A stewardship guide for the Lake Superior shoreline

Self-assessment of your environmental performance as a property owner

February 2009
Using this Guide… a quick overview

1. Familiarize yourself with the Guide (pg. 4-6).

2. Complete the Worksheets that apply to you. Enter your rating in the boxes provided (starts pg. 18).
   (NOTE: If a particular Worksheet does not apply to your situation or property, simply skip over it).

3. Locate the “1”s and “2”s ratings and transfer these to the Action Plan Sheet found at the back of the document. The ratings identify where certain situations or practices on your property could be improved.

4. Use your Action Plan to help you identify priorities and plan short term and long term actions to address them.

   The Resource List gives you a lot of sources for further assistance in working through your Action Plan.

   Enjoy! This Guide is intended to inform and assist you.
# Table of Contents

What is the purpose of the Lake Superior Stewardship Guide? | 2  | Glossary | 106  
Is this Guide for you? | 2  | Resource List | 118  
A Bit of Background | 3  | Thank You | 123  
How to use the Lake Superior Stewardship Guide
   The Workbook | 4  | PART III – ACTION PLAN | 124  
   The Action Plan | 5  |  |  

## PART I – INTRODUCTION TO LOCAL ECOLOGY

Where do you fit in?
- Broad Scale – A Watershed Perspective | 7  
- Local Scale
  - Lake Superior Shoreline – Dorion Township to U.S. Border | 9  
  - The Coastal Features of the Watershed | 12  
  - Natural Hazards and How They Can Affect You | 16  

## PART II – THE WORKBOOK

Worksheet #1 – Buying Rural Property | 18  
Worksheet #2 – Before & During Construction | 20  
Worksheet #3 – Getting to Know Your Property | 28  
Worksheet #4 – Private Well Water Supply | 35  
Worksheet #5 – Wastewater & Septic Systems | 41  
Worksheet #6 – Gardening & Landscaping | 48  
Worksheet #6a – Landscape Water Efficiency | 52  
Worksheet #6b – Natural Buffers & Shoreline Access | 55  
Worksheet #6c – Trees | 59  
Worksheet #6d – Plant Selection & Care | 70  
Worksheet #7 – Waste Management | 74  
Worksheet #8 – Proper Handling, Storage & Disposal of Chemicals | 84  
Worksheet #9 – Lake Recreation | 90  
Worksheet #10 – Living with Wildlife | 95  
Worksheet #11 – Lowering Your Energy Bill | 101  
Worksheet #12 – Water Runoff Management | 106  

## Glossary 106

## Resource List 118

## Thank You 123
The Lake Superior Stewardship Guide

Introduction

What is the purpose of the Lake Superior Stewardship Guide?

The goal of the Lake Superior Stewardship Guide is to assist in the protection of the natural environment, including groundwater and surface water such as streams, rivers, creeks, wetlands and lakes and the natural landscape features that support these ecosystems.

By protecting natural resources, not only is the natural and cultural heritage of our region being conserved, but the legacy of Ontario’s clean water will also be protected for future generations.

By protecting water quality, property owners and residents are protecting their investments. Residents will realize that being a water quality steward and working with the environment will result in savings of time, money and frustration.

This guide is an important tool designed to help individuals make a difference. It provides a framework to allow residents to evaluate and manage their property. Through completion of the worksheets, residents will learn what they are doing right, and where they can improve in protecting water quality.

Is this guide for you?

This guide is intended for non-farm rural residents, cottage and property owners along the Canadian shore of Lake Superior from Dorion in the north to the Canada-U.S. border in the south. The focus is on the communities east of Highways 11/17 and 61 within the Area of Jurisdiction of the Lakehead Region Conservation Authority. This area of land stretches over part of Dorion Township, Municipalities of Shuniah and Neebing and the City of Thunder Bay. This guide can also be adapted for shoreline property owners along inland lakes and rivers within the Area of Jurisdiction since water quality protection starts upstream as these lakes and rivers flow into Lake Superior.
The Lake Superior Stewardship Guide

Introduction

A Bit of Background

The Lakehead Region Conservation Authority (LRCA) is a local resource management agency working on a watershed basis. Conservation authorities protect people and their property from natural hazards of flooding and erosion; protect natural areas and open space, restore and protect aquatic and natural habitats; and provide recreational and educational opportunities to local residents.

The LRCA Area of Jurisdiction covers over 2,600 square kilometres and extends from the U.S. border to the eastern edge of Dorion Township. There are eight Member Municipalities in our jurisdiction which are the City of Thunder Bay, Municipalities of Oliver Paipoonge, Neebing and Shuniah and Townships of Dorion, Gillies, Conmee and O’Connor.

Ontario Regulation 180/06 regulates development in areas where the control of flooding, erosion, pollution or the conservation of land may be affected by development.

Areas considered to be regulated by the Conservation Authority include all floodplains surrounding watercourses including streams, rivers and creeks, Provincially Significant Wetlands, Lake Superior and large inland lake shorelines, ravines, river or stream valleys, steep slopes, talus slopes and property zoned “Hazard Land” or “Use Limitation”. On Lake Superior the regulated area extends 15 metres landward from the 100-year high water level and one kilometre into the lake but does not include islands.

Typical activities that may be regulated include construction of all buildings and additions including modification or reconstruction of foundations which support existing buildings, breakwalls, revetments, rubble groynes, jetties, docks, stairs, decks, gazebos, boat ramps, boat storage structures, dredging, temporary or permanent placement of fill, grading, removal of fill or site alteration, retaining walls, bridges, crossings and roads.

Visit the LRCA office to view the regulated area screening maps. If your proposed development is located within a regulated area, the staff at the LRCA will assist you in determining whether or not a permit is required. Staff will review your submitted project information and conduct a site visit, if necessary.

The LRCA has a Level II Agreement with the Department of Fisheries and Oceans (DFO), Ontario Great Lakes Area. The LRCA is responsible for the initial evaluation of proposed work as to its potential impact on fish habitat. During review of proposed works, staff will determine whether or not the project is likely to result in a harmful alteration, disruption or destruction of fish habitat (HADD). Projects not considered to be a HADD, will be issued a Letter of Advice regarding proper techniques to prevent a HADD from occurring. Projects which may likely result in a HADD are referred to the DFO for their authorization.
How to use the Lake Superior Stewardship Guide

This Guide will help you see your property and your actions from a new perspective. This guide will ask you to think about your land, the buildings and structures on your land, and how your actions affect the larger landscape. It will ask you to rate how your actions affect the environment and water quality around your property. Finally, the guide will ask you to consider new ways of using and maintaining your property in order to decrease the risks to natural resources.

The Lake Superior Stewardship Guide has three parts – an Introduction to Local Ecology, a Workbook and an Action Plan.

The Workbook

The workbook includes twelve worksheets to help you rate your activities on your property. A glossary is located at the end of the workbook to help you with terminology.

Pick out the worksheets that apply to your property; you need not do the entire workbook. Read the introductory page for each worksheet. Fill in the box “Your Rating” in the right hand column for each topic that applies to you. For topics that don’t apply, write the letters ‘NA’ (not applicable) in the rating box. If you don’t know how you rate, mark the box with a question mark to remind yourself to conduct further research.

For each topic there are four descriptions of either natural conditions or current situations. Each has a number rating:

- 4 (Best)
- 3 (Good)
- 2 (Fair)
- 1 (Poor)

The Best (or 4) rating describes conditions that protect the environment and water quality or have the lowest potential for environmental damage. The Poor (or 1) rating describes conditions that have the highest potential to affect the environment negatively and require an Action Plan.

Circle the condition that best describes your property. If you circle 1 or 2, mark the rating number for each topic in the matching box at the right hand side of the Worksheet. The purpose of this rating system is not to tally the numbers in the right-hand column, but to identify areas that need improvement on your property. A rating of 1 or 2 indicates room for improvement.

NOTES:

Bold, italic type indicates conditions that may violate federal or provincial legislation or municipal bylaws at the time this document was originally developed. As legislation and policy can change over time, always check with the applicable agency for up to date legislation and requirements.
Example of completed worksheet question:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DURING CONSTRUCTION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Minimizing erosion and/or compaction</td>
<td>Project area is subdivided into smaller projects and done sequentially.</td>
<td>Clear only the area necessary for the project</td>
<td>Large areas are cleared but vegetation is restored.</td>
<td>Entire Property is cleared at once</td>
<td>2</td>
</tr>
</tbody>
</table>

**The Action Plan**

When you have filled in all the worksheets that apply to your property, record the ratings for each topic in the Action Plan part of the guide. Remember, some worksheet sections may not apply to your property.

Your 1 and 2 ratings indicate which areas of your property management need some improvement to reduce the risk of environmental damage and water contamination.

Use the information in the Action Plan section to help analyze your potential problems and decide what you can do to solve or control them. Remember, this is YOUR Action Plan. It must suit you and your property.

An example of an Action Plan is found on the next page of this manual. A blank Action Plan is found at the end of this manual.

Often, the information in columns 4 and 3 can indicate how to improve your practices. As well, you can consult the Resource List at the end of the workbook to find more information for developing your Action Plan.
# Sample Action Plan

<table>
<thead>
<tr>
<th>Worksheet and Topic Number</th>
<th>Page</th>
<th>Worksheet Theme</th>
<th>Rating</th>
<th>Short-term Actions</th>
<th>Long-term Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 – 2</td>
<td>?</td>
<td>Waste Management</td>
<td>2</td>
<td>Get another recycling bin</td>
<td>Generate less garbage</td>
</tr>
<tr>
<td>10a – 6</td>
<td>?</td>
<td>Forested Land</td>
<td>1</td>
<td>Check worksheet resources for more info</td>
<td>Plant trees to establish connections</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Decide where connections are needed</td>
<td></td>
</tr>
<tr>
<td>10c – 2</td>
<td>?</td>
<td>Wetlands</td>
<td>2</td>
<td>Talk with tenant farmer about his field</td>
<td>If possible widen buffer and plant requirements</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>wildlife shrubs in it</td>
<td></td>
</tr>
</tbody>
</table>

---

*LAKE SUPERIOR STEWARDSHIP GUIDE*
Where do you fit in?

Broad Scale – A Watershed Perspective

**What is a watershed?**

A watershed is the entire land/water area that drains into a body of water such as an ocean, lake, river, or pond. The boundaries of a watershed are formed by the highest points in the landscape – they are like all the edges of a bathtub or sink – any water that falls within it will drain downwards to the same outlet.

On its journey towards an outlet or drain, the water within a watershed can pass through different landscape features such as streams, rivers, lakes, bogs and marshes.

The Lakehead Watershed forms part of the Lake Superior Watershed and even larger Great Lakes-St. Lawrence Watershed.

The first step in protecting water quality is to better understand your place in this watershed. Become familiar with local natural features and understand how they function in relation to this watershed and to water quality.

**Why should you be concerned?**

- Precipitation, evaporation and temperature largely determine the quantity of water in a watershed.
- The amount of water moving through the various landscape features at any given time determines the amount of water available for ecosystems and for human use.
- YOU live in the Lakehead Watershed. Your actions and those of your neighbours affect water quality in this watershed.
Where do you fit in?

Broad Scale – A Watershed Perspective

What is the water cycle?

The water cycle, technically known as the hydrologic cycle, is the circulation of water within the Earth’s environment. This involves changes in water’s physical state as it moves between the liquid, solid and vapour phases. The hydrologic cycle refers to the continuous exchange of water between atmosphere, land, subsurface waters as well as organisms.
Where do you fit in?

Local Scale – Lake Superior Shoreline – Dorion Township to U.S. Border

Lake Superior is the largest of the Great Lakes, with a volume of 12,230 cubic kilometres (km³), a surface area of 82,100 square kilometres (km²), an average depth of 147 metres and a maximum depth of 406 metres. It is also the largest freshwater lake in the world by surface area and is the world’s third-largest freshwater lake by volume. It has the longest hydraulic retention time (191 years), of all the Great Lakes. Theoretically, it would take this long for all the water to replace itself. Initially it appears that this large volume of water can be beneficial to diluting pollutants, but in reality it would take generations to cleanse the waters once polluted. Over 200 rivers feed Lake Superior; the largest include the Nipigon, St. Louis, Pigeon, Pic, White, Michipicoten and Kaministiquia Rivers.

Local geology of the area is of late Wisconsinan age, which were deposited by the retreating glaciers approximately 12,500 years ago. Lacustrine (lake) sediments were deposited by a re-advance of the Superior Lobe approximately 11,500 years ago. Generally, the surficial deposits throughout the area are thin, less than 14 metres thick, with local exceptions. The thickest layer occurs near the mouth of the Kaministiquia River where deposits are up to 50 metres (160 ft) deep.

The bedrock of the region consists entirely of rock dated from the Precambrian age and is over 2.5 billion years old. The rocks have been extensively deformed through metamorphism. Generally, the rocks that are the oldest in the region were volcanic rocks that changed over time, with local intrusions of ultramafic rock (dark coloured with high magnesium and iron content) and felsic rock (light coloured with high silica i.e. quartz or granite).

Above this formation, is a younger sequence of rocks that consists mainly of sedimentary rock from the unique Gunflint and Rove Formations, which contain a complex variety of rock types.

In the northwest of Lake Superior, the formation of three large bays protect the coastline from high energy wave exposure. The coastlines in our region generally have a maximum fetch (the area of open water over which waves are generated by wind) under 50 kilometres compared to 500 kilometres farther east towards Terrace Bay.

The areas along Lake Superior that are exposed to wave action tend to form various types of bluffs, pebble/cobble beaches and boulder beaches. The shoreline areas that form bays or are protected by islands, tend to have low vegetated banks, mixed beaches, cobble beaches, pebble beaches and wetlands. The shore zone ice cover lasts 5 months of the year. There are no dune formations or erosional/dynamic beaches along the Lake Superior Shoreline in the Thunder Bay Area.

The largest development in the region is the City of Thunder Bay, which has a population of 109,016 (Statistics Canada 2001). The City was established in 1971 through the amalgamation of the cities of Port Arthur and Fort William. There are several other major settlements in the region. This includes the Municipalities of Neebing, Shuniah and Oliver Paipoonge, which include the geographical Townships of Blake, Crooks, Pardee, Pearson, Scoble, McGregor and McTavish. The Townships found within the region include Conmee, Dorion, Gillies, and O’Connor.
Where do you fit in?

Local Scale – Lake Superior Shoreline – Dorion Township to U.S. Border

The shoreline from Pass Lake to Dorion is comprised mostly of wetlands and low vegetated banks. The shoreline is protected from wave action by the peninsula at Black Bay. As a Provincially Significant Wetland (PSW), Hurkett Cove, which lies approximately four kilometres north of Dorion on the Lake Superior shoreline, is important habitat for migratory birds and has been named one of the top birding locations in all of Ontario. Hurkett Cove Conservation Area (233 acres/94 hectares) border the PSW on both the north and south shorelines.

Black Bay and the coastline from Hurkett to Thunder Cape on Sibley Peninsula is designated as part of the larger Lake Superior National Marine Conservation Area (NMCA) by Parks Canada. The official designation prevents resource extraction or other operations which may damage the aquatic or terrestrial ecosystems in the conservation area. As well, it is intended to protect historic shipwrecks and archeological sites of Native Americans.

The shoreline immediately north east of the City of Thunder Bay has many small beaches and has traditionally been the location for cottages or summer camps. The area from Thunder Bay to Pass Lake (approximately 35 km) is the only part of the Lake Superior shoreline in the region where depositional sand beaches can be found. The shoreline has several high-use recreational beaches and boat launches. At the mouth of the Blende River the wetland area has abundant wildlife. The area is a preferred nesting site for a variety of wading birds and Peregrine Falcons, and is an ideal location for fish spawning.

MacKenzie Point Conservation Area (2.5 acres/1 hectare) occupies the very tip of a peninsula extending into MacKenize Bay. The bluffs at Silver Harbour were quarried to create the large granite blocks used for the breakwall protecting the City of Thunder Bay shoreline. Most of the rivers and creeks flowing into Lake Superior from this shoreline support cold water migratory fish species. Seasonal fish spawning occurs along the areas of Caribou Island, Amethyst Bay, Mary Harbour, Papoose Islands, Wild Goose Point and Melancon Point. The shoreline is protected from wave action by the Sibley Peninsula. On the peninsula, Sleeping Giant Provincial Park, designated as a Natural Environment Park, is an important area for seasonal fish spawning during the fall including Lake Trout, Herring and Whitefish. The Thunder Cape bird observatory at the tip of the peninsula is a migratory bird landing.
Where do you fit in?

Local Scale – Lake Superior Shoreline – Dorion Township to U.S. Border

The shoreline along the City of Thunder Bay contains a breakwall, which is approximately 1.2 km in length and serves as protection to the harbour from wave damage. With the exception of some areas such as the mouth of the Current River, Marina Park, some land on McKellar Island and Mission Island, most of the Lake Superior shoreline within the City of Thunder Bay is zoned for Heavy Industrial use. Located within this zone are grain elevators, paper mills, sawmills, shipyards, the Thunder Bay Port Authority and Keefer Terminal. The majority of the shoreline within the breakwall is riprap, with some low vegetated banks making up a small portion of this.

Inside the breakwall, at the mouth of the Neebing-McIntyre Floodway is the Neebing Marsh, a Provincially Significant Wetland (PSW). Located south of the breakwall are McKellar and Mission Islands, each hosting a wetland along the shoreline. Mission Island Marsh is designated a Provincially Significant Wetland (PSW). In addition, part of Mission Island Conservation Area (131 acres/53 hectares) is located within the PSW. These islands are important habitat for migratory waterfowl, Peregrine Falcons and Bald Eagles.

The shoreline south of Thunder Bay in Neebing, from Fort William First Nation and Loch Lomond to Pigeon River on the Canada/U.S. border has a mixture of pebble/cobble/boulder beaches and exposed bedrock bluffs greater than 5 metres in elevation. The coastline is more exposed to high-intensity waves and is more jagged with many small peninsulas, inlets, bays, as well as a linear chain of small islands. This area of shoreline is less populated and less developed and contains many ecologically significant features.

Russell Point Area of Natural and Scientific Interest (ANSI) is located 500 metres inland from the shore of Lake Superior, about 15 km due south of Thunder Bay. This ANSI contains a section of raised cobble beaches at the base of a 90 metre high bluff that formed part of the ancient shoreline of glacial Lake Minong. Sturgeon Bay, as a wetland, is important habitat for furbearers (i.e. muskrats and minks), migratory waterfowl and fish. Sturgeon Bay is designated as a PSW. Thompson Island Provincial Park, off the coast from Sturgeon Bay is designated a Nature Reserve because of special geological formations and raised cobble beaches. Similarly, Spar Island, off the coast from Jarvis Bay is designated as an ANSI. The provincial significance of the island arises from its unique geological formations and rare arctic-alpine plant species which can be damaged by human activity. Local and migratory birds find important habitat in the Caldwell Lake PSW, off Jarvis Bay Road East, and the Cloud Bay PSW, at the mouth of the Cloud River.

Little Trout Bay Conservation Area (44 acres/18 hectares) provides public access to Lake Superior, walking trails and recreational fishing. Pine Bay is mainly comprised of low vegetated banks. At the mouth of the Pine River, Pine Bay PSW is an active feeding area for colonial waterbirds, a habitat for several species of furbearers and is regionally important for fish spawning. Commercial and recreational fishing have seasonal significance in the area. The area also has local significance as a winter cover for deer and moose.

At the border is Pigeon River Provincial Park. This 949 hectare park is designated as a Natural Environment Park characterized by a spectacular river gorge and two water falls.
Where do you fit in?

Local Scale – The coastal features of the watershed

**Wetlands**

*Where fish start out and hang out*

**What is a wetland?**

Wetlands can occur as both coastal and inland features of the watershed. A wetland is a highly diverse ecosystem that includes swamps, marshes, bogs, fens, pothole lakes, and shallow waters. Wetlands occupy a transitional zone between well-drained upland areas and a permanently flooded deepwater habitat. In many wetlands, the land is permanently or intermittently flooded with shallow water. The most common type of wetland along the Lake Superior coastline in the Thunder Bay Area is marsh. It is characterized by herbaceous and aquatic plants such as cattails, rushes, reeds, grasses, and sedges. Contact the LRCA before you begin your construction project if your property contains a wetland.

![Wetland at Mission Island Marsh Conservation Area](image)

**Why are wetlands important?**

*Hydrologic Processes* – Wetlands influence water flows mainly by intercepting surface runoff from neighboring land, absorbing the water like a sponge, ultimately reducing flooding. Wetlands also help stabilize stream banks and lakeshores to prevent erosion from flowing water or waves. Furthermore, wetlands contribute to the recharge of groundwater and can therefore help to maintain aquifers.

*Water Quality* – Wetlands help to improve water quality by filtering out sediments, organic or inorganic nutrients and toxic chemicals. This reduces the amount of pollutants found on the surface and in the groundwater. Wetlands also detoxify some pollutants as they pass through the various stages of the wetland.

*Wildlife Habitats* – Wetlands produce an abundance of vegetation that provides food for a diverse group of species, including insects, fish, amphibians, birds and mammals. They also provide nesting and breeding sites for local and migratory species including species that are threatened or endangered. The abundance of cover and food make wetlands some of the busiest fish nurseries around. Wetlands are among the most biologically productive places on Earth.
Where do you fit in?

Local Scale – The coastal features of the watershed

Riparian Zones

Buffering the bad stuff

The strip of trees, shrubs and grasses that naturally grow along a shoreline is important for fish habitat. This riparian zone, if undisturbed, acts as a buffer between land and water. The network of roots act as both a shoreline stabilizer and a water filter to control erosion and remove impurities from surface water runoff. Leaves and branches break the force of falling rain, and runoff is slowed by the leaf litter and broken twigs. By slowing down the runoff, the riparian zone allows the water to be absorbed into the ground, resulting in less surface flooding and bank erosion.

• The overhanging tree branches create shelter that fish seek out to lie low from predators, lay eggs, find food and shade from direct sunlight.

• Riparian vegetation filters out contaminants such as fertilizers and pesticides. Excessive fertilizers entering the watercourse fuel the growth of algae which, in turn, uses up the precious oxygen in the water needed by fish to breath.

• Tree roots stabilize the soil. Bare soil banks become unstable and can easily erode which adds higher levels of silt to the watercourse that can damage fish gills and lead to suffocation of the fish.

Why should you be concerned?

When it comes to large bodies of water like Lake Superior, our greatest potential impacts do not occur where we get in over our heads, but rather where we get our feet wet – the nearshore habitat like wetlands and riparian zones.

According to the federal Fisheries Act, which protects fish and their habitat, the onus is on landowners or developers to ensure that their shoreline or in-water work does not harmfully alter, disrupt, or destroy (HADD) fish habitat.

Some of the projects that can damage fish habitat include dredging your boat launch, removing aquatic plants, building a bridge, culvert, dock or boathouse or creating a beach.

Department of Fisheries & Oceans (DFO) Operational Statements (See “Fish Habitat” in Resource List pg. 119), provide guidance on different types of activities in or around water. By following these guidelines, your project may not require DFO’s review under the Fisheries Act.

If you are unsure whether or not your project may harm fish habitat, contact the Lakehead Region Conservation Authority (LRCA). The LRCA has a Level II Agreement with DFO and is responsible for the initial evaluation of the proposed work within the LRCA jurisdiction. Projects not considered to be a HADD will be reviewed by the LRCA and issued a Letter of Advice regarding proper mitigation techniques to ensure a HADD does not occur. Projects which are likely to result in a HADD are referred to the DFO.
Where do you fit in?
Local Scale – The coastal features of the watershed

**Bluffs**

*A land feature that's on the move*

Exposed bedrock bluffs are a unique coastal feature along the north shore of Lake Superior. They are common south of Thunder Bay, in Neebing Township near Pigeon River. Shoreline bluffs are also found at Mount McKay, Sleeping Giant Provincial Park and Silver Harbour.

- Bluffs are continuously changing. Natural erosion is an element of bluff dynamics and a normal part of a shoreline environment.
- The materials that make up a bluff determine how vulnerable the bluff is to erosion or slumping. As a bluff erodes, the shoreline recedes.
- The toe of the bluff is where most of the erosion occurs, depending on the force of the waves and the bluff material.
- As waves hit the bluff, material is removed (eroded). Long shore currents deposit this beach material further down the coast.
- The beach found at the toe of the bluff protects the bluff from further erosion because beaches absorb wave energy.
- While some areas are inherently erosion-prone and unstable, natural bluff erosion increases in areas cleared of vegetation, narrow sandy beaches and steep offshore slopes.
- Bluffs often create special microclimates that allow rare plant species, especially arctic-alpine disjuncts, to survive. Bluffs are also important habitat for Peregrine Falcons.
- The presence of groundwater within a bluff can cause instability and slope failure.

**Groundwater**

*An invisible feature of this watershed*

Many residents along the Lake Superior shoreline obtain their drinking water from private groundwater wells. Groundwater is a limited and vulnerable resource that needs to be protected. Although groundwater is not seen, it should not be forgotten.

- As rain and melting snow pass through the soil and crevices in the underlying rock, the water is filtered and purified.
- Water will continue to flow downwards through the ground until it reaches an impenetrable layer of soil or rock where it collects, forming an underground reservoir known as an aquifer.
- Aquifers supply water to farms, homes, industry and businesses. This groundwater is the source of drinking water for many people, including Lake Superior shoreline residents.
- The size of the aquifer and the movement of underground water is influenced by the type of rock and soil in the area and the amount of rain that falls in that area. If water is removed faster than it is being replenished, the amount of water in the aquifer decreases, and the height of the water table drops.
- Groundwater contamination is a serious concern. Contaminated water from over-fertilized lawns, septic fields, agricultural runoff, and industrial discharge can seep through the ground and make groundwater unfit for human and animal consumption and use.
Where do you fit in?

Local Scale – The coastal features of the watershed

**Boulder Beaches**
Boulder beaches are common along the Lake Superior shoreline. They are accumulations of large boulders (≥25cm diameter), the smaller sediments having been washed away by wave action in this high energy environment. Boulder beaches are extremely narrow and often quite steep. Beach widths of 2 metres or less are common.

**Pebble/Cobble Beaches**
Pebble/cobble beaches are common along the Lake Superior shoreline. They consist of a mixture of pebble (0.2-4 cm) and larger cobble material (4.5-25 cm). Generally these beaches are narrower and steeper than pebble beaches; widths of 2-3 metres are common.

**Rip Rap (Man-made Shoreline)**
When natural shorelines are covered with debris to protect the shore from wave-induced bank erosion, the resulting shoreline is termed rip rap. This usually takes the form of large, coarse material, which is inexpensive and locally available. On Lake Superior, most rip rap shorelines are composed of roughly quarried granite blocks.

**Mixed Beaches**
Mixed beaches are also common along the Lake Superior shoreline. They are accumulations of very poorly-sorted sediment including large amounts of coarse sediment (boulders and cobble) and some finer material (e.g. sand). Mixed beaches are typically shallow sloped, very small (less than 100 metres in length), moderately wide, and restricted to pockets/cover between headlands, in well sheltered, low energy environments.

**Sand Beaches: Depositional**
Depositional sand beaches occur where wave and littoral drift deposited sand has accumulated along a cove or other sheltered environment. Offshore regions tend to be shallow and uniformly sloping. Small coves and bays tend to produce a thinner beach face, which rarely terminates with elevated sand dunes. These thin beach faces are typical of sand beaches along Lake Superior.

**Low Vegetated Banks (Grasses or Trees)**
Low vegetated banks are sheltered environments almost entirely covered by vegetation, with no erosive bluffs or exposed sediment immediately down the waterline; vegetation covers all land surfaces along the shore. Most exist in low energy environments and are generally gentle in slope.
Natural Hazards and How They Can Affect You

Risks and Challenges

Why should you be concerned?

The areas adjacent to a stream, river, lakeshore or other water body are subject to seasonal and perpetual changes, due to the dynamic nature of wind and water. Streams and rivers migrate and meander naturally, and as water levels rise and fall, banks and shorelines will shift with erosion. While this presents risks and challenges for property owners and residents living near water bodies, both personal danger and costly rebuilding and restructuring efforts can be avoided if you take the time to understand, predict and work with the natural processes that affect your property.

Are there any natural hazard areas on your property? Mapping out your property and its features can be a helpful way to understand the risk and challenges involved. (See Make a Map of Your Property in Worksheet #3)
Natural Hazards and How They Can Affect You

The principle mandate of the Lakehead Region Conservation Authority (LRCA) is to prevent the loss of life and property damage due to flooding and erosion and to conserve and enhance natural resources.

The Ontario Regulation 180/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses is a key tool the LRCA uses to ensure development in the regulated area does not affect flooding, erosion, pollution or the conservation of land. It protects the mutual needs of the watercourse and the landowners adjacent to it.

The Regulation may affect you if your property is located within the LRCA jurisdiction (see page 3) and is located within the regulated area. Screening maps have been developed to quantify the Approximate Regulated Area and can be viewed at the LRCA office.

The Lake Superior shoreline is also regulated. The lake shoreline Approximate Regulated Area is derived by the 100-year flood level plus an allowance of 15 metres landward for wave uprush. The 100-year flood level, from the U.S. border (Pigeon River) to Jarvis Point, was determined by the Ministry of Natural Resources to be 184 metres above mean sea level. From Jarvis Point to the north limit of Dorion Township, the 100-year flood level was determined to be 183.9 metres above mean sea level. Lake Superior is also regulated one kilometre into the water; however, islands are excluded.

If you are planning to do any work near lakes, rivers, streams or wetlands, you may require a permit from the Conservation Authority.
LAKE SUPERIOR STEWARDSHIP GUIDE

Worksheet #1 – Buying a Rural Property

**Why should you be concerned?**

1. Rural life is different from city living and can sometimes involve a more active participation in monitoring the immediate environment for your safety.

2. Your property may fall within a hazard zone that is governed by particular regulations. If you think this is the case, contact the Lakehead Region Conservation Authority to find out details.

3. Your new property may have a private well and a septic system. You will need to know where these are on the property and how to maintain them properly to avoid water contamination.

**What can you do?**

1. Consider noise, odours and traffic from nearby properties and activities (such as farming and industry) and consider the inconveniences, maintenance and legal restrictions that come with rural/hazard land ownership.

2. If you are planning on altering your shoreline contact the Lakehead Region Conservation Authority prior to initiating your project. You may also require authorization from the Ministry of Natural Resources.

3. If purchasing a ‘legal non-conforming’ property, check to make sure you can obtain any necessary future permits, i.e. building a septic system.

4. Would you like an open view of the lake? Choose a property that already offers one instead of clearing existing trees and shrubs. Alternatively, contact a certified arborist to help design selective breaks in tree canopies.

5. Visit the property during and immediately following a major rainfall event. Note drainage patterns and any evidence of flooding.

6. Find out if you are purchasing the title to the building and surrounding land or just the building on land owned by a Cottage or Camper Association.

7. Find out if you own the Right-of-Way property along the shoreline. In some cases the Municipality has ownership of the 20 metre (66 foot) strip of land along the shoreline.

Be sure to also read the Worksheet #3 - Getting to Know Your Property for more information.
Purchaser Checklist
Supplementary Questions for Seller Property Information Statement-Residential.

Anyone who is considering purchasing rural and/or hazard land property should ask the seller the following questions in addition to those in the Ontario Real Estate Association’s Seller Property Information Statement-Residential. This list is only a guide and may not include all possible considerations.

### Erosion
- Are you aware of any erosion problems or instability?
- Are you aware of any neighbours with erosion problems?
- Are there erosion control structures or buffers on the property or nearby?
- Are there any runoff control measures (culverts, water-bars) in place?
- Are there any culverts/creeks that drain into the property?
- Is the location of the erosion hazard limit known?
- Is the location of the floodplain known?

### Access to water
- Is there access to water?
- If so, is it within a reasonable distance for your plans?
- If there is a dock, is it pulled out seasonally?

### Water levels
- Is any of the property within the 100-year floodplain?
- Is the basement, crawl space, or main floor 30cm (1 foot) or more above the floodplain and in compliance with regulations?
- Is the 100-year flood elevation and wave reach known?

### Zoning
- Are there any special zoning regulations, setbacks, or shoreline protection bylaws?
- Does all existing development on the property conform to local zoning bylaws?
- Are all existing buildings/structures located fully on the property and adjacent properties been disclosed?

### Plumbing
- Is the existing plumbing system built for year-round use?

### Other
- Are there any registered or unregulated ancient burial sites or archaeological relics?
- Are motorized sports allowed on any nearby water bodies?
- Are there any environmentally significant areas (Provincially Significant Wetlands) or Areas of Natural and Scientific Interest (ANSIs)?
- Is the lake or water body heavily used?
- Is any beach sand naturally occurring?
- Are you aware of any mineral claims on the property?
- Are there any temperature inversions which bring smoky air down to the ground?
- Are there occasional odours and/or noise from nearby farming or industry?
- Is the property part of a Cottage or Camper’s Association?
- Does ownership include the 20 metre (66 ft) right-of-way along the shoreline?

### Is the property serviced by a private well or is water obtained from a surface supply?
- If YES in either case:
  - Do you have records of water quality tests?
  - Do you have well records?
  - Is the well properly sealed?
  - Is there an underground cistern?
  - Is there a seasonal variation in the well water level?
  - Has the well ever run dry?
  - Do you know what the normal rate of flow is?
  - Do you know what the draw down data for the well capacity is?

### Is the property serviced by a septic system?
- If YES:
  - Is there a permit for the system?
  - Is the leaching bed over 30 m (100 ft) from surface water or a well?
  - Has the tank been pumped in the last 3 years?
  - Does the tank adequately serve the dwelling(s) size?
  - Is there an effluent lift pump?
  - Is there a second leaching bed or space for it?
  - If the property is serviced by a septic holding tank, are there any cracks or holes in the tank?
  - Is a community or municipal sewer system planned in the next 3 years?

### Are there any unregistered easements or unregistered right-of-ways?
- If YES:
  - Does access to the property require any unregistered means such as historic use, handshake agreement, unregistered easement, etc?
  - Does anyone else have unregistered access across the property?
  - Are there any adjoining road allowances for public water access, including any old shoreline road allowances?
  - Are there conservation easements on the property?
Worksheet #2 – Before & During Construction

Note: Use this worksheet to help assess the potential opportunities and constraints for your construction projects.

Why should you be concerned?

- Your property is part of a larger landscape, so any project you undertake may not only affect your immediate neighbours, but may also have negative consequences for land and water farther away.

- There may be existing legislation, regulations and zoning that affect your project plans. Regulated areas include all watercourses including streams, river and creeks, wetlands, Lake Superior shoreline, ravines, valleys, steep slopes, talus slopes and areas zoned hazard land or use limitation. Check with your municipal office, the Lakehead Region Conservation Authority or MNR office to ensure that your project is permissible.

- Shorelines of lakes, rivers and streams are protected under Federal legislation such as the Fisheries Act. Under this legislation, the onus falls upon shoreline property owners to ensure that they do not “harmfully alter, disrupt, or destroy” (HADD) fish habitat. Offenders may be substantially fined or face criminal charges, as well as restoring the shoreline to its previous state. Check with the Lakehead Region Conservation Authority to determine whether your project requires LRCA review or DFO Authorization.

- Investigate who owns any shoreline areas of your property – it may not be you. Municipalities often own a 20 metre (66 ft) right-of-way along the shoreline. If the shoreline is owned by the Crown, the Public Lands Act will apply, and a permit may be required for any development – even a restoration project. Only activities permissible under this legislation will be allowed.

- If the property is part of a Cottager or Camper’s Association you may need the Association’s permission to do work on the property.

What can you do?

1. Make a plan including an inventory of existing plants, features and structures. See Worksheet #3-Getting to Know Your Property.

2. Start early and be organized – the permit process may take several months.

3. Protect yourself. Keep records, including permit applications. These can be useful if disputes should arise with agencies or neighbours in the future.

4. Be a land steward: contact the Lakehead Region Conservation Authority office or the MNR if you witness shoreline alteration or potential environmental damage. You can call the MNR toll-free reporting line (24 hours, 7-days a week) or for anonymity, contact Crime Stoppers.

5. Refer to the Department of Fisheries & Oceans (DFO) Operational Statements to learn about the necessary measures required to protect fish and fish habitat before you begin your construction project (See “Fish Habitat” in Resource List pg. 119).

6. Contact the Lakehead Region Conservation Authority to find out if your construction project falls within the Approximate Regulated Area.

7. Contact Transport Canada to find out if your project requires their authorization as part of the Navigable Waters Protection Act.
# Before & During Construction: How do you rate?

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PERMITS &amp; REGULATIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Knowledge and understanding of application process</td>
<td>Planning begins the summer before work is to begin.</td>
<td>Make sure you review an updated, legal survey of your property before you begin construction. Erosion or deposition processes may have occurred over time and may be misleading as to where your property ends.</td>
<td>No planning involved. Expect immediate start.</td>
<td></td>
<td>* Necessary permits are not obtained.*</td>
</tr>
<tr>
<td></td>
<td>Check with local Municipality and Conservation Authority to determine if permit is required.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **PREPARING A SITE PLAN** | | | | | |
| 2a Knowledge of existing natural features of the property | Thorough understanding of natural features, including long-term history of water levels. | Identification of existing and/or sensitive natural features or areas. | General idea of existing natural features. | No knowledge of existing natural features or sensitive areas. | |
| 2b Knowledge of effect of construction on existing natural features of the property | Construction does not impact existing features. | Awareness of the potential for construction impact and precautions taken. | Awareness of the potential for construction impact. | Disregard of potential for construction impact. No precautions taken. | |

*These conditions may violate federal or provincial legislation or municipal by-laws*
### PREPARING A SITE PLAN...continued

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Site and location of various activity areas</strong></td>
<td>Intensively used areas and paths are concentrated and located at least 30 m (100 ft) from surface water and away from steep shoreline slopes.</td>
<td>Intensively used areas are not near surface water but in locations contributing to increased erosion, such as at the top edge of steep slopes.</td>
<td>Intensively used areas are near surface water and in locations contributing to increased erosion, such as at the top edge of steep slopes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Wind and Sun</strong></td>
<td>All outdoor living areas are sheltered from the prevailing wind.</td>
<td>Where possible, outdoor living areas are sheltered from the prevailing winds.</td>
<td>No consideration given to the prevailing winds and sheltering outdoor living areas.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Window locations are placed to allow for maximum winter sunlight.</td>
<td>Where possible, window locations are placed to allow for maximum winter sunlight.</td>
<td>No consideration given to the sun exposure in winter.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td>Consider adding a natural wind break or snow fence to your design.</td>
<td>Evergreen trees are kept/planted on the northwest face for wind protection. OR deciduous trees are kept/planted on the southwestern face for summer shading.</td>
<td>Evergreen trees are kept/planted on the northwest face for wind protection.</td>
<td>Landscaping design attempts to use trees strategically to improve energy conservation to a small degree.</td>
<td>Tree placement does not consider climatic factors</td>
</tr>
</tbody>
</table>
## DURING CONSTRUCTION

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Minimizing erosion and/or compaction</strong></td>
<td>Project area is subdivided into smaller projects and done sequentially.</td>
<td>Only the area necessary for the project is cleared.</td>
<td>Large areas are cleared but vegetation is restored.</td>
<td>Future property is cleared at once.</td>
<td></td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td>Buffer strip of natural vegetation wider than 30 m (100 ft) retained along shoreline or surface water.</td>
<td>Project site requires minimal removal of trees and shrubs in buffer strip.</td>
<td>Buffer strip is bulldozed clear of all existing vegetation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Project does not interfere with existing surface runoff patterns.</td>
<td>Project interferes minimally with existing surface runoff patterns.</td>
<td>Project interferes with existing surface runoff patterns.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Disturbed areas are replanted as quickly as possible with native species.</td>
<td>Disturbed areas are replanted as quickly as possible with non-invasive species.</td>
<td>Bare soil is covered immediately with burlap or mulch.</td>
<td>Bare soil is left exposed.</td>
<td></td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td>Use of machinery is minimal.</td>
<td></td>
<td></td>
<td>Heavy machinery is used extensively.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>AND</strong> machinery used is appropriate to job size.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**tip**

Protect all soil/sand piles from erosion and avoid construction during heavy rain. Review the DFO publication: *Working Around Water? Factsheet Series – Fish Habitat & the Effects of Silt and Sediment* (See “Fish Habitat” in Resource List pg.119).

---

**tip**

Place straw bales or silt fences around vulnerable existing features such as wetlands.
### DURING CONSTRUCTION…continued

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location of construction materials and access to construction site</strong></td>
<td>All construction materials are stored away from downspout openings.</td>
<td>All construction materials are stored away from downspout openings.</td>
<td>Only hazardous construction materials are stored away from downspout openings, open water or any watercourse.</td>
<td>Construction materials are stored without regard to runoff patterns.</td>
<td></td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td><strong>Fence or rope off all areas that are not to be disturbed.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Concentrate and restrict vehicle access to minimize soil compaction.</td>
<td>Vehicle access is kept away from shorelines, slopes, or other sensitive areas.</td>
<td>Concern about compaction is limited to septic leaching bed.</td>
<td>Vehicles are parked or driven throughout site, contributing to soil compaction.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Toilet facilities are available.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If you are undertaking a new construction or major renovation consider obtaining LEED (Leadership in Energy &amp; Environmental Design) certification. Review the Canadian Green Building Council LEED rating system to learn design and construction strategies that improve energy and water efficiency and generate less waste (See “Energy Efficiency” in Resource List pg. 119).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Location of buildings and access interfere with shorelines, waterways, or runoff patterns.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*These conditions may violate federal or provincial legislation or municipal by-laws.*
### LAKE SUPERIOR STEWARDSHIP GUIDE

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DURING CONSTRUCTION…continued</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Protecting the existing features** | Check if there is a municipal bylaw that protects the trees on your property. Design or plan accordingly. | Develop a plan or design first and then check if there is a municipal bylaw that protects the trees on your property. Proceed accordingly. | Trees are not protected during construction but any damage incurred is immediately and appropriately handled. | Damage to tree trunks, limbs, and roots is left unattended. | *

*Cut trees down on your property without checking if a municipal tree-cutting bylaw exists.*

**tip**

Check with your local Municipality if there is a tree bylaw that protects the trees on your property.

**AND** remove no trees for construction.

**Soil grade is not altered**

**AND** soil around trees is not compacted.

**Septic bed, well(s) and environmentally sensitive features are protected**

**AND** distance requirements are respected.

**Soil grade is not altered within 3 metres (10 feet) of dripline for any tree intended to be preserved**

**AND** there is minimal compaction near dripline.

**Septic bed, well(s) and environmentally sensitive features, such as wetlands and rare trees, are protected.**

*This condition may violate federal or provincial legislation or municipal by-laws.*
<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DURING CONSTRUCTION…continued</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Purchasing and location of soil or fill</td>
<td>No use of off-site soil or fill.</td>
<td>Limited use of off-site soil or fill AND awareness of the source of soil or fill AND no excess or unnecessary fill is used AND approval is obtained.</td>
<td>Limited use of off-site soil or fill AND no awareness of the source of soil or fill</td>
<td>Excessive use of off-site soil or fill OR No consideration for the non-renewable nature of soil</td>
<td>* OR fill is dumped in any fill-regulated area such as a shoreline without a permit.</td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* It is dangerous and illegal to deposit fill in flood-prone or regulated shoreline areas without a permit.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Construction materials</td>
<td>Local non-hazardous materials used where possible AND obtained in a responsible and appropriate manner.</td>
<td>Non-hazardous materials used where possible AND no use of oil-based paints or varnishes.</td>
<td>Minimal use of hazardous materials where necessary.</td>
<td>Hazardous materials are used OR materials sourced unnecessarily from far away or from environmentally-damaging production practices.</td>
<td></td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know where your topsoil or fill is coming from – it may bring contaminants and invasive species onto your property.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* These conditions may violate federal or provincial legislation or municipal by-laws.
### DURING CONSTRUCTION…continued

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction waste</td>
<td>Your local Municipality is contacted before construction to learn how to properly sort and dispose of construction waste</td>
<td>Reputable waste removal/disposal company is hired to remove and appropriately dispose of all hazardous waste.</td>
<td>Care is taken to at least prevent paint or solvents from getting into waste water or septic systems, or open surface water.</td>
<td><em>Waste material or excess fill is dumped into open surface water</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>tip</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paint (any kind) is a hazardous substance. Take it to your local hazardous waste depot. It is illegal to pour paints or thinners into runoff channels or surface water. Inform your painting contractor of your need for compliance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Waste containers are clearly and appropriately labeled</td>
<td>Waste containers are clearly and appropriately labeled</td>
<td>Waste containers are not labeled</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>AND</strong> waste materials are recycled where possible.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Absolutely no concrete or construction wash water flows into open surface water, towards trees or into septic system.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* These conditions may violate federal or provincial legislation or municipal by-laws.
Worksheet #3 – Getting to Know Your Property

**Note:** Use this worksheet to help assess your property’s vulnerability to natural hazards.

**Why should you be concerned?**

- In rural areas, you are your own **WATER QUALITY STEWARD!**

- As a rural landowner, you are the steward of a property that is a small piece of the larger rural landscape. What you do on your property affects not only your well-being but that of your neighbours and the other creatures that share the landscape and ecosystems that support it all.

- Upstream practices WILL affect your property and your actions will affect downstream users.

- A property’s soil and landform can influence water quality by influencing surface water and groundwater contamination, erosion of soil by water and wind and soil compaction.

- Provincial regulations and municipal by-laws may restrict development of any kind and affect how you can use your property

- Knowing your property will ensure you make informed decisions. Talk to neighbours and other local people to be aware of concerns such as informal traditional access on your property for hunting, fishing or hiking etc.

**What can you do?**

1. You or your legal representative can contact the Lakehead Region Conservation Authority office or Ministry of Natural Resources to learn of any alteration restrictions (especially watercourses, groundwater sources, and shorelines) and how these may affect any future property projects.

2. Talk with long-time residents to learn more about how the property may be affected by natural processes and potential hazards.

3. Make a map of the property. Identify physical characteristics such as soil type, floodplain, and depth to water table, and learn how these can affect the vulnerability of your property and water quality. Accept these natural conditions and modify your activities accordingly to protect yourself and your property.

4. Determine if your property contains any special landscape designations, such as Areas of Natural or Scientific Interest (ANSI), or Provincially Significant Wetlands (PSW). Learn how these designations affect your rights and responsibilities as a landowner.

5. Determine if current services (e.g. water and sewage) are adequate for your planned/intended use of the property.

6. Look beyond property boundaries. It is important for you to be able to analyze the potential for surface water contamination, wind and water erosion, and groundwater contamination.
Make a Map of Your Property

For this map, draw the features of your whole property. Aerial and topographic maps will be helpful for this. Try Google Earth online. Flood and Fill Line Maps and Screening Maps of the Townships and Municipalities around Thunder Bay can be viewed at the Lakehead Region Conservation Authority office.

Why make a map?

This map will assist your planning and establish the relationship between the various features on your property.

What you should include:

- property boundaries
- north arrow
- any buildings or structures
- roads, trails, any traditional/informal access through your property for hunting, fishing, hiking, etc.
- bridges
- fields, both working and retired
- orchards
- wells (including dry or abandoned wells) and pipes
- septic tank and septic field
- surface water features (stream, pond, lake, etc.)
- springs
- floodplain
- dams, weirs
- drainage ditches, drainage tile outlets
- fences and treed fencerows
- forested areas (plantation and natural)
- wetlands
- utility lines
- communication towers
- easements and right of ways
- known special or sensitive features (e.g. raptor nests, stone piles)
Make a Map of Your Property

Date: _______________

Date: _______________
## Understanding Risk

**Note:** Use this page to help assess your property’s vulnerability to water contamination.

<table>
<thead>
<tr>
<th>LESS RISK</th>
<th>MORE RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Soil type</strong></td>
<td>Clay-silt loam</td>
</tr>
<tr>
<td><strong>Soil depth</strong></td>
<td>Greater than 4 metres (13 feet)</td>
</tr>
<tr>
<td><strong>Bedrock</strong></td>
<td>Non-permeable and solid. No direct access from the surface</td>
</tr>
<tr>
<td><strong>Depth to water table</strong></td>
<td>Greater than 14 metres (46 feet)</td>
</tr>
</tbody>
</table>

### tip
- **To find soil depth, bedrock, or depth of water table, check your well drilling records, ask a neighbour with a well or call a local well-drilling company.**
- **The risk of pollution is greater in areas where the groundwater table is near the surface or in highly porous soils (e.g. sand, gravel).**
# LAKE SUPERIOR STEWARDSHIP GUIDE

**Getting to Know Your Property: How do you rate?**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HAZARD LANDS – DETERMINING RISK</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of lake processes and hazards</td>
<td>Understand dynamic nature of shorelines and plan accordingly, with long term outlook and flexibility for change.</td>
<td>Understand dynamic nature of shoreline. No long-term planning for natural change.</td>
<td>Limited understanding of dynamic nature of shoreline. Property management attempts to control any naturally-occurring change.</td>
<td>No understanding of dynamic nature of shoreline. Attempt to control any naturally-occurring change.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Understand potential hazards affecting your property, such as flooding and erosion</td>
<td>Understand potential hazards affecting your property.</td>
<td>Limited understanding of potential hazards affecting your property.</td>
<td>No understanding of potential hazards affecting your property.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AND have your own plan to deal with any eventualities.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development and natural hazards</td>
<td>No development or disturbances within 30 m (100 ft) of water or the erosion hazard limit for bluffs.</td>
<td>Minimal structures or disturbance near beaches/water/bluff edge, constructed in a proper manner and elevated.</td>
<td>Structures or disturbance near beaches, water, or bluff edges constructed in a proper manner and elevated.</td>
<td>Development or disturbance within 30 m (100 ft) of water or the erosion hazard limit for bluffs.</td>
<td></td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td>Existing shoreline protection structures are a good indication that erosion and flooding are a concern.</td>
<td>Know whether or not buildings may be relocated or raised.</td>
<td></td>
<td>No knowledge of whether or not buildings may be relocated or raised.</td>
<td></td>
</tr>
</tbody>
</table>
### LAKE SUPERIOR STEWARDSHIP GUIDE

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HAZARDS LANDS – DETERMINING RISK...continued</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Buffers and potential for erosion</strong></td>
<td>Large expanse of naturally-occurring beach located along lakefront end of property.</td>
<td>Moderate expanse of naturally-occurring beach located along lakefront end of property.</td>
<td>Narrow, natural beach located along lakefront end of property.</td>
<td>No natural beach located along lakefront end of property.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Large expanses of well-established native species including trees and shrubs adjacent to shoreline or wetland.</td>
<td>Large expanses of well-established native species including trees and shrubs adjacent to shoreline or wetland although punctured with small cleared areas.</td>
<td>Narrow expanses of well-established native species including trees and shrubs adjacent to shoreline or wetland.</td>
<td>No natural vegetation buffer present.</td>
<td></td>
</tr>
<tr>
<td><strong>No development on a bluff</strong></td>
<td>Development set behind the erosion – hazard limit for bluffs</td>
<td>Development on a bluff set behind the erosion – hazard limit for bluffs</td>
<td>Development on a bluff set within the erosion – hazard limit for bluffs</td>
<td>Development on a bluff set behind the erosion – hazard limit for bluffs</td>
<td></td>
</tr>
<tr>
<td><strong>AND natural vegetation is undisturbed within the 30 m (100 ft) setback area.</strong></td>
<td>AND natural vegetation is undisturbed within the 30 m (100 ft) setback area.</td>
<td>AND natural vegetation is undisturbed within the 30 m (100 ft) setback area.</td>
<td>AND natural vegetation is disturbed within the 30 m (100 ft) setback area.</td>
<td>AND natural vegetation is disturbed within the 30 m (100 ft) setback area.</td>
<td></td>
</tr>
<tr>
<td><strong>Home Insurance</strong></td>
<td>Known whether potential damage to property can be covered by insurance.</td>
<td></td>
<td></td>
<td>No knowledge.</td>
<td></td>
</tr>
</tbody>
</table>

---

33
### HAZARDS LANDS – DETERMINING RISK...continued

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal considerations</td>
<td>Municipal zoning bylaws and Official Plan checked to know how property is zoned AND property land use is in accordance with this zoning.</td>
<td>Municipal zoning bylaws and Official Plan checked to know how property is zoned.</td>
<td>No regard to whether intended use of property is in accordance with Official Plan or zoning bylaws.</td>
<td>No regard to whether intended use of property is in accordance with Official Plan or zoning bylaws AND property land use is not in accordance.</td>
<td>□</td>
</tr>
<tr>
<td>tip</td>
<td>Typically, septic systems are not included in home inspections. Make separate arrangements for this.</td>
<td>Exact knowledge of actual property limits, setbacks, conservation easements, floodplain restrictions and right-of-ways AND Conservation Authority regulations are observed.</td>
<td>General idea of actual property limits, setbacks, conservation easements, floodplain restrictions and right-of-ways.</td>
<td>No knowledge of actual property limits, setbacks, conservation easements, floodplain restrictions and right-of-ways.</td>
<td>□</td>
</tr>
<tr>
<td>tip</td>
<td>If a buried, abandoned fuel tank is found, the property owner is responsible for any costs associated with removal or contamination. This is typically not covered under home insurance.</td>
<td>Knowledge of ownership of any streams that run through property.</td>
<td>No knowledge.</td>
<td>Assumption of ownership of all natural features within property boundaries without inquiry.</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>□</td>
</tr>
</tbody>
</table>

#### Be careful about where you think your property ends. Municipalities may retain ownership of a 20 metre (66ft) right-of-way along the shoreline. Erection of fences or buildings/structures may require approval.

Ensure that there are no fuel tanks buried or otherwise on the property.
Why should you be concerned?

• Wells can provide a clean and safe supply of water, pumped from aquifers below the ground. If you use a private well, you must manage your own water quality.

• If a well is not constructed or maintained properly, or if a contaminant is spilled within the capture zone of a well, the quality of the water supply could be at risk.

• If your groundwater becomes contaminated, it can affect the health of your family. It may also affect the quality of groundwater supplying other wells, lakes or streams in the area. Your neighbours and community may all be affected. Ultimately, all wells are connected.

• Treating contaminated water, constructing a new well or getting water from another source are all inconvenient and expensive. It is much easier and more cost effective to prevent contamination rather than trying to clean it up.

• Whether you are using a private well or a municipal system, everyone plays a role in source water protection.

• If your water supply comes from a private surface water intake (i.e. directly in Lake Superior), skip to Topic Numbers 13 to 15 in this worksheet. The Ontario Ministry of Natural Resources (MNR) Free Use Policy allows property owners to pump water directly from a lake/river where the water intake is positioned in front of the owner’s lawfully occupied land, for household or cottage use only.

What can you do?

1. Make sure the water you drink and the groundwater that supplies your well are protected from contamination. Test your water regularly (minimum once per season). Contact the Thunder Bay District Health Unit.

2. Know where your septic system and well are located, as well as those of your neighbours.

3. Handle fertilizers, pesticides and other potential contaminants carefully.

4. Assume that your entire property recharges your groundwater and contains the capture zone for your well(s).

5. Contact a licensed well professional or your Health Unit to assist with items that get a “2” or “1” rating in this worksheet.

Note: Use this worksheet to assess the condition of your well(s) and water supply.

tip

Be familiar with any springs or other groundwater sources on your property. These contribute clean water to the watershed.
# LAKE SUPERIOR STEWARDSHIP GUIDE

## Calculate Your Household Water Use

**Note:** The chart below shows the average amount of water used in the average household. Calculate the average amount of water used in your house for a typical day or week.

<table>
<thead>
<tr>
<th>Fixture</th>
<th>Average water use</th>
<th>Water use in my household</th>
<th>Water efficiency measure installed</th>
<th>New water use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toilet</td>
<td>20 litres (5.3 gal.) per flush (standard toilet)</td>
<td>___ flush per day ___ litres ( ___ gal.)</td>
<td>Install a toilet water displacement device in the tank – as simple as a plastic bottle filled with sand.</td>
<td>18 litres (4.75 gal.) per flush</td>
</tr>
<tr>
<td></td>
<td></td>
<td>___ flush per week ___ litres ( ___ gal.)</td>
<td>Install a water efficient toilet at a cost of $130-$450.</td>
<td>6 litres (1.58 gal.) per flush</td>
</tr>
<tr>
<td>Shower</td>
<td>10 to 30 litres (2.5 to 8 gal.) per minute</td>
<td>___ minutes per day ___ litres ( ___ gal.)</td>
<td>Install a water efficient showerhead at a cost of $10-$40.</td>
<td>9.5 litres (2.5 gal.) per minute</td>
</tr>
<tr>
<td>Bath</td>
<td>60 litres (15 gal.)</td>
<td>___ bates per week ___ litres ( ___ gal.)</td>
<td>Install a water-efficient clothes washer. Do less laundry.</td>
<td>100 litres (22 gal.) per load</td>
</tr>
<tr>
<td>Clothes Washer</td>
<td>208 litres (55 gal.)</td>
<td>___ loads per week ___ litres ( ___ gal.)</td>
<td>Install a water-efficient dishwasher.</td>
<td>26 litres (7 gal.) per load</td>
</tr>
<tr>
<td>Dishwasher</td>
<td>40 litres (10 gal.)</td>
<td>___ loads per week ___ litres ( ___ gal.)</td>
<td>Install a kitchen faucet aerator at a cost of $3.</td>
<td>9.5 litres (3.3 gal.) per minute</td>
</tr>
<tr>
<td>Faucets (bathroom and kitchen)</td>
<td>15 litres (4 gal.) per minute</td>
<td>___ minutes per day ___ litres ( ___ gal.)</td>
<td>Install a water-efficient dishwasher.</td>
<td>26 litres (7 gal.) per load</td>
</tr>
<tr>
<td>Leaks</td>
<td>25 litres or more (6.6 gal.) per day (rate of one drop per second)</td>
<td>___ number of leaks ___ litres ( ___ gal.)</td>
<td>Conversion factor: Litres x 0.22 = Imperial Gallons</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>394 litres (104 gal.)</td>
<td>___ litres ( ___ gal.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Private Well Water Supply: How do you rate?

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LOCATION OF WELL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Position of water well in relation to potential sources of contamination</td>
<td>Upslope from all sources of contamination and all surface water moves away from well.</td>
<td>Upslope from, or level with any source of contamination and surface water runoff does not reach well.</td>
<td>Level with most sources of contamination and some surface water runoff may reach well.</td>
<td>Downslope from any source of contamination so that surface water reaches well or water ponds at and around well.</td>
</tr>
<tr>
<td>2 Distance from well to potential sources of contamination</td>
<td>Greater than 90 m (300 ft) (drilled well) and • 24-90 m (76-300 ft)* (drilled well) • 47-90 m (151-300 ft) (bored/dug well)</td>
<td>• 15-23 m (50-75 ft)* (drilled well) • 30-46 m (100-150 ft) (bored/dug well)</td>
<td>• *Less than 15 m (50 ft) (drilled well) OR • *Less than 30 m (100 ft) (bored/dug well)</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Drilled wells must have at least 6 m (20 ft) of watertight casing below ground level. If less than 6 m, treat well as a bored/dug well.

## CONDITION OF WELL

| Condition of well casing | Good condition. No visible defects AND checked annually by certified inspector. | No visible defects AND checked every one to two years by certified inspector. | No holes or cracks visible AND checked every three years or more by certified inspector. | Holes or cracks visible OR can hear water running into well OR never inspected. |

### Tip

Always maintain as great a distance as you can between a potential contaminant source and wells or surface water.

* These conditions may violate federal or provincial legislation or municipal by-laws.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Condition of well cap</td>
<td>Excellent condition, commercially manufactured, vermin proof and tightly secured.</td>
<td>Fair condition, commercially manufactured, vermin proof and tightly secured.</td>
<td>Commercially manufactured, vermin proof cap is loose or needs repair.</td>
<td>No commercially manufactured vermin proof cap.</td>
</tr>
<tr>
<td>5</td>
<td>Condition of well venting</td>
<td>Screened vent in excellent condition.</td>
<td>Screened vent in good condition.</td>
<td>Well vented but not screened.</td>
<td>No well vent.</td>
</tr>
<tr>
<td>6</td>
<td>Condition of surface material around well casing</td>
<td>Surface material raised above normal ground level beside well casing</td>
<td>No settling of the surface material around well casing</td>
<td>Can see settling of surface material around well casing</td>
<td>Can see settling of surface material around well casing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AND no space between well casing and surrounding surface material.</td>
<td>AND no space between well casing and surrounding surface material.</td>
<td>AND no space between well casing and surrounding surface material.</td>
<td>AND/OR visible space between well casing and surrounding surface material.</td>
</tr>
<tr>
<td>7</td>
<td>Casing Depth</td>
<td>More than 45 m (150 ft) below ground level.</td>
<td>31-45 m (101-150 ft) below ground level.</td>
<td>15-30 m (50-100 ft) below ground level.</td>
<td>Less than 15 m (50 ft) OR no casing.</td>
</tr>
<tr>
<td>8</td>
<td>Casing height above ground level</td>
<td>40 cm (16 in) or more above normal ground level.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*Less than 40 cm (16 in) above normal ground level, in pit or in basement.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Age of well</td>
<td>Less than 20 years old.</td>
<td>Less than 40 years old.</td>
<td>40-60 years old.</td>
<td>More than 60 years old.</td>
</tr>
</tbody>
</table>

* These conditions may violate federal or provincial legislation or municipal by-laws.
# Lakehead Region Conservation Authority

**Conserving Today...For A Better Tomorrow**

- Unused wells not capped or protected
- OR abandoned wells not properly plugged and sealed.

### MANAGEMENT OF PRIVATE WELL WATER SUPPLY

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of well</strong></td>
<td>Drilled – Casing terminates above ground, approved well cap.</td>
<td>Drilled – Casing terminates in a well pit.</td>
<td>Sand point or driven.</td>
<td>Bored or dug.</td>
<td></td>
</tr>
<tr>
<td><strong>Backflow prevention</strong></td>
<td>Anti-backflow devices (such as check valves and vacuum breakers)</td>
<td>Anti-backflow devices installed on some faucets with hose connections</td>
<td>No anti-backflow devices</td>
<td>No anti backflow devices OR air gap not maintained.</td>
<td></td>
</tr>
<tr>
<td><strong>Unused or abandoned wells</strong></td>
<td>No unused or abandoned wells.</td>
<td>Unused wells capped, properly protected and maintained AND abandoned wells properly plugged and sealed.</td>
<td></td>
<td><em>Unused wells not capped or protected OR abandoned wells not properly plugged and sealed.</em></td>
<td></td>
</tr>
<tr>
<td><strong>Water testing</strong></td>
<td>Water tested for bacteria more than 3 times a year (including once in the spring) and more than once a year for other parameters (e.g. nitrate levels) AND bacteria, nitrate, and other tests (health related) always meet Ontario Drinking Water Standards.</td>
<td>Water tested for bacteria more than 3 times a year and once a year for other parameters (e.g. nitrate levels) AND bacteria, nitrate, and other tests (health related) always meet Ontario Drinking Water Standards on the second test (the follow-up check) if first test fails.</td>
<td>Water tested for bacteria more than 3 times a year and not tested for other parameters (e.g. nitrate levels).</td>
<td>Water is not tested OR does not meet Ontario Drinking Water Standards on first test or on second test (follow-up check).</td>
<td></td>
</tr>
</tbody>
</table>

**Tip**

Your local Health Unit is a valuable resource in helping you manage the quality of your drinking water. Participate in EcoSuperior’s Well Aware Program. Ask your neighbours what their test revealed (See “Private Well Water Supply” in Resource List pg. 121).

* These conditions may violate federal or provincial legislation or municipal by-laws.
## SURFACE WATER INTAKES

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screen</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td><em>No filtration screen.</em></td>
</tr>
<tr>
<td>Pipe</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td><em>Pipe installed underneath a road or the bed of a watercourse does not have approval/permit.</em></td>
</tr>
<tr>
<td>Location</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Water intake directly downstream from potential sources of contamination.</td>
</tr>
</tbody>
</table>

### Tip

If you pump more than 50,000 litres per day, a Permit to Take Water may be required. Contact your local MOE for further details.

Review DFO- Freshwater Intake End of Pipe Fish Screen Guideline available online at: http://www.dfo-mpo.gc.ca/Library/223669.pdf

If you plan to install pipes for water lines underneath the bed of a lake/river, you may be required to follow certain measures to protect fish and fish habitat during construction required by the DFO. Contact the LRCA prior to installation for project review. Also see the DFO Operational Statement titled High-Pressure Directional Drilling (See “Fish Habitat” in Resource List pg. 119).

Review Transport Canada-Navigable Waters Protection Program to determine if your water intake project is considered a minor work or requires approval (See “Navigable Waters” in Resource List pg. 121).

Water intake is left frozen in the lake/river through the winter season.

*These conditions may violate federal or provincial legislation or municipal by-laws.*
Why should you be concerned?

• In urban areas, household wastewater is treated at a treatment plant before it is discharged into the lake.

• In rural areas, people use a septic tank or similar system to treat household wastewater. All the water that flows down your drains ends up in your septic system. It must be able to safely handle all the wastewater to prevent contamination of ground and surface water.

• Household wastewater contains disease-causing bacteria and viruses, household chemicals, and excess nutrients. All of these contaminants can cause serious health problems.

• Your household drinking water should be tested regularly for total coliform and E-coli. If present, these bacteria indicate that the water is not safe for drinking or food preparation. Your septic tank system could be one source of contamination.

• If your home treatment system has to handle too much wastewater, it will not be as effective and may cause premature failure. Increased use of water, through additional appliances or a second bathroom will increase the load on your septic system.

• Not only can septic system failure be highly inconvenient, it can also be very expensive. In addition, new regulations and higher standards may mean that the system may have to be replaced instead of being repaired or upgraded.

• Facilities such as outhouses and chemical toilets can be effective and environmentally responsible. Contact your local Health Unit or Municipality to learn more.

What can you do?

1. Make sure your septic system is large enough to meet your needs. Look for ways to reduce the amount of wastewater that enters the septic system.

2. Protect your health and the quality of your drinking water by disposing of contaminants properly.

3. Keep your septic system in good repair. Pump the septic tank out regularly (every 3-5 years).

4. Keep trees, shrubs and vehicles out of your septic field.

5. Consider renting a portable toilet when hosting large gatherings.
# Wastewater & Septic Systems: How do you rate?

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QUANTITY OF WASTEWATER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Efficient water use affects septic function</td>
<td>Conservative water use (less than 180 litres/40 gal. per person per day).</td>
<td>Moderate water use (180-270 litres/40-60 gal. per person per day).</td>
<td>High water use (271-360 litres/61-80 gal. per person per day).</td>
<td>Very high water use (greater than 360 litres/80 gal. per person per day).</td>
</tr>
<tr>
<td>2 Fixtures and maintenance</td>
<td>Water-conserving fixtures throughout house</td>
<td>Some water-conserving fixtures throughout house</td>
<td>No water-conserving fixtures in house</td>
<td>No water-conserving fixtures</td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td>AND fixtures are inspected regularly</td>
<td>AND fixtures are inspected regularly</td>
<td>OR fixtures are not inspected regularly. Problems are fixed when found</td>
<td>OR leaks are not fixed immediately.</td>
</tr>
<tr>
<td></td>
<td>AND leaks fixed immediately.</td>
<td>AND some leaks are fixed immediately.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>QUALITY OF WASTEWATER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Solid waste</td>
<td>No use of garbage disposal unit in kitchen sink.</td>
<td></td>
<td>Daily use of garbage disposal unit in kitchen sink.</td>
<td></td>
</tr>
<tr>
<td>4 Dissolved waste</td>
<td>Minimal use of environmentally friendly household detergents and cleaners (0.2 litres per week)</td>
<td>Careful use of household detergents and cleaners (0.5 litres per week)</td>
<td>Moderate use of household detergents and cleaners (1 litre per week)</td>
<td>High use of household detergents and cleaners (4 litres per week)</td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td>Using less water helps your septic field perform better.</td>
<td>AND minimal disposal household solvents and cleaning agents into plumbing system.</td>
<td>OR moderate disposal of household solvents and cleaning agents into plumbing system.</td>
<td>OR frequent disposal of household solvents and cleaning agents into plumbing system.</td>
</tr>
<tr>
<td></td>
<td>AND no disposal of household solvents into plumbing system.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### DESIGN OF WASTEWATER TREATMENT SYSTEM

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DESIGN OF WASTEWATER TREATMENT SYSTEM</strong></td>
<td>Has Building Permit or Certificate of Approval</td>
<td>Water softener discharges to septic tank but the system is properly designed to accommodate discharge water.</td>
<td>Moderate disposal of household grease or oils into plumbing system</td>
<td>Water softener discharges into septic tank not designed to accommodate discharge water.</td>
<td></td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td>Tip: All septic systems eventually need replacing but with proper maintenance, your system can last 15 years or longer – even with year-round use. The septic tank should be pumped after the first year of use to determine the frequency of pumping. Keep a maintenance record of your septic system (See “Wastewater &amp; Septic Systems” in Resource List pg. 123).</td>
<td><strong>tip</strong>: OR system not sized according to regulatory requirements</td>
<td><strong>tip</strong>: OR system not installed by a licensed installer.</td>
<td><strong>tip</strong>: OR system not installed by a licensed installer.</td>
<td></td>
</tr>
</tbody>
</table>

*These conditions may violate federal or provincial legislation or municipal by-laws.*
<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge of septic system</strong></td>
<td>Excellent knowledge of overall septic system size, location, and operation.</td>
<td>Good knowledge of overall septic system size, location, and operation.</td>
<td>Limited knowledge of overall septic system size, location, and operation.</td>
<td>No knowledge of overall septic system size, location, and operation.</td>
<td></td>
</tr>
<tr>
<td><strong>Septic tank</strong></td>
<td>Two compartment tank, AND septic tank checked every 3 years and pumped as required</td>
<td>Two compartment tank AND septic tank checked every 4-5 years and pumped as required</td>
<td>Single compartment tank OR septic tank checked every 6-10 years and pumped as required</td>
<td>Single compartment tank OR seldom pumped out – last time more than 10 years ago</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AND good maintenance – baffles and tank checked and no leaks.</td>
<td>AND some maintenance and no leaks.</td>
<td>OR no maintenance, but no leaks.</td>
<td>OR no maintenance, no checks, and leaks from tank.</td>
<td></td>
</tr>
<tr>
<td><strong>Other treatment system</strong></td>
<td>Regular maintenance program followed AND no mechanical failures AND loaded at rate below design capacity.</td>
<td>Regular maintenance program followed AND no mechanical failures AND loaded at rate near capacity.</td>
<td>Regular maintenance program not followed OR occasional failures (once every 2 years).</td>
<td>No maintenance program OR frequent system failure OR system overloaded.</td>
<td></td>
</tr>
<tr>
<td><strong>OR</strong></td>
<td>Capacity is higher than design requirements AND tanks checked – no leaks AND working alarm system.</td>
<td>Capacity meets design requirements AND tanks checked – no leaks AND working alarm system.</td>
<td>Loaded at design capacity OR tanks not checked for leaks OR alarm system not working.</td>
<td>*Capacity does not meet recommended guidelines OR leaks and overflow from tank OR no alarm system.</td>
<td></td>
</tr>
</tbody>
</table>
### LOCATION OF WASTEWATER SYSTEM

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
</table>
| 12    | Distance from wastewater treatment system to nearest surface water (lake, river, etc.) | Greater than 150 m (500 ft) | 61 - 150 m (200 - 500 ft) | 15 - 60 m (50 - 199 ft) for:  
  • septic tank  
  • leaching bed  
  • holding tank  
  • other treatment unit | *Less than 15 m (50 ft) from:  
  • septic tank  
  • leaching bed  
  • holding tank  
  • other treatment unit | [] |
| 13    | Distance from wastewater treatment system to a well | Greater than 90 m (300 ft) | For leaching bed or holding tank:  
  • 24 - 90 m (76 - 300 ft) (drilled well)  
  • 47 - 90 m (151 - 300 ft) (bored/dug well) | For leaching bed or holding tank:  
  • 15 - 23 m (50 - 75 ft) (drilled well)  
  • 30 - 46 m (100 - 150 ft) (bored/dug well) | For leaching bed or holding tank:  
  • less than 15 m (50 ft) (drilled well)  
  • less than 30 m (100 ft) (bored/dug well) | [] |

**tip**

Always maintain as great a distance as you can between a potential contaminant source and wells or surface water.

| Leaching bed location | Located more than:  
  • 5 m (16½ ft) from any building or structure.  
  • 3 m (10 ft) from any property line. | Located:  
  • 5 m (16½ ft) from any building or structure.  
  • 3 (10 ft) from any building or property line. | *Located less than:  
  • 5 m (16½ ft) from any building or structure.  
  • 3 m (10 ft) from any property line. | [] |

*These conditions may violate federal or provincial legislation or municipal by-laws.*
### LAKE SUPERIOR STEWARDSHIP GUIDE

#### LOCATION OF WASTEWATER TREATMENT SYSTEM...

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
</table>
| Depth to water table or bedrock from bottom of leaching bed trench | More than 1.8 m (6 ft) | 0.9 - 1.8 m (3 - 6 ft) | | | *Less than 0.9 m (3 ft). | ✔️

#### COLLECTION OF WASTEWATER

| Sources and amount | All wastewater is collected for treatment | *Some wastewater does not reach septic system because of leaks in pipes/fixtures | $\bigcirc$
<table>
<thead>
<tr>
<th>Source 1</th>
<th>Source 2</th>
<th>Source 3</th>
<th>Source 4</th>
</tr>
</thead>
</table>
| All downspouts should be diverted away from the septic system to reduce overloading the leaching bed with clear water. An average size home with a roof area of 93 square metres (1000 sq ft) will deposit 930 litres (246 gallons) of water onto the ground after a 10 mm (0.4 inch) summer rain storm. | * OR clear water is getting into the septic system. | $\bigcirc$

---

*These conditions may violate federal or provincial legislation or municipal by-laws.*
<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DISTRIBUTION OF WASTEWATER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subsurface distribution of wastewater (septic or other treatment systems)</td>
<td>Pressure or dosed distribution to leaching bed.</td>
<td>Gravity-fed distribution to leaching bed.</td>
<td><em>Drainage directly into septic field, with no septic tank</em> OR piped to anywhere but a septic or other approved treatment system.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LOADING OF LEACHING BED</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leaching bed surface water drainage</td>
<td>Surface water drains away from leaching bed area.</td>
<td>Surface water drains onto leaching bed area.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leaching bed loading (visual inspection)</td>
<td>Soil always firm AND no odours.</td>
<td>Ground is seldom wet, or spongy AND no odours.</td>
<td>Ground is frequently wet, or spongy OR odours noticed occasionally.</td>
<td>Ground is always wet or spongy OR strong odours noticed frequently</td>
<td></td>
</tr>
<tr>
<td><strong>HAULED SEWAGE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disposal of pumpage from septic tanks, other treatment systems, and holding tanks</td>
<td>Regulated and certified disposal by a licensed hauler.</td>
<td></td>
<td></td>
<td><em>Disposal is not done by a licensed hauler.</em></td>
<td></td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If on clay soil, plant grass over the leaching bed. If on sand, plant beach grass or leave without a ground cover.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* These conditions may violate federal or provincial legislation or municipal by-laws.
**Gardening and Landscaping**

**Worksheet #6a – Landscape Water Efficiency**

**Note:** Use this worksheet to learn about water efficiency your gardening and landscaping.

### Why should you be concerned?

- There is a limited supply of fresh, clean water.
- As water moves through the ground, it is filtered and purified before it is stored in underground aquifers.
- If water is drawn from these aquifers at a rate faster than it can be replenished by the water cycle, we can experience severe shortages and damage to aquatic systems.
- Prolonged temperature changes, such as heat waves, make the problem worse by lowering the groundwater levels even further.
- While the fresh water supply is shrinking, demand from municipalities, industries and agriculture is always increasing.
- Whether your drinking water comes from a private or a municipal well, we’re all pulling water from the same limited source.

### What can you do?

1. Find out how much water you use in your landscaping and gardening.
2. Choose proper equipment that is water efficient and maintain it on a regular basis.
3. Consider plants that grow well in local conditions with minimal irrigation.
# LANDSCAPE WATER EFFICIENCY: How do you rate?

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WATER MANAGEMENT AND USE</strong></td>
<td>Water use is monitored regularly and steps are taken to improve efficiency.</td>
<td>Water use is monitored on occasion.</td>
<td>Water use is not monitored.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Knowledge of water use in the landscape</td>
<td>Regular monitoring for leaks. Leaks are fixed immediately.</td>
<td>Leaks are required only when they become a problem.</td>
<td>Leaks are not repaired.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Irrigation Equipment type</td>
<td>Irrigation equipment applies water to plant rooting area only (e.g. drip system).</td>
<td>Low-level sprinkler system.</td>
<td>Mid-level sprinkler or mobile sprinkler head.</td>
<td>Fixed sprinkler head.</td>
<td></td>
</tr>
<tr>
<td>3 Irrigation design</td>
<td>System is properly designed and sized for the size of the garden or landscape area.</td>
<td>No ponding of irrigation water.</td>
<td>Water ponds briefly but then infiltrates soil.</td>
<td>Irrigation water ponds but does not run off the property.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Water runoff along the surface and into any underground drains.</td>
<td></td>
</tr>
</tbody>
</table>
### WATER MANAGEMENT AND USE...continued

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watering your plants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good knowledge of plant water needs and limitations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AND soil moisture, water application rate and the volume of water are monitored.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watering schedule is adjusted to rainfall, stage of plant development, use of water gauges, and plant appearance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water only in the early morning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water only in the early morning or early evening.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watering in the morning (versus the evening) lowers the chance of fungal disease.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**tip**

Use rain barrels or cisterns to collect irrigation water for plants. In the month of June, Thunder Bay receives an average of 85.7 mm of rain (Environment Canada Climate Normals 1971-2000) and when you consider an average roof size of 93 square metres (1000 sq ft), a rain barrel attached to your downspout will collect 7,970 litres (2,105 gallons) of water FREE for lawn and garden irrigation each summer month.

**tip**

Watering in the morning (versus the evening) lowers the chance of fungal disease in plants.
LAKE SUPERIOR STEWARDSHIP GUIDE

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water features and ponds</td>
<td>There is no artificial water feature or pond on the property.</td>
<td>Water feature(s) and landscaping are designed to minimize the amount of light falling on water feature</td>
<td>Water feature(s) are located as far from waterways or open natural water as possible.</td>
<td>Indiscriminate design, placement and chemical treatment of artificial water features.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>AND</strong> water is continuously moving in water feature(s)</td>
<td><strong>AND</strong> water feature(s) are located as far from waterways or open natural water as possible.</td>
<td><strong>tip</strong> If you are planning to construct a pond on your property (i.e. irrigation, livestock watering or aesthetic), you may require a permit for construction and be required to follow certain measures to protect fish and fish habitat. Contact the LRCA prior to pond construction for project review. Also see the DFO Operational Statement titled &quot;Isolated Pond Construction&quot; (See “Fish Habitat” in Resource List pg. 119).</td>
<td><strong>tip</strong> <em>Pond is created by digging or dredging an area within an existing watercourse or by damming a watercourse</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Pond is created by diverting flow from a natural watercourse into an adjacent pond</em></td>
<td><em>Pond is created by diverting flow from a natural watercourse into an adjacent pond</em></td>
<td><em>Pond alters groundwater, temperature, sedimentation or fish migration</em></td>
<td><em>Pond alteration is not obtained.</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>AND</strong> pond is not connected by any inlet/outlet channel to a natural watercourse</td>
<td><strong>AND</strong> pond is not connected by any inlet/outlet channel to a natural watercourse</td>
<td><strong>AND</strong> pond is not connected by any inlet/outlet channel to a natural watercourse</td>
<td><strong>AND</strong> pond is not connected by any inlet/outlet channel to a natural watercourse</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>AND</strong> pond is at least 30 metres away from the ordinary high water mark</td>
<td><strong>AND</strong> pond is at least 30 metres away from the ordinary high water mark</td>
<td><strong>AND</strong> pond is at least 30 metres away from the ordinary high water mark</td>
<td><strong>AND</strong> pond is at least 30 metres away from the ordinary high water mark</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>AND</strong> riparian vegetation is protected</td>
<td><strong>AND</strong> riparian vegetation is protected</td>
<td><strong>AND</strong> riparian vegetation is protected</td>
<td><strong>AND</strong> riparian vegetation is protected</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>AND</strong> pond does not alter groundwater.</td>
<td><strong>AND</strong> pond does not alter groundwater.</td>
<td><strong>AND</strong> pond does not alter groundwater.</td>
<td><strong>AND</strong> pond does not alter groundwater.</td>
<td></td>
</tr>
</tbody>
</table>

**tip** Do not stock ponds that have an outflow to a natural watercourse with non-native fish. Contact the MNR before stocking a private pond that is in the floodplain or connected to a natural watercourse where fish could escape.

* These conditions may violate federal or provincial legislation or municipal by-laws.
## Gardening and Landscaping

**Worksheet #6b – Natural Buffers & Shoreline Access**

**Note:** Use this worksheet to learn about living within natural buffer areas.

<table>
<thead>
<tr>
<th>Why should you be concerned?</th>
<th>What can you do?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A buffer is an area of natural vegetation that runs along the shoreline, stream or bluff. It extends from the high water mark to the water’s edge.</td>
<td>1. Minimize water access points, avoid access ways through any environmentally sensitive areas including wetlands, bluffs, Provincially Significant Wetlands (PSWs) and Areas of Natural and Scientific Interest (ANSl).</td>
</tr>
<tr>
<td>• Natural buffers can include wetlands, beaches, forest corridors, and any native vegetation along the shoreline or bank.</td>
<td>2. Maintain the existing buffer(s).</td>
</tr>
<tr>
<td>• Natural buffers not only protect the stability of the shoreline, bluff, or bank, but they protect water quality by filtering and purifying water before it enters a watercourse.</td>
<td>3. Restore buffers where they have previously been removed or degraded in consultation with the Lakehead Region Conservation Authority.</td>
</tr>
<tr>
<td>• In order to have visual or physical access to water, people sometimes remove all or part of a buffer. This activity weakens the buffer’s ability to protect against erosion or poor water quality. This leads to the degradation of ecological function. It can also lead to liability cases with neighbours and criminal charges if fish habitat is harmed.</td>
<td>4. Divert downspouts into screened rain barrels to reduce erosion.</td>
</tr>
</tbody>
</table>
## Natural Buffers & Shoreline Access: How do you rate?

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puncturing the buffer</td>
<td>Buffer is not punctured for access to water.</td>
<td>Only a small puncture in your buffer.</td>
<td>Buffer is punctured but vegetation is allowed to re-establish naturally</td>
<td>Buffer mostly punctured or non-existent. Vegetation cleared and prevented from re-establishing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OR punctures are concentrated in one area.</td>
<td></td>
</tr>
<tr>
<td>Size of buffer</td>
<td>Buffer is greater that 50 m (165 feet) wide and in environmentally sensitive areas, buffer is 150 m (500 feet) wide.</td>
<td>Buffer is at least 50 m (165 feet) wide.</td>
<td>Buffer is less than 50 m (165 feet) wide.</td>
<td>There is no buffer present. Grass/lawn extends to property limit.</td>
</tr>
<tr>
<td>Composition of buffer</td>
<td>Buffer comprised of native vegetation.</td>
<td>Buffer comprised mostly of native vegetation and some non-invasive introduced species.</td>
<td>Buffer comprised of some native vegetation and mostly non-invasive species.</td>
<td>Buffer comprised of no native vegetation and mostly invasive and/or non-invasive introduced species.</td>
</tr>
<tr>
<td>Property maintenance</td>
<td>Aware of any especially sensitive buffers, including wetlands and bluffs, and plans to protect them.</td>
<td>Aware of any especially sensitive buffers, including wetlands and bluffs. No plans to protect them.</td>
<td>Aware of any especially sensitive buffers, including wetlands and bluffs. No plans to protect them.</td>
<td>No awareness of any especially sensitive buffers including wetlands and bluffs, and no plans to protect them.</td>
</tr>
</tbody>
</table>

- **Topic 1**: Your Rating
- **Topic 2**: Your Rating
- **Topic 3**: Your Rating
- **Topic 4**: Your Rating
**LAKE SUPERIOR STEWARDSHIP GUIDE**

<table>
<thead>
<tr>
<th>Topic</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Property maintenance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All trees, woody debris, and leaves are left in place. No alterations.</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetation alterations are limited to pruning branches from trees to provide for visual access.</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trees removed to provide access are concentrated in an area. Other vegetation (shrubs, ground cover) is not removed.</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trees are removed throughout to provide visual access.</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td><strong>Shoreline stabilization</strong></td>
<td></td>
<td>□</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planting native deep-rooted shrub species</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rock rubble or rip-rap embankments with a slope of 1:3 (vertical: horizontal)</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Placement of baseball to football sized rocks into closed wire cages (Gabion baskets).</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical retaining wall of stone or concrete</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR concrete rubble.</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

*tip*

If you need to remove shoreline vegetation to maintain an existing right-of-way (i.e. power lines), try to remove no more than 1/3 of the vegetation, allow the root system to stay intact and use hand tools rather than large machinery. Also see the DFO Operational Statement titled *Maintenance of Riparian Vegetation in Existing Right-of-Way* (See “Fish Habitat” in Resource List pg. 119).

*tip*

Review the DFO publication: *Working Around Water? Factsheet Series – Fish Habitat & Shoreline Stabilization* (See “Fish Habitat” in Resource List pg. 119). Review Transport Canada - Navigable Waters Protection Program to determine if your erosion protection project is considered a minor work or requires approval (See “Navigable Waters” in Resource List pg. 121).

*tip*

Always contact the Lakehead Region Conservation Authority before the construction of structures or placement or removal of materials in the regulated area (i.e. shoreline) on your property.

*tip*

If you are planning a major shore protection project, consider a common group effort with neighbours to save construction and consulting engineering costs. Remember: altering your shoreline will effect erosion and deposition processes on the shoreline of others.
Gardening and Landscaping

Worksheet #6c – Trees

Note: Use this worksheet to assess trees on your property.

Why should you be concerned?

Please note that this worksheet applies to small cottage lots – not woodlots.

• Ecologically, trees provide shelter and a food source for wildlife. Their presence is critical to the health of their ecosystems and watershed.

• The roots of trees and shrubs anchor the soil, helping to stabilize slopes and prevent the loss of soil through erosion.

• Trees remove carbon dioxide, one of the main gases involved in climate change, from the atmosphere. They also absorb and store many pollutants that are emitted into the air from industry and cars. This helps to improve the quality of air we breathe.

• Trees can be natural air conditioners. If planted strategically around windows, doors and outdoor activity areas, trees (especially larger, mature ones) can provide shade from the hot summer sun.

• Similarly, in winter, evergreen trees can provide shelter from cold winds. This can lower the heat loss from buildings and help reduce heating costs.

• From a real-estate perspective, trees add value to a property. They not only help to create an established feeling in a neighbourhood or property, they also improve the appearance.

What can you do?

1. Protect existing trees from animal browsing, insect and disease infestation and physical damage from machinery or weather events.

2. Plant appropriate trees where possible. Check with Worksheet #6d – Plant Selection & Care, or the Lakehead Region Conservation Authority to ensure that you are not planting invasive species. Native plants are best suited to local conditions.

3. Identify mature and rare trees that you want to protect. Include these in a long-term management plan.

4. Every Arbour Day, make it a family tradition to plant a shrub or tree.
### TREES: How do you rate?

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>TREE ECOLOGY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding and appreciation for the role of trees in ecosystem health</td>
<td>Proper instructions followed when planting trees AND tree species selected to suit existing site conditions AND priority given to native species.</td>
<td>Trees planted following proper instructions AND tree species selected to suit existing site conditions.</td>
<td>Non-invasive, exotic species are planted.</td>
<td>No consideration given to tree ecology in selection of new trees OR invasive species are planted.</td>
<td></td>
</tr>
<tr>
<td>Tip: Standing, dead trees are left in place to provide habitat. Only hazard trees are felled and left to rot in place.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip: Submerged logs are left in place on the bed of lake/river to provide fish habitat.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip: Before clearing or trimming trees on a slope, get a certified arborist to help you with your plans.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip: Review the DFO Operational Statement titled Submerged Log Salvage (See “Fish Habitat” in Resource List pg. 119).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip: Submerged cut logs (no root wad or branches) that are located in more than 5 metres of water depth are safely removed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip: All natural vegetation is removed from bluffs and other slopes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip: <em>Submerged logs that are located in water less than 5 m deep and buried more than 10% of diameter in the lake/river bed are removed.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip: <em>OR tree limbs that overhang water ways or shores are cut.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*These conditions may violate federal or provincial legislation or municipal by-laws.*
# LAKE SUPERIOR STEWARDSHIP GUIDE

## TREE MANAGEMENT

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2</strong></td>
<td><strong>Tree maintenance and care</strong>&lt;br&gt;Protect trees during construction by ensuring that there is no disturbance within the dripline.</td>
<td>All trees are protected against browsing, injury, and potential diseases AND no healthy trees are removed.</td>
<td>Trees at shoreline and watercourse buffers are protected AND no healthy trees are removed.</td>
<td>Trees are not protected OR some healthy trees are removed.</td>
<td>Lot is generally cleared.</td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td>Branch pruning is done properly and at the right time to provide lake views from a distance.</td>
<td>Branch pruning is irregular but is done properly.</td>
<td>Trees are watered during hot, dry periods for the first three years after planting AND mulch is properly piled at least 3 inches away from tree trunk.</td>
<td>Trees are pruned carelessly or without regard for tree health and vigor.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trees are watered properly and regularly for a minimum of three years after planting AND mulch is properly piled at least 3 inches from tree trunk.</td>
<td>Trees are watered irregularly AND mulch is properly piled at least 3 inches away from tree trunk.</td>
<td>Watering is inadequate during the first three years following planting OR mulch is piled too close to the tree trunk, causing damage to the bark.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3</strong></td>
<td><strong>Knowledge of issues related to tree health</strong>&lt;br&gt;Have knowledge of potential insect and disease problems in your area AND a certified arborist is hired to assess tree health and development and to develop a long-term management plan.</td>
<td>A certified arborist is hired to assess tree health and development and to develop a long-term management plan.</td>
<td>Existing trees are checked periodically for disease or insect infestation.</td>
<td>No consideration is given to tree health or insect problems in your area.</td>
<td></td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td>Be aware of the source of new trees when purchasing and ensure they are infection-free before planting.</td>
<td>If necessary, ensure trees are properly staked after planting and that stakes are removed after two years.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

57
Tree rooting zone has adequate soil volume and conditions appropriate to the tree species.

Tree species selected is well suited to existing soil conditions especially soil structure and moisture availability.

Cues for proper species selection can be gained by looking at nearby native or non-invasive trees that are thriving in the same conditions as your property.

Never pile mulch too close to the trunk of a tree. This can damage the bark, possibly girdling and killing the tree.
Gardening and Landscaping

Worksheet #6d – Plant Selection & Care

**Note:** Use this worksheet to help select appropriate plants for your landscape.

**Why should you be concerned?**

- Native plants have evolved as part of a greater ecological community. They are well adapted to local conditions, but may have some disease or insect problems.

- Using native species helps to integrate your property into the greater landscape context.

- Native plants are a valuable food source for insects and native wildlife. They also provide valuable habitat for many kinds of species.

- Invasive species can spread into other areas and are difficult to eradicate. They can also introduce disease and require more maintenance such as watering and fertilizing.

- Avoid extensive lawns because they reduce biodiversity.

- Extensive lawns also contribute to erosion and increase the potential for slope instability.

**What can you do?**

1. Learn about the plant community in your area/region and select plants with the help of Thunder Bay Naturalist Club or a reputable nursery or market garden.

2. Never plant invasive plants on your property and understand which invasive species already exist in your area.

3. Know your soil type and depth. Some areas along Lake Superior have very shallow soils.

4. Reduce your lawn area to only what is needed for particular activities and keep it as far as possible from any water-body or shoreline.

5. Use low maintenance plants that don’t require watering or fertilizing.
## PLANT SELECTION & CARE: How do you rate?

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant selection and control</td>
<td>No use or presence of invasive plants on property</td>
<td>No new planting of invasive plants AND measures taken to eliminate existing invasive plants</td>
<td>No new planting of invasive plants</td>
<td>Continued use of invasive plants.</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>Match plant selection to your soil conditions</td>
<td>Plant selection suits local soil and climate conditions AND non-invasive plants selected.</td>
<td>Occasional addition of nutrients to support non-invasive plants.</td>
<td>Plant selection does not suit local soil and climate conditions OR includes invasive plants.</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>Complete eradication and proper disposal of existing invasive plants on your property.</td>
<td>Long-term management plan for the eradication of existing invasive plants.</td>
<td>Short-term management plan for the eradication of existing invasive plants.</td>
<td>No attempts to eradicate invasive plants.</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>Aquatic plants are left undisturbed to provide fish habitat and stabilize sediments.</td>
<td>Aquatic plants are removed by approved methods in the appropriate timing window.</td>
<td>*Aquatic plants are removed without regard for fish habitat OR removed by unapproved herbicide application or in-water dredging.</td>
<td></td>
<td>□</td>
</tr>
</tbody>
</table>

*These conditions may violate federal or provincial legislation or municipal by-laws.*

**Tip:** When selecting any plant, consider its size at maturity and determine if this is appropriate to the space available.

**Tip:** When planting in a floodplain, ensure that plants can tolerate seasonal flooding conditions.

Review the DFO publication: *Working Around Water? Factsheet Series – Fish Habitat & Controlling Aquatic Plants* (See “Fish Habitat” in Resource List pg. 119).
## LAKE SUPERIOR STEWARDSHIP GUIDE

### Garden monitoring

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular checks to ensure that invasive species have not established in gardens</td>
<td>Regular checks to ensure that invasive species have not established in gardens.</td>
<td>Occasional checks to ensure that invasive species have not established in gardens.</td>
<td>No checks to ensure that invasive species have not established in gardens.</td>
<td></td>
</tr>
<tr>
<td>AND once spotted, invasive plants are immediately disposed of in an appropriate manner.</td>
<td>OR once spotted, invasive plants are immediately disposed of in an inappropriate manner.</td>
<td>OR once spotted, invasive plants are not disposed.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Lawns

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>No traditional lawn.</td>
<td>Lawn is limited to a area over the septic bed with no use of pesticides, fertilizers or irrigation.</td>
<td>Lawn is kept to a minimum size and at a maximum distance from any shoreline or bluff edge.</td>
<td>Much of property is given over to lawn.</td>
<td>OR lawn is used to the water’s edge.</td>
</tr>
<tr>
<td>Learn about appropriate alternative groundcovers from local experts and plant them</td>
<td>Allow for a mix of native and non-invasive plants that tolerate some mowing and drought.</td>
<td>Non-invasive plants used that tolerate some mowing and drought.</td>
<td>Species used require extensive use of irrigation, fertilizer or pesticides.</td>
<td>OR use of invasive species.</td>
</tr>
<tr>
<td>AND encourage local nurseries to stock native groundcovers.</td>
<td>Sod is used to establish new lawn.</td>
<td>Establishment of new lawn with seed, subject to erosion.</td>
<td>Bare soil.</td>
<td></td>
</tr>
</tbody>
</table>

#### Tip:

- If planting a traditional lawn with non-native grass, choose a grass that is hardy, pest resistant and non-invasive.
- During hot, dry weather, allow grasses to go dormant.
- To gradually remove or reduce the size of your lawn, stop mowing. Gradually, native plants will return.
## LAKE SUPERIOR STEWARDSHIP GUIDE

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PESTICIDE USE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pesticide use and application</td>
<td>No cosmetic pesticide use.</td>
<td>Pesticide alternatives are used.</td>
<td>Pesticides are handled carefully according to instructions and weather conditions AND spot treatment.</td>
<td>Pesticides are applied indiscriminately without concern for application.</td>
</tr>
<tr>
<td><strong>FERTILIZER USE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding of plant requirements and fertilizer use</td>
<td>Good understanding of plant nutrient requirements AND soil is tested to determine nutrient requirements before fertilizing. Fertilizer used accordingly.</td>
<td>Good understanding of plant nutrient requirements AND plant is monitored regularly to detect nutrient deficiencies. Fertilizer used accordingly.</td>
<td>Basic understanding of plant nutrient requirements AND occasional monitoring for plant nutrient deficiencies. Fertilizer used regularly.</td>
<td>No consideration for soil condition or plant nutrient requirements OR excessive use of fertilizer.</td>
</tr>
<tr>
<td>Fully-composted manure and yard waste is used appropriately to amend soil.</td>
<td>Fully-composted manure and yard waste is used appropriately to amend soil OR controlled spot use of fertilizer if necessary.</td>
<td>Occasionally apply fertilizer over the entire garden and/or the lawn.</td>
<td>Over-application of nutrients OR poor care taken in following package instructions.</td>
<td></td>
</tr>
<tr>
<td>Locally-produced, well-rotted compost or manure is used.</td>
<td>Local, well-rotted compost or manure is used OR slow-release synthetic fertilizer is used.</td>
<td>Well-rotted compost or manure is used but not from local sources OR quick-release fertilizer is used but nutrient composition is appropriate to situation.</td>
<td>Quick-release synthetic/commercial fertilizer is used.</td>
<td></td>
</tr>
</tbody>
</table>
FERTILIZER USE...continued

### Application practices and water access

- Nutrient application is a minimum of 30 m (100 ft) from wells, water intakes, streams and water courses
- **AND** a permanently vegetated buffer, greater than 3 m (10 ft) wide runs between the area of nutrient application and any well, water intake, stream or water course
- **AND** check to ensure that heavy rain or thunderstorms are not forecasted for at least 24 hours following application.

**tip**

Test your soil for nitrogen, phosphorus and potassium levels before adding nutrients. Contact a soil testing lab for more details on soil sampling. See the *Yellow Pages* for a listing near you (See “Soils” in Resource List pg. 122).

- Nutrient application is a minimum of 30 m (100 ft) from wells, water intakes, streams and water courses
- **AND** check to ensure that heavy rain or thunderstorms are not forecasted for at least 24 hours following application.

**tip**

NEVER compost invasive species unless you are sure that there are no seeds present and that composting will effectively kill the root system.

- Nutrient application is a minimum of 30 m (100 ft) from wells, water intakes, streams and water courses
- **AND** check to ensure that heavy rain or thunderstorms are not forecasted for at least 24 hours following application.

**tip**

*OR closer than 30 m (100 ft) to wells, water intakes, streams and water courses.

- Fertilizer, compost or manure applied to frozen or saturated soils or on slopes where surface run-off is likely
- **AND** check to ensure that heavy rain or thunderstorms are not forecasted for at least 24 hours following application.

- **AND** a permanently vegetated buffer, greater than 3 m (10 ft) wide runs between the area of nutrient application and any well, water intake, stream or water course

**tip**

NEVER compost invasive species unless you are sure that there are no seeds present and that composting will effectively kill the root system.

### Your Rating

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
</tr>
</thead>
</table>

*These conditions may violate federal or provincial legislation or municipal by-laws.*
Dangerous Beauty! … the problem with invasive species

Be aware of the plant that can grow anywhere…

A well-intentioned ‘gift’ from a friend or neighbour may end up taking over your garden and spreading into nearby plant communities where it can have a disastrous impact on the health of that ecosystem. Being invasive depends on site conditions. It is possible that a well-contained plant in your garden may run rampant in a friend’s garden. Never accept or give plants if you are unsure.

A database of invasive species sightings across the province is maintained through a partnership between the MNR and the Ontario Federation of Anglers and Hunters (OFAH). Learn to identify invasive species on their website (www.invadingspecies.com). Please report any occurrence of invasive species by calling the Invading Species Hotline (1-800-563-7711). The following is a partial list of invasive plants that are of concern in Ontario.

AVOID THE USE OF THESE PLANTS!

Amur Honeysuckle (Lonicera maackii)
Morrow Honeysuckle (Lonicera morrowii)
Tatarian Honeysuckle (Lonicera tatarica)
Common buckthorn (Rhamnus cathartica)
Glossy buckthorn (Rhamnus Frangula)
Common Reed (Phragmites australis)
Dog-strangling vine (Vincetoxicum nigrum)
European frog-bit (Hydrocharis morsus-ranae)
Fanwort (Cabomba caroliniana)
Flowering Rush (Butomus umbellatus)
Garlic Mustard (Alliara petiolata)
Giant Hogweed (Heracleum mantegazzianum)
Japanese knotweed (Polygonum cuspidatum)
Norway Maple (Acer platanoides)
Purple Loosestrife (Lythrum salicaria)
Curly-leaf pondweed (Potamogeton crispus)
Water lettuce (Pistia stratiotes)
Yellow Iris (Iris pseudacorus)
Water Hyacinth (Eichhornia crassipes)
Dangerous Beauty! … the problem with invasive species

**Name:** Bottunus umbellatus  
**Common Name:** Flowering Rush  
**Colours:** 3 whitish pink umbrella shaped flowers with triangular-shaped stems  
**Size:** Can reach 1 m (3.2 ft) above water  
**Type:** Aquatic perennial

**Name:** Potamogeton crispus  
**Common Name:** Curly-leaf Pondweed  
**Colours:** Reddish brown curly leaves in summer and blue green flattened leaves in winter and shallow roots  
**Size:** 3-10 cm (1-4 in) leaves  
**Type:** Aquatic annual that form surface mats

**Name:** Myriophyllum spicatum  
**Common Name:** Eurasian Watermilfoil  
**Colours:** pale pink to reddish brown stem and green feathery leaves  
**Size:** 12 or more pairs of featherlike leaflets  
**Type:** Aquatic plant that has seeds but only needs a small fragment to spread

**Name:** Lythrum salicaria  
**Common Name:** Purple loosestrife  
**Colours:** 5-7 purple flowers opposite or in whorls of 3 and stiff 4-sided stem  
**Size:** 1-3 m (3-10 ft) tall  
**Type:** Perennial that prefers wet habitats such as wetlands, marshes, etc.
Tips about cosmetic pesticides & their alternatives…

Why should you be concerned?

- Research studies have found that many cosmetic pesticides are toxic and may cause serious health problems for humans and ecosystems immediately or many years later.

- The presence of pesticides in surface and groundwater may make it unsuitable for drinking.

- When contaminated surface water runs into streams and lakes, it reduces the quality of the water and may harm fish, wildlife and humans.

- Pesticides must be handled carefully to prevent them from getting into any water source.

- Pesticides below tolerance level (set by the government) have been found in Ontario’s drinking water. The effects of repeated exposure to very small amounts over a long period of time are still unknown. Chronic health problems may not appear for many years.

What can you do?

1. Inform yourself of alternative non-toxic or lower toxicity chemicals to deal with the problem.

2. Read and follow instructions carefully. Note if weather conditions may affect application.

3. Avoid storing pesticides for long periods of time. Buy only the amount you need and make sure you have a safe storage area. Dispose of empty pesticide containers and rinse water safely.

4. Never pour leftovers down the drain, storm sewer, storm drain, or into open water.

5. Do not apply pesticides on windy days or when it is raining. Wind can cause the pesticides to be transported through the air to locations that were not desired initially. If pesticides are applied when it is raining, there will be an increased chance that they will be washed away, possibly into a nearby water source.
Alternatives

Successful landscapes rely on preventative measures and careful monitoring just like your health.

• Learn about your garden’s current situation, such as nutrient composition, soil type, moisture regime and shade tolerances. Add only what is needed and work with what cannot be changed.

• Keep your lawn fed (compost/manure/fertilizer), aerated, de-thatched and maintain adequate soil moisture. Most problems can be avoided if your lawn is in good condition to start with. Lawn grasses go dormant naturally in the last days of summer and will become green again with precipitation in the fall.

• Try old-fashioned remedies for pests, such as Borax® sprinkled around ant nests, insecticidal soap for various insects, and baking soda or sulphur for fungal diseases.

• To make plants less appetizing for the insects, use a garlic spray (10 cloves of garlic in 1 litre/4 cups of water and heat for 5 minutes).

• To get rid of unwanted plants, spray household vinegar (not diluted) on the plant every day until it dies.

• Bring in reinforcements. Create suitable habitat for birds or bats that will eat insect pests.

• Get out the hand tools and dig up unwanted weeds.

The Cosmetic Pesticides Ban Act was passed by the Ontario legislature June 18, 2008. The government has not yet determined which products and/or active ingredients will be included in the ban but now is the time to start researching safe and effective alternatives to keep your lawn healthy and beautiful.

These are just a few ideas – more can be found at your public library, the web and your local nursery or plant club. Just ask about pesticide alternatives!
Tips about nutrients

Why should you be concerned?

• Nutrients have an important and beneficial role in plant growth and soil amendments. As plant roots take up nutrients from the soil over time, the soil may become depleted, resulting in less vigorous plant and lawn growth.

• Over-application of fertilizers can result in fertilizer running off the garden or lawn. This can contaminate both groundwater and surface water and encourage algae and algal blooms.

• Our activities both inland and along the shoreline affect the nutrient-loading of our rivers and lakes.

• Water quality protection includes nutrient management and the appropriate use of fertilizers.

• We can all potentially contribute to harmful eutrophication, reducing water quality and thereby recreational pleasure.

What can you do?

1. Test to find out the nutrient level in your soil before adding any nutrients.

2. Effectively manage nutrients in an environmentally responsible manner.

3. Reduce your nutrient application volume.

4. Plant species of shrubs and plants that require little or no fertilizers.

N – P – K

Nitrogen (N) for leaf development and vivid green colour.
Phosphorus (P) for root growth.
Potassium (K) for root development and disease resistance.
Lawn Care: How to have a healthy, low-maintenance lawn

<table>
<thead>
<tr>
<th><strong>tip</strong></th>
<th><strong>When to water? How much?</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>-</strong> Fertilizing</td>
<td>- Leaving grass clippings on the lawn can increase soil fertility up to 50%.</td>
</tr>
<tr>
<td></td>
<td>- If you do use a fertilizer, choose a slow-release product. The nutrients are released slowly, preventing 'lawn burn' and groundwater contamination.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>tip</strong></th>
<th><strong>When to mow? How?</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>-</strong> Dealing with weeds</td>
<td>- Remove unwanted plants from lawn by hand using long handled tools. It is easier to remove weeds when the ground is damp. Alternatively, pour boiling water over the exposed roots of unwanted plants.</td>
</tr>
<tr>
<td></td>
<td>- Spread a layer 8-10 cm (3-4 in) thick of natural mulch overtop your garden. This will prevent weed seeds from germinating.</td>
</tr>
<tr>
<td></td>
<td>- If you do use a pesticide, directly spray only those plants that you want to get rid of. Avoid spraying the entire lawn.</td>
</tr>
<tr>
<td></td>
<td>- Appropriately dispose of invasive plants. Check the Resource List for information on the control of invasive species.</td>
</tr>
</tbody>
</table>
## Worksheet #7 – Waste Management

**Why should you be concerned?**

- The millions of tonnes of garbage produced in our communities every year is quickly filling up existing landfill sites.

- It is increasingly difficult to place new landfill sites. No one wants to live near one.

- If a Municipality’s landfill site is full and a new nearby location cannot be obtained, residents must pay more to have their waste transported elsewhere.

- Recycling saves natural resources, energy and water by using already manufactured items instead of more natural resources.

- Durable products may initially be more expensive but they are generally a better long-term investment and will keep from entering landfill sites longer.

- There is the potential that leachate from landfill sites may contaminate groundwater.

- Open burning of garbage in barrels, woodstoves, fireplaces, outdoor furnaces or open pits releases a large number of pollutants. Burning of garbage at home, cottage and farm is one of the largest known sources of dioxins and furans in Ontario.

**What can you do?**

1. Consider how you can personally generate less waste.

2. Inform yourself of initiatives that are redesigning products, packaging, and manufacturing processes to reduce waste. Support them through your purchasing power.

3. Recycle effectively. Contact your local Municipality to learn what items can be recycled in your community and how you should prepare them for recycling (i.e. rinse, bundle, sort, etc.).

4. Compost food and yard wastes. Don’t use kitchen sink garbage disposals as garborators.

5. Use refillable and reusable containers and products as much as possible and purchase durable products that won’t need short-term replacement (i.e. reusable travel coffee mug).

6. Watch for Waste Reduction Week/Hazardous Waste Disposal Days in your community. Encourage your local Municipality to support recycling programs and similar events.
# LAKE SUPERIOR STEWARDSHIP GUIDE

## WASTE MANAGEMENT: How do you rate?

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>MINIMIZING THE WASTE THAT COMES ‘IN’</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Purchases</strong></td>
<td>Instead of buying, always attempt to borrow, rent or share any items possible <strong>OR</strong> purchase used items.</td>
<td>Purchase or use only what you need and avoid accumulating unused products. <strong>AND</strong> recycling as much as possible, including donating items.</td>
<td>Purchase more than is necessary <strong>AND</strong> recycling as much as possible, including donating items. <strong>OR</strong> throw away unwanted items into regular household garbage.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preference given to items that are durable, reusable, and/or recyclable and can be recycled locally <strong>AND</strong> take-out or disposable food/beverage containers are seldom used.</td>
<td>Preference given to items that are durable, reusable, and/or recyclable and can be recycled locally <strong>OR</strong> cottage recyclables stored and taken home to recycle.</td>
<td>Disposable or single serving items purchased even when alternatives available <strong>AND</strong> minimal effort is made to recycle or reuse.</td>
<td>Frequently purchase disposable, or single serving items <strong>OR</strong> no effort to recycle or reuse.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**tip**

Use your purchasing power to help minimize waste and protect water quality.

| | | | | | |
|---|---|---|---|---|
| Choose items that have no packaging **AND** always re-use carry-out grocery bags or bring a reusable tote bag. | Choose items that have minimal packaging **OR** always re-use carry-out grocery bags or bring a reusable tote. | Choose items with packaging that is recyclable in your Municipality. | No consideration given to product packaging **OR** plastic carry-out bags are accepted and then discarded. | |
### MINIMIZING THE WASTE THAT GOES ‘OUT’

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Re-using and recycling</td>
<td>Reduce the number of items you use.</td>
<td>Reuse as many items as possible.</td>
<td>Recycle as many items as possible.</td>
<td>No consideration given to reduce consumption or reuse items</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OR both sides of a sheet of paper are used</td>
<td><strong>AND</strong> all paper is recycled.</td>
<td>OR all paper is recycled.</td>
<td>OR recyclable items not sorted but disposed of at landfill.</td>
<td></td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td>Redirect or place your newspaper and magazine subscriptions on hold while you are away from home.</td>
<td>Check with local Municipality to learn what items are recyclable and how they should be prepared for recycling</td>
<td></td>
<td>Little or no attempt made to participate in local recycling programs</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>AND</strong> comply with all applicable practices in your community.</td>
<td>Most recyclable items are recycled.</td>
<td></td>
<td>* OR waste is burned / a burn barrel is used.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Food scraps and yard wastes are properly composted regularly, on site.</td>
<td>Food scraps and yard wastes are composted occasionally.</td>
<td></td>
<td>OR a garborator or garbage disposal is used.</td>
<td></td>
</tr>
</tbody>
</table>

*These conditions may violate federal or provincial legislation or municipal by-laws.*
LAKE SUPERIOR STEWARDSHIP GUIDE

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composting practices</td>
<td>Household compost is rodent proof</td>
<td>Compost composition is monitored and mixed regularly</td>
<td>Household compostable waste is sent to local composting facility.</td>
<td>No composting. Food scraps and yard waste is thrown in regular household garbage.</td>
</tr>
<tr>
<td></td>
<td><strong>AND</strong> compost composition is monitored and mixed regularly</td>
<td><strong>AND</strong> compost is used on-site.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>AND</strong> compost is used on-site.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Know your numbers...

<table>
<thead>
<tr>
<th>Recycling Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PET</td>
<td>Beverage and food bottles</td>
</tr>
<tr>
<td>HDPE</td>
<td>Beverage and food bottles, detergent and ice cream containers</td>
</tr>
<tr>
<td>V</td>
<td>Clear deli food packaging, vegetable oil bottles</td>
</tr>
<tr>
<td>LDPE</td>
<td>Carry-out grocery bags, bread bags, frozen food bags</td>
</tr>
<tr>
<td>PP</td>
<td>Margarine and yogurt containers</td>
</tr>
<tr>
<td>PS</td>
<td>Foam cups, trays, and foam take-out containers</td>
</tr>
<tr>
<td>OTHER</td>
<td>Bottles containing several resins</td>
</tr>
</tbody>
</table>

Check with your Municipality to learn which numbers can be recycled in your local program. Look on the bottom of plastic containers to learn what number they are.
Worksheet #8 – Proper Handling, Storage & Disposal of Chemicals

**Note:** Use this worksheet to learn about management of fuels, pesticides and typical household chemicals.

**Why should you be concerned?**

- Petroleum products contain toxic compounds, such as benzene, which can cause cancer.

- Some toxic chemicals are colourless and odourless and can go undetected in water that has not been tested for contamination.

- Contaminated water or soil greatly devalues property and is very expensive to clean-up. Clean-up may not even be possible in some cases.

- A property owner may be held liable for contaminating any water source.

- Vapours from some chemicals such as fuels can ignite or cause explosions.

- Pesticides have been found in amounts below the tolerance levels set by the government in Ontario’s drinking water. We don’t know the effects of repeated exposure to low amounts over a long period of time. Chronic health problems may not appear for many years.

**What can you do?**

1. Inform yourself of alternative non-toxic or lower toxicity chemicals to deal with the situation.

2. Avoid storing chemicals. Buy only the amount you need and make sure you have a safe storage area. Contact your local Municipality to learn how you can dispose of empty chemical containers and rinse water safely.

3. Never store fuel or any chemical on your property where it may come in contact with water.

4. Read and follow instructions carefully. Note if weather conditions can affect application.

5. Never put chemical leftovers down the drain, storm sewer, storm drain or into open water.
## CHEMICALS: How do you rate?

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FUEL CHEMICALS</strong></td>
<td>Regular checks ensure vehicles and machinery are not leaking.</td>
<td>Irregular checks to ensure vehicles and machinery are not leaking.</td>
<td>Never check to ensure vehicles and machinery are not leaking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Vehicles and machinery</td>
<td>Any fluid spills are cleaned up immediately. Rags are disposed of appropriately.</td>
<td>Some spills are cleaned up immediately.</td>
<td>Drips and spills are not cleaned up.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tip Keep your vehicles regularly serviced to check for oil, antifreeze or gas leaks.</td>
<td>Used oil, antifreeze, and other wastes are appropriately recycled.</td>
<td>Used oil, antifreeze, and other wastes are disposed of at landfill.</td>
<td>* Used oil, antifreeze and other wastes are dumped down the storm sewer, in a ditch or on the ground.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There are no unused or decommissioned vehicles on the property</td>
<td>There are no unused or decommissioned vehicles on the property</td>
<td>There are no unused or decommissioned vehicles on the property</td>
<td>There are unused or decommissioned vehicles on your property</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AND</strong> no dirty car parts, wastes or chemicals.</td>
<td>AND/OR dirty car parts and vehicle wastes/chemicals are kept out of reach of storm water runoff.</td>
<td>AND/OR dirty car parts and vehicle wastes or chemicals are left on unpaved areas outside.</td>
<td>* AND/OR Car parts and vehicle wastes or chemicals are left near water courses.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*These conditions may violate federal or provincial legislation or municipal by-laws.*
<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUEL STORAGE</td>
<td>All fuel is used up regularly so that storage is not required anywhere on the property.</td>
<td>A minimal amount of fuel is stored in safe, approved, original-sale, and clearly labeled containers</td>
<td>Fuel is stored in safe, approved, original-sale, and clearly labeled containers</td>
<td>Fuels are stored in unmarked, open or unapproved containers.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>AND</strong> liquid fuel containers have a spout to prevent spills.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance between petroleum storage and nearest surface water is greater than 150 m (500 ft).</td>
<td>Distance between petroleum storage and nearest surface water is 61-150 m (200-500 ft).</td>
<td>Distance between petroleum storage and nearest surface water is 30-60 m (100-199 ft).</td>
<td>* Distance between petroleum storage and nearest surface water is less than 30 m (100 ft).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance between petroleum storage and well(s) is greater than 90 m (300 ft).</td>
<td>Distance between petroleum storage and well(s) is 24-90 m (76-300 ft) for a drilled well</td>
<td>Distance between petroleum storage and well(s) is 15-23 m (50-75 ft)</td>
<td>* Distance between petroleum storage and well(s) is less than 15 m (50 ft) for a drilled well</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>OR</strong> 47-90 m (151-300 ft) for a bored/dug well.</td>
<td><strong>OR</strong> 30-46 m (100-150 ft) for a bored/dug well.</td>
<td>**OR less than 30 m (100 ft) for a bored/dug well.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* These conditions may violate federal or provincial legislation or municipal by-laws.
### ABOVE GROUND FUEL TANK STORAGE

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gasoline and diesel fuel tanks</strong></td>
<td>No fuel tanks are present above or below ground anywhere on the property.</td>
<td>All tanks are made of steel and have a protective, anti-corrosive coating AND ULC approved.</td>
<td>Tanks are regularly checked for leaks.</td>
<td>Tanks are tested monthly for leaks.</td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td>If a spill or leak occurs, report it immediately to the Spills Action Centre at the MOE by calling: 1-800-268-6060</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The water table is located more than 3 m (10 ft) below the surface under the fuel tank.</td>
<td>The water table is located consistently 1.5 m (5 ft) to 3 m (10 ft) below the surface.</td>
<td>The water table is located consistently less than 1.5 m (5 ft) below the surface.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inactive tanks are decommissioned and properly removed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tanks sites are checked for contamination. If found, it is immediately reported.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Steel tank with no protective coating OR fibreglass tank OR not ULC approved.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* These conditions may violate federal or provincial legislation or municipal by-laws.
# ABOVE GROUND FUEL TANK STORAGE....continued

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heating oil tanks</strong></td>
<td>All types of tank(s) are located more than 3 m (10 ft) from any building.</td>
<td>Tank(s) with a capacity of less than 2500 litres (550 gallons) are located 3 m (10 ft) or less from any building.</td>
<td>Fuel tank is located inside a building.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* OR tanks(s) with a capacity greater than 2500 litres (550 gallons) are located less than 1.5 m (5 ft) from a building.</td>
<td>* OR tanks(s) with a capacity greater than 2500 litres (550 gallons) are located less than 1.5 m (5 ft) from a building.</td>
<td>* OR tanks(s) with a capacity greater than 2500 litres (550 gallons) are located less than 1.5 m (5 ft) from a building.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip</td>
<td>Tanks are ULC approved, monitored for leaks, and proper vent pipe used AND protective coating maintained.</td>
<td>* Tanks are not ULC approved or monitored for leaks OR no vent pipe used OR protective coating not maintained.</td>
<td>Tank more than 25 years old</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tank less than 5 years old.</td>
<td>Tank less than 10 years old.</td>
<td>Tank less than 20 years old.</td>
<td>Tank more than 25 years old</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fuel delivery system between fuel storage and appliance is installed by a registered contractor and inspected annually for leaks.</td>
<td>* Fuel delivery system between fuel storage and appliance is not installed by a registered contractor OR not inspected annually for leaks.</td>
<td>* Fuel delivery system between fuel storage and appliance is not installed by a registered contractor OR not inspected annually for leaks.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* *These conditions may violate federal or provincial legislation or municipal by-laws.*
<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COSMETIC PESTICIDES, HOUSEHOLD CLEANERS AND NON-FUELS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cleaning products</strong></td>
<td>All household cleaning products are non-toxic and non-harmful to humans AND minimal quantities are used.</td>
<td>Most household cleaning products are non-toxic and non-harmful to humans.</td>
<td>Typical chemical cleaners are used properly AND minimal quantities are used.</td>
<td>No consideration given to a product’s toxicity OR more than is necessary is used.</td>
<td></td>
</tr>
<tr>
<td><strong>Total amount of pesticide and other non-fuel chemicals stored</strong></td>
<td>No chemicals used any time.</td>
<td>Chemicals are not stored longer than immediate use period.</td>
<td>Small amount of chemicals stored for longer than immediate use period.</td>
<td>Large quantities of chemicals stored for longer than immediate use period.</td>
<td></td>
</tr>
<tr>
<td><strong>Distance from chemical storage to nearest surface water source</strong></td>
<td>Greater than 150 m (500 ft).</td>
<td>60-150 m (200-500 ft).</td>
<td>30-60 m (100-199 ft).</td>
<td>Less than 30 m (100 ft).</td>
<td></td>
</tr>
<tr>
<td><strong>Distance from chemical storage to well</strong></td>
<td>Greater than 90 m (300 ft).</td>
<td>23-90 m (76-300 ft) for a drilled well OR 46-90 m (151-300 ft) for a bored/dug well.</td>
<td>15-23 m (50-76 ft) for a drilled well OR 30-45 m (100-150 ft) for a bored/dug well.</td>
<td>Less than 15 m (50 ft) for a drilled well OR less than 30 m (100 ft) for a bored/dug well.</td>
<td></td>
</tr>
<tr>
<td><strong>Chemical solution mixing</strong></td>
<td>Chemicals are mixed in well ventilated area, on an impervious surface, and far from any open drain or open water source.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No consideration given to a product’s toxicity OR more than is necessary is used. OR surface is not impervious OR mix far from any open drain or open water source.
## COSMETIC PESTICIDES, HOUSEHOLD CLEANERS AND NON-FUELS... continued

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Chemical storage area and containers</td>
<td>Stored in a water-proof locked cabinet or storage container. The container itself stored in a garage or shed with a concrete floor that does not contain any drains.</td>
<td>Stored in a garage or shed with a concrete floor that does not contain any drains.</td>
<td>Stored with human or animal food OR stored in residence OR stored in a garage or shed with a concrete floor that contains drains.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sill installed in cabinet to contain any spills.</td>
<td>No sill installed in cabinet.</td>
<td>No sill installed in cabinet AND garage/shed has floor drains that leads to a water source, drainage ditch or soil</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Garage or shed is well ventilated to outside.</td>
<td></td>
<td>Garage or shed is not ventilated to the outside.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Emergency numbers are posted nearby.</td>
<td></td>
<td>No emergency numbers are posted nearby.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All chemicals are in clearly marked containers.</td>
<td></td>
<td>Containers not labeled.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Storage/use of chemicals before the expiration date.</td>
<td></td>
<td>Storage/use of chemicals after the expiration date.</td>
<td></td>
</tr>
<tr>
<td>Topic</td>
<td>Best 4</td>
<td>Good 3</td>
<td>Fair 2</td>
<td>Poor 1</td>
</tr>
<tr>
<td>-------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>Disposal of pesticide sprayer rinse water</strong></td>
<td>Sprayer rinse water is applied only to plants listed on the label AND more than 9 m (30 ft) from surface water source AND more than 61 m (200 ft) from well.</td>
<td>Sprayer rinse water is applied only to plants listed on the label AND less than 9 m (30 ft) from surface water source AND 45-60 m (150-200 ft) from well.</td>
<td>Sprayer rinse water is applied only to plants listed on the label AND less than 9 m (30 ft) from surface water source OR less than 45 m (150 ft) from well.</td>
<td>Sprayer rinse water is applied to plants other than those listed on the label OR dumped into open water source OR dumped near a well.</td>
</tr>
<tr>
<td><strong>Return, rinsing and disposal of chemical containers</strong></td>
<td>Use of returnable or refillable containers AND rinse water is used as per label instructions.</td>
<td>Triple or pressure rinsed containers or empty bags taken to municipal landfill AND rinse water is used as per label instructions.</td>
<td>Triple or pressure rinsed containers or empty bags taken to municipal landfill BUT rinse water is allowed into septic system or storm drain.</td>
<td><em>Inappropriate disposal of un-rinsed containers including burning them.</em></td>
</tr>
<tr>
<td><strong>Emergency plan and cleanup equipment for spills</strong></td>
<td>Emergency plans easily accessible, outlining actions to be taken in case of spill, leak, fire or explosion AND cleanup equipment available.</td>
<td>Emergency plan easily accessible, outlining actions to be taken in case of spill, leak, fire or explosion.</td>
<td>Emergency phone numbers posted nearby AND general plan in case of emergency.</td>
<td><em>No emergency plan prepared OR no spill cleanup equipment ready nearby.</em></td>
</tr>
</tbody>
</table>

*These conditions may violate federal or provincial legislation or municipal by-laws.*
### Disposal of Any Chemicals

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>No unused vehicle batteries stored on the property.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Unused vehicle batteries are stored on the property.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Expired household batteries are taken to a hazardous waste facility.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Expired household batteries are thrown in the regular garbage and taken to a landfill.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Expired household batteries are not disposed of.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Disposal is unnecessary because appropriate amount of chemical purchased and used up.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Leftover hazardous substances are given to others in proper and clearly labeled containers for appropriate use as soon as possible.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Chemical waste is properly disposed of at a hazardous waste facility.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td><em>Hazardous substances are poured down the drain, on the ground, burned or taken to a landfill.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
</tbody>
</table>

**Tip**

If you have leftover chemicals, such as paint or turpentine, ask your neighbours or friends if they need it for a current project.

*These conditions may violate federal or provincial legislation or municipal by-laws.*
## Typical Hazardous Household Chemicals

**Household Waste**
- Ash/sludge from burned household waste
- Light bulbs/lamps (contain mercury)
- Waste motor oil
- Plastic wraps and containers (hazardous only when burned)
- Pesticide or solvent containers
- Empty containers from other product categories listed here

**Clothing and Fabric Care Products**
- Mothballs
- Dry-cleaning fluids
- Spot removers (solvent based)
- Shoe-leather polishes

**Hobby and Recreation Products**
- Artist paints and solvents
- Charcoal lighter fluid
- Strong acids/bases *
- Bottled gas
- Household batteries (may contain mercury or cadmium)

**Pesticides**
- General use and “restrictive use” pesticides
- Old and/or unwanted pesticides

**Building/Wood Cleaners and Repair Products**
- Any building and wood cleaners with the following ingredients:
  - Wood polishers
  - Products for wood floor and panel cleaning
- Building and equipment maintenance products:
  - Strong acids/bases *
  - Lead-based paint
  - Oil/alkyd paints and primers
  - Marine and exterior paints containing mercury and/or pesticides
  - Aerosol paint products
  - Stains and finishes
  - Roof coatings and sealants
  - Roof coatings and sealants
- Rust removers
- Silicon and other lubricants
- Adhesive removers
- Paint and finish preparation products
- Adhesives (glues, caulk)
- Wood-preserving products
- Products for brush or spray-gun cleaning
- Water repellents for wood and cement
- Solvents such as those used in degreasers, paint thinners, stains and varnishes

**Vehicle Maintenance Chemicals**
- Antifreeze, oil and grease, transmission fluid
- Solvents for oil and grease removal/disposal
- Engine/car parts cleaners such as carburetor and brake cleaner
- Paints and paint preparation products
- Lead acid batteries
- Tire cleaners
- Rust removers
- Ignition wire dryer
- Gasket removers
- Aerosol paint and primer products

**NOTE:**
* A strong acid/base can be identified by noting if there is a hazard warning label that recommends using skin protection or to avoid breathing in vapours or aerosol mists. Also, if the product is intended for commercial use or if it is intended to manage difficult stains or dirt on hard surfaces.
Worksheet #9 – Lake Recreation

**Note:** Use this worksheet to learn about enjoying the lake in a sustainable way.

**Why should you be concerned?**

- Being in close proximity to the lake or waterfront is probably the reason why you purchased your property. It is important that everyone contributes positively to ensure water quality in the lake is safe for it’s users.

- Fuels, wastewater and other hazardous or toxic chemicals associated with motorized recreational watercraft can contaminate the lake, destroying fish habitat and making the water unsuitable for use.

- Invasive species are easily transported between water bodies and can quickly invade, driving native species away and destroying the natural ecosystem.

- Waves from the wake of motorized recreational vehicles can cause shoreline and channel erosion and damage water nesting areas for fish and waterfowl.

**What can you do?**

1. Operate an engine-less watercraft such as a canoe or kayak, or use a 4-stroke engine boat.

2. Reduce boat wake and its effects on shorelines, channels and aquatic nesting areas by decreasing your speed on the water.

3. Rinse off your craft (with water) every time it is hauled out of the water. This will prevent invasive species from being transported and spreading to other water bodies and water courses.

4. Never dispose of waste (including fish guts) in the water. Dispose of them properly on land.

5. Don’t expand your beach by removing vegetation and/or dumping sand.

6. Choose not to build docks or boathouses. Not only do they damage sensitive ecosystems along shorelines, they are not practical because of high intensity waves and water level fluctuations on Lake Superior. Use a public boat launch or marina instead.
## Lake Recreation: How do you rate?

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BOATING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Boat engine and maintenance</td>
<td>Boat/watercraft does not have an engine.</td>
<td>Boat has four-stroke engine that meets or exceeds emission standards</td>
<td>Boat has a modern direct injection two-stroke engine.</td>
<td>Boat has an older two-stroke engine.</td>
<td>blick</td>
</tr>
<tr>
<td></td>
<td>OR use an electric motor on board with a battery and an outboard propeller.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tip Check your engine regularly for any leaks including the fuel line, clamps and filters.</td>
<td>Boat has a portable fuel container that is filled far from any open water.</td>
<td>Boat is refueled on board but great care is used to prevent spills or overfilling. Any spills are cleaned up immediately.</td>
<td>Little care is taken to prevent fuel from getting into open water.</td>
<td>No care is taken to prevent fuel from getting into open spaces.</td>
<td>blick</td>
</tr>
<tr>
<td>tip Keep a tray under the battery to catch any acid spills.</td>
<td>Bilge is cleaned out at an approved local marina bilge pump-out facility.</td>
<td>Disposable cloths are used for cleaning bilge. These and any fuels from inside the bilge are properly disposed of at the local hazardous waste facility.</td>
<td>Bilge cleaners (including biodegradable ones) are rarely used.</td>
<td>* OR fuel is dumped into open water.</td>
<td>blick</td>
</tr>
<tr>
<td></td>
<td>* Black or grey water is discharged into the lake or water body instead of an approved pump-out facility.</td>
<td></td>
<td></td>
<td></td>
<td>blick</td>
</tr>
<tr>
<td>2 On-board waste</td>
<td>All garbage is kept on board in a designated area until it can be properly disposed of or recycled back on land.</td>
<td>Food scraps are rarely thrown overboard</td>
<td>Food scraps, plastic waste and any other on-board waste is thrown overboard.</td>
<td></td>
<td>blick</td>
</tr>
<tr>
<td></td>
<td>AND plastic waste is never thrown overboard.</td>
<td></td>
<td></td>
<td></td>
<td>blick</td>
</tr>
</tbody>
</table>

*These conditions may violate federal or provincial legislation or municipal by-laws.*
<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOATING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boat use</td>
<td>Within 150 metres (500 ft) of shore, means taken to reduce wake from watercraft</td>
<td>Within 30 m (100 ft) of shore, speed of any power-driven vehicles reduced to 10 km/h (5.4 knots or 6.2 mph).</td>
<td>No consideration given to the noise/disturbance of lake bottom from watercraft</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td></td>
<td></td>
<td></td>
<td>OR boat near nesting birds or other wildlife near or on the shore</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Take any oils or boat craft fluids to your marina or local municipal hazardous waste collection site. See Worksheet #10.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watercraft launching and hauling</td>
<td>Watercraft and trailer not stored in the water</td>
<td>Watercraft and trailer are stored in the water for use period</td>
<td>Watercraft and/or trailer sits in water for longer than use period</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AND when launching the watercraft, trailer is submerged for as little time as possible.</td>
<td>AND watercraft and trailer are checked for any plants/wildlife/fish that may be clinging to the watercraft or trailer.</td>
<td>OR clinging plants/wildlife/fish are not removed from watercraft or trailer, and disposed of properly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The speed limit and the type of watercrafts permissible on a water body can be changed. Petition your Municipality to apply to the MNR for a change in designation under the Ontario Boating Restriction Regulations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## DOCKS, BOAT LAUNCHES AND BOAT HOUSES

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dock and boathouse construction</strong></td>
<td>Floating, cantilever, non-permanent or post-supported dock or boathouse that does not disturb the lake bottom.</td>
<td>Open-faced cribs built from timber and filled with rock AND cribs are placed at least 2 metres out from the high water mark.</td>
<td>Vertical planking along the sides of the dock that restricts water movement.</td>
<td>Solid dock made from steel sheeting or concrete.</td>
</tr>
<tr>
<td><strong>Building materials</strong></td>
<td>Building materials include untreated cedar or hemlock timber.</td>
<td>Building materials include stainless steel and plastic.</td>
<td>Building materials include creosote-treated wood, pressure-treated wood, painted steel or concrete.</td>
<td><strong>tip</strong></td>
</tr>
<tr>
<td><strong>Boat launches</strong></td>
<td>Use public/Municipal boat launches.</td>
<td>Boat launch is placed where natural launch amenities exist (i.e. gentle slope, break in the buffer) without having to alter the shoreline.</td>
<td>Boat launch is built from concrete with proper approvals from the Conservation Authority and/or MNR.</td>
<td><em>Boat launch is built with no approval/permit.</em></td>
</tr>
<tr>
<td><strong>Boat launch dredging</strong></td>
<td>Use alternatives to dredging: Drive around obstacles such as shoals, stumps or rocks OR use an offshore mooring during low water levels.</td>
<td>Dredging activity has necessary approval/permit AND minimize the size and depth of the area to be dredged AND dredged sand, silt or clay is disposed above the high water mark.</td>
<td><em>No approval/permit</em></td>
<td><em>AND dredging activity occurs during local fish spawning and nursery times of the year</em> AND no care is taken to protect fish habitat.</td>
</tr>
</tbody>
</table>

*These conditions may violate provincial or federal legislation or municipal by-laws.*

---

## Tip

- Use the LRCA public boat launches at Silver Harbour or Little Trout Bay Conservation Areas along Lake Superior.
- Check with Transport Canada to see if your dock/boathouse construction or boat launch dredging requires approval (See “Navigable Waters” in Resource List pg. 121).
### LAKE SUPERIOR STEWARDSHIP GUIDE

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FISHING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permits and Regulations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td><em>No fishing license obtained</em> OR <em>quota is exceeded.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip</td>
<td>To prevent the spread of invasive species, never dump your bait bucket remains in the water if it contains water from another water body.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip</td>
<td>Bring your family out to the Lakehead Region Conservation Authority’s Family Fishing Day in July at Hazelwood Lake.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beach access</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use public beaches</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AND access along the shoreline is minimal.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip</td>
<td>Check for beach postings before you go swimming and don’t go in water if you can’t see your feet from the waist height of an adult. <em>Escherichia coli</em> (<em>E. coli</em>) levels may be high.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tip</td>
<td>Avoid hiking or using any all-terrain vehicle or snowmobile on bluffs, banks, and along shorelines, especially during the spring thaw.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* *These conditions may violate provincial or federal legislation or municipal by-laws.*
### ACTIVITIES ALONG THE SHORE...continued

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Minimizing disturbance</strong></td>
<td>Never remove or move wildlife or natural artifacts such as logs, vegetation, shells, or nests AND waste is disposed of properly.</td>
<td>Natural artifacts or wildlife are seldom removed or moved AND waste is disposed of properly.</td>
<td>No consideration for ecosystem or slope disturbance OR waste is not disposed of properly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Beach Creation</strong></td>
<td>Beach is placed above the high water mark AND vegetated strip or small berm exists to prevent beach sand from entering into the water AND obtained approval/permit.</td>
<td>Beach is placed below the high water mark AND pea-sized gravel is used instead of sand AND vegetation removal is minimized AND obtained approval/permit.</td>
<td><em>No approval/permit AND fill is placed in the floodplain AND no consideration to protect fish habitat through sediment and erosion control measures AND vegetation removed indiscriminately.</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Campfire safety</strong></td>
<td>Check with your local Municipality regarding campfires AND always exercise caution with any fire.</td>
<td>Check weather conditions and local fire bans before starting a campfire.</td>
<td>Ignite an outdoor fire without consideration of bylaws or weather restrictions OR burn plastic products or wood covered or soaked in hazardous chemicals.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*These conditions may violate provincial or federal legislation or municipal by-laws.*
Note: Use this worksheet to learn more about how your actions affect wildlife species.

Why should you be concerned?

• It is important to accommodate wildlife on your property. They were there long before you were, so respect their home too.

• It is also important to ensure that wildlife don’t become a problem, preventing you from enjoying your property.

• Learn about local wildlife; they can be very beneficial and even indirectly decrease your property maintenance, costs and efforts (e.g., songbirds or bats can decrease insect pest populations).

• Protecting local wildlife is key to a healthy ecosystem and watershed.

• There is incredible wildlife diversity along lakeshores and other water courses. Shoreline biodiversity is increasingly threatened by human activity and development.

What can you do?

1. Protect natural habitats and species that depend on specialized conditions.

2. Ensure that any buildings or structures on your property are appropriately built and sealed to prevent wildlife infestation.

3. Learn about Species-At-Risk and take a proactive role in protecting and expanding the quality of their habitat in the landscape whenever possible.

4. See the landscape as an integrated whole and support initiatives that connect important wildlife habitat areas together.

5. Provide space and resources for wildlife in specific areas so that they don’t become a nuisance in human activity areas.

6. Work with neighbours to create continuous habitat along shorelines and water courses.
## Living with Wildlife: How do you rate?

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RESOURCES FOR WILDLIFE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Familiarity with local wildlife</td>
<td>Thorough understanding of wildlife in your area and their seasonal patterns</td>
<td>Good understanding of wildlife in your area and their seasonal patterns.</td>
<td>Basic familiarity with local wildlife AND/OR general idea of wildlife seasonal patterns.</td>
<td>No knowledge OR no consideration for wildlife on your property OR immediately take action to exterminate without sufficient knowledge.</td>
<td></td>
</tr>
<tr>
<td>OR continually seek to learn how you can provide habitat for local wildlife.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Wildlife habitat planning</td>
<td>Development and implementation of a wildlife habitat plan that enhances habitat resources for desired wildlife AND plan seeks to link habitat on property with the larger landscape using ecological corridors.</td>
<td>No formal plan exists but property management includes wildlife habitat enhancement AND property management links habitat on property with the larger landscape using ecological corridors.</td>
<td>Property provides some wildlife habitat and this is protected and preserved.</td>
<td>Property is managed with no regard to wildlife habitat requirements.</td>
<td></td>
</tr>
<tr>
<td>Trees, shrubs and other plants on your property provide food for birds.</td>
<td>Bird seed is available but vermin are kept out of feeders.</td>
<td>Birds are expected to forage elsewhere beyond your property.</td>
<td>Bird feeders are readily accessed by vermin.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**LAKE SUPERIOR STEWARDSHIP GUIDE**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RESOURCES FOR WILDLIFE...continued</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Providing wildlife habitat

| | Extensive buffers are created or conserved beside wet areas and the property contains several woody and herbaceous plant species, offering a large range of wildlife habitats including wetlands. | Numerous buffers are created beside wet areas and the property contains several woody and herbaceous plant species, offering a range of wildlife habitats and good water quality protection. | A few buffers are present but contain no woody species, offering a limited range of wildlife habitats but do offer some water quality protection. | No buffers present. | |

#### Tip

Adhere predatory bird silhouettes onto windows into which birds commonly fly.

#### Tip

Don’t leave indoor lights or yard lights on at night. They attract animals and insects.

AND are cleaned regularly

AND are all more than 1.5 metres (5 ft) above the ground.

| | Natural bird-food sources, nest boxes and perches are strategically placed and managed to include species that provide specific ‘services’ (e.g. fly, mosquito, or garden insect control) | Natural bird-food sources, nest boxes and perches are available but not strategically placed and only managed for species that provide specific ‘services’ (e.g. fly, and mosquito control). | Natural bird-food sources such as berry-bearing shrubs are provided. | Natural bird-food sources, nest boxes, or perches are not present. |

| | Change bird bath water at least 3 times per week | Screens are placed over rain-barrels and other water-catching items to prevent wildlife drowning. | There are no water opportunities for wildlife. |  |

AND screens placed on water catching barrels/cisterns.

AND/OR rain-barrels are not screened.
## LAKE SUPERIOR STEWARDSHIP GUIDE

### PREVENTING ACCESS

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sealing your buildings</td>
<td>All crevices, openings, conduits, pipes, seams, and soffits are properly sealed&lt;br&gt;AND checked regularly.</td>
<td>All crevices, openings, conduits, pipes, seams, and soffits are properly sealed&lt;br&gt;AND checked yearly.</td>
<td>All doors and windows have a tear-free screen.</td>
<td>Seals are not checked or maintained.</td>
</tr>
</tbody>
</table>

### AVOID ATTRACTING NUISANCE WILDLIFE

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food and waste scraps</td>
<td>All food/waste (including pet food and birdseed) is stored indoors (including garage or shed) in insect/rodent-proof containers&lt;br&gt;AND bird feeders are not used in the summer.</td>
<td>Garbage is stored outside, but in insect/rodent-proof containers.</td>
<td>Compost-free garbage is stored outside but all empty food/drink containers are rinsed.</td>
<td>Garbage (including food) is stored outside and inappropriately maintained&lt;br&gt;OR insect/rodent-proof containers are not used&lt;br&gt;OR bird feeders are used in the summer.</td>
</tr>
</tbody>
</table>

**tip**

Keep your BBQ clean to avoid attracting wildlife.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preventing unwanted browsing on plants</td>
<td>Chicken wire wrapped around the trunk of young trees. Tree is checked every year to ensure the wire is not girdling the tree.</td>
<td>Plastic coil around trunk of young trees.</td>
<td>No protection used but damaged tree left in place.</td>
<td>No protection used&lt;br&gt;AND damaged trees are removed. It is likely that with food gone, wildlife will browse another tree.</td>
</tr>
</tbody>
</table>
LAKE SUPERIOR STEWARDSHIP GUIDE

PET MANAGEMENT

Controlling access
Cats are kept indoors
AND all cats and dogs wear their license tags and have up-to-date rabies shots
AND dogs are confined to a fenced run.

FINDING A DEAD ANIMAL
If you find a dead, injured, abandoned or nuisance animal (including birds, fish and other aquatics) on your property or elsewhere, contact the nearest Ministry of Natural Resources (MNR) office for advice and to report the incident. Be prepared to provide information regarding the location, condition and number of animals/fish.

DEALING WITH NUISANCE WILDLIFE
Control measures for nuisance wildlife are regulated by provincial legislation. Contact the nearest Ministry of Natural Resources (MNR) office if you have any questions or concerns regarding nuisance wildlife (i.e. beavers, black bears).
Managing the interactions between wildlife and residents will continue to be a challenge. The significant contribution that residents are making toward the conservation of biodiversity will continue to be a key in preserving our natural landscape and in protecting the quality of our water.

tip
Be cautious: never approach an animal if you are not sure of its behaviour.

tip
Notify your local Health Unit upon discovery of any dead birds where cause of death is not immediately apparent.


Worksheet #11 – Lowering Your Energy Bill

**Why should you be concerned?**

- Increasing energy costs means that the average home owner will have to pay more to be comfortable.

- As the world’s demand for energy continues to increase, so will the cost of energy. To protect yourself against growing costs, invest in homes, vehicles, appliances, electronics, and practices that consume less energy.

- Greenhouse gas concentrations are increasing, leading to alterations in average temperatures known as climate change. Emitted gases also threaten air quality and have resulted in a record high number of ‘Smog Days’.

- Climate change may cause an increase in extreme weather events such as droughts, ice storms, floods and hurricanes.

**What can you do?**

1. Realize that small changes can have a cumulative effect in protecting our environment, including air and water quality.

2. Ensure that your home is tightly sealed, properly insulated and that all mechanical systems such as heating and cooling are operating efficiently. Have a professional conduct a home energy audit of your house and ensure that heating/cooling systems receive regular maintenance.

3. Choose energy-efficient appliances and electronics such as those with an EnergyStar label.

4. Reduce the amount of driving that you do, especially in urban areas, and choose the most fuel-efficient vehicle for your needs.

5. Reduce the amount of greenhouse gases that you produce annually.

*Note: Use this worksheet to find out how to improve your energy efficiency.*
### Heating and cooling units

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>tip</strong></td>
<td>Seal and insulate warm air ducts.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>tip</strong></td>
<td>In winter, naturally warm your home by ensuring that sunlight can enter through all south-facing windows. Close drapes or shutters in the evening. In summer, close windows and doors during the day, especially those along the south and south-west facing wall. Open in the evening to catch cool breezes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heating and cooling units are serviced yearly by a licensed heating contractor</td>
<td>Heating and cooling units are serviced yearly by a licensed heating contractor</td>
<td>Heating and cooling units are serviced immediately when malfunctioning or when a problem is suspected.</td>
<td>Heating or cooling units are seldom maintained</td>
<td>Heating or cooling unit is inefficient and no upgrading planned</td>
<td></td>
</tr>
<tr>
<td>AND furnace filters are cleaned or replaced every two months and air conditioner filters are replaced monthly (central air filters are cleaned or changed at the beginning of the warm season each year).</td>
<td>OR furnace filters are cleaned or replaced every two months and air conditioner filters are replaced monthly (central air filters are cleaned or changed at the beginning of the warm season each year).</td>
<td></td>
<td>OR filters are not changed as per energy efficiency recommendations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All chimneys are cleaned and inspected annually</td>
<td>Occasionally check that vents, air intakes and chimneys are not blocked</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AND pilot lights of gas fireplaces or wall heaters are turned off in the summer.</td>
<td>OR retrofit fireplaces or older woodstoves with a new advanced combustion model.</td>
<td></td>
<td>OR heat inefficient fireplaces or older woodstoves are used regularly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topic</td>
<td>Best 4</td>
<td>Good 3</td>
<td>Fair 2</td>
<td>Poor 1</td>
<td>Rating</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>BUILDINGS...continued</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lights</td>
<td>Minimize light-bulb use by maximizing the use of natural lighting</td>
<td>Lights are turned off when not in use</td>
<td>Attempt to minimize light bulb use</td>
<td>Everyday practices do not attempt to minimize light-bulb use</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td><strong>tip</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Re-arrange your workspace and activities to be near south facing windows and free light.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building components</td>
<td>Hire a professional to conduct an energy audit and develop an energy plan of your home (see Resource list)</td>
<td>Check regularly for drafts or leaks around doors, windows, baseboards, ducts, attic hatches, window air conditioning units and electrical outlets/switches.</td>
<td>Check occasionally for drafts or leaks throughout the building.</td>
<td>Seldom check for drafts or leaks</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td><strong>tip</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Install storm windows and doors over single-pane windows and use weather-stripping around all joints.</td>
<td>AND inform yourself of alternative energies such as solar power and wind energy.</td>
<td>AND immediately take the appropriate action to fix the situation.</td>
<td>OR condensation or frost appears on windows.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>tip</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alternatively, install double-glazed windows that carry the EnergyStar label.</td>
<td>All duct work is located in heated and/or cooled space within the building</td>
<td>All duct work is located in heated and/or cooled space within the building.</td>
<td>Some duct work is located in unheated and/or un-cooled space (e.g. attic, garage)</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AND weather stripped.</td>
<td></td>
<td>AND insulated.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>AND ducts have no weather-stripping around joints.</td>
<td>□</td>
</tr>
</tbody>
</table>
LAKE SUPERIOR STEWARDSHIP GUIDE

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BUILDINGS...continued</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Building design</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction uses R-2000 building practices and technologies</td>
<td>Energy efficiency is an important factor in building design and layout.</td>
<td>Passive solar heating used where possible.</td>
<td>Building is difficult to heat in winter, and difficult to cool in summer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OR</strong> construction aims for LEED Green Building certification.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Heating and cooling practices</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use a programmable system and, in the winter, lower your thermostat at night and while you are away during the day</td>
<td>Use a programmable system and in the winter, lower your thermostat at night and while you are away during the day</td>
<td>In the winter, lower the thermostat at night and while you are away during the day</td>
<td>Heating and cooling systems are not adjusted to time of day or activity within the space</td>
<td>OR no attempt is made to adopt practices that minimize energy use.</td>
<td></td>
</tr>
<tr>
<td><strong>AND</strong> in the summer naturally cool the building by closing blinds/shutters/drapes, and using awnings</td>
<td><strong>AND</strong> use a ceiling fan, especially in rooms with high ceilings or with electric baseboards to help circulate the air. In winter ensure that blade direction pushes warm air downwards.</td>
<td><strong>AND</strong> in the summer set your air conditioner to 24°C (75°F) while you are at home and raise it when you leave.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AND</strong> strategically place trees outside the building to provide shade in summer and reduce blowing winds (to provide warmth) in winter.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**tip**

Review the Canadian Green Building Council LEED rating system to learn building designs and technologies that use less energy, water and natural resources and generate less waste (See “Energy Efficiency” in Resource List pg. 119).

**tip**

Every 1°C that a thermostat is lowered results in 2% savings in energy costs. The most cost-effective change is to lower it by 3°C.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WATER HEATING AND USE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6 Hot water use</strong></td>
<td>Most laundry is rinsed using cold water and hot water is seldom used for laundry</td>
<td>Length of showers is minimized and a low flow shower head is used.</td>
<td>Hot or warm water is left running while bathing or washing dishes or produce.</td>
<td>Clothes are often washed or rinsed using hot water or no attempt to minimize amount of hot water that is used.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AND length of showers is minimized.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>7 Water heaters</strong></td>
<td>High-efficiency water heater unit that heats water only when it is necessary</td>
<td>Non-plastic hot water pipes are insulated for the first two metres of pipe from the water heater.</td>
<td>An electric water heater is used, but it is uninsulated.</td>
<td>Water heater is left on year-round, regardless of use or water heater tank is inefficient or not insulated.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AND water heater is turned off when building is not in use for a prolonged period of time.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8 Hot tubs and pools</strong></td>
<td>Location optimizes use of natural wind shelter or shade from climatic factors</td>
<td>Water is heated with solar panels</td>
<td>Water is not heated with solar panels</td>
<td>No actions taken to ensure that heat energy is not lost from water when air temperatures drop or pump timers are not used for pools/hot tubs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OR there is no pool or hot tub.</td>
<td>AND water is covered with a thermal blanket to trap heat.</td>
<td>AND pump timers are used to regulate the temperature and duration of water heating.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**APPLIANCES AND ELECTRONICS**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Energy efficiency</td>
<td>Always purchase high energy efficient EnergyStar appliances, especially the refrigerator, oven, dishwasher, and laundry washer/dryer AND electronics such as computers and printers that go into ‘Standby’ mode when not in use.</td>
<td>Always turn off and unplug appliances that are not in use, especially older, inefficient appliances AND minimize the use of appliances and electronics.</td>
<td>Locate the refrigerator or freezer away from heat sources (including other appliances) or windows AND keep the refrigerator between 1.7°C (35°F) and 3.3°C (38°F) and the freezer unit at –18°C (0°F).</td>
<td>Energy efficiency is not considered when purchasing appliances or electronics OR no action is taken to improve the energy efficiency of appliances or electronics.</td>
</tr>
</tbody>
</table>

**tip**
Choose front-loading washing machines or water-efficient top-loading models with the EnergyStar label.

**tip**
Set your computer to use the energy-saver mode when not in use.

| 10 | Maintenance | Check appliances regularly to ensure that seals remain in good condition, especially refrigerators and freezers. | Appliances rarely checked to ensure that seals remain in good condition, especially refrigerators and freezers. | Appliances never checked to ensure that seals remain in good condition especially refrigerators and freezers. |  |

During hot weather, all baking, washing, drying, and ironing are done early in the morning or in the evening AND whenever possible, clothes are hung to dry. Dishwasher is used but always runs full and is set to the ‘no-heat’ or ‘air-drying’ option AND clothes washer/dryer are almost always run full and cold settings are used often.

No consideration given to actions or practices that minimize energy.
Worksheet #12 – Water Runoff

**Note:** Use this worksheet to assess how well your property minimizes the potential for water runoff and property damage.

**Why should you be concerned?**

- Surfaces such as roofs, paved areas, bare soil, and sloped lawns all contribute to the volume of water runoff because they impede water infiltration into the ground.

- Runoff carries soil, pet faeces, salt, pesticides, fertilizers, oil and grease, fuels, leaves, litter, and other possible pollutants into streams, ponds, wetlands, lakes and oceans.

- Water that flows into storm drains or ditches is transported and discharged eventually into Lake Superior, untreated.

- Polluted water runoff degrades the lake, rivers, and wetlands. Soil makes the water murky and damages fish habitat. Nutrients such as phosphorus encourages algae that can crowd out other aquatic life and change the chemistry of the water.

- Water runoff is not only a problem for water quality. It can also flow into basements and cause extensive property damage including erosion, slope instability and flooding, which decreases property value.

- Erosion can reduce property value and cause significant property damage.

- Without vegetation at the shoreline, contaminants flow directly into the lake.

**What can you do?**

1. Minimize the amount of water runoff from your property.

2. Minimize the area of your property that is used as a path or driving surface and use water permeable materials for driveways and pathways.

3. Do not locate any impermeable surface near the shoreline or adjacent to any water course.

4. Foundation tiles and municipal drain outlets should not be in erosion-prone areas.

5. Reduce the amount of potential pollutants on your property that can be carried by water runoff.

6. Encourage the use and infiltration of storm water within your property boundaries.
## Water Runoff: How do you rate?

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SURFACES</strong></td>
<td>All driving/parking/walking and patio surfaces are water permeable</td>
<td>Porous paving such as interlocking bricks used to surface driveway and</td>
<td>Paved surfaces are located far away from any water course.</td>
<td>All paths, parking, driveways and outdoor patios are paved regardless of proximity to watercourse</td>
</tr>
<tr>
<td></td>
<td><strong>AND</strong> gravel and woodchips are used to surface walkways and driveways. Minimal compaction.</td>
<td>and lanes. Additional parking spaces are not paved.</td>
<td></td>
<td><strong>AND</strong> walking surfaces not restricted to paths. Foot-traffic compaction throughout.</td>
</tr>
<tr>
<td><strong>Extent of impervious surfaces and slope</strong></td>
<td>Driveway is minimal and follows natural contours.</td>
<td>Driveway is minimal but does not follow natural contours.</td>
<td>Driveway extensive but follows natural contours.</td>
<td>Extensive driveway and paved surfaced areas that does not follow natural contours</td>
</tr>
<tr>
<td></td>
<td><strong>AND</strong> there are no other impervious/compacted areas.</td>
<td></td>
<td></td>
<td><strong>OR</strong> compacted and/or paved surfaces run straight down a slope.</td>
</tr>
<tr>
<td>Topic</td>
<td>Best 4</td>
<td>Good 3</td>
<td>Fair 2</td>
<td>Poor 1</td>
</tr>
<tr>
<td>-------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>SURFACES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Areas of bare soil</td>
<td>No areas of bare soil.</td>
<td>Grass or non-invasive groundcover planted immediately to prevent erosion.</td>
<td>Non-invasive groundcover planted immediately to prevent erosion.</td>
<td>Bare soil left uncovered and unplanted.</td>
</tr>
<tr>
<td></td>
<td>Temporary bare areas are mulched AND straw bales, diversion ditches and silt fences are used to trap sediment.</td>
<td>Some areas are mulched to prevent erosion.</td>
<td></td>
<td>No regard given to sediment loss through surface water runoff.</td>
</tr>
<tr>
<td></td>
<td>All plant beds have minimum 8 cm (3 in) depth of mulch.</td>
<td>Plant beds have 2.5-5 cm (1-2 in) depth of mulch.</td>
<td>Most plant beds are mulched to a depth of 2.5 cm (1 in).</td>
<td>No plant beds are mulched.</td>
</tr>
</tbody>
</table>

**tip**

Cover newly-seeded lawns lightly with straw mulch to a cover of 50% to prevent erosion.

**tip**

Organic material, like leaves, swept or blown into street sewers, possibly provide a breeding spot for mosquitoes over winter. Try to sweep out gutters.
## POTENTIAL POLLUTANTS

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Washing</td>
<td>Cars and trucks are occasionally washed at commercial car wash.</td>
<td>Cars and trucks taken to commercial car wash or spray booth.</td>
<td>Cars, trucks, or other items are washed on a lawn or gravel driveway.</td>
<td>Cars, trucks or other items are washed on a driveway, street or other paved area.</td>
</tr>
<tr>
<td>Application and use of pesticides, fertilizers, de-icers and salts, pool and other outdoor chemicals</td>
<td>Spills are cleaned up immediately AND applications are delayed until after rain.</td>
<td>Spills are cleaned up immediately on paved surfaces.</td>
<td></td>
<td>Spills are not cleaned up OR applications are not delayed to avoid rain.</td>
</tr>
<tr>
<td>Grass clippings, leaves and other yard wastes</td>
<td>Grass clippings, leaves, and other yard wastes are swept off paved surfaces and away from water flow routes AND plant material is not placed on bluff slopes or over the top of banks where it can kill slope vegetation and cause slope instability OR leaves and other yard wastes are composted.</td>
<td>Leaves and other yard wastes are left to compost on site.</td>
<td>Leaves and other yard wastes are collected in appropriate containers and left for municipal collection.</td>
<td>Grass clippings, leaves and other yard wastes are left on driveways, streets, and other paved areas to be carried off by stormwater OR yard waste is burned on-site.</td>
</tr>
</tbody>
</table>

**Tip**
- Ensure that your winter snow pile is not close to any shoreline or water course. Melt water may cause erosion and contamination.

**Tip**
- To avoid sending your dirty, soapy water into a water course or lake, wash your car on the lawn, or take it to a commercial car wash or spray booth where the dirty water is treated and recycled.
### POTENTIAL POLLUTANTS...continued

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Pet and animal wastes</td>
<td>Animal and pet wastes are flushed down the toilet</td>
<td>Animal waste is collected and placed in appropriate container for transportation to landfill.</td>
<td>Animal wastes are left to decompose on grass or soil. Wastes are scattered over a wide area.</td>
<td>Animal wastes are left on paved surfaces, concentrated in pen or yard areas, or dumped down a storm drain or in a ditch.</td>
<td></td>
</tr>
</tbody>
</table>

**OR** contact local Municipality to determine most appropriate means of disposal.

### DRAINAGE

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Downspouts, gutters and drains</td>
<td>Roof gutters, downspouts and basement drains installed and cleaned regularly.</td>
<td>Downspouts are not directed at or into nearby gullies.</td>
<td>Downspouts direct drainage onto impervious surfaces</td>
<td>Roof gutters, downspouts and/or basement drains not checked/cleaned regularly</td>
<td></td>
</tr>
</tbody>
</table>

**tip**

Use rain barrels to catch rainwater that can later be used to water gardens during low rain-periods. Cover the rain barrel with a screen to prevent mosquito breeding.

**tip**

Clogged gutters on a single house can produce over one million mosquitoes a season.

### Surface water drainage

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best 4</th>
<th>Good 3</th>
<th>Fair 2</th>
<th>Poor 1</th>
<th>Your Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 Surface water drainage</td>
<td>All surfaces are sloped away from the house at a minimum slope of 2%.</td>
<td>Any paved surface is sloped away from the house at a minimum slope of 2%.</td>
<td>Paved or compacted surfaces do not slope away from the house by a minimum slope of 2%.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* These conditions may violate federal or provincial legislation or municipal by-laws.
**Glossary**

**4-stroke engine:** Boat engine constructed similarly to that of a car. Its emissions are cleaner, it is quieter, more durable and has better fuel economy than a 2-stroke engine.

**100-year flood level:** Elevation (metres above sea level) calculated through engineering studies or flow models based on the probability that the level of flood water can be expected to equal or exceed this point, on average, every 100 years. For Lake Superior, the Ministry of Natural Resources has determined the 100-year flood level to be 184 metres above sea level from the International border (Pigeon River) to Jarvis Point and 183.9 metres above sea level from Jarvis Point to the northern limit of Dorion Township (entire Thunder Bay Lake Superior Shoreline). Also known as 100-year high water level, 100-year high water mark or 100-year floodplain.

**Air gap:** An air space (open space) between the hose or faucet and the level of liquid. This is one way to prevent backflow of liquids into a well or water supply.

**Air intake/ventilation:** A permanent opening that allows outside air to flow into a heating and cooling system. It is critical that there is adequate air intake and that the air that is brought and distributed through the building is not contaminated.

**Amendment (soil):** Organic or inorganic material that is added to the soil for the purpose of improving its texture, nutrients, moisture-holding capacity and infiltration rates.

**Anti-backflow device:** Check valve, vacuum breaker or other mechanical device that prevents liquids from flowing backwards through a water supply pipe to a well or surface water source. Also called an anti-back siphoning device.

**Approved containers:** A portable container made of metal or other material that has been approved for use by the Underwriter’s Laboratories of Canada (ULC), the Canadian Standard Association (CSA), or Transport Canada. An approved container must have a certification label such as jerricans - CTC-5L, BTC-5L, ICC-5L, DOT-5L, TC-5L.

**Approximate Regulated Area:** Floodplain adjacent to all water courses plus all streams, rivers and creeks, Provincially Significant Wetlands, lake shorelines, ravines, valleys, steep slopes and talus slopes, and property zoned “hazard land” or “use limitation” that is identified on screening maps and affected by Ontario Regulation 180/06. For Lake Superior, the Approximate Regulated Area is derived by the 100-year high-water level plus an allowance of 15 metres landward for wave uprush. Lake Superior is also regulated 1 kilometre into the water.

**Aquifer:** An underground layer of rock and sand that can store water, and lies above a layer of clay or other impermeable material that does not allow water to flow to lower depths. Aquifers can be present at various depths depending on the location of the impermeable material. They are an important well water source.

**Arborist:** See Certified Arborist.

**Area of Natural and Scientific Interest (ANSI):** Areas identified by the Ministry of Natural Resources as containing natural landscapes or features that have been identified as having life or earth science values related to protection, scientific study, education and natural heritage appreciation. Such designation helps to protect representative and special natural areas, plants and animals.

**Atmosphere:** The layer of air surrounding the earth that is primarily composed of nitrogen and oxygen, and held in place by gravity.

**Backflow:** The unwanted reverse flow of liquids in a piping system.

**Baffles:** Inlet and outlet devices in a septic tank, designed to reduce the transfer of solids to the leaching bed. They also prevent fats, oils, and grease from discharging to the leaching bed. They increase the amount of solids retained, prevent plugging of inlets and outlets, and prevent rapid flow of wastewater through the tank.

**Beach:** A band of variable width, typically of sandy material located adjacent to the lake. The sand is deposited and removed by the action of waves and currents.

**Benzene:** An organic compound, in the form of a ring, with the molecular formula C6H6. It is known to cause cancer in humans. It is a natural component of petroleum (crude oil and gas) and it is an important industrial solvent and precursor in the production of many drugs, plastics, rubbers and dyes.
**Berm:** A low earthen or sod wall adjacent to a ditch. Bermss can control erosion and deposition by reducing the rate of surface runoff.

**Bilge:** The lowest part inside a boat’s hull or frame where water, fuel, oil, and other hazardous chemicals can collect.

**Biodegradable:** The ability of a substance or material to break down into harmless substances by living things such as microorganisms and bacteria.

**Bioengineered soft structures:** The harvesting and planting of dormant cuttings or branches from tree and plant species in order to prevent shoreline erosion. These cuttings are arranged into individual stakes (live stakes) and/or put into bundles. Cuttings are usually taken from dogwoods and/or willows. This is mainly because the cut branches of these species are able to take root and grow on their own. As the cuttings grow and extend their root structure, the soil becomes more stable.

**Block heater:** An electric heater that heats the engine of a car so that it is easier to start in cold weather. This also reduces pollution because cold engines have much higher emissions.

**Bluff:** A high, steep bank at the water’s edge. All of the bluffs along the Lake Superior shoreline are bedrock bluffs.

**Boat wake:** The wave(s) that spreads behind a boat as it moves forward through the water.

**Bored Well:** Large diameter well constructed by using specialized Earth boring equipment. Casting material is usually concrete or corrugated steel. These wells are typically 60 to 90 cm (24-36 in) in diameter.

**Browsing:** A mode of feeding by herbivores, such as deer or rabbits, in which leaves and outer shoots are removed from trees and shrubs.

**Buffer:** An area of natural vegetation that runs along the shoreline, stream or bluff. It extends from the high water mark to the water’s edge. Also referred to as a buffer strip, filter strip or riparian zone.

**Building permit:** A Municipality-issued document that regulates construction and enforces Building Code compliance.

**Burlap:** A coarse, canvas-like fabric made from the fibers of jute, hemp or cotton plants.

**Burn barrels:** Open burning of household waste in barrels that results in very high levels of toxic chemicals emitted in the smoke.

**Burning:** The controlled use of fire to dispose of paper or cardboard containers. Smoke from the fire must be directed away from buildings, highways, roads or public outdoor areas and must not affect people or animals. Municipalities may have burning bylaws that prevent such fires or regulate how they must be carried out.

**Cantilever dock/boathouse:** A cantilever dock typically relies on the shoreline or on a shoreline structure for its entire anchorage. Some docks may have intermediate supports very close to the shoreline. The end of a cantilever dock juts out over the water, appearing to float on air. Cantilever docks are suitable for almost any type of environment and have a very small environmental footprint.

**Capture zone:** See Well capture zone.

**Carbon dioxide:** A colourless, odourless gas occurring naturally in the atmosphere, but also released through the burning of fossil fuels.

**Carpooling:** The shared use of a vehicle typically to commute to work, often by people who each have a car but travel together to save costs and decrease pollution.

**Casing:** See Well casing.

**Certified Arborist:** A professional trained in the planting, care and maintenance of individual trees and a current member of the International Society of Arboriculture.

**Cistern:** A storage tank/basin for rainfall that has been collected from a roof or some other catchment area. Also known as a rain barrel.

**Clean up equipment:** Includes absorbent materials (e.g. sawdust, soil or kitty litter) to soak up spilled liquids, and shovel, broom, empty pails to gather solids and absorbed liquids.
Glossary

**Clear water infiltration:** Entry into a septic system by water that does not need treatment, such as rainwater or sump pump.

**Climate change:** The gradual change in global temperature which in turn causes changes in climate around the world. It is caused by the emission of gases that trap the sun’s heat in the Earth’s atmosphere. Gases that contribute to global warming include carbon dioxide, methane, nitrous oxide, chlorofluorocarbons (CFCs), and halocarbons (the replacements for CFCs). Carbon dioxide emissions are primarily caused by the use of fossil fuels for energy.

**Coastal Wetland:** An areas that is permanently or temporarily submerged, or saturated for at least part of the year. Unlike upland wetlands, coastal wetlands don’t transition into drier communities.

**Coliform organisms:** Harmful bacteria usually found in polluted water. If they are found in a water sample, it indicates that the water is not be safe for drinking or food preparation.

**Compaction (soil):** Compression of soil that decreases the spaces between soil particles. This hinders the movement of air and water into and through the soil. Consequently the soil holds less water and surface runoff and erosion occurs. Soil compaction may be caused by ongoing pedestrian traffic, one time or ongoing vehicular traffic, construction equipment or the storage of materials.

**Compost:** Organic material resulting from the natural breaking down or rotting of plant and animal material by bacteria, fungi, and other organisms. It is used to enrich soil.

**Compostable:** Items that will decompose naturally and enrich soil, such as food and yard wastes.

**Condensation:** The process by which water vapour becomes a liquid.

**Conservation Authority (CA):** Responsible for the management of the local watershed and floodplains within the watershed.

**Conservation easement:** A legally binding agreement not to develop part of a property, but to leave it “natural” permanently or for some designated period of time. The property still belongs to the landowner, but restrictions are placed both on the current landowner and on subsequent landowners. The easement becomes part of the land deed so that all future property owners are bound by the terms of the easement; regulated under Ontario’s Conservation Lands Act and Ontario Heritage Act.

**Contaminant:** Anything which can cause pollution. Septic systems, stored pesticides, fuels, pet wastes, furnace oil, paints and cleaners are all possible contaminant sources. Contaminants may be colourless and/or odourless.

**Contaminate/Contamination:** Alteration of a material by the introduction of a chemical or other substance so that the material is unfit for a specified use.

**Creosote-treated wood:** Wood preserved by pressure treatment with the pesticide, creosote, to protect it from insect attack and decay; primarily used for utility poles, bridges, dams, retaining walls and railway ties. As a highly toxic compound, exposure to creosote may present certain health hazards, including cancer.

**Crib:** A crib is a cubic frame of large timbers (made of a durable wood such as Douglas-fir, larch, or hemlock) filled with rocks that lie in the shallow water off the shoreline. Horizontal planks for a dock or boathouse are placed on top of the cribs, above the water. Timbers continually submerged in water can last 50 years or longer without treatment. Crib docks are not suitable for deep-water applications.

**Crown Land:** Publicly owned land, typically under the jurisdiction of the provincial government and administered on behalf of the people.

**Dampers (fireplace):** A metal flap-like device that when closed, prevents outside air from entering the house and heated air from escaping. When in the open position, it allows smoke and heat to flow up the chimney. A traditional damper is located where the firebox and the flue meet. Alternatively, dampers can be mounted on top of a chimney and this type is more energy efficient, although they can not be used with gas fireplaces or wood stoves.

**Deciduous trees:** Trees that shed their leaves in the fall.
**Glossary**

**Deposition:** The geological process whereby material is added to a landform (e.g. beach shoreline). The material is eroded and transported from elsewhere by wind, water or ice. Also referred to as sedimentation.

**Design capacity:** The total daily sanitary sewage flow that the septic system is designed to handle. The Ontario Building Code (OBC) determines wastewater flows.

**Dioxins:** A group of chlorinated organic chemicals with similar chemical structures. Dioxins have no uses. They are formed unintentionally and released as byproducts of human activities such as waste incineration, fuels combustion, chlorine bleaching of pulp and paper, or pesticide manufacturing. They are also formed by natural processes such as forest fires and volcanoes.

**Downspout:** A vertical conduit used for draining water from the roof gutters of a building.

**Drainage Pattern:** The network of water courses (streams and rivers) that drain a watershed(s) into a lake or water body. Also called runoff pattern.

**Dredging:** The removal or displacement of any material from the bottom of a lake or stream using heavy machinery to widen or deepen the channel. It can harmfully alter, disrupt or destroy the areas in which fish live, feed and reproduce and can also resuspend contaminants settled on the bottom, affecting water quality.

**Drilled well:** Wells that are constructed using percussion or rotary drilling machinery. Casing is usually plastic or metal pipe with a small diameter; 10 to 20 cm (4 to 8 in) across. Drilled wells can be very deep.

**Dripline:** The outer extent of a tree’s branches. The dripline is used as a rule-of-thumb indication of the extent of a tree’s root system, though most roots in fact extend beyond the dripline.

**Driven well:** See Sand point well.

**Duct:** A tube or conduit, usually made of sheet metal that carries cooled or heated air from one place to another in a building.

**Dug well:** Large-diameter well often constructed by power shovel, backhoe or by hand.

**E-coli (Escherichia coli):** Harmful bacteria that comes from human and animal feces. If *E-coli* is found in drinking water, it is not safe for drinking, food preparation or bathing.

**Ecological Corridor:** An area of vegetation, typically linear that is similar or the same in nature as wildlife habitat areas, allowing wildlife to move between habitat areas. The size of the corridor determines its effectiveness as a safe means of movement.

**Ecosystem:** A complex, natural system created and maintained by the interaction and interdependency between all living organisms and their particular environment. Any action taken at any level in this interacting system has a potential domino effect on every other organism or element within the ecosystem.

**EnerGuide:** A rating system managed by Natural Resources Canada that helps consumers compare the energy efficiency between appliance models and buildings.

**Energy Audit:** A thorough assessment of how much energy a building uses, conducted by an energy audit professional. It pin-points the areas where the building is losing energy, and includes suggestions on how to improve energy efficiency.

**Energy consumption:** The amount of energy that is used. This is affected by the energy efficiency of all objects and materials in a space.

**Energy efficiency:** Reducing as much as possible, the total amount of energy used to complete an activity. The most effective way to determine the energy efficiency of a building is to have a home energy audit done by a service professional.

**EnergyStar:** An internationally recognized symbol for energy efficiency. In Canada, the international EnergyStar symbol is monitored and promoted by Natural Resources Canada’s Office of Energy Efficiency.

**Emergency plan:** A plan of action to deal with an emergency. The plan should include: location of emergency equipment, emergency telephone numbers, cleanup methods, and steps to follow in case of spill or fire.
Emissions standards: Emission standards limit the amount of pollution that can be released into the atmosphere from sources such as industry, power plants, vehicles and small equipment such as lawn mowers.

Emissions (vehicle): Pollutants such as unburned gases and smoke that are produced during combustion in an engine and released into the air.

Erosion: The geological process by which soil or rock is worn away by water, wind, or other forces.

Erosion-hazard limit: A setback distance determined by considerations that include the 100 year erosion rate (the average annual rate of recession of a bluff extended over a one hundred year time span), plus an allowance for slope stability and an erosion allowance.

Eutrophication: A process by which a water body becomes rich in dissolved nutrients. The nutrients encourage algal blooms and plant growth which depletes the oxygen in water, threatening aquatic life. This process can be accelerated by human activity.

Evergreen trees: Trees that retain their leaves or needles year-round.

Exotic (plant): An exotic species (also known as an introduced species) is an organism that is not native/indigenous to the place or area where it resides and instead has been accidentally or deliberately transported to the new location by human activity. Exotic species can often be damaging to the ecosystem to which they are introduced.

Exposure: Contact with a gas, liquid or solid. Exposure can happen by swallowing (oral), skin contact (dermal) or breathing in dust or vapour (respiratory).

Faucet aerator: A round case at the mouth of the faucet that contains a mesh-like disk, through which the water flows. Low-flow faucet aerators save water as well as any energy used to heat that water.

Fertilizer: Any organic or inorganic substance that is applied to the soil in either liquid or granular form to improve plant growth and vigour.

Fill: Material that is brought from elsewhere and added to the existing landscape, such as soil, gravel, sand or loam. Fill regulations exist and are administered by your local Conservation Authority.

Fish Habitat: “Spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes” (Canada Fisheries Act, Sec. 31.5).

Fisheries Act: A federal law administered by the Department of Fisheries and Oceans and Environment Canada to protect fish and fish habitat. It prohibits the destruction or damage of fish habitat and the discharging of substances that may harm fish or fish habitat.

Fixed sprinkler head: Sprinkler head affixed seen in place more or less permanently.

Floodplain: The area adjacent to a water body or water course that becomes covered with water during high water levels. Often this occurs following snowmelt or an extreme rainfall event. Floodplains are regulated by your local Conservation Authority.

Forest corridor: A linear remnant of a forest community. It is too narrow to be viable as habitat but can have the important role of connecting other larger isolated or separate areas of forests, creating the effect of a continuous forest. This allows animals and other species to travel through disturbed landscapes.

Foundation tiles: A drainage system by which groundwater can be transported away from your basement. Water travels the path of least resistance down to the basement foundation, through a gravel bed into the drainage tile (pipe that has perforated holes along its length) which leads the water to an outlet away from the house. Also known as weeping tile.

Fuel: A material that can be transformed into usable energy.

Fuel economy: A description of the amount of fuel required to move a vehicle over a given distance.

Fungal disease: Any fungus harmful or lethal to plant growth.

Furans: A family of chemicals that are formed during combustion. They are extremely toxic.
Glossary

Garbage: A general term used to describe household items that are no longer desired. It can include packaging, plastics, treated wood, old furniture, even newspaper and junk mail. Also called trash.

Garborator: A type of garbage disposal system that functions through the kitchen sink. Food scraps go into the municipal water or septic system.

Grey water: Wastewater from household uses such as dishwashing or bathing.

Groundwater: Fresh water that has seeped through the soil and rock on the Earth’s surface and naturally collects forming a reservoir, the top of which is referred to as the water-table. This water supplies wells and springs and is the source of most people’s drinking water.

Gullies: Resemble large ditches or small valleys. Gullies can form on slopes that have been cleared of vegetation after a large rainfall event; from water running over loose soil that causes significant deep cutting action.

Gunflint Formation: A narrow band of generally iron-rich and cherty rocks that extends from Gunflint Lake on the Minnesota-Ontario border to near Schreiber, Ontario. Cherts are glassy rocks (bright red and yellow) with high silica content that are ideal for producing sparks. The first fossils of microorganisms ever found were inside the cherty rocks; aged at 1.9 billion years old.

Habitat: The environment that provides what an organism requires for survival and reproduction. Specialist species have the ability to live in only one type of habitat, eat only a few types of food, or tolerate a narrow range of climatic or environmental conditions.

Hazard land: An area prone to flooding or erosion such as properties located within a floodplain, on beaches, bluffs, or subject to strong winds, wave activity, etc. Formally recognized and managed in municipal Official Plans and zoning by-laws. Also known as hazard zone or use-limitation.

Hazard tree: A tree or any component of a tree that has sufficient structural infirmity to be identified as having a high risk of falling and causing personal or property damage.

Hazardous wastes: Substances that can be dangerous to humans or animals and must be disposed of in a manner as to not pollute groundwater.

Health Unit: A provincial health agency that administers health promotion and disease prevention programs through local offices.

Hermaceous: Non-woody plant material or vegetation. A herbaceous plant goes dormant or dies back every year.

High water mark: The highest level to which a body of water rises and remains for a sufficient period of time so as to change the characteristics of the land; there is some evidence or mark on the landscape that indicates the height of flooding by water and the natural vegetation shifts from aquatic/wetland species to upland species. See Ordinary high water mark and 100-year high water mark.

Holding tank: A sealed tank to hold household wastewater until the tank can be pumped out by a septic pumping company, rather than a septic field.

Household chemicals: Any chemicals normally used within the house such as detergents or cleansers.

Impervious surface: A solid surface that does not allow water or other substances to pass through.

Incandescent light bulb: A glass bulb that contains a glowing wire filament that, when heated to white hot by electrical resistance, generates light. Tends to lose 95% of energy due to the air as heat.

Infiltrate/Infiltration: Allowing water or other substances to pass through pores or spaces in soil. Also percolate/ percolation.

Inorganic fertilizer: A synthetically-made chemical mixture that is applied to plants to promote growth. Plants nutrients are immediately available for plant roots to absorb. Consequently, the risk of over-applications or ‘burning’ is higher.

Invasive species: A plant, animal or aquatic organism (not native to the area) which typically spreads quickly and may be difficult to control or eradicate. These species are of concern because they can be detrimental to other species and threaten ecosystems.

Irrigation: The process of drawing water from a concentrated source (well, pond, municipal water system, etc.) and applying it to your garden or landscaping.
Glossary

**Landfill:** A site specially engineered for the permanent disposal of solid waste on land, constructed so that it will reduce hazard to public health and safety.

**Lawn:** A mown or smooth expanse of vegetation typically comprised of one or more grass species.

**Leachate:** Liquids that have percolated through soil and carry contaminants.

**Leaching bed (trench type):** Consists of trenches of buried distribution pipe. Each pipe is set in a bed of stone in a trench. Wastewater leaves the septic tank and flows through the distribution pipe into the soil through perforations in the pipe. See septic leaching bed.

**Leaching bed loading:** Refers to the volume of wastewater in relation to the capacity of the leaching bed. Increased household water use can overload the system.

**Legal Non-Conforming:** Buildings or structures which existed before the current municipal zoning by-law was passed. When existing uses do not conform to the regulations in a new zoning by-law, their prior legal existence ensures their continuation as a lawful use. This means that some variations of use can legally exist without requiring an amendment to the zoning by-law.

**Legislation:** Law or set of laws made by a law-making body. Also referred to as Statutes or Acts.

**Liability:** An obligation that legally binds a person to be responsible for their actions, including restoring damage to others.

**Loading:** See Leaching bed loading.

**Loam:** Soil containing a mixture of clay, silt and sand that is typically loose, well-drained and rich in organic matter. It is considered best for the growth of most plants. The exact ratio of sand, silt and clay determines texture and other soil characteristics.

**Low-flow shower head:** A shower head that restricts the flow of water and forces it through very small apertures. It uses 8-9 litres (about 2 gallons) per minute while a conventional showerhead uses 15-19 litres (3-4 gallons) or more per minute. It is easy to install and can be fitted to most standard shower arms.

**Low-level sprinkler:** Sprinkler where water stream reaches a low height; type often seen on residential properties for children’s recreational use.

**Mid-level sprinkler:** Sprinkler where water stream reaches a moderate height; type often seen on residential properties for children’s recreational use.

**Mooring:** A floating platform anchored to the bottom of a water body in open water (using concrete anchor blocks, chains, rope and floats) and away from the shoreline. It is used to secure a boat or to hold a channel marker in place as a navigational aid. Moorings alleviate the need for boats to set temporary anchors and therefore reduce damage to the bed or bottom of a lake from shifting/dragging anchors.

**Mulch:** Loose, organic materials such as woodchips, bark, and straw, or a mixture thereof. When applied around a plant, mulch protects the plant, suppresses weeds and retains moisture. Re-apply as mulch breaks down over time.

**National Marine Conservation Area (NMCA):** Area designated by Parks Canada that is representative of Canada’s diverse marine environment. The area is protected from activities such as undersea mining and oil and gas exploration. The area is intended to protect historical and ecological features and promote conservation and marine research and recreation.

**Native species:** Plant and animal species that have evolved in a specific area over a period of time prior to human activity; species that are adapted to and occur naturally in a specific location. Also referred to as naturally-occurring species or indigenous.

**Natural Processes:** A series of changes or actions that occur within an ecosystem to maintain its health or regulation.
Glossary

**Non-Invasive:** A plant with a low potential to spread quickly or become difficult to control or eradicate. Local native plants are typically not invasive.

**Non-native species:** A plant or animal species that did not evolve naturally in the specified location and has arrived by human influence.

**Non-renewable:** Something that cannot be replaced by nature once it is used up or that regenerates only over a very long period of time.

**Non-toxic:** A substance that is not poisonous or will not cause harmful health effects.

**Nuisance or Problem wildlife:** Any wildlife that causes damage to your property or is a potential threat to health and safety.

**Nutrients:** Any element needed for plant growth. Usually refers to elements added to the soil or garden as fertilizer. Commonly used nutrients are nitrogen (N), phosphorus (P), and potassium (K). Animal (including human) waste contains nutrients that, when available in excess, can become a pollutant.

**Nutrient management:** The responsible and appropriate application of nutrients (especially nitrogen) to plants, with the purpose of improving plant growth and soil conditions, in such a way as to protect surface and groundwater from nutrient contamination.

**Official Plan:** A municipal policy document that outlines basic principles to guide future development within an area. Available at the municipal office or community library.

**Ontario Drinking Water Standards:** The minimum water quality standards set by the Ontario Ministry of the Environment to protect public health. It is advisable that drinking water meets these standards.

**Open-faced crib:** See crib.

**Ordinary high water mark:** The usual or normal or average annual level to which a body of water rises at its highest point and remains for a sufficient time so as to change the characteristics of the land. Ordinary high water marks fluctuate based on the last few years of climatic conditions (e.g., recent low water levels on Lake Superior). It is NOT the same as the regulated 100-year high water mark. See high water mark or 100-year high water mark.

**Organic fertilizer:** A product that promotes plant growth that is derived from animal or vegetable matter such as compost. Nutrients are released at a slower rate that facilitates plant absorption and therefore are less likely to be carried away by surface or leached into groundwater.

**Other treatment systems:** Includes biofilters, packaged aerobic systems, sand filter systems, etc. See the Ontario Building Code (OBC) for approved systems.

**Passive solar heating/lighting:** The natural heating/lighting of buildings or rooms by capture of direct sunlight. Buildings can be designed with large windows in south-facing walls and small windows in north-facing walls, to reduce the need for electricity and fossil fuel energy as a source of heat and light.

**Percolate/Percolation:** Refers to the flow of water through the soil. Also infiltrate/infiltration.

**Perennial:** A type of herbaceous plant that completes its lifecycle over more than 2 years.

**Permit:** A document granting legal permission.

**Pesticides:** A general name given to toxic chemicals used to eliminate or control unwanted insects, diseases, plants, or other organisms. Pesticides include insecticides, herbicides, and fungicides.

**Pesticide-alternative:** Generally any pesticide derived from natural sources and/or that does not require a license to apply. Considered gentler than conventional pesticides, alternatives do not degrade the environment.

**Pesticide storage:** The legal requirements for pesticide storage can be found in the Ontario Pesticides Act.

**Pilot lights:** A small flame that stays lit all the time (in a hot water heater, boiler or furnace) and ignites the burner flame.

**Ponding:** The process through which water collects or pools on a surface before being infiltrated into the ground.

**Portable fuel container:** A portable container made of metal or other material that has been approved for use by the Underwriter’s Laboratories of Canada (ULC), the Canadian Standards Association (CSA), or Transport Canada to transport and store fuel.
Glossary

**Pressure or Dosed distribution:** A septic system that utilizes a pump to load shallow, rapidly-changing, distribution lines in doses.

**Pressure rinse:** One method to properly rinse containers. Spray water under high pressure against all inside surfaces of the container.

**Prevailing wind:** Wind that blows in an area most frequently.

**Protective coating:** A paint or other coating material designed to prevent rust.

**Provincially Significant Wetland (PSW):** Areas identified by the Ministry of Natural Resources as being valuable for biological and hydrological function and societal values determined by a science-based ranking system known as the Ontario Wetland Evaluation System (OWES). The designation is used by municipalities to protect the area through the policies in their Official Plans (land use plans) and zoning by-laws.

**Public Lands Act:** Legislation protecting the integrity of public lands and waters for all citizens of Ontario. It requires that property owners obtain work permits from the Ministry of Natural Resources for activities on Crown land.

**Puncture:** An area of change or disturbance within a natural community such as a buffer. It is often created by a change in land use or development. The threat or damage caused by the puncture depends on its size and the type and health of the natural community or buffer it has disrupted. Punctures provide opportunity for soil erosion and for invasive species to colonize.

**Quick-release fertilizer:** Type of synthetic (inorganic) fertilizer that is immediately available for plant roots to absorb. There is a high ‘burn’ potential if too much is applied and the potential for it to leach into ground and surface water is high causing algal blooms and eutrophication. It is also referred to as Water Soluble Nitrogen (WSN).

**Recyclable:** Materials that can be collected, sorted, and processed back into raw materials that are used to make new products. Typical recyclables include glass and selected metal, paper and plastic products.

**Registered contractor:** A person registered by the province of Ontario to install and repair petroleum storage tanks.

**Regulation:** A binding rule of law. Regulations are not made by Parliament but rather by persons or bodies that have received authority from Parliament to do so.

**Restriction:** Refers to legislation that ensures that activities do not harmfully affect aquatic habitat or water quality.

**Reusable:** Items that can be used again in their current state by another individual or for another purpose.

**Right-of-way (includes Easements):** A legal agreement that confers on an individual, company or Municipality the right to use a landowner’s property in some way. It also therefore partially restricts an owner’s use of those portions of land affected by the right of way/easement. Right of ways are typically registered on the certificate of title to the property and are automatically transferred from one owner to another as the land is sold. They remain on the title until the holder of the easement discharges their rights from the certificate of title. Often the Municipality holds a 20 metre (66ft) right-of-way along the Lake Superior shoreline. Right-of-ways also run along utility lines.

**Rinse water:** Wastewater from cleaning the inside of a product container or applicator.

**Rip-rap:** Rock embankment with the appropriate slope and rock size designed so that waves hitting the slope will “roll-up” the slope rather than crashing into it. A filter cloth placed under the rock prevents the slope from being eroding away and releasing sediment.

**Risk:** The potential for disaster and loss.

**Rove formation:** Bedrock containing predominantly dark-coloured fissile argillites (a metamorphic rock, intermediate between shale and slate that is easily split along close parallel lines) and red and green shales.

**Runoff:** Snow melt or rain that flows over land rather than infiltrating through the soil/rock.

**Runoff pattern:** The arrangement of how rain or water flows over an area. This is determined by the land form; water will flow down slope to the lowest elevation points due to gravity. Also called drainage pattern.
Glossary

**R-2000:** A building technology designed in Canada and not recognized internationally for energy efficiency and indoor air quality. Every R-2000 home is certified by the Government of Canada and the R-2000 rating is managed by the Canadian Home Builders’ Association and Natural Resources Canada (NRCan’s) Office of Energy Efficiency.

**Sand point well/driven well:** Wells constructed by driving assembled lengths of pipe into the ground. These wells are usually smaller in diameter (5 cm or less) and less than 15 m (50 ft) deep. They can be installed in loose soils, such as sand.

**Saturated (soil):** Soil in which all the pore spaces are completely filled with water and no additional water can be stored.

**Seller Property Information Statement:** A non-legally binding document that outlines what the current owner of the property knows about the property. Also known as a Disclosure Statement.

**Sensitive natural feature:** An environmental element of the landscape that is readily affected by or responsive to external influences or change.

**Septic field:** See septic leaching bed.

**Septic leaching bed:** Part of the septic system. Together with the septic tank, it treats household sewage. It is comprised of rows of perforated pipes set at a specific distance apart and above a stone layer that distribute liquid wastewater along an underground field into the soil. The area above a leaching bed should have a good grass cover and should be kept free of trees, shrubs, and structures such as patios, pools, and sheds, and vehicles including snowmobiles. Any compaction of the soil reduces leaching bed performance and crushed leaching bed pipes can cause backups in your home.

**Septic system:** Consists of a separate tank to settle the solids out of the wastewater, followed by a leaching bed in which the wastewater is treated and distributed into the soil.

**Septic tank:** A watertight vault in which sanitary sewage is collected to remove scum, grease, and solids from the liquid without the addition of air. This is where solids settle and anaerobic digestion of the sanitary sewage takes place.

**Setback:** the distance which a building, structure or activity is set back from a street, shoreline, floodplain or any other feature that may need protection. A setback can also include a minimum distance from septic systems, drinking water wells, utility or property lines. A setback is often regulated in municipal zoning by-laws.

**Sill:** A lip or catch under the spout of a container that effectively catches any drips from the mouth of the spout.

**Silt fence:** A temporary barrier stretched across an area to trap sediment and prevent runoff water from moving it off-site during construction.

**Slope:** Refers to land surface steepness. It is measured as a number of centimetres rise in a 100 cm (1 m) horizontal length (for example, a 2 % slope equals 2 cm rise across 100 cm horizontal length).

**Slow-release fertilizer:** The type of synthetic (inorganic) fertilizers that break down using bacteria, fungi or other soil micro-organisms in the soil, or that are coated to reduce solubility. As a result, nitrogen becomes available for plants over time. While it is typically more expensive than quick-release fertilizers, it lowers the chance of ‘burning’ plants when over-application occurs and has less potential to leach into ground or surface water. It is also referred to as Water Insoluble Nitrogen.

**Soffit:** The material used to bridge the gap between a house’s exterior wall and the roofline, also known as eaves.

**Soil compaction:** Reduced pore space in the soil due to human or equipment traffic. Compaction makes it difficult for water to infiltrate and for roots to penetrate the soil.

**Soil depth:** The depth of soil influences the potential for groundwater contamination. Deeper soils are typically more effective at filtering out contaminants before they can reach groundwater.

**Soil grade:** The elevation of the ground surface. Grade may also refer to the steepness of the slope of the surface.

**Soil type:** The material(s) that a soil is made of affect its ability to filter water and other substances (including pollutants). Sand and gravel soils provide the fastest infiltration and therefore increase the potential for groundwater contamination. Conversely, clay soils are slow to allow water to infiltrate and may cause water to runoff along the surface which encourages erosion and surface water contamination.
**Glossary**

**Solvent:** A liquid that can dissolve another substance (e.g., paint thinner, mineral spirits, and water).

**Species-at-Risk:** A general term used to describe the fragile state of a species population. This term is further organized into 5 categories of risk: Special Concern, Threatened, Endangered, Extirpated, and Extinct. The usual causes for a species to be at risk include habitat destruction, genetic and reproductive isolation, the suppression of natural occurrences such as fire, environmental contamination, over-harvesting, climate change, disease, and the presence of invasive species.

**Stagnant water:** Water that is motionless or ceases to flow.

**Steward:** An individual with a personal commitment to care for the land and the surrounding landscape in order that it may be preserved or enhanced for future generations.

**Storm water:** Water from rain or melting snow that does not infiltrate into the ground.

**Storm windows:** An extra pane of glass or plastic added to the outside of windows to provide additional insulation and wind protection.

**Storm sewer:** A system of underground pipes (separate from sanitary sewers) that collects and carries only water runoff from building and land surfaces to a discharge point (e.g., infiltration basin, stream, lake or treatment plant).

**Sub-surface distribution:** Underground discharge of household wastewater to a leaching bed after pretreatment in a septic tank.

**Surface material:** Refers to soil, lawn, or other ground material that surrounds the well.

**Surface water:** Any open or exposed body or flow of water including springs, streams, rivers, ponds, lakes, drain inlets, ditches, etc.

**Survey:** A map document made by a licensed surveyor that illustrates and describes the measurements and layout of a parcel of land including its size, boundaries, location, elevations, the dimensions and position of any structures and indicates any easements, rights of ways, etc.

**Swale:** A ditch that can direct and divert water runoff or that can hold water allowing it to slowly infiltrate into the soil. Swales are usually moist, marshy, fertile areas.

**Talus slope:** The accumulation of rock debris at the base of a cliff or steep mountain slope. It is often too unstable to support to growth of vegetation. It is the transition zone between the bare rock face of the cliff and the ground with soil.

**Tree rooting zone:** Often considered the radius on the ground that corresponds with the tree dripline (the greatest extent of the tree branches) that is critical for root uptake of water and nutrients; however a more accurate way to measure the radius of a tree’s rooting zone is to extend the circle on the ground by 20 cm for every 1 cm of tree trunk diameter.

**Triple rinse:** One way to properly rinse containers. Fill the container 10% full of water or other diluents, cap and shake the container, then add the rinse water to the spray tank. Repeat two more times.

**ULC approved:** Approved for safety by the Underwriter’s Laboratory of Canada. ULC approval should be marked on a storage tank.

**Unused well:** A water well that is not currently used or is used occasionally. All water wells regardless of use must be properly maintained or they must be properly abandoned (plugged and sealed).

**Use Limitation:** See Hazard Land.

**Vegetated buffer:** A permanent strip of vegetation along the side of a watercourse that reduces soil erosion and surface water contamination.

**Vegetation:** All plants including trees, shrubs, non-woody plants, lichens, mosses, etc.

**Vent:** See Well vent.

**Visual access:** The ability to observe an environment or scene from a distance without physical entry or presence.

**Vulnerability:** Capacity to be open or exposed to harm.

**Wastewater:** Dirty/used water of domestic origin, including the kitchen, laundry, and bathrooms (toilet, shower, tub).
**Glossary**

**Wastewater treatment system:** A sewage system approved under the Ontario Building Code (OBC).

**Water bar:** Ridge of compacted soil, loose rock or gravel constructed across disturbed right-of-ways and similar sloping areas. A water bar shortens the flow length within a long sloping right-of-way, thereby reducing the erosion potential by diverting storm runoff to a stabilized outlet or sediment trapping device.

**Water efficiency:** The degree to which practices or devices are used to reduce the amount of water needed to do a job.

**Water feature:** Any constructed landscape feature that holds or has water spill over it. This includes artificial small ponds, artificial waterfalls, and artificial streams.

**Water heater:** An appliance that typically uses gas or electricity to heat water. A water heater also stores the heated water until it is used.

**Water table:** The boundary between the saturated soil (where all the soil pore spaces are filled with water) and the unsaturated soil (where the soil pore spaces are filled with air, roots, soil organisms and some water).

**Weather stripping:** Strips of resilient material, typically rubber or plastic, used to plug air leaks around doors and window frames in order to prevent cold air or water from coming indoors.

**Weir:** A small dam where water continues to flow over top commonly used to raise the water level in a stream. Creates a barrier to fish migration upstream; can prevent the migration of invasive species Sea Lamprey upstream.

**Well cap:** A commercially manufactured device used to cover the top of a well casing pipe. This cap prevents surface water, vermin, or solid material from entering the well.

**Well capture zone:** The area of land that replenishes water to a pumped well or a group of wells. Determining the size of a capture zone is complex and expensive. Knowing its area may not be necessary if the entire property is treated as the capture zone for the well(s) and potential contaminant sources are managed properly.

**Well casing:** Steel, fibreglass, plastic pipe or concrete tile, installed when a well is constructed, in order to strengthen the well bore hole so it does not collapse. It also prevents contaminants from entering the well and allows placement of a pump or pumping equipment.

**Well pit:** Lined, shallow excavation around the top of the well casing of a drilled well.

**Well vent:** An opening in the well cap or well seal that makes the air pressure inside the well the same as outside. It also lets gases escape. The vent should always have a screen to prevent dirt, vermin, or other materials from getting into the well. A screened pipe may extend from the vent up above the ground level to prevent flooding of the well.

**Well-rotted manure:** Any animal waste that is used to fertilize soil and has undergone decomposition by bacteria, fungi, or other micro-organisms for a minimum of 6 months. Its odour is no longer pungent but is often sweet, its colour is dark or black and its texture is crumbly.

**Wetland:** Area that is permanently or temporarily submerged, or saturated for at least part of the year under water. Unlike upland wetlands, coastal wetlands don’t transition into drier communities.

**Wildlife:** Any non-domesticated insect, fish, amphibian, mammal or plant.

**Wind energy:** Energy that is obtained from wind-powered turbine engines.

**Woody Species:** A plant that produces woody stems such as a tree or shrub.

**Zoning by-law:** Municipal legislation that describes the exact use for a specific parcel of land including permissible buildings, size, building heights and setbacks from lot lines.

**Zoning:** The division of a Municipality by legislative regulations into areas (zones) that control the use of the land by specifying the uses allowable for the real property in these areas (e.g. residential, agricultural, commercial, heavy industrial).
# Resource List

**GENERAL CONTACT INFORMATION**

**Lakehead Region Conservation Authority**  
130 Conservation Road, P.O. Box 10427  
Thunder Bay, ON P7B 6T8  
T: (807) 344-5857  
F: (807) 345-9156  
Email: info@lakeheadca.com  
www.lakeheadca.com  
www.conservation-ontario.on.ca

**Ontario Ministry of Natural Resources**  
435 James Street South, Suite 8001  
Thunder Bay, ON P7E 6S8  
T: (807) 475-1471  
www.mnr.gov.on.ca

**Municipality of Shuniah**  
Municipal Office  
420 Leslie Avenue  
Thunder Bay, ON P7A 1X8  
T: (807) 683-4545  
F: (807) 683-6982  
Email: shuniah@shuniah.org  
www.shuniah.org

**Municipality of Neebing**  
4766 Highway 61  
Neebing, ON P7L 0B5  
T: (807) 474-5331  
F: (807) 474-5332  
www.neebing.org

**City of Thunder Bay**  
Thunder Bay City Hall  
500 Donald Street East  
P.O. Box 800  
Thunder Bay, Ontario P7C 5K4  
Phone: (807) 625-2110  
www.thunderbay.ca

**Thunder Bay District Health Unit**  
999 Balmoral Street  
Thunder Bay, ON P7B 6E7  
T: (807) 625-5900  
F: (807) 623-2369  
www.tbdhu.com

**Fisheries and Oceans Canada**  
Thunder Bay Office  
100 Main Street, Suite 425  
Thunder Bay, ON P7B 6R9  
T: (807) 346-8118  
F: (807) 346-8545  
Email: ReferralsThunderBay@DFO-MPO.GC.CA  
www.dfo-mpo.gc.ca

**Ontario Ministry of the Environment**  
Thunder Bay Regional Office  
435 James Street South, Suite 331  
Thunder Bay, ON P7E 6S8  
T: (807) 475-1205  
F: (807) 475-1754  
Toll free: 1-800-565-4923  
www.ene.gov.on.ca

**Household Hazardous Waste Depot**  
John Street Landfill  
John Street Road, South of Mapleward Road  
T: Landfill Information (807) 623-5756  
T: Landfill Site (807) 767-9472

**EcoSuperior Environmental Programs**  
212 Miles Street East  
Thunder Bay, ON P7C 1J6  
T: (807) 624-2140  
www.ecosuperior.com

## TOPICS

**Boating**  
- Prince Arthur’s Landing Municipal Marina with pump-out facilities  
  T: (807) 345-2741  
- Concrete boat launch and courtesy docks available at Silver Harbour and Little Trout Bay Conservation Areas for $2/vehicle visitor fee. Call LRCA at (807) 344-5857 for details.  
  Canadian Power and Sail Squadrons. Available online at: www.cps-ecp.ca under Boating Resources-Environment  
- **The Safe Boating Guide. 2000.** Canadian Coast Guard. Available online at: www.tc.gc.ca  
- www.boatsmartcanada.ca
## Resource List

### Buying a Rural Property

### Construction/Building Permits
- **Contact** your local municipality’s Chief Building Official (CBO) **See Blue Pages**
- **Contact** your local Municipal Office. If within the City of Thunder Bay, contact Development Services:
  - 2nd Floor, 11 Syndicate Avenue South
  - Thunder Bay, ON P7E 6S4
  - T: (807) 625-2574
  - F: (807) 623-9344
- **Ministry of Municipal Affairs and Housing Building and Development Branch**
  - 435 James Street South, Suite 435
  - Thunder Bay ON P7E 6S7
  - T: (807) 475-1651
  - F: (807) 475-1196
- **Ontario Building Code (OBC)**
  - Regulates design, construction, operation and maintenance of on-site septic systems and new building/structure construction
  - Email: codeinfo@mah.gov.on.ca
  - www.obb.mah.gov.on.ca
- **Leadership in Energy and Environmental Design (LEED)** helps building construction gain certification for sustainable site development, water efficiency, energy efficiency, materials selection and indoor air quality
  - www.cagbc.org
- **Before construction in or near waterscourses see resources under “Fish Habitat” and “Navigable Waters”**

### Chemicals
- **Thunder Bay Broom & Chemical**
  - T: (807)577-7795
- **ECOgent Environmental Solutions at:** 1-877-994-9908
  - www.ecogent.ca
- **Simply clean**
  - www.simplyclean.ca

### Ecological Labeling
- **Environmental Choice Program**
  - c/o TerraChoice Environmental Marketing
  - 1280 Old Innes Road, Suite 801
  - Ottawa, Ontario K1B 5M7
  - Call Toll-free: 1-800-478-0399
  - Fax: (613) 247-2228
  - www.environmentalchoice.com

### Energy Efficiency
- **Contact EcoSuperior for an at-home energy evaluation conducted by a Certified Energy Advisor at:** (807) 624-2140
- **Contact a Professional Energy Auditor See Yellow Pages**
- **R-2000 Residential Buildings**
  - www.r2000.chba.ca

### Fishing
- **Check out the Ministry of Natural Resources, Fish Ontario for information on regulations, licenses, fish facts and fish stocking.** Available online at: www.mnr.gov.on.ca/en/Business/LetsFish

### Fish Habitat
- **Contact** your local Conservation Authority before starting construction project/activities in or near waterscourses.
- **Check out Department of Fisheries & Oceans Operational Statements** that describe the conditions under which the Fisheries Act is applicable to your project and the measures to incorporate into your project in order to avoid negative impacts to fish habitat. Available online at: www.dfo-mpo.gc.ca/oceans-habitat/habitat/modernizing-moderniser/epmp-pmpe/index_e.asp

### Operational Statements:
- **Removal of Aquatic Vegetation**
- **Beach Creation for Residential Use**
- **Beaver Dam Removal**
- **Bridge Maintenance**
- **Clear-Span Bridge**
- **Culvert Maintenance**
  - (list continues on next page)
LAKE SUPERIOR STEWARDSHIP GUIDE

Resource List

**Fish Habitat** (continued)

**Operational Statements:**
- Dock and Boathouse Construction
- High-Pressure Directional Drilling
- Ice Bridges
- Isolated Pond Construction
- Maintenance of Riparian Vegetation in Rights-of-Way
- Moorings
- Overhead Line Construction
- Public Beach Maintenance
- Punch and Bore Crossings
- Routine Maintenance Dredging
- Submerged Log Salvage
- Underwater Cables

Hardcopy Operational Statements available at local DFO and LRCA offices.

- Department of Fisheries & Oceans (DFO) *Working Around Water?* Factsheet Series on:
  - Docks, boathouses & boat launches
  - Building a beach
  - Building material
  - Shoreline stabilization
  - Dredging
  - Controlling aquatic plants
  - Sunken log retrieval
  - Stream clean up
  - Silt & sediment
  - Fluctuating water levels


**Fuel Tanks**

- Ontario Petroleum Contractor’s Association (OPAC) provides assistance in finding a petroleum equipment mechanic (PM2) T: (705) 735-9467 [www.opcanline.org](http://www.opcanline.org)
- Green tips: Residential fuel oil. Ministry of Environment (MOE) publication
- Underwriters’ Laboratories of Canada (ULC) product safety certification for above-ground fuel oil storage tanks [www.ulc.ca](http://www.ulc.ca)

**Invasive Species**

- Contact Ministry of Natural Resources (MNR) for disposal of invasive species
- Ontario Federation of Anglers & Hunters (OFAH) and MNR [www.invadingspecies.com](http://www.invadingspecies.com)
- Invasive Species Reporting at: 1-800-563-7711
- Canadian Wildlife Education [www.cwf-fcf.org](http://www.cwf-fcf.org)

**Landscape Water Efficiency**

- City of Thunder Bay Wise Water Use Program [www.thunderbay.ca](http://www.thunderbay.ca)
- Straight Talk About…Landscape Care During Water-Use Restrictions. Capital Regional District Water Department: Victoria, BC. Factsheet available online at: [www.crd.bc.ca](http://www.crd.bc.ca)

**Living along the Shoreline**

- Visit the Lakehead Region Conservation Authority to view screening maps of the Approximate Regulated Area along watercourses/shoreline on your property
- Living by the Water [www.livingbywater.ca](http://www.livingbywater.ca)
- Docktalk environmental education kit available to Cottager Associations Federation of Ontario Cottager’s Associations (FOCA) 239 McRae Dr. Toronto, ON M4G 1T7 (T): 416-629-0444 [www.foca.on.ca](http://www.foca.on.ca)
Resource List

Lakehead Region Conservation Authority
Conserving Today...For A Better Tomorrow

LAKE SUPERIOR STEWARDSHIP GUIDE

Navigable Waters

- Review the Navigable Waters Protection Program (NWPP) to determine if your project requires approval by Transport Canada for any works (i.e. docks, boathouses, water intakes) built or placed in, on, over, under, through or across navigable water in Canada prior to construction of the work(s).
- Navigable Waters Protection Act (NWPA)
- Regional Manager
- Navigable Waters Protection Program
- Transport Canada, Marine Office
- 100 S Front Street, 1st Floor
- Sarnia ON N7T 2M4
- T: 1-866-821-6631
- F: (519) 383-1989
- E-mail: npontario@tc.gc.ca
- www.tc.gc.ca/marinesafety/oep/nwpp/menu.htm
- www.tc.gc.ca

Pesticide Alternatives

- Northwest Coalition for Alternatives to Pesticides (NCAP)
- www.pesticide.org
- Pesticide Free Ontario
- www.pesticidefree.ca

Plant Selection & Care

- The Forest Gene Conservation Association
  - www.fgca.net
- The Society for Ecological Restoration (Ontario Chapter) - Native Plant Resource Guide. Order online at: www.serontario.org

Private Well Water Supply

- Contact Thunder Bay District Health Unit online at: www.tbdhu.com under Environmental Health – Drinking Water Safety – Private Wells
- Contact EcoSuperior to participate in their free Well Aware home visit service, a guided self-assessment with water samples taken to the Public Health Laboratory (Ontario Ministry of Health)
- www.ecosuperior.org/water_wellaware.html
- www.wellaware.ca
- Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Publications:
  - Agricultural Information Contact Centre at: 1-877-424-1300
  - www.omafra.gov.on.ca
  - Factsheets/Leaflets:
    - Private Water Well Owners – Dealing with Water Shortages (order no. 99-025)
    - Water Quality for House and Farm (order no. 87-026)
    - Water wells (produced by Town & Country Ontario Television)
- Ontario Ministry of Environment (MOE) Publications:
  - Public Information Centre
    - Toll free: 1-800-565-4923
    - www.ene.gov.on.ca

Private Surface Water Intake

- Review the Ministry of Natural Resources (MNR) Free Use Policy. Available online at: www.mnr.gov.on.ca under Crown Land Policies – Public Land Stewardship

Factsheets/Leaflets:
- Green Facts: Important Facts About Water Well Construction PIBS no. 3788e01, 2003
- Green Facts: Managing Your Water Well in Times of Shortage PIBS no. 3784e, 1999
- Green Facts: The Protection of Water Quality in Bored and Dug Wells PIBS no. 3962e01, 2003
- Green Facts: The Protection of Water Quality in Drilled Wells PIBS no. 3961e01, 2003
- Green Facts: The Protection of Water Quality in Jetted or Driven Point Wells PIBS no. 4505e, 2003

- Review the Ontario Water Resources Act and Ontario Regulation 903 (Water Wells). This regulation governs how wells must be constructed in Ontario. It includes construction standards, distances required from contaminant sources and licensing requirements for well contractors.
LAKE SUPERIOR STEWARDSHIP GUIDE

Resource List

Resource Violations Reporting
- CRIME STOPPERS at 1-800-222-8477 (1-800-222-TIPS)
- MNR toll-free reporting line: 1-877-847-7667
- Lakehead Region Conservation Authority
  T: (807) 344-5857
  www.lakeheadca.com

Shoreline Restoration/Rehabilitation
- Minnesota Management Resource Guide
  www.shorelandmanagement.org

Soils
- Soil Testing Laboratories
  See Yellow Pages
  or
  Lakehead University Centre for Analytical Services (LUCAS)
  http://lucas.lakeheadu.ca/

- Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Publications:
  Agricultural Information Contact Centre at:
  1-877-424-1300
  www.omafra.gov.on.ca
- Books:
  - Soil Erosion Manual, 1986 OMAFRA
  - Soil survey reports and maps may be ordered for $15
  - Agriculture and Agri-Food Canada and Ontario Ministry of Agriculture and Food. Available for free at the Lakehead Region Conservation Authority.

Spills
- Ministry of Environment (MOE)
  Spills Action Centre
  1-800-268-6060

Tree Ecology/ Advice
- Thunder Bay Field Naturalists
  P.O. Box 10037
  Thunder Bay, ON P7B 6T6
  T: (807) 474-6007 (cell phone)
  www.tbfn.net
- Ontario Forestry Association (OFA)
  www.oforest.on.ca
- Ontario Woodlot Association (OWA)
  www.ont-woodlot-assoc.org
- Managed Forest Tax Incentive Program (MFTIP)
  application and guide is available on MNR, OFA or OWA websites.

Waste Burning
- Contact local Municipality about regulations
- www.burnbarrel.org
- Canadian Centre for Pollution Prevention
  www.c2p2online.com
- Great Lakes Trash and Open Burning Website
  www.openburning.org

Waste Reduction
- Contact EcoSuperior to learn about vermicomposting (by worms) at:
  www.ecosuperior.org
- Ontario Ministry of Environment (MOE) Publications:
  Toll Free: 1-800-565-4923
  www.ene.gov.on.ca
- Factsheets/Leaflets:
  - Recycling
  - Garden waste
  - Home renovation waste
- Composting Council of Canada
  T: 1-877-571-GROW
  Email: info@compost.org
  www.compost.org
Resource List

Wastewater & Septic Systems

- Contact Thunder Bay District Health Unit
  Visit online at: www.tbdhu.com under Environmental Health – Septic & Land

Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Publications:
Agricultural Information Contact Centre at:
1-877-424-1300
www.omafra.gov.on.ca
- Care and Maintenance of a Rural Septic Tank System (order no. 93-081)
- Septic Smart!: New Ideas for Household Septic Systems on Difficult Sites, 1999. (with Ontario Soil and Crop Improvement Assistance Program)
  www.ontariosoilcrop.org
- Septic Smart!: Understanding your home’s septic system. 2008. (with Rideau Valley Conservation Area)
  www.rvca.ca

Ontario Ministry of Municipal Affairs and Housing Publications:
www.omb.mah.gov.on.ca
- A Guide to Operating and Maintaining Your Septic System, 1999
- Ontario Building Code Part 8

Ontario Onsite Wastewater Association Publications:
www.oowa.org
- Ontario On-site Sewage Systems Do’s and Don’ts Guide
- Your Septic System: Protecting your Investment and the Environment

Canadian Mortgage and Housing Corporation
www.cmhc-schl.gc.ca
- Your Septic System
- Ontario Rural Wastewater Centre
- Household Guide to Water Efficiency

Thank You

The original version of this Guide was the Lake Huron Stewardship Manual (2006). Contributors to the first edition included Diane Leal, Karen Landman and Wayne Caldwell. We would also like to acknowledge the excellent work of all the members of the original steering committee including: Steve Bowers, Ray Letheren, Geoff Peach, Susanna Reid, Mari Veliz, Wayne Caldwell, Karen Landman and Diane Leal. We would also like to acknowledge the Environmental Farm Plan that was the inspiration for much of the original guide.

In addition, we would like to acknowledge the financial support provided by numerous organizations for the development of the original version of this guide. These include: The Ontario Ministry of Agriculture, Food and Rural Affairs, Ontario Trillium Foundation, Environment Canada, Ontario Soil and Crop Improvement Association, the University of Guelph, Ashfield-Colborne Lakefront Association, Ausable Bayfield Conservation Authority, Bluewater Shoreline Residents Association, Canada Ontario Agreement, County of Huron, Friends of the Bayfield River, Grand Bend Community Fund, Great Lakes Aquatic Habitat Fund, Huron Stewardship Council, Municipality of Central Huron, Rotary Club of Grand Bend, and TD/Canada Trust Friends of the Environment Foundation.

Published by the Lakehead Region Conservation Authority.
Copyright February 2009

All rights reserved. This publication may not be reproduced or transmitted in any form or by any means, including all usual methods, without written permission of the publisher.

Printed in Canada.
Your Action Plan

<table>
<thead>
<tr>
<th>Worksheet and Topic Number</th>
<th>Page</th>
<th>Worksheet Theme</th>
<th>Rating</th>
<th>Short-term Actions</th>
<th>Long-term Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>