according to Section 5.1 Floodplain Designation.

FLOODPLAIN SETBACK means the distance from the Natural Boundary of a water body or existing dike in which development should be prohibited or restricted to limit local flood risk, limit transfer of risk to adjacent properties, and provide sufficient space for existing or future flood protection (e.g. dikes).

FLOODWAY means an area at risk from a flood event that is expected to substantially contribute to flow conveyance and or experience high velocity or large depth of inundation or during a flood. The Floodway generally encompasses all active channels plus overbank areas and relic channels where velocities are estimated to be greater than 1 m/s and /or depths greater than 1m.

FREEBOARD means a vertical offset from the water surface calculated for the Design Flood event to account for local variations in water level and uncertainty in the underlying data and analysis.

HABITABLE AREA means any room or space within a Building or Structure that is or can be used for human occupancy, commercial sales, or storage of goods, possessions or equipment (including furnaces) which would be subject to damage if flooded.

INUNDATION EXTENT means the area submerged when water level is at the Flood Construction Level.

NATURAL BOUNDARY means the visible high watermark of any lake, river, stream or other body of water where the presence and action of the water are so common and usual and so long continued in all ordinary years as to mark upon the soil of the bed of the lake, river, stream or other body of water a character distinct from that of the banks, in vegetation, as well as in the nature of the soil itself.

NATURAL GROUND ELEVATION means the undisturbed ground elevation prior to site preparation.

PAD means a graveled or paved surface on which blocks, posts, runners or strip footings are placed for the purpose of supporting a mobile home or unit or a concrete pad for supporting a Habitable Area.

PROFESSIONAL PRACTICE GUIDELINES mean the *Professional Practice Guidelines, Natural Hazards, Legislated Flood Assessments in a Changing Climate in BC, using the latest version* by the Engineers & Geoscientists of British Columbia.

QUALIFIED PROFESSIONAL means a person who is registered or licensed under the provisions of the Professional Governance Act and is qualified to operate in the applicable field of study.

SELF SUPPORTING DECK is a structure that does not contain a residential occupancy and is built independently from another Building, as shown in Figure 1.

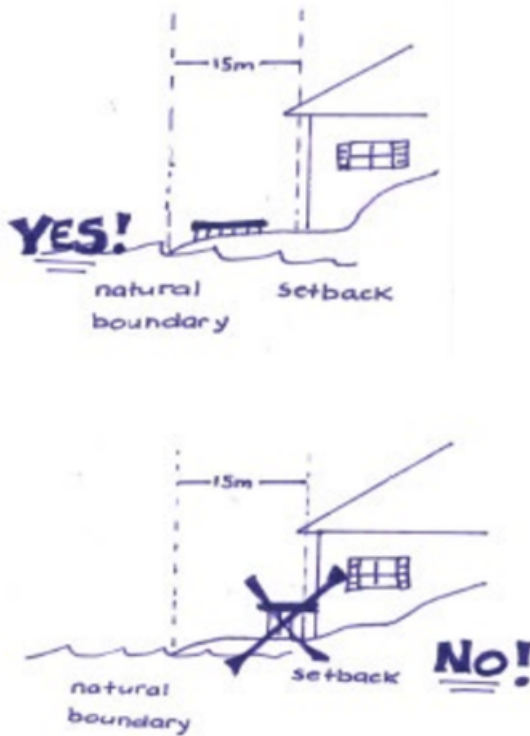


Figure 1- Deck examples: acceptable vs. unacceptable

STANDARD DIKE means a dike built to a minimum crest elevation equal to the flood construction level and meeting standards of design and construction approved by the Province and maintained by an ongoing authority such as a local government body or a diking authority under the Dike Maintenance Act or successor legislation.

STRUCTURE means a construction or portion thereof of any kind, whether fixed to, supported by or sunk into the land or water, specifically including retaining structures of any size directly connected to a Building or other structure but specifically excluding landscaping, fences, signs and paving.

TOP OF BANK: when referenced in the Flood Mapping, Top of Bank will be interpreted as the Natural Boundary.

5.0 FLOODPLAIN DESIGNATION

5.1 The Floodplain is designated as any land shown within the Inundation Extent, Shoreline Zone, Floodway, Flood Fringe, or recommended Floodplain Setback within the Flood Mapping. Figure 2 depicts a typical floodplain cross-section.

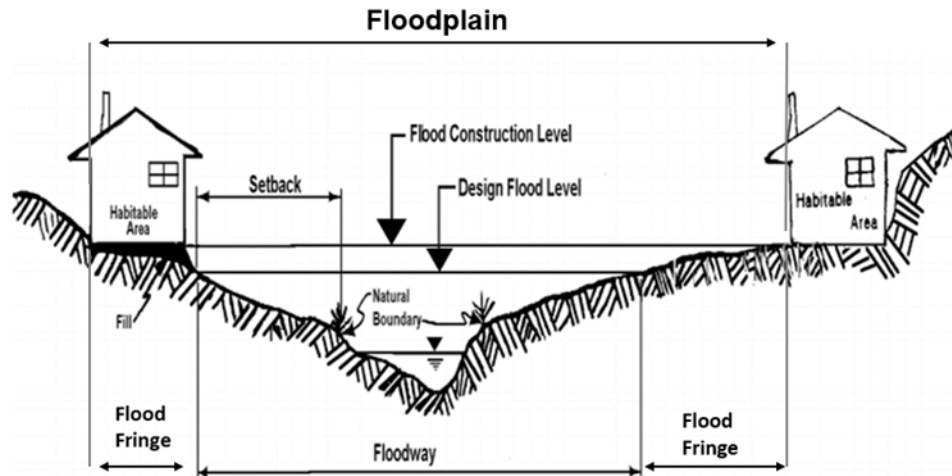


Figure 2- Cross-Section of a Typical Floodplain

Note: This diagram is provided for illustrative purposes only (source: adapted from British Columbia Ministry of Environment)

6.0 FLOODPLAIN SPECIFICATIONS

6.1 Flood Construction Levels are specified in the Flood Mapping with the following conditions:

- a. where more than one Flood Construction Level is applicable, the higher elevation shall be the specified Flood Construction Level;
- b. the Flood Construction Level for a specific parcel shall be determined as the highest upstream Flood Construction Level.

6.2 Floodplain Setbacks for Vernon Creek and B.X. Creek shall be applied as follows:

- a. where more than one Floodplain Setback is applicable, the greater distance shall apply;
- b. the Floodplain Setback will be measured from the Natural Boundary.

7.0 FLOOD PROTECTION REQUIREMENTS

7.1 Development of any lands within the designated Floodplain must conform to the following requirements:

- a. No Building, manufactured home or unit, modular home or structure or any part thereof shall be constructed, reconstructed, moved, extended or located with the underside of a wooden floor system or top of concrete slab of any area used for habitation, business, or storage of goods damageable by floodwaters, or in the case of a manufactured home or unit the ground level or top of Pad on which it is located, lower than the Flood Construction Level specified in Section 6.1 of this Bylaw.
- b. Any enclosed space below the FCL must have safe egress to a location above the FCL or to ground level with flooding up to the FCL. Safe egress must be possible without relying on electrical power.
- c. No landfill, or structural support required to support a floor system or Pad, shall be constructed, reconstructed, moved, extended or located within the Floodplain Setback or Floodway as specified in the Flood Mapping.
- d. Unless specifically provided for elsewhere in this Bylaw, no area below the Flood Construction Level shall be used for the installation of furnaces, major electrical switchgear, or other fixed equipment susceptible to damage by floodwater.
- e. Structural support or compacted fill or a combination of both may be used to elevate the underside of the floor system or the top of the Pad above the Flood Construction Level. The structural support and/or fill shall be protected against scour and erosion from flood flows, wave action, ice and other debris.
- f. Unless a Building is situated on lands with a Natural Ground Elevation above that as the specified Flood Construction Level or greater, basements shall be prohibited and crawl spaces shall not exceed 1.2 metres (4 feet) in height to the underside of the floor joists.
- g. The Building foundation shall be constructed to withstand the hydrostatic forces during inundation up to the Flood Construction Level.
- h. When a building permit is applied for on a parcel with frontage on Okanagan Lake, the Building Official shall request a structurally engineered foundation or geotechnical report if any part of a footing up to and including the level of a slab, or portion of the foundation is intended by its design to be submersible or subject to water fluctuation or wave action. A covenant shall be placed on Title noting such

structure may be subject to damage by water.

- i. The Building Inspector may require, at the cost of the owner of a parcel for which a building permit is applied for, a British Columbia Land Surveyor's certificate to verify compliance with the Flood Construction Levels and Floodplain Setbacks as specified in this Bylaw.

Where any portion of a parcel to be developed contains areas designated by the Reference Documents to be within the Floodway, Floodplain, Floodplain Setback, or Inundation Extent, the Building Inspector may require, at the cost of the owner of a parcel for which a building permit is applied for, that a Qualified Professional complete a flood hazard assessment in accordance with the Professional Practice Guidelines.

8.0 GENERAL EXEMPTIONS

8.1 The following types of Buildings, Structures or developments are exempted from the Flood Construction Levels specified in this bylaw, subject to conditions specified as follows (Note: these types of developments are not exempted from the Floodplain Setbacks):

- a. A renovation of an existing Building or Structure that does not involve an addition thereto, or that involves an addition that increases the building footprint at the original non-conforming elevation by no more than 25% of the surface area existing as of (the date of bylaw adoption).
- b. That portion of a Building or structure to be used as a carport, garage or entrance foyer, porches, domestic greenhouses and storage buildings not used for the storage of goods damageable by floodwaters, provided there is an unobstructed means of ingress and egress above the Flood Construction Level.
- c. Parking areas, including enclosed underground parking areas, except that in the case of an enclosed underground parking area, an unobstructed means of pedestrian ingress and egress must be provided above the flood level, and a sign must be posted at all points of entry notifying users that the parking area is not protected from inundation by floodwaters.
- d. Recreation shelters, stands, campsite washhouses and other outdoor facilities susceptible to only marginal damage by floodwaters.
- e. Farm buildings other than dwelling units, closed-sided livestock housing and buildings not containing hazardous commodities such as herbicides, pesticides, fuel and products with similar negative environmental impacts.
- f. On-loading and off-loading facilities associated with water-oriented

Industry and portable sawmills.

8.2 The following development is exempt from both the Floodplain Setbacks and the Flood Construction Levels specified in this bylaw:

- a. Self-Supporting Deck or Boathouse that is not:
 - i. used for Habitable Area and the land owner has registered a covenant in favour of the Province and the City of Vernon restricting the deck or Boathouse from being used as a Habitable Area;
 - ii. structurally attached to a Building, manufactured home or other Structure.

9.0 SITE SPECIFIC EXEMPTIONS

9.1 Notwithstanding the above, the Director of Community Infrastructure and Development Services, or their authorized designate, may grant a site-specific exemption with respect to the setback requirements or elevation requirements elsewhere in this Bylaw where:

- a. a Qualified Professional has submitted a site-specific Flood Assessment Report, consistent with Provincial Guidelines and EGBC Professional Practice Guidelines, and supplemented with a Flood Assurance Statement as specified in EGBC Professional Practice Guidelines, that certifies that the property can be safely used for the intended use and that protection from the corresponding Design Event can be achieved through an engineered design without reliance on a dike; and
- b. the owner enters into a Section 219 Covenant absolving the City of Vernon of any liability with respect to the flooding of the property or flood damage to land, structures and contents thereof.

10.0 SEVERABILITY

10.1 If any section or lesser portion of this Bylaw is held invalid, it shall be severed and the validity of the remaining provisions shall not be affected.

BYLAW 5896

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READ A FIRST TIME this 18th day of July, 2022
READ A SECOND TIME this 18th day of July, 2022
READ A THIRD TIME this day of , 2022
ADOPTED this day of , 2022.

Mayor:

Corporate Officer: