SCHEDULE G

Flooding and High-Water Guide



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Background

Natural forces like rain, snow, ice cover, temperature and evaporation are the biggest factors of water levels in the Great Lakes.

Chart data shows that Lake Huron water levels have dropped by 16 inches as of January 3, 2020.

During the past few years, flooding has been a common occurrence in Ontario. Although flooding can occur at any time of year, the most severe floods typically occur in the spring from the influences of heavy rain, combined with the snowmelt runoff. There is a greater risk of significant flooding in this circumstance; however, weather conditions will determine the severity. Provincial flood experts continually monitor river and stream levels and relay this information to local governments, who in turn advise their residents.

If you live in an area subject to flooding or are experiencing high water, you can take steps right now to minimize property damage and personal risk. Start by being aware of your responsibilities, being mindful of local conditions and knowing where to go for information well before disaster strikes.

Additional information and resources about personal emergency preparedness, flood safety, links to current river level information and weather reports are available at the Emergency Management Ontario website.

About Floods

A flood is defined as an overflow or inundation of water from a river or other body of water, which causes or threatens loss of life and property and environmental damage.

The severity and frequency of flooding are influenced by:

- Extreme rainfall
- Rapid snowmelt
- Storms and high winds
- Soil conditions
- Ice jams, especially during winter mild spells and spring thaw

Locally Issued Flood Messages

Issued by the Ministry of Natural Resources and Forestry (MNRF) districts and conservation authorities.

Flood Message Definitions

Provincial flood messages

There are 2 types of provincial flood messages:

- The Provincial Flood Watch, which provides consistent and timely technical information about the potential for flooding
- The Provincial Watershed Conditions Statement, which provides information on provincial watershed conditions as they relate to flood potential, and an outlook on expected spring flood conditions

Local flood messages

There are 3 types of local flood messages:

- Flood warning: flooding is imminent or already occurring

- Flood watch: there is the potential for flooding
- Watershed conditions statements: flood outlook (an early notice of the potential for flooding based on heavy rain, snowmelt, etc.) and water safety information.

Who to Contact for Flood Information?

The Ministry of the Environment, Conservation and Parks is responsible for local flood messaging.

Your local municipality is responsible for on-the-ground flood response.

If you live in a community that is not serviced by a conservation authority, any flood watches or flood warnings in your area are issued by the nearest Ministry of Natural Resources and Forestry district office. The Municipality's flood watches or warnings are issued by the MNRF. Further information is available at the Government of Ontario's Flood Forecasting and Warning Program website.

If You Are Outdoors When Water Starts Rising

Do not walk through moving water. Six inches of moving water can make you fall. If you have to walk in water, walk where the water is not moving. Use a stick to check the firmness of the ground and the depth of water in front of you.

Be aware that flash flooding may occur. If there is any possibility of a flash flood, move immediately to higher ground. Do not wait for instructions to move.

Keep children away from floodwater.

Preparing for Possible Flooding in Your Area

Flooding may occur in the area where you live, and although your home may not be immediately affected, you may be cut off from outside resources (phone, electricity, safe drinking water, road access) and even some members of your household.

You should have in place at all times:

- An emergency plan that every household member knows. The plan should include information on how to shut off electrical power and gas sources, safe meeting places out of the flood risk area, an out-of-province contact, plans for pets and livestock, and a neighbourhood safety plan that identifies people who may need extra help.
- An emergency supply kit containing food, water, necessary medications, flashlights and batteries, personal toiletries, identification for each family member, some cash and any important family documents. Be prepared to be on your own for at least 72 hours, possibly longer.
- A battery-powered or wind-up radio that allows you to access weather warnings and disaster instructions from local radio stations.

- A plan for protecting your home and the tools and items you may need to do so (wrenches for shutting off valves, plastic sheeting, or sandbags).
- A full gas tank in your vehicle.

Floodproofing Your Home

If your home is threatened, it is important not only to be prepared for the first line of flooding, but to make as many preparations as possible for the return to normal living once the flood has subsided. If there is time, some of the following tips will help to minimize flood damage:

General

- Move outdoor furniture inside and relocate any essential personal effects that could be damaged by flooding or which could float and cause damage.
- Buoyant materials and items located in the basement should be removed to lessen the potential for damage to first-floor components of the structure should the basement flood.
- Dangerous chemicals such as weed killers, insecticides, and corrosives should be removed to dry areas to reduce the dangers of chemical contamination, fires, explosions, and personal injuries.
- If time allows, move all vehicles, recreational vehicles, farm equipment, and other modes of transportation with gasoline or diesel engines to high ground.
- Buoyant materials and items outdoors should be moved to non-flood areas, stabilized or securely fixed in place, as necessary.

Fire Safety and Power Outages

The Office of the Fire Marshal offers the following fire safety tips if power outages occur during a flood:

- To reduce the risk, use flashlights, glow sticks, or battery-operated lanterns instead of candles.
- If using candles, place them in a secure holder and cover with a glass chimney, away from children and pets.
- Make sure electric stove elements and small appliances are off or unplugged to prevent fires from occurring when the electricity is restored.
- Propane and charcoal barbecues are for outdoor use only. Do not bring them inside.
- Make sure your home has battery-operated smoke alarms and carbon monoxide alarms. Electrically connected smoke alarms and carbon monoxide alarms will not work when the power is out unless they have battery back-ups.
- Use only portable space heaters that have been designed for indoor use. Provide adequate ventilation and refuel the heater outside when required.

- Portable generators should only be used outdoors and carefully located to ensure that exhaust fumes do not enter the home.

Electrical

- If there is enough advance warning, homeowners should get professional help or advice if planning to move larger appliances of any kind. There are established procedures for doing this safely.
- Portable electric appliances such as kitchen blenders and mixers, as well as power tools, must be kept dry or not operated until completely dried, cleaned, and overhauled.
- Radios, televisions, stereo systems, and other home electronic systems should be moved above the flood level. Repairs to such items following submersion is not practical.
- Shut off electrical power at the main switch to your house. If the room is already flooded, do not attempt to turn off the power.
- Electrical equipment impacted by flood water can be extremely dangerous. For further information about electrical safety during floods, visit the Electrical Safety Authority's website.

Water and Sewage

- If you plug the basement sewer, be sure to remove the toilet bowl from any basement bathroom and plug that sewer drain securely as well.
- Prevent illness by understanding that drinking water may become contaminated. Listen for boil water advisories or other safety instructions from emergency officials.

Oil and Propane

- An oil tank will float if it isn't full. Stabilize your oil tank and weigh it down with sandbags or wedge it against a solid object.
- Anchor propane tanks. Both full and empty propane tanks will float. Turn off valves and anchor tanks to a solid object with a chain or cable.
- Know how to safely shut off your propane. Have the tools to do so on hand so this can be done as you leave your home, cottage, or other building.

Stay Connected While in Flood-Prone Areas

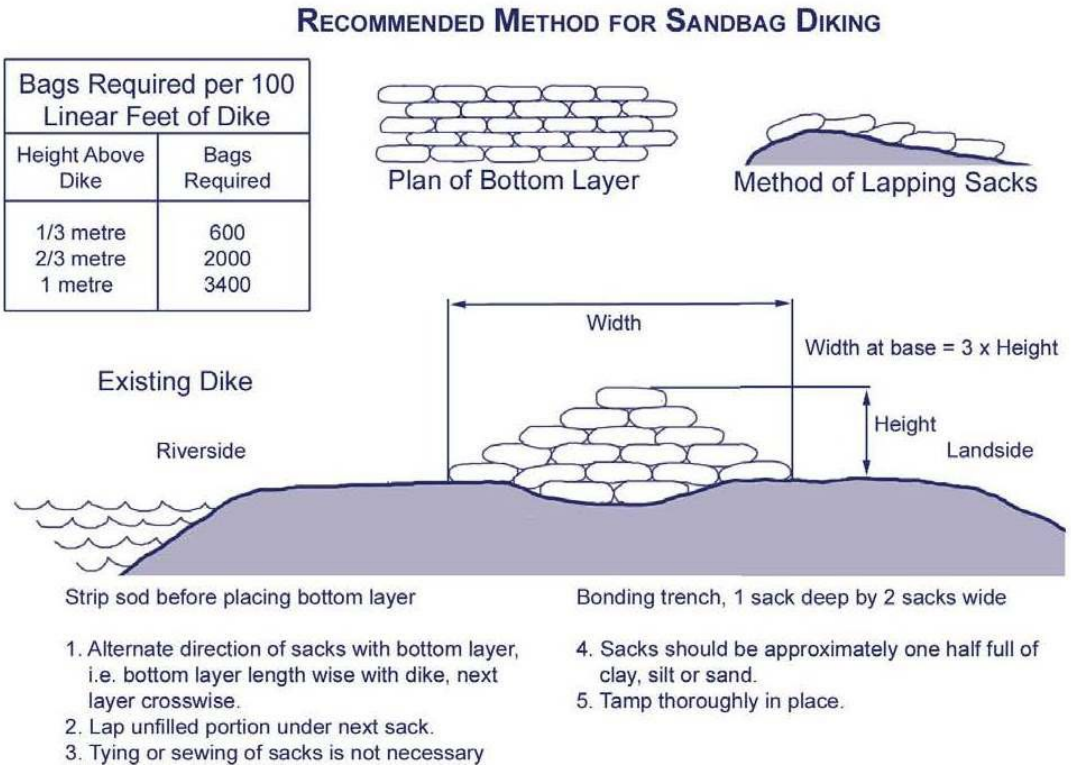
Continue to monitor news sources to stay aware of the current situation. This allows you to receive weather warnings, safety information, and disaster instructions from the local government.

Sandbag Dikes

Construction of a sandbag dike requires special procedures to achieve maximum strength and effectiveness. Should you choose to construct a sandbag dike to protect your property in the event of a flood, the following tips may be useful:

- Strip the sod or ground cover beneath the area for the proposed dike and dig a 'bonding trench' one sack in depth and two sacks wide as a foundation for the dike structure. To effectively provide protection from the forces of flooding water, a dike must be three times as wide at its base as it is high. A dike intended to be one metre high should have a three-metre-wide base.
- Sandbags should never be filled more than half-full and must be laid in alternating crisscross directions. The base level should be laid parallel to the flow of the water, the second level should be laid perpendicular to the flow, with the third level again laid parallel, continuing to the intended height of the dike. Each successive layer is set back one-half sandbag width on both sides in each additional layer. A side view of a completed dike would show a triangular cross-section.
- Individual bags need not be tied shut. Overlapping successive bags will hold the sand in place. The method of keeping bag contents in place is called 'lapping'. As individual bags are put in place, each must be tamped firmly to ensure maximum performance and strength in the finished dike.

Recommended Method for Sandbag Diking



Recommended Method for Sandbag Diking

If You Must Leave Your Home or Cottage

Rising water levels may indicate your home will become unsafe to be in, and you will most likely have to evacuate on short notice. Here are some suggestions for how to respond appropriately and efficiently:

- Have a grab-and-go emergency kit ready for each member of your household, as you may have to leave in the middle of the night or on short notice. This kit should have basic essential items such as prescription medications, eyeglasses, important papers, a flashlight, a battery-powered radio, clothing, identification, and some cash.
- Always follow the instructions of local emergency officials. They may come door-to-door or provide information through local radio stations, the internet, or TV stations.
- Keep important papers in watertight containers and have a record of your valuables in a safe place.
- Ensure each family member has identification, especially the young children. Name tags on clothing, wallet cards, and wrist bands are very useful.
- Make sure you have food and water supplies for any pets you plan to take with you.
- Lock all doors and windows and double-check to ensure propane, electricity, and water are shut off.
- Check on elderly or neighbours with disabilities to ensure they are aware of the situation.
- Be prepared to report to a reception centre if you are evacuated, so emergency officials know you are safe. Local authorities and emergency officials will advise you of the location.

Travel Considerations

- If you are planning to travel, check road conditions on the Ministry of Transportation's website.
- Take extra care when driving. Familiar roads will appear drastically different when covered by flood waters. Know if there are different routes out of the area if floodwaters are impacting roads.
- Do not drive into flooded areas, as your vehicle can be quickly swept away or you may encounter unexpected debris or unseen road erosion. If your car stalls in floodwater, get out quickly and move to higher ground.
- Be on the lookout for damaged bridges, slides, and washouts and be particularly alert for downed power lines.
- If you see downed power lines, do not try to repair or grab them. Even when flood water levels appear to have subsided, electrical currents can travel through the remaining water over a distance of more than 100 metres.
- Contact Hydro One or the Ontario Provincial Police to report downed power lines.
- Be alert for emergency personnel and signs providing evacuation route directions.

- Follow the instructions of emergency officials who are directing traffic or involved in rescue or flood control operations. They are there to assist you and to make sure situations are handled safely and effectively.

Returning Home After a Flood Event

Do not return home until local emergency officials announce that the emergency situation is over and it is safe to do so. Before returning, make sure there is a safe water supply and an adequate sewage disposal system in operation. If you are in doubt, contact your local health unit. Once you return, a few additional precautions will keep you and your family safe:

- If the building is primarily floodwater-free, inspect the foundations for cracks or other damage before entering. Once inside, examine walls, floors, doors, and windows to make sure that the building is not in danger of collapsing.
- If your well has been flooded, assume the water in your home has been contaminated. If you are on a public water system, listen to your local media for news from the Ontario Clean Water Agency or Grey Bruce Public Health to find out if your water is contaminated. A boil water advisory for certain areas may be issued. If water is contaminated, bottled water is the best choice.
- Information regarding keeping food and water safe after a flood can be found on the Ministry of Health website.
- Destroy contaminated foods. Floodwater is contaminated and can make food and drinks unsafe to consume. Destroy all:
  - Non-liquid foods, including cereals, flour, shortening and spices
  - Packaged food and meats (fresh and cured)
  - Canned goods (if damaged or leaking)
  - Bottled foods, including home preserves
  - Bottled drinks (contamination can seep under the edge of the cap)
  - Fresh vegetables and produce
- In most instances, flooding will not seriously affect septic tanks; however, flooding may cause damage to your sewage disposal field if you use the system before flood waters have dropped below the distribution trenches in your septic field. It is suggested that you get more information before using your septic system after a flood.
- If you lose power during or after a flood, never use a propane oven, range, barbecue, hibachi, or portable heater to heat your home. These units use up the oxygen and give off carbon monoxide, which can cause suffocation and death if used indoors.

- All insulation of any thermally insulated appliances must be properly repaired or replaced before operation if the appliances have been partially or completely submerged. These appliances include water heaters, refrigerators, freezers, and ranges.
- Call the propane company to check your meter and regulator before using your gas system, as flood waters may have shifted your home or caused other stresses to gas piping.
- Contact your insurance agency about any damages. Information about flood recovery and assistance programs will be made available or contact your local government for more information.
- In some flooded areas, water levels may reach or submerge power-bearing electrical cables. Extreme caution must be exercised.

Clean Up

The longer you allow water to stand in your home or other buildings, the higher the risk of health problems from bacteria or mould carried in the floodwaters.

- Washing affected areas with a solution of one part household bleach to ten parts water will remove mould and mildew. The risk of mould growing will continue as long as there is any significant moisture still remaining in your home, as moulds thrive on moisture and warmth.
- If you can, wear gloves and boots to avoid skin contact with anything that has been contaminated by floodwaters.
- Parents should not allow children to play in flooded areas.
- Wash your hands frequently with soap and disinfected water to prevent the spread of disease. This should be done before preparing or eating food, after toilet use, and after flood clean-up when you may come into contact with contaminated articles.

Personal Responsibility

Although there are many municipal, provincial, and federal agencies ready to provide aid should a devastating flood occur in Ontario, it is the personal responsibility of each of us to be prepared to deal with a disaster should it unexpectedly strike.

Agencies from all levels of government can do their jobs more efficiently if each one of us takes personal responsibility for preparedness. Preparing ourselves, our families and being ready to help our neighbours will help to reduce the devastating effects of disasters.

Additional Resources

Information pertaining to emergency plans can be found on the Municipality of Northern Bruce Peninsula's website.

Information about the Flood Forecasting and Warning Program, which prepares provincial and local authorities in the event of a flood, can be found on the Ontario Government's website.

Information about Great Lake water levels can be found on the Ontario Government's website.

More information about the Great Lakes, characteristics, and conditions is available on the Fisheries and Oceans Canada website.

Emergency Management Ontario website

Sandbag suppliers:

- Home Hardware
- Lloyd Bag
- Home Depot
- For large amounts of sandbags, refer to the following suppliers:
  - Burtex Industries, 66 Bartor Road, Weston, Ontario

1-800-268-0908 or (416) 745-2711

- Lloyd Bag Co., 114 St. Clair Street, Chatham, Ontario

1-800-549-2247 or (519) 352-9300

- Polytarp Products, 350 Wildcat Road, Toronto, Ontario

(416) 633-1685

Contact

Please contact the Community Emergency Management Coordinator at firechief@northernbruce.ca for further information pertaining to flooding and high-water levels within the Municipality.

Amendment	Review Date	Change Date	Changed By
Annual Review and Revisions	November 19, 2024.	November 19, 2024.	J. Burt
Annual Review and Revisions	December 2, 2025.	December 2, 2025.	J. Burt

Amendment	Review Date	Change Date	Changed By
Annual Review and Revisions	November 10, 2026.	November 10, 2026.	J. Burt