LOWER TRENT
CONSERVATION

APPENDIX E

FLOODPROOFING STANDARDS

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F-1. Minimum Elevations for Dry Floodproofing

Feature	Minimum Elevations
Opening into Structures	Regulatory Flood + 0.3 metres
Crawlspace Floor (not used for habitation)	Regulatory Flood - 1.0 metres
Fill placed around buildings & structures	Regulatory Flood
Electrical & heating equipment	Regulatory Flood + 0.3 metres
1st Floor (main) for habitation	Regulatory Flood + 0.3 metres
Access Roads	Regulatory Flood - 0.3 metres
Parking	Regulatory Flood - 0.3 metres

F-2. Requirements for Wet Floodproofing

The concept of wet floodproofing is to intentionally flood a building for the purposes of balancing internal and external forces during a flood event. Wet floodproofing is NOT supported for habitable structures. General requirements are shown below:

- At least two opening located on opposite sides of the building
- Elevation of openings not to be less than 150 mm (6”) below grade
- Area to be flooded to non-habitable and remain unfurnished
- Mechanical and electrical equipment, heating units and duct work to be located 0.3 metres above flood elevation
- Sump pump is to be installed and in operating order at all times

F-3. Protection of Non-Habitable Detached Shelter Structures

Flood protection for Non-Habitable detached shelter structures requires that the following conditions are met. Examples of these types of structures includes but is not limited to: pergolas, picnic shelters, sun shades.

- The structures do NOT have walls
- Vertical supports are spaced 2.5 metres apart or more

- Floor elevation is at grade
- Electrical services are to be located 0.3 metres above the flood elevation
- Buildings are anchored

Note: These requirements do not apply to temporary shelter structures (i.e. seasonal gazebos or car shelters) as they would not be subject to permitting requirements under Ontario Regulation 163/06.

F-4. Fill

The minimum elevation of fill around habitable buildings and structures is the Regulatory Flood.

Fill around buildings and structures shall be impermeable materials (except for 0.3 metres around foundation footings and walls).

Fill material used under a structure and around the foundation footings and walls shall be granular and free draining and shall be 0.3 metres thick.

Fill around buildings and structures must not contain foreign materials (e.g., concrete slabs, rocks, wood, etc.) for the first 2 metres around foundation walls and it must be placed in compacted layers.

The area under buildings and structures shall be cleared of all debris and organic matter before fill material is placed.

Fill used to support buildings and structures shall be free of all debris and organic material.

The minimum horizontal distance from the footings to the top of the fill slope shall be 4 times the depth and shall be a consistent depth.

The slope of the fill shall be a maximum of 3 horizontal units to 1 vertical unit and erosion protection shall be provided if required.

F-5. Foundation Design

The foundation design shall satisfy all the requirements of the Ontario Building Code.

The foundation design shall withstand all hydrostatic pressures.

F-6. Electrical, Mechanical and Heating Services

The minimum elevation of such services shall be the Regulatory Flood plus 0.3 metres.

Any electrical conduits in a basement shall be separate from the remainder of the structure's so they can be shut off if flooded (i.e. Ground fault circuit breakers).

All heating units shall be located 0.3 metres above the Regulatory Flood elevation.

All equipment installed below the Regulatory Flood elevation shall be of the submersible type.

All sanitary and storm sewage lines shall have automatic backwater valves installed and pipes that will withstand backflow pressures.

All sump pumps shall have the capacity to handle total infiltration flows. The sump discharge shall be above the Regulatory Flood Level.

All fuel tanks shall be anchored to prevent flotation.

F-7. Elevated Structures

The minimum elevation for the first floor shall be the Regulatory Flood plus 0.3 metres.

There shall be no habitable space below the Regulatory Flood elevation.

All exposed columns, walks and piers shall be aligned parallel to the expected flow of water and shall be spaced at least 2.5 metres apart. Nothing shall be constructed between these columns, walls or piers.

Access to the structure shall be safe.

The effect of floating materials, waves, debris and ice on the structure must be investigated and provision made for its protection against these materials.

F-8. Professional Design

As required, based on depth and velocity considerations or with regards to other identified hazards, all buildings and structures to be situated in a hazard land area, including those placed on fill, may be required to be designed by a qualified professional engineer or architect.

F-9. Erosion Hazards

Development proposed in or adjacent to an area identified as being subject to an erosion hazard shall be protected from the hazard by acceptable engineering principles. Technical studies by geotechnical engineers, coastal engineers and/or fluvial geomorphologists may be required to support the proposed development.