The Vermont Shoreland Protection Act

A Handbook for Shoreland Development

Version 1.1, June 2014

Acknowledgements

Vermont's Shoreland Protection Act (Vermont law, Chapter 49A of Title 10, §1441 *et seq.*) was modeled, in part, after Maine's shoreland rules, and this publication follows Maine's lead in providing a homeowner's guide to understanding their state's shoreland regulations. Many of the graphics used in this handbook are from the Maine Department of Environmental Protection's publication, *Maine Shoreland Zoning – A Handbook For Shoreland Owners.*

Thanks also to those within Vermont who provided their time and energy through testimony, concern, and suggestions to help shape the Vermont Shoreland Protection Act.

The Agency appreciates the assistance during the development of this document provided by:

Greta Brunswick, Northwest Regional Planning Commission
Warren Coleman, MacLean, Meehan & Rice, LLC
Ginny Garrison, Federation of Vermont Lakes and Ponds
Kim Greenwood, Vermont Natural Resource Council
Sarah Hadd, Town of Colchester Planning and Zoning Office
Representative Robert Krebs, Grand Isle-Chittenden
Chip Paison, Lake Dunmore/Fern Lake Association
Jackie Sprague, Federation of Vermont Lakes and Ponds

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Front cover photo - Boulder Beach State Park, Lake Groton

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The Purpose of this Handbook

This handbook informs shoreland property owners, municipal officials, landscapers, contractors and others about the Shoreland Protection Act, what activities are exempt, what activities require a permit and how to obtain a permit.

Introduction

Intent of the Shoreland Protection Act

The Vermont Legislature passed the Shoreland Protection Act, effective July 1, 2014, that regulates activities within 250 feet of the mean water level of lakes greater than 10 acres in size. The intent of the Shoreland Protection Act is to allow reasonable development shorelands of lakes and ponds while protecting aquatic habitat, water quality, and maintaining the natural stability of shorelines. Standards for the creation of impervious surfaces (such as buildings and driveways) and cleared areas within the shoreland area are intended to preserve functioning lake ecosystems, protect water quality, bank stability, conserve aquatic and wildlife habitat, and further the economic benefits of lakes and their shorelands.

Administration of the Act

The Vermont Agency of Natural Resources administers the Shoreland Protection Act through the Department of Environmental Conservation's Shoreland Permit Program. The Shoreland Permit Program will review applications for shoreland permits and ensure that new development or redevelopment within Protected Shoreland Areas is conducted according to the standards set forth in the Shoreland Protection Act.

Contact the Shoreland Permit Program for more information about obtaining a permit for projects in a Shoreland: call **(802) 490-6196 or email ANR.WSMDShoreland@state.vt.us.**

Part One

Using this Handbook

This handbook explains the Shoreland Protection Act to residential shoreland owners and others. Terms with specific meanings under the Shoreland Protection Act are highlighted in red and defined in an inset box the first time they are used in the handbook. A complete glossary of defined terms is found on Page 14.

What activities are covered by the Shoreland Protection Act?

Creation of cleared area or impervious surface within 250 feet of the mean water level on lakes greater than 10 acres in size.

Cleared areas: Areas where vegetative cover has been permanently removed or altered. Vegetative cover includes tree canopy, understory, groundcover and the duff layer.

Impervious surface: Those manmade surfaces, including paved and unpaved roads, parking areas, roofs, driveways, and walkways, from which precipitation runs off rather than infiltrates.

Mean water level: the mean water level of a lake as defined in the Rules for Determining Mean Water Level. Some lakes have a specific elevation that has been established through rule or a permit.

Duff layer: Leaf litter plus small fragments of plants and organic debris.

What activities do not require a Shoreland permit?

The following activities are **exempt** and do not require a permit.

- Maintaining existing (as of July 1, 2014) buildings, driveways, gardens, and lawns, without enlarging them;
- Reconstruction of existing impervious areas without increasing or changing the current footprint, such as rebuilding a house, deck or driveway in the exact same footprint;
- Changing one kind of impervious surface for another, such as building a house addition in an area previously occupied by a deck;
- Removal of 250 square feet of vegetation under three feet in height, at least 25 feet from the mean water level, is allowed as long as the Vegetation Protection Standards are met and the duff layer is not removed (see Page 6);
- Tree removal and pruning in accordance with the Vegetation Protection Standards (see Page 6);
- Removal of dead, diseased or dangerous trees, and invasive species, nuisance plants and noxious weeds;
- Creation of a path to access the lake no more than six feet wide (see Page 6) ; and
- Replacement, maintenance, repair or installation of septic systems and potable water systems.

See Page 20 for more Exemptions.

What about land within 250 feet of the water, but across a road from the lake?

Land located on the non-lake side of a municipal or state road, but within 250 feet of mean water level, does not have to conform to the Shoreland Protection Act. Land on the non-lake side of a private road, however, does have to comply with the Shoreland Protection Act.

What about non-residential uses within the Shoreland?

Some residential or non-residential land uses regulated pursuant to other state rules may not need a Shoreland permit. See Page 20 for further detail.

What activities require approval from the Shoreland Permit Program?

Certain projects can be approved through a simplified permitting process called **Registration**:

- Creation of up to 100 square feet of cleared area or impervious surface (such as a storage shed or gazebo) between 25 and 100 feet of mean water level; and
- Creation of up to 500 square feet of cleared area or impervious surface more than 100 feet from mean water level, provided the overall percent impervious cover of the parcel is 20% or less, the total cleared area is 40% or less and the slope is less than 20%.

Landowners proposing to carry out a project eligible for Registration should submit a Registration form to the Shoreland Permit Program. The Shoreland Permit Program has 15 days in which to review the application. If the landowner does not hear from the Shoreland Permit Program in 15 days, the landowner may proceed with the project. See Page 18 for more detail on Registrations.

What projects require a Shoreland Permit?

Any new cleared areas or impervious surfaces that are not exempt or do not qualify under Registration require a permit.

Redevelopment: many shoreland projects requiring a permit will take place on an already cleared or developed parcel. Permit requirements will vary depending on the pre-existing conditions (i.e. those present as of July 1, 2014), the size of the parcel, and any site characteristics that affect where building can occur. Examples of these projects include but are not limited to:

- Expanding an existing building;
- Expanding a driveway or building a new garage;
- Building a new accessory building;
- Clearing more vegetation, expanding lawns or gardens into wooded areas; and
- Tearing down a building and replacing it on a different footprint.

New development: some shoreland projects will involve new cleared areas or impervious surfaces on an as yet undeveloped parcel. Such a parcel may be wooded, or already partially or totally cleared. Permit requirements will vary depending on the pre-existing conditions (i.e. those present as of July 1, 2014), the size of the parcel, and any site characteristics that affect where building can occur. New development will often include:

- Clearing of existing natural vegetation; and
- Creation of new impervious surfaces such as a house, accessory structure or driveway.

New cleared area or impervious surface on a parcel that was created <u>before</u> July 1, 2014: A principal purpose of the Shoreland Protection Act is to accommodate creation of cleared areas and impervious surfaces in a manner that allows for reasonable development. Some existing parcels may be too small to accommodate full compliance with the standards or include site limitations such as cliffs or wetlands; in theses cases the Shoreland Permit Program will work with the landowner to determine how to meet the standards to the greatest extent possible.

New development on a parcel created <u>after</u> July 1, 2014: Parcels created after the effective date of the Act must meet the standards. Landowners are urged to ensure new subdivisions of land create parcels large enough to ensure the standards of the Act can be met.

Part Two

Vegetation Protection Standards

Areas of vegetative cover within the Protected Shoreland Area must be managed according to the Vegetation Protection Standards.

Vegetative cover: Mixed vegetation within the Protected Shoreland Area, consisting of trees, shrubs, groundcover and duff. Does not mean grass lawns, noxious weeds or nuisance plants.

Exempt or **allowed** activities within vegetated cover areas include:

- Tree thinning in accordance with the Vegetation Protection Standards (see below);
- Pruning of branches from the lower one-third of a tree's height;
- Removal of 250 square feet of vegetation under three feet in height, at least 25 feet from mean water level, as long as the duff layer is not removed;
- Removal of dead, diseased or dangerous trees;
- Removal of invasive species, nuisance plants and noxious weeds, such as purple loosestrife, buckthorn or poison ivy;
- Creation of a path to access the lake no more than six feet wide; and
- Maintenance of garden or landscaped area, lawns, and beaches in existence as of July 1, 2014.

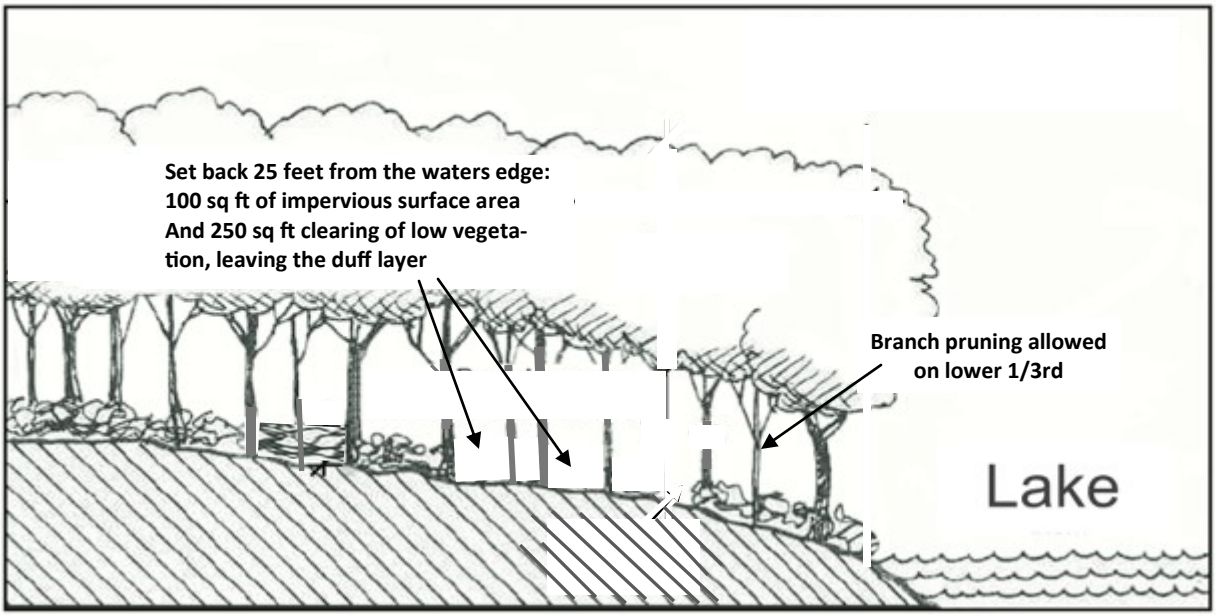
Vegetation clearing activities that can be **registered** include:

- Creation of 100 square feet of new cleared area between 25 and 100 feet of the mean water level.
- Creation of 500 square feet of new cleared area more than 100 feet from mean water level on a parcel, provided the overall percent impervious cover of the parcel is 20% or less and the total cleared area is 40% or less.

All other clearing requires a permit.

Vegetation Protection Standards

Vegetative cover within 100 feet of the mean water level must be managed according to the Vegetation Protective Standards. An existing (as of July 1, 2014) developed or cleared parcel must maintain any areas of vegetative cover remaining on the parcel.



Allowable Practices According to the Vegetation Protection Standards

Applying the Vegetation Protection Standards

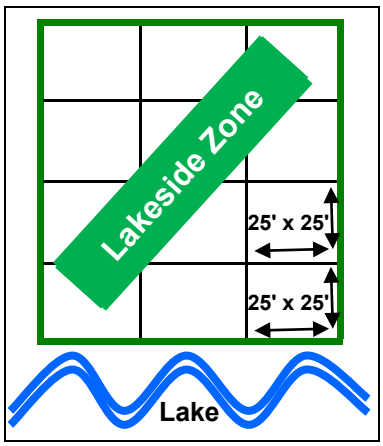
Prior to thinning, Vegetation Protection Standards are applied to a 25 foot by 25 foot section of the Lakeside Zone. Establish a 25 foot by 25 foot plot, starting at the water's edge from the corner of the property that is on your left as you face the lake. As other plots are measured, they will be adjoining but not overlapping one another.

Points are assigned to individual trees, based on the tree diameter at 4 ½ feet, referred to as diameter at breast height (DBH). Within the Lakeside Zone, a 25 foot by 25 foot plot is must meet the following:

- A minimum number of 12 total "points" worth of trees;
- At least five saplings (trees less than 2" DBH) in the same area; and
- No removal of duff and groundcover.

The point and grid system allows the landowner or Shoreland Permit Program to determine at any point in time if and how much tree thinning can occur. For more details, see Appendix D.

Step 1. Establish 25' x 25' Plots in the Lakeside Zone



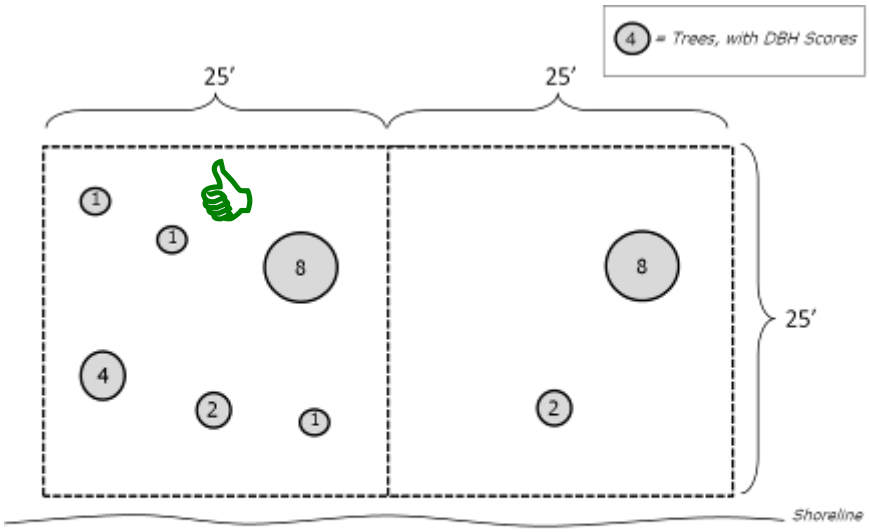
Step 2. Measure the trees in the plot and figure the points each is worth based on the table below.

e.g., 1 point for a DBH of 2 inches to less than 4 inches

Diameter (DBH)	Points
2"-<4"	1
4"-<8"	2
8"-<12"	4
≥12"	8

Step 3. Make Tree Removal Choices in Accordance with the Vegetation Management Practices

This figure represents two adjacent 25 foot by 25 foot managed Lakeside Zone plots. Trees can be removed in plots with more than 12 points, down to no less than 12 points. In this illustration, the plot on the left meets the DBH Standard with more than 12 points; the plot on the right does not have enough points with only 10. The left plot could have 5 points worth of trees removed and still meet the standards. If a plot has 12 points or less, no trees can be removed until a sufficient number of points has been achieved through new tree growth.



17 points in 25' x 25' area: Meets vegetation management practices for DBH points

10 points in 25' x 25' area: Does Not Meet vegetation management practices for DBH points

Part Three

Standards for Shoreland Permits

The Shoreland Protection Act requires **registrations** or **permits** for the creation of cleared areas or impervious surfaces in the Protected Shoreland Area that do not meet the exemptions outlined on Page 4 and 20**.** In addition, the Act sets standards for impervious surfaces, cleared areas, and slope. This means:

- New impervious areas within 250 feet of mean water level must be constructed on slopes less than 20%, unless the applicant demonstrates the slope will remain stable, and erosion and impact to water quality will be minimal (see Page 10 for more details);
- Total impervious surfaces must be less than 20% of the parcel area located within 250 feet of mean water level , unless Best Management Practices are used to infiltrate the additional runoff (see Page 11 for more details); and
- Total cleared area must be less than 40% of the parcel area located within 250 feet of mean water level, unless best management practices are used that are functionally equivalent to a well vegetated area (see Page 12 for more details).

Slope: The vertical rise divided by the horizontal run of a plane expressed as a percentage.

Best management practices: Approved activities, maintenance procedures, and other practices to prevent or reduce the effects of impervious surface or cleared area on water quality and natural resources.

Some existing small parcels or those with site limitations will require adjustments in the above standards. In these cases the Shoreland Permit Program will apply the standards to the greatest extent possible. Consider the following examples:

I have a small parcel, it's all cleared, my camp is located 30 feet from mean water level, and I want to add an addition.

- This landowner may be permitted to expand the house away from the lake and use Best Management Practices. BMPs may include runoff infiltration areas or establishment of shrubs and trees on lake edge.

I have a parcel that is 200 feet deep, my house is 30 feet from mean water level and I have lawn around my house and down to the lake edge. I want to put an addition on my house.

- This landowner may be permitted to expand the house away from the lake, and if the new building increases the impervious coverage above 20%, Best Management Practices will be necessary. A possible Best Management Practice is revegetation of a portion of the near shore and bank area.

I bought an undeveloped parcel in 2002 where the only area with less than 20% slope is within 75 feet of mean water level. I want to build a camp.

- This landowner may be permitted to build on slopes steeper than 20% if they demonstrate that it will remain stable and avoid erosion, or the landowner may be permitted to build on the shallower slope area if needed to avoid slope instability. Because of the small developable area and its proximity to the mean water level, the Shoreland Permit Program require for a combination of vegetative cover along the lake edge (at least 25 feet wide) and use of Best Management Practices to infiltrate runoff or limiting overall clearing.

Note: Parcels created after July 1, 2014 are required to achieve the Shoreland Protection Standards to the full extent.

The Protected Shoreland Area

The Shoreland Protection Act applies to the area within 250 feet, measured horizontally, of mean water level on lakes greater than 10 acres. This area is referred to as the Protected Shoreland Area. Understanding the standards and where they apply within the Protected Shoreland Area is easiest to describe, and therefore manage, by breaking the shoreland area into two zones: the Lakeside Zone and the Upland Zone.

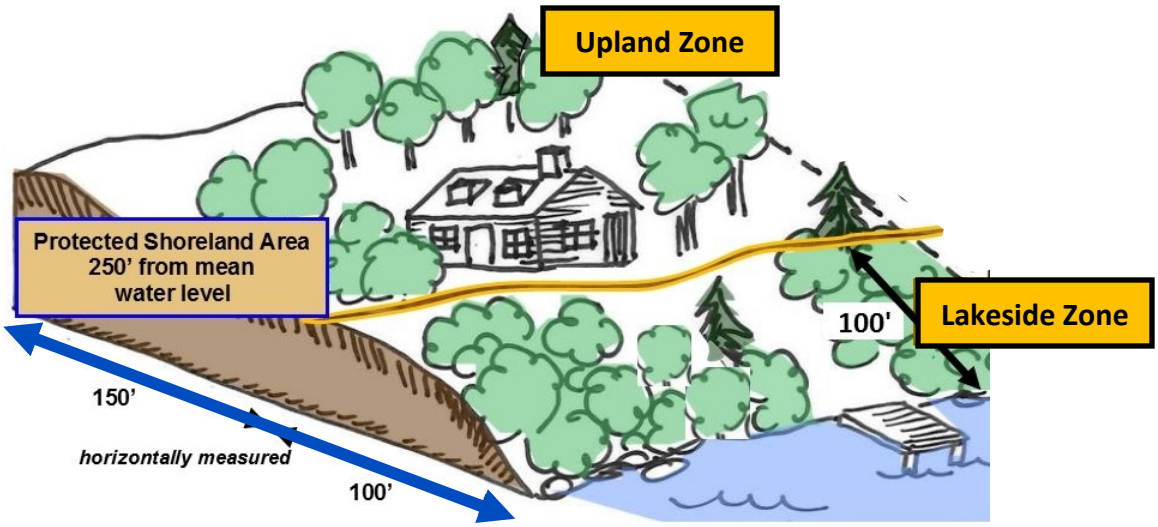
The Lakeside Zone

The Lakeside Zone encompasses the first 100 feet back from mean water level. Activities in this area shall meet the Vegetative Protection Standards. Within the Lakeside Zone, the Shoreland Protection Act limits clearing and creation of impervious surfaces. Many shoreland parcels are already developed within the Lakeside Zone or may be too small for implementation of the full set of standards, particularly the Vegetation Protection Standards and the 100 foot setback of non-exempt impervious surface. The Shoreland Protection Act grants the Shoreland Permit Program flexibility to permit "non-conforming" parcels.

The Upland Zone

The Upland Zone starts at the edge of the Lakeside Zone (100 feet from mean water level) and extends an additional 150 feet to the outer boundary of the Protected Shoreland Area. On existing lots of sufficient size and new lots created after July 1, 2014, most new development will take place in the Upland Zone. However, many parcels in existence as of July 1, 2014 may be significantly smaller than the full 250 foot depth of the Protected Shoreland Area.

The Protected Shoreland Area Consists of the Lakeside and the Upland Zones



The Twenty Percent Slope Standard

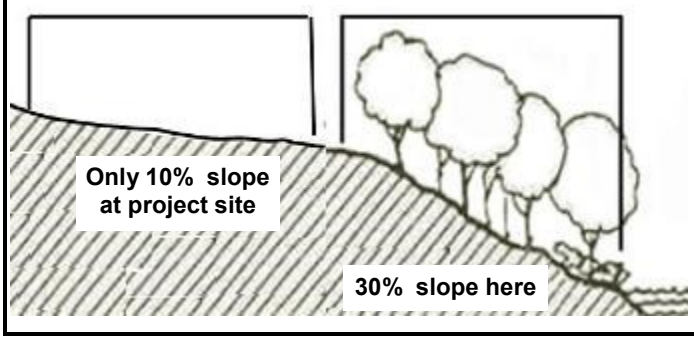
See Appendix B, "Determining Slope" for more information.

The Shoreland Protection Act requires permits be issued for new clearing or construction only on slopes under 20 percent unless the applicant demonstrates the slope will remain stable, and erosion and impact to water quality will be minimal through the use of BMPs.

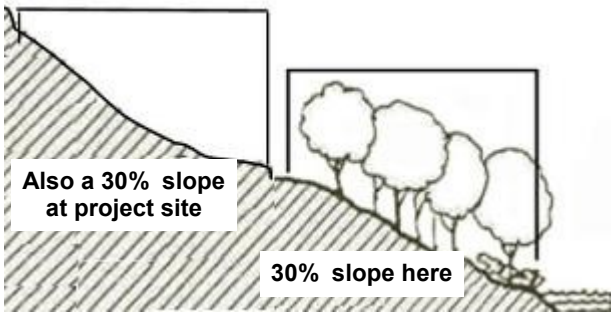
Since slope can vary greatly within a single property, the slope of interest in terms of preventing erosion and runoff to the lake is for the project site, for instance where the construction of buildings and driveways is proposed. Measure the slope along a 100 feet long axis, intersecting the project site, using the Worksheet "Determining Slope" found in Appendix B. For new development the slope of the proposed project site must be determined before any grading occurs and the land is in its natural condition.

When the shoreland area of the proposed building site has a slope greater than 20 percent, the Shoreland Permit Program will require the use of Best Management Practices. A simple Best Management Practice is to increase the Lakeside Zone width by 10 feet for every five percent increase of the slope over 20 percent. (For instance a 30% slope would require a setback 20 feet greater than 100 feet from mean water level.) Other BMPs can also be considered. Selecting appropriate Best Management Practices for challenging sites may require help from a professional (such as an engineer, landscape architect, licensed designer, or other site specialist). It is the responsibility of the applicant to include in their permit application the Best Management Practices as part of their project plan.

Lakeside Zone does not need to be widened because the slope of the project site is less than 20%



Lakeside Zone must be widened by 20 feet because the slope of the project site is 30%



Slope Stabilization Best Management Practices

Slope plays an important role in selecting slope stabilizing practices, such as planting techniques and plant species. Below is a list of Slope Stabilization Best Management Practices which may be used, along with widening the Woodland Zone, when the land slopes greater than 20 percent.

- Live staking or revegetating cleared areas
- Terracing
- Planting and maintaining vegetated areas
- Drainage ditches
- Establishing No-Mow zones (a means of converting from lawn to mixed species vegetation)
- Infiltration trenches

The Twenty Percent Impervious Area Standard

See Appendix C, "Calculating Percent Impervious Surface Area" for more information.

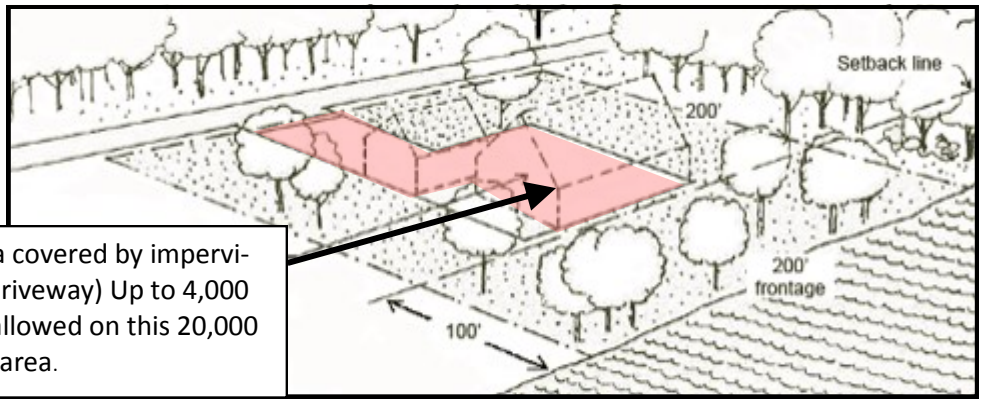
The Shoreland Protection Act requires a permit for new impervious surface area in the Protected Shoreland Area that is not exempt or eligible for Registration. Total impervious area, pre-existing plus new, must cover no more than 20 percent of the parcel area unless BMPs are used to mitigate the run-off from the additional impervious surfaces.

Impervious areas are those man-made surfaces from which precipitation runs off rather than infiltrates. When a public or private road crosses through Protected Shoreland Area, the Shoreland Protection Act dictates the area of the road will not be included the landowner's allowance of 20 percent impervious surface area.

Examples of Impervious Surfaces:

- Paved and gravel driveways, parking areas
- Tennis courts
- Structures (house, shed, garage)
- Decks, patios, large retaining walls
- Other compacted, non-vegetated areas

A Maximum of 20% Impervious Surface is Allowed in Protected Shoreland Area unless BMPs are used.



The pink space shows the area covered by impervious surfaces (house, garage, driveway) Up to 4,000 sq ft of impervious surface is allowed on this 20,000 sq ft lot, as it is 20% of the lot area.

Best Management Practices for Treating Impervious Surface Areas

Below is a list of Best Management Practices that can help to offset the impacts caused from impervious surface areas. These practices help slow, soak in and spread out runoff flowing off of impervious areas. It may be possible to use one or a combination of several of these techniques when applying for a project that will either exceed the 20 percent impervious surface area standard or is located on a parcel that already has more than 20 percent impervious surface area. One simple practice recommended by the Shoreland Permit Program is to use the sliding scale approach, by which an increase in impervious area is offset by a decrease in allowed clearing. This approach will not work on all parcels.

- Sliding Scale *(less cleared area allows more impervious area, see figure on right)*
- Rain Gardens
- Vegetated Swales and/or Berms
- Waterbars
- Pervious Pavement
- Drip-line Trenches
- Infiltration Trenches
- Planting and maintaining vegetated areas
- Drainage Ditches
- No-Mow Zones

The Sliding Scale

Generally, impervious areas cause four times more runoff than from cleared areas. Based on the ratio of 1:4 - impervious to cleared area - a sliding scale shows how these two land uses can be traded for one another in order to meet the Shoreland Protection Act Standards of maximum 20% impervious and 40% cleared areas. For every percent increase above 20 for impervious area, the allowable cleared area decreases by four percent.

Area of Parcel	Starting at maximum limits of 20% and 40%, increasing impervious area equates to decreasing cleared area				
% Impervious	20	21	22	23	24
% Cleared	40	36	32	28	24

The Forty Percent Cleared Area Standard

See Appendix D, "Calculating Percent Clearing" for more information.

The Shoreland Protection Act requires a permit for new cleared area in the Protected Shoreland Area that is not exempt or eligible for Registration. Total cleared area, pre-existing plus new, must cover no more than 40 percent of the parcel area unless Best Management Practices are used to mitigate the loss of vegetated cover.

Clearing is defined as areas where the vegetative cover, soil, tree canopy, or duff layer is permanently removed or altered, except when managed according to the Vegetation Protection Standards. Certain maintenance activities such as roadside or utility cutting are exempt. See Page XX for a more detailed list of exempt activities.

Examples of Cleared Areas:

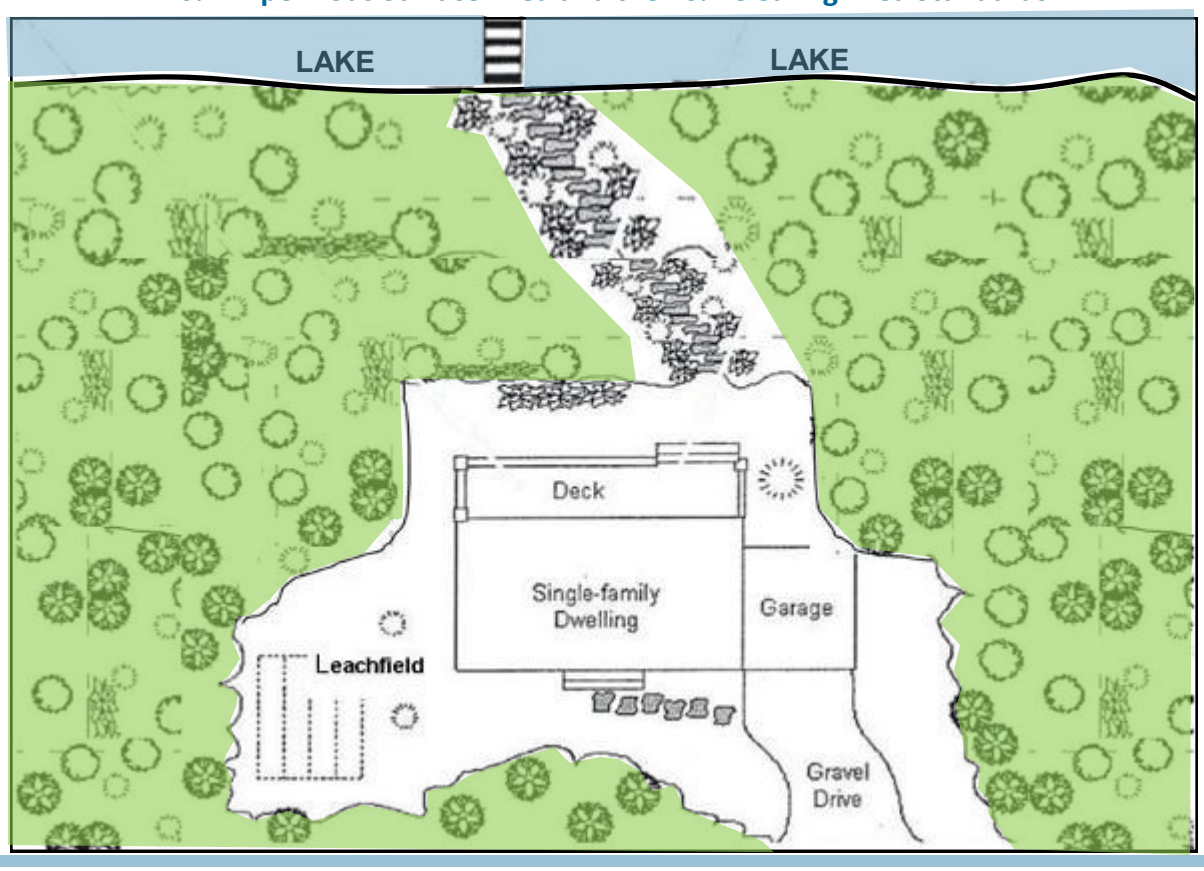
- Grass Lawns
- Gardens
- Landscaped areas
- Some pathways
- Impervious surfaces (driveways and buildings)

Exemptions for Cleared Areas:

- Tree cutting in accordance with the Vegetation Protection Standards
- Private or public road work
- Invasive species plant management work
- Utility line maintenance

The more land that is cleared to build structures and to create a lawn, then the less that can be cleared elsewhere on the lot. Clearing for a six foot wide path to the lake may count towards the 40 percent clearing area standard. Clearing up to 250 square feet of vegetation under three feet tall, at least 25 feet from the Mean Water Level, does not count because the duff and tree canopy would remain.

This Shoreland Development Meets the 20% Impervious Surface Area and the 40% Clearing Area Standards



Best Management Practices for Cleared Areas

The options for replacing natural shoreland vegetation with Best Management Practices that offer equivalent benefits are limited because there are not comparable man-made techniques that offer aquatic and wildlife habitat and natural woodland functions equivalent to what nature provides. A simple solution for addressing increases in cleared area is to use the sliding scale. The sliding scale may allow a landowner to receive a permit from the Shoreland Permit Program to clear more within the Protected Shoreland Area as long as the impervious surface area is decreased. Some other possible Best Management Practices for allowing more than 40 percent clearing are listed below.

- Sliding Scale *(less impervious area for more cleared area)*
- Re-Vegetation—Establishing plantings in other already cleared areas within the Protected Shoreland Area with preference given to:
  - proximity to lake;
  - contiguous with established vegetated areas, e.g. a neighboring protected Lakeside Zone; and
  - the composition of plants being re-established.

The Sliding Scale

Generally, cleared areas cause four times less runoff than from impervious areas. Based on the ratio of 4:1 - cleared to impervious area - a sliding scale shows how these two land uses can be traded for one another in order to meet the Shoreland Protection Act Standards of maximum 20% impervious and 40% cleared areas. For every four percent above 40 of clearing, the impervious area decreases by one percent.

	Starting at maximum limits of 40% and 20%, increasing cleared area equates to a decrease in impervious area on a scale of 4:1				
% Cleared	40	44	48	52	56
% Impervious	20	19	18	17	16

Terminology

Best Management Practices: Approved activities, maintenance procedures, and other practices to prevent or reduce the effects of impervious surface or cleared area on water quality and natural resources.

Cleared Area: An area where existing vegetative cover, soil, tree canopy, or duff has been permanently removed or altered.

Duff or Duff Layer: Leaf litter plus small fragments of plants and organic debris that provide a spongy substrate that absorbs the energy of falling water and allows runoff to infiltrate soil.

Existing Development: All disturbed areas, including cleared areas and impervious surfaces and permanent structures, such as structures, driveways, decks, patios; as well as landscaped features like lawns gardens, and pathways, and any graded, cleared or excavated areas necessary for construction or infrastructure, that were in existence prior to July 1, 2014.

Expansion: An increase or addition of impervious or cleared area.

Footpath: A footpath or passageway, six feet wide or less, that provides access to the lake and may include both pervious and impervious surfaces such as stairs, landings, or platforms.

Footprint: The total area that an impervious surface covers on a horizontal plane, including decks, driveways, patios, structures, overhangs, balconies, or cantilevered constructed spaces that expand beyond a structure's foundation.

Impervious surface: Manmade surfaces, including paved and unpaved roads, parking areas, roofs, driveways, and walkways, from which precipitation runs off rather than infiltrates.

Lakeside Zone: The portion of the Protected Shoreland Area surrounding the lake as measured horizontally 100 feet from the mean water level.

Mean Water Level: The mean water level of a lake as defined in the Rules for Determining Mean Water Level.

Non-Conforming Parcel: A parcel in existence as of July 1, 2014 on which it is impossible to locate cleared area or impervious surface at least 100 feet from the Mean Water Level.

Parcel: A portion of land or tract of land with defined boundaries created by dividing the land by sale, gift or lease, mortgage foreclosure, court-ordered partition or decree, or filing of a plat, plan, or deed in the records of the municipality where the act of division occurred.

Stormwater Runoff: precipitation or snowmelt that does not infiltrate into the soil, including material dissolved or suspended in it, but does not include discharges from undisturbed natural terrain or wastes from combined sewer overflows.

Protected Shoreland Area: All land located within 250 feet of the mean water level of a lake that is greater than 10 acres in size; comprised of the Woodland Zone and the Development Zone.

Slope: The vertical rise divided by the horizontal run of a plane expressed as a percentage.

Upland Zone: The portion of the Protected Shoreland Area as measured horizontally between 100 and 250 feet from the mean water level.

Vegetative Cover: Mixed vegetation within the Protected Shoreland Area, consisting of trees, shrubs, ground cover, and duff.

Vegetation Protection Standards: The criteria used to maintain healthy shoreland vegetation within the Lakeside Zone.

Measurements Required By the Shoreland Protection Act

Understanding these measurements will help landowners follow the shoreland protection standards and complete the registration and permit application forms.

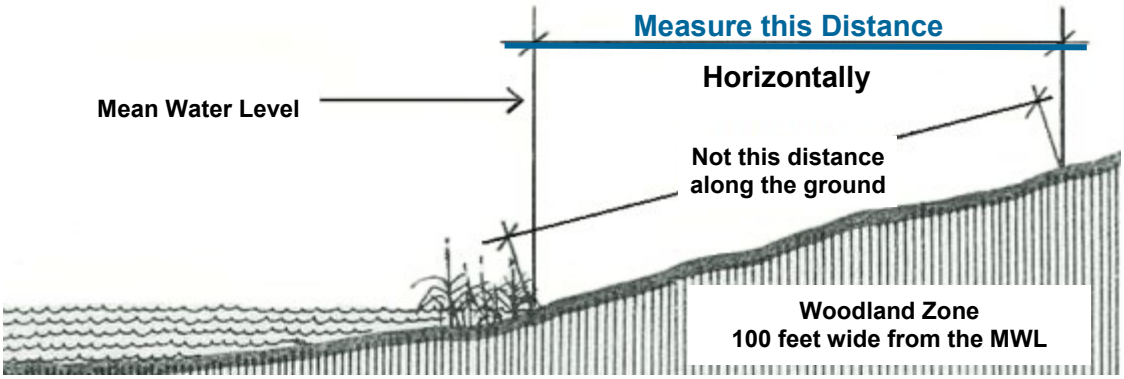
Mean Water Level

Some large lakes, like Lake Champlain and Lake Memphremagog, have established summer water level elevations that are considered the mean water level. Other lakes have summer water levels set through a dam permit or by records kept over many years by the Vermont Department of Environmental Conservation. However, on most lakes, mean water level must be estimated by making observations about the extent of the terrestrial plant growth along the shoreline during the summer season. Consult the worksheet, "Estimating Mean Water Level," for more details, Appendix A.

Mean Water Level

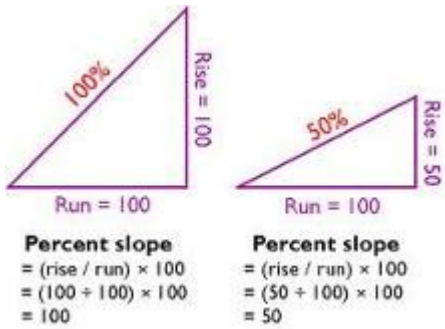
Horizontal Measurement

The 100 foot width of the Lakeside Zone as well as the 250 foot width of the Protected Shoreland Area are measured horizontally from the mean water level, regardless of slope. Refer to the graphic below. The worksheet, "Determining Shoreland Area," provides a table that converts "sloped" distance along the ground to "horizontal " distance, Appendix B.



Percent Slope Measurement

The slope of a land area, also called the grade, is expressed as the number of feet the land rises or falls over a given distance of the land. Stormwater runoff from steeper sites carries more velocity and potential for erosion than from flat areas. Therefore, slope is also an important factor in selecting erosion control practices like planting techniques and plant species for stabilizing steep banks. The worksheet, "Determining the Slope of Your Shoreland," explains methods for calculating the slope of a building site, Appendix C.



Change in Elevation (rise) ÷ horizontal distance (run) x 100 = % Slope

Percent Clearing

Percent clearing refers to all the spaces cleared within the Protected Shoreland Area. It includes footpaths, lawns, recreational areas, and impervious surfaces such as structures and driveways. To calculate the percent clearing of a parcel within the Protected Shoreland Area, add up the area of all these cleared spaces and divide it by the area of your lot within the Protected Shoreland Area and then multiply it by 100. Town or state roads crossing through your property do not have to be included as cleared areas in your calculations.

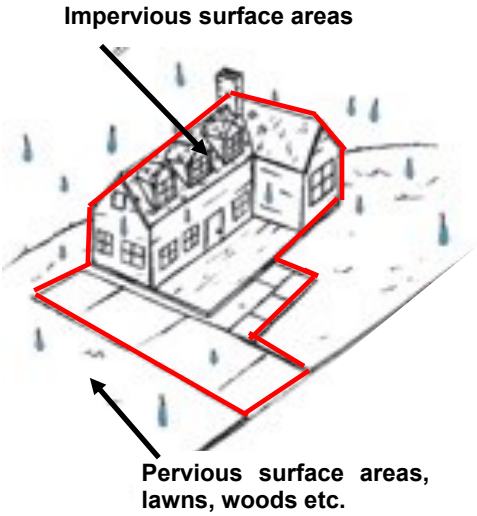
To best figure out the total percent clearing, use the "Calculating Percent Clearing Worksheet," Appendix E.

This property has a high percent of cleared area.

Percent Impervious Surface

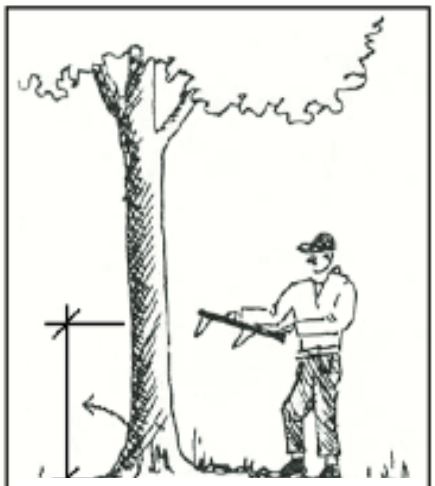
Impervious surfaces are manmade surfaces, including paved and unpaved roads, parking areas, roofs, driveways, and walkways, from which precipitation runs off rather than infiltrates. A higher volume of runoff results in higher flow velocity, increasing erosion and the amount of unfiltered stormwater entering and polluting the lake.

Calculating the percent impervious area on a parcel involves measuring the length and widths of various components, knowing the size of the parcel, and using some simple geometry equations. Town or state roads crossing through your property do not have to be included as impervious areas in your calculations. For more detail, use the "Calculating Percent Impervious Surface Worksheet," Appendix F.



Diameter at Breast Height (DBH)

This measurement is used to evaluate the size of trees in the Woodland Zone. The DBH refers to the diameter of a tree measured 4½ feet above the ground. By measuring the circumference of the tree and using a simple geometric equation, the diameter is calculated. This measurement is used in the "point and grid" system to measure tree density in the Lakeside Zone. The Vegetation Protection Standards use this measurement to calculate the acceptable composition of vegetation needed to establish and maintain a healthy lakeshore.



Measure tree diameter at 4 1/2 feet above ground

Part Four

Permits and Application Process

Overview

The Vermont Shoreland Protection Act is administered by the Shoreland Permit Program. Permits may be required for certain projects, while Registrations may be the only requirement for some other smaller types of projects. Below are some steps to take to begin the Shoreland permitting process.

1. Decide whether your proposed Shoreland project is one of the **exempt** or allowed **activities.** See Pages 4 and 20 for lists. If your project is exempt or allowed, you may proceed without a permit from the Shoreland Permit Program. (Note: it is possible your project may need other state or local permits.)
2. If your proposed project is not exempt or allowed, fill out an Inquiry Form and submit it to the Shoreland Permit Program. The Inquiry sheet will tell program staff about your proposal and serve a request for determination about whether the proposal qualifies as a **Registered** project or will need a **Permit**. Submitting an Inquiry form early in your planning process is recommended so that likely permit conditions can be taken into account.
3. Staff may decide to schedule a site visit with you to gather additional information or discuss the options for completing the project under the Shoreland Protection Act standards.
4. If your proposal qualifies as a **Registration** project, fill out the Registration form found on the Shoreland Permit Program website, or call the program and ask for one to be mailed to you. Once the submitted form is deemed complete by the Program (i.e. all the required information is provided and the fee is paid) the Program has 15 days in which to review the application. If the landowner does not hear from the Program in 15 days, they may proceed with the project.
5. If your proposal needs a Shoreland **Permit**, complete the Permit Application Form found on the Shoreland Permit Program website, or call the program and ask for one to be mailed to you. If you haven't yet spoken with a Shoreland Permit Program staff member, it might be helpful to do so to ensure you understand what information that needs to be supplied on the application form. Once the application is deemed complete by the Program (i.e. all the required information is provided and the fee is paid) it is placed on required 30 day public notice. The Program expects to issue permit decisions shortly after the public notice period is up, unless there are still outstanding permit issues to address.

Some of the things you will need to know to complete the Registration or Permit Application forms:

- Parcel size within 250 feet of mean water level
- Location of mean water level (Appendix A)
- Area on the parcel occupied by impervious surfaces (see Appendix F)
- SPAN number (an identification number for the parcel found on town tax maps)
- Distance from mean water level to all impervious surfaces, such as houses, accessory buildings, and driveways.
- Area of the parcel consisting of cleared area (see Appendix E)
- Slope of the parcel (see Appendix B)

Registration Process

The Shoreland Registration Form is available as a PDF and as a Word document from the Shoreland Permit Program webpage:
http://www.watershedmanagement.vt.gov/permits/htm/pm_shoreland.htm

- Contact - Contact the Shoreland Permit Program staff with any questions before you begin planning your project.
- Registration Form - Submit a complete Shoreland Registration Form to the Shoreland Permit Program. Once deemed "administratively complete," ANR will post the Registration Form on their website for 15 days for informational purposes. Note, under the law, Registration applications are not subject to the same public notice process as permit applications.
- Waiting Period - The registration applicant must wait 15 days after submitting their complete Registration Form before starting their proposed project, unless otherwise notified by the Shoreland Permit Program. During this period of time, ANR may request additional information or may notify an applicant that a Shoreland Permit is required for the project rather than a Registration. If an applicant is not notified by the Shoreland Permit Program, other than a confirmation that a Registration Form was received, after 15 days their project is automatically approved.
- Land Record Recording - The Permittee will record a copy of the Registration in the land records of the municipality in which the permitted project is located.
- Permit Expiration - Registrations are issued for an indefinite period of time provided the landowner complies with the requirements of the Registration and takes no additional action for which a permit is required.

Registration Fee

Description	Fee
Registration	$100.00

Permit Application Process

The Permit Application Form is available as a PDF and Word document from the Shoreland Permit Program webpage: http://www.watershedmanagement.vt.gov/permits/htm/pm_shoreland.htm

- Contact - Contact the Shoreland Permit Program staff with any questions before you begin planning your project.
- Application - Submit a complete Shoreland Permit Application to the Shoreland Permit Program that includes all project details as specified in the Application Instructions.
- Public Notice - At the time an applicant submits a permit application to ANR, they shall also provide a copy of the application form to the municipal clerk of the municipality in which the impervious surface or cleared areas are proposed. The municipality may post the application in the town clerk's office.
- Application Confirmation - Upon receipt of an application, program staff will determine if it is contains all the required information (deemed administratively complete). ANR will then post the application on their website for 30 days to provide the public and interested persons an opportunity for written comment, which will take place concurrently with ANR's permit application review. Program staff may also request additional technical information, or schedule a site visit with the applicant if necessary and discuss any needed changes in the project plan.
- Permit Decision and Notification - Upon close of the public notice period, the Shoreland Permit Program will notify the applicant of its decision to issue or deny a Shoreland Permit. Upon issuance of a decision, the applicant and interested persons will be notified of the decision, and be provided a copy of the decision or with information about where a copy of the decision can be obtained.
- Land Record Recording - The permittee will record a copy of the permit in the land records of the municipality in which the permitted project is located.
- Permit Expiration - Shoreland permits are issued for an indefinite period of time provided the permittee complies with the requirements of the permit and takes no additional action for which another permit is required.

Permit Fees

Description	Fee
Permit	
Administrative Fee	$125.00
Proposed Impervious Area	$0.50 per square foot

Exempt Non-Residential Activities

On Vermont lakes, in addition to residential uses, shoreland development can consist of uses other than residential: urban or downtown areas; marinas; resorts; and state and local road systems. Other non-residential types of shoreland development include providing public access to the lake through State Parks, Fish and Wildlife Access Areas, or town beaches. Certain of these activities are specifically exempt under the Shoreland Protection Act because they are addressed through other permit programs or standards.

Roads

Repair or maintenance of state, town, or private roads within the Protected Shoreland Area is exempt. Work on town roads must follow the Vermont Agency of Transportation Town Road and Bridge Standards (Section 7.1) for controlling stormwater runoff and direct discharges to surface waters. Road repairs or improvements do not count toward a private landowner's maximum allowance for percent clearing or impervious surface area.

Property Sub-division

The Shoreland Protection Act does not set minimum parcel sizes and this jurisdiction is often part of municipal zoning. In addition, requirements under the state Wastewater System and Potable Water Supply Rules, creation of new lots must be permitted to ensure each new lot can accommodate both wastewater disposal and a drinking water well. Note, however, in order for shoreland development on parcels created after July 1, 2014 to be permitted under the Shoreland Protection Act, parcels must be large enough to meet the Shoreland Protection Act standards. It is very important that new shoreland parcels, intended for development, be created large enough so the landowner will be permitted to build and develop the parcel as they had planned. (See also 2007 Vermont Wastewater System and Potable Water Supply Rules.)

Forestry Practices

Silvicultural activities within the Protected Shoreland Area must in compliance with a Forest Management Plan approved by the Commissioner of the Vermont Department of Forests, Parks and Recreation and the Acceptable Management Practices For Maintaining Water Quality On Logging Jobs In Vermont. For more information contact your County Forester.

Agricultural Practices

Agricultural practices in existence before July 1, 2014 within the Protected Shoreland Area, must comply with the Accepted Agricultural Practices. Contact the Vermont Agency of Agriculture, Food and Markets for more information on acceptable farming practices near surface waters.

Vermont Wastewater Rules

The Vermont Drinking Water and Groundwater Protection Division administers the 2007 Wastewater System and Potable Water Supply Rules. A permit is necessary for all new wastewater systems or replacement or modification of existing systems. The most common reason for modification or replacement is the failure of an existing system. Permit information specialists are located in District Offices, see page 27 for specific contact information.
Contact information: Permit Specialist, (800) 823-6500 or
www.anr.state.vt.us/dec/dwgwp/poregionaloffices.htm

Resources and Contacts

Other Vermont State Permit Programs

Although the Shoreland Protection Act is intended to avoid duplicate state permits as much as possible, in some cases more than one state permit may be required for development in shorelands. Below is a listing of several other state permit programs that may overlap with Shoreland Permits. In addition to the program information listed below, contact the Permit Specialists in the Agency of Natural Resources District Offices (see Page 23) for assistance identifying other permits that may be needed for your project.

Lake Encroachment Permit Program

The jurisdiction of the Lake Encroachment Permit Program starts at mean water level and extends lakeward. If you have a project that involves work beyond the mean water level, then you may need to obtain a permit from the Lake Encroachment Permit Program. Examples of jurisdictional projects include shoreline stabilization, retaining wall replacements, fill, dredging, construction or commercial docks. If you have a project that is located onshore as well as in the water, you may need both a Lake Encroachment and Shoreland permit. In this case, the permit administrators of these programs will be coordinating to avoid duplication and delays.

Contact information: Lake Encroachment Permit Program Coordinator, (802) 490-6165

Aquatic Nuisance Control Permit Program

An aquatic nuisance control permit is required to control nuisance aquatic plants or animals in Vermont surface waters using physical, chemical, biological or mechanical means. Permits are administered by this program for pesticides; pond dyes used to control algae or aquatic plants; copper based algaecides; chemicals other than pesticides; bottom barriers; powered mechanical devices; structural controls; and biological controls. Hand pulling aquatic plants is permissible without a permit.

Contact information: Aquatic Nuisance Control Permit Program Coordinator, (802) 490-6133

Wetlands Program

Under the Vermont Wetlands Rules, wetlands are defined and managed according to functions and values and are grouped as Class I, II, or III wetlands. Class I wetlands have a required 100 foot buffer zone Class II have a 50 foot buffer zone. Allowed activities in a wetland buffer zone are limited and would require a permit from the Wetlands Program. There will be some lake shoreland areas that are also jurisdictional wetlands and a permit may be needed from both the Wetlands and the Shoreland permit programs. In this case, the permit administrators of these programs will be coordinating to avoid duplication and delays.

Contact information: (802) 828-1535

Stream Alteration Program

Under the Vermont Stream Alteration Rules, perennial streams are defined and managed to avoid flood and erosion hazards and prevent significant damage to fish life and wildlife and the rights of riparian owners. The Program provides technical assistance and regulates activities which involve: 1) the movement, fill, or excavation of 10 cubic yards or more of instream material within the top-of-bank to top-of-bank, cross-sectional limits of perennial streams; 2) activities to construct or maintain a berm in a flood hazard area or stream corridor; and 3) instream emergency protective measures.

Contact information: (802) 490-6195

Role of Municipalities

The Shoreland Permit Program will be in addition to any municipal zoning. A Shoreland Permit applicant will need to also obtain any applicable town permits.

The municipality in which your project is locates may have been delegated to administer its own functionally equivalent shoreland standards, in which case you will not need a state Shoreland Permit, just a municipal permit. For a listing of the towns delegated to implement the shoreland standards on the local level, check the Shoreland Permit Program web site, or contact the Program or your municipal office.

Under the Shoreland Protection Act municipalities can apply for delegation to administer permit construction of impervious surfaces and cleared areas within their town. The Shoreland Permit Program will review delegation requests and enter into a delegation agreement with municipalities whose bylaws or ordinances are found to be "functionally equivalent" to the state standards. At any time municipalities can adopt or improve their shoreland zoning in order to be eligible for delegation. The model shoreland ordinance, *Model Lake Shoreland Protection District Bylaw*, provided by the Vermont League of City and Towns, is considered functionally equivalent. Other ordinances may also be eligible for delegation. If a municipality applies to the state for delegation, then the municipality must also demonstrate that they have the capacity to administer their bylaws or ordinances in accordance to the agreed upon terms of the delegation agreement. Towns can contact the Shoreland Permit Program for more information by email at: ANR.WSMDShoreland@state.vt.us , or by phone at: (802) 490 -6196.

Vermont Agency of Natural Resources Contacts

Main Offices:

Vermont Agency of Natural Resources
Secretary's Office
1 National Life Drive, Davis 2
Montpelier, Vermont 05620-3901
phone: (802) 828-1294

Dept. of Environmental Conservation
DEC Commissioner's Office
1 National Life Drive, Main 2
Montpelier, Vermont 05620-3520
phone: (802) 828-1556

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
LAKES & PONDS PROGRAM

1 National Life Drive, Main 2,
Montpelier, Vermont 05620-3520,
phone: (802) 828-1535

Regional Offices:

Barre
5 Perry Street
Barre, VT 05641
(802) 476-0190

Essex
111 West Street
Essex Junction, VT 05452
(802) 879-5656

Rutland
450 Asa Bloomer State Office Building
88 Merchants Row
Rutland, VT 05701
(802) 786-5900

Springfield
100 Mineral Street
Springfield, VT 05156
(802) 885-8855

St. Johnsbury
1229 Portland Street — Suite 201
St. Johnsbury, VT 05819
(802) 751-0130