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SVCA Environmental Planning and Regulations Policies Manual

Policy approved on:
Next review date:

1. Introduction

1.1 Purpose and Scope

Saugeen Valley Conservation Authority (SVCA) has a legislative mandate to protect people and property from natural hazards. SVCA, through its Environmental Planning and Regulations department, provides environmental expertise to guide municipal land use decisions, and manages natural hazard impacts by administering the *Conservation Authorities Act* (*CA Act*) and regulations made under the *CA Act*.

This manual outlines SVCA's environmental planning and regulations policy platform. It articulates the approach SVCA will use to review and evaluate planning and development applications submitted for approval under the *Planning Act*, and it defines the parameters and criteria against which SVCA administers its regulatory responsibilities under the *CA Act*, Ontario Regulation 686/21 (Mandatory Programs and Services,) and Ontario Regulation 41/24 (Prohibited Activities, Exemptions, and Permits). It has been written to:

- Reflect SVCA mandate and legislative responsibilities as assigned by the province,
- Reflect current provincial land use planning objectives and technical guidelines,
- Identify matters of provincial interest for which SVCA has responsibility to address from a policy and an operational perspective, and
- Comply with the *CA Act*, Ontario Regulation 686/21, and Ontario Regulation 41/24.

Not only are these policies utilized by SVCA staff in their review of planning and development applications, but they are also relied upon by staff as the basis for developing policy recommendations for upper tier County and lower tier Official Plan updates. In addition, the policy platform offers developers and environmental stakeholders an important lens by which to better understand SVCA mandate and responsibilities.

Planning and regulation policies must be current if they are to provide guidance and direction. They must offer consistent interpretation and clear direction not only for staff of Saugeen Valley Conservation Authority, but for its partners and clients. Having an accessible planning and policy platform establishes credibility, promotes consistency and increases understanding and awareness. It is a vital evaluation, assessment and decision-making tool.

This manual will serve many uses and many users:

- It will provide guidance and direction to SVCA staff responsible for reviewing *Planning Act* and *Conservation Authorities Act* applications for approval against the policies contained herein,
- It will provide direction to municipalities (both local and upper tier) who will take these policies and incorporate them in their planning review functions and in their planning documents (e.g. Official Plans),
- It will provide guidance and direction to the development community (applicants and their agents) who will be able to rely on this manual for direction as they prepare proposals for consultation, review and approval,
- It will provide guidance and direction to community stakeholders who have an interest in protecting, preserving and enhancing those natural features and functions of the watershed,

and

- It will instill confidence among provincial partners that matters of stated provincial interest have been accurately interpreted and are being applied appropriately.

Please note that consistent nomenclature has been used throughout this document. Saugeen Valley Conservation Authority is at times referenced as SVCA and as Saugeen Conservation. References are made to the Ministry of Environment & Climate Change (MOECC) and the Ministry of Natural Resources (MNR), as they are currently known. References to the PPS means the Provincial Planning Statement, which replaced the Provincial Policy Statement on October 20, 2024.

1.2 How to Read this Manual

A policy-oriented planning system should work to recognize the multiple inter-relationships that exist between the environmental, physical, social, and economic factors influencing land use planning. This manual supports and recognizes linkages among policy areas and therefore this document is more than a set of individual policies and guidelines.

The policies and guidelines contained within this manual should not be read in isolation of one another. Rather, they should be read concurrently in their entirety and the appropriate range of policies and guidelines should be applied to each situation. A decision-maker should read all the relevant policies as if they are specifically cross-referenced with each other. While specific policies sometimes refer to other policies for ease of use, these cross-references do not take away from the need to read this entire document. There is no implied priority in the order in which the policies and guidelines appear.

Italicized terms in this document are defined in the Glossary (Appendix A) and may be repeated within various sections for emphasis. For other terms, the normal meaning of the word applies. Of distinction is the term development, which has a different meaning under the Provincial Planning Statement (PPS) than development activity in the *Conservation Authorities Act* (*CA Act*). Therefore, when development is used in the Planning section (3.0), the PPS definition applies. Conversely, when development activity is used in the Regulation section (4.0), the *CA Act* definition applies.

This document consists of:

Section 1: Introduction
Section 2: Approach to Natural Hazard Management
Section 3: Planning Advisory Services
Section 4: Administration of Ontario Regulation 41/24 & Related *CA Act*
Section 5: Additional Guidelines
Appendices

1.3 Legislative Authority

Specific to the purpose of this manual, two key statutes bestow regulatory and advisory services to conservation authorities (CAs): (1) The *Conservation Authorities Act* (*CA Act*), and (2) the *Planning Act*. The *CA Act* and supporting regulations mandate that CAs undertake regulatory responsibilities, enable CAs to provide municipal plan review services, and allow for other services to further the purposes of the *CA Act*. The *Planning Act* recognizes CAs as a public body, where municipalities must circulate *Planning Act* applications and have regard for CA technical expertise with respect to the natural hazard policies of the Provincial Planning Statement (2024).

1.3.1 Conservation Authorities Act

The purpose of the *Conservation Authorities Act* (*CA Act*) is to provide for the organization and delivery of programs and services that further the conservation, restoration, development and management of natural resources in watersheds in Ontario. The *CA Act* assigns a broad set of responsibilities to all conservation authorities (CAs) across Ontario. The *CA Act* (Section 20) requires CAs to provide mandatory, municipal, and other programs and services to further the objectives of the *CA Act*. Specifically, CAs are enabled through section 21.1 (Mandatory Programs and Services) and s. 28, s. 28.1, s. 28.1.1, s. 28.1.2, s. 28.2 - 28.5, s. 30.1 - 30.7, ss. 40(1)(g), and ss. 40(4) (Regulations) to provide the services outlined in this manual.

Section 21.1, Mandatory Programs and Services

Ontario Regulation 686/21, made in accordance with Section 21.1 of the *Conservation Authorities Act* (*CA Act*), details Category 1, Mandatory Programs and Services each conservation authority (CA) must provide. These services shall be related to:

- The risk of natural hazards,
- The conservation and management of lands owned or controlled by the authority, including any interests in land registered on title to design a program(s),
- The authority's duties, functions and responsibilities as a source protection authority under the *Clean Water Act*, and
- The authority's duties, functions and responsibilities under an Act prescribed by the regulations.

The *CA Act* (Section 21) provides further direction as to how the responsibilities of a CA are to be achieved, including but not limited to the power to: research, study and investigate the watershed; purchase lands; enter into agreements; erect structures; control the flow of surface waters; and generally to do all such acts as necessary for carrying out any project to further a CA's power.

The plan review and commenting authority of a CA is provided under Sections 6 and 7 of Ontario Regulation 686/21.

Section 6

Under section 6 of Ontario Regulation 686/21, CAs shall provide programs and services to enable the authority to review proposals for the purpose of commenting on the risks related to natural hazards arising from the proposal, where the authority considers it advisable. The following is a list of prescribed Acts for this purpose:

- *Aggregate Resources Act*

Under the *Aggregate Resources Act* (*ARA*), CAs review proposals when requested by the Ministry of

Natural Resources (MNR) for aggregate activities and comment in an advisory capacity to municipalities who have the responsibility for making planning decisions on application approvals. Under *CA Act* Section 28 (2), areas licensed for aggregate extraction under the *ARA* are exempt from CA permitting activities. However, CAs may bring local environmental and watershed knowledge into the application review process. In accordance with Section 6 (1) of Ontario Regulation 686/21, an authority shall review proposals under the *ARA* for the purpose of commenting on the risks related to natural hazards arising from the proposal. The MNR has the overall responsibility for administration of the *ARA*.

- *Drainage Act*

The *Drainage Act* defines a process whereby property owners can petition their local municipality to develop communal solutions to solve drainage problems. Using the procedures in the Act the construction of a "municipal drain" – a communal drainage system designed to accommodate water flowing from the properties located within the watershed – can be accommodated.

Once constructed under the authority of a by-law, a municipal drain becomes part of the municipality's infrastructure. The local municipality is responsible for repairing and maintaining the municipal drain in accordance with the associated engineers report. Municipal drains that meet the definition of a watercourse as defined by Ontario Regulation 41/24 are regulated by CAs. A CA permit may be required for new drainage works and drain improvements, maintenance and repair activities.

- *Environmental Assessment Act*

Under the *Environmental Assessment Act*, proponents are required to consult with CAs on proposed activities that require an Environmental Assessment. As a result, CAs review and comment on Class and Individual Environmental Assessments that occur within their jurisdiction. Activities proposed under the *Environmental Assessment Act* may occur in a CA's regulated area, where a CA permit may be required**.**

Section 7

Programs and services shall be provided in accordance with Section 21.1 of the *CA Act* to ensure an authority satisfies its functions and responsibilities, whether acting on behalf of the Ministry of Natural Resources or in its capacity as a public body under the *Planning Act,* for the purposes of helping to ensure that the decisions under that Act are:

- Consistent with the natural hazards policies in the policy statements issued under Section 3 of the *Planning Act*, but not including those policies related to hazardous forest types for wildland fire, and
- Where applicable, conform with any natural hazards policies included in a provincial plan as defined in Section 1 of the *Planning Act*, but not including those policies related to hazardous forest types for wildland fire.

The functions and responsibilities mentioned above include:

- Reviewing applications or other matters under the *Planning Act* and, where the authority considers it advisable, providing comments, technical support or information to the responsible planning authority under that Act,
- When requested by the Ministry of Municipal Affairs and Housing (MMAH), providing comments directly to the Ministry within the timeframes requested by the Ministry on applications or other matters under the *Planning Act*,

- When requested to by a municipality or planning board, providing advice, technical support, training and any information the municipality or planning board requires,
- Apprising the MMAH of any applications or matters under the *Planning Act* where the authority is of the opinion that there is an application or other matter that should be brought to the attention of the Government of Ontario,
- Providing technical input into and participating in provincial review of applications for approval of a "Special Policy Area" within the meaning of the Provincial Planning Statement issued under section 3 of the *Planning Act*,
- When requested by the MMAH, providing support to the Ministry in appeals on applications or other matters under the *Planning Act* on behalf of the Province at the Ontario Land Tribunal for the purposes noted above, and
- Undertaking an appeal to the Ontario Land Tribunal of a decision under the *Planning Act* as a public body in accordance with that Act if the appeal relates to a purpose described above, and if the authority considers it advisable.

1.3.2 Ontario Regulation 41/24 and Related *CA Act*

Through the *CA Act* and Ontario Regulation 41/24 (Prohibited Activities, Exemptions, and Permits), CAs are empowered to regulate development and alteration activities in and adjacent to watercourses (including valley lands), wetlands, shorelines or inland lakes and the Great Lakes-St. Lawrence River System and other hazardous lands. The objectives of regulating these activities are to:

- Prevent loss of life resulting from natural hazards (flooding, erosion, dynamic beaches, unstable soil or bedrock),
- Minimize property damage and social disruption resulting from natural hazards,
- Minimize public and private expenditure for emergency operations, evacuations, disaster relief and restoration,
- Prevent hazardous development within natural hazard lands which may in future require expensive protection measures,
- Ensure that development activity does not increase risks to adjacent lands or upstream and downstream landowners,
- Prevent interference such as filling or draining of wetlands and other natural flood storage areas,
- Prevent development that may limit floodplain storage capacity, increase flood elevations and/or decrease slope stability, and
- Prevent the interference with the hydrologic function of wetlands.

The current legislative structure requires CAs to administer both the *CA Act* and Ontario Regulation 41/24 concurrently to carry out their regulatory responsibilities. CA staff and applicants must refer to both pieces of legislation to make decisions and develop policies and guidelines related to permit applications.

1.3.3 The *Planning Act* – Provincial Planning Statement, Natural Hazard Policies

The Provincial Planning Statement (PPS) is a consolidated statement of the government's policies on land use planning. It gives provincial policy direction on key land use planning issues that affect

communities, such as:

- Efficient use and management of land and infrastructure,
- The provision of sufficient housing to meet changing needs, including affordable housing
- The protection of the environment and resources including farmland, natural resources (for example, wetlands and woodlands) and water opportunities for economic development and job creation,
- The appropriate transportation, water, sewer and other infrastructure needed to accommodate current and future needs, and
- The protection of people, property and community resources by directing development away from natural or human-made hazards, such as flood and erosion prone areas.

The PPS is issued under section 3 of the *Planning Act*. According to the *Planning Act*, all decisions affecting planning matters shall be consistent with the PPS. Municipalities are the primary decision-makers for local communities. They implement provincial policies through municipal official plans and planning related decisions.

As a public body, conservation authorities (CAs) must be circulated development applications under the *Planning Act*. Through Ontario Regulation 686/21, CAs must provide plan review and commenting services related to natural hazards to ensure *Planning Act* decisions are consistent with the PPS natural hazard policies (except for hazardous forest types).

1.3.4 Relationship of the *Conservation Authorities Act* and Ontario Regulation 41/24 to the *Planning Act*

It is important to understand the linkage between regulatory approvals issued by SVCA under the *Conservation Authorities Act* (*CA Act*) and Ontario Regulation 41/24, and approvals that are issued by planning authorities under the *Planning Act*.

The *Planning Act* by way of the Provincial Planning Statement (PPS), establishes the principle of development. The fundamental principles set out in the PPS provide for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment. Ontario Regulation 41/24 (Prohibited Activities, Exemptions and Permits) provides for technical implementation of matters pursuant to the *CA Act*. Ontario Regulation 41/24 is designed to ensure development and site alterations will not aggravate existing natural hazards while having regard for public safety. Concerns regarding the principle of development are conveyed to municipalities during the *Planning Act* approval process and are not normally addressed through the CA permitting process. As such, when a proposal requires approvals under both the *Planning Act* and the *CA Act* it is necessary for proposed development to establish the principle of development through the *Planning Act* process before or in concert with approvals under the *CA Act* and O. Reg. 41/24.

1.3.5 Key Principles

In carrying out its mandated responsibilities, SVCA will be guided by the following principles:

1. *Planning Act* Priority

SVCA recognizes that the 'principle of development' is preferred to be established through the *Planning Act*. Any concerns regarding the establishment of the principle of development will be conveyed to the municipality/planning approval authority during the *Planning Act* approvals process and not addressed through the *CA Act* permitting process (*Planning Act* approvals are to be secured first; permit approvals second).

2. Partnership

SVCA will promote a collaborative and 'whole team approach' with member municipalities and will participate in pre-consultation arranged by member municipalities.

3. Process Fairness

SVCA will ensure that applicants are treated respectfully through decision making processes that are both fair and easy to understand. This reinforces the fact that we will address requirements that are in effect at the time of submission. Where historical planning approval decisions were made in the absence of current technical information which could preclude development under the *CA Act*, SVCA will work diligently with the applicant and municipality to resolve the issue.

4. Service Excellence

SVCA is committed to service excellence and to providing timely, transparent and professional services.

2. Approach to Natural Hazard Management

This section provides an overview of the physiography of the SVCA watershed and discusses the philosophy and approach to natural hazard management based on provincial direction articulated in recent changes to the *Planning Act* and *Conservation Authorities Act*.

2.1 The SVCA Watershed: Features & Functions

Saugeen Valley Conservation Authority (SVCA) is situated between Lake Huron and the headwater areas for most of the major water courses in Southwestern Ontario. *(Figure 2-1)*

Figure 2-1 Saugeen Valley Conservation Authority, one of 36 CAs in Ontario.

SVCA has jurisdiction over a total land mass of 4,675 square kilometers (1,800 square miles) and owns more than 8,498 ha (21,000 acres) of natural areas consisting of significant natural areas, forests and conservation areas.

Most of the lands within SVCA's jurisdiction are in private ownership although SVCA is responsible for managing a number of conservation areas that are enjoyed for a variety of conservation purposes and are protected for their ecological value.

From a physiographic perspective, SVCA consists of three major watersheds that include the land area drained by the Saugeen, Pine and Penetangore rivers. Within these three major watersheds are a series of sub-watersheds. Although there are a variety of land use activities that occur across the SVCA landscape, agricultural predominates the landscape with forestry activities, aggregate extraction and recreational uses also factoring prominently.

For the most part, the landscape is comprised of small rural and agricultural communities that vary in

size from a few thousand to more than 11,000 residents. Highest densities prevail along the Lake Huron shoreline with lowest population densities occurring on farmland situated away from Lake Huron and toward the eastern portions of the land base.

2.2 Watershed-Based Natural Hazard Management

Natural hazards are the result of naturally occurring physical and environmental processes that can result in disaster, particularly if human activities interfere with these processes. Because these are environmental processes, largely influenced by climate and geology, that do not respect municipal or political boundaries, they are best planned and managed for through an integrated, watershed-based approach.

The incorporation of watershed ecosystem concepts and natural hazards within the *Planning Act* establishes a rationale for conservation authorities and local municipalities to abandon traditional single purpose management schemes. There is a broad range of economic and environmental benefits associated with natural stream and valley systems. Healthy natural stream systems provide recreational and fishing opportunities, clean drinking water, places to walk along, cycle next to, swim in, or paddle a canoe on. They also provide habitat for numerous species of terrestrial and aquatic animals. When a stream is allowed to take its natural course and development is regulated by appropriate setbacks, loss of life and property damage from flooding and erosion are minimized. Healthy natural streams require almost none of the continuous engineering that is required by hard-lined systems and thereby negate the need for costly repair and maintenance. These features of stream systems can be effectively planned for through a watershed-based management planning process.

SVCA understands hazardous lands are best maintained in their natural state to mitigate impacts of these hazards to life and property. As such, SVCA will recommend development avoid these areas as a first line of defense. Where development must be located within hazardous lands (e.g., flooding and erosion control structures, Two-Zone policy areas, existing development, etc.), and where an alteration to a watercourse or wetland is proposed, SVCA will consider the acute and cumulative impacts at both local and watershed-scales when making *Planning Act* recommendations and considering permit applications under Ontario Regulation 41/24 and related *CA Act* sections.

2.3 Preparing for a Changing Climate

Potential climate change impacts, coupled with population growth and urban expansion require adoption of strategic approaches to ensure that natural hazards become an integral component of society's approach to living and cooperating with the natural environment rather than trying to control it. Moving toward the creation of sustainable communities and disaster-resilient communities allows society to increase preparedness and better mitigate against future natural disasters.

Current projections indicate that, in general, Ontario's total mean annual precipitation will not change, but precipitation patterns will include an increased occurrence of high intensity rainfall events followed by longer periods of dry weather. Stream systems may be affected by the increased sporadic flows that are associated with high intensity rainfall events and can increase the potential for localized flooding, stream bank erosion and slope failures, allowing for well-planned future growth opportunities in many communities.

Section 2.9 of the Provincial Planning Statement (PPS) requires planning authorities to prepare for the impacts of a changing climate through approaches that promote green infrastructure, protect the

environment, and build resilient communities. The effect of such planning increases long-term economic prosperity, minimizes the negative impacts of climate change, and considers the ecological benefits provided by nature.

Furthermore, Section 5.2 Natural Hazards of the PPS states that planning authorities shall prepare for the impacts of a changing climate that may increase the risk associated with natural hazards.

The MNR has not yet provided implementation guidelines for this policy and as such, SVCA will consider the general intent of this policy when making recommendations for plan input and review and when drafting development review guidelines. SVCA staff will refer to current information and guidelines from reputable sources including, but not limited to, Environment Canada and Climate Change, Canadian Climate Institute, and the Climate Risk Institute.

Although there is not an explicit reference in the *CA Act* or Ontario Regulation 41/24 to addressing climate change and its impacts, it is anticipated that implementation of the Regulation and the policies in this manual will assist CAs and watershed communities address impacts of climate change. For example, more frequent severe weather and extreme rainfall is being experienced leading to increased flood and erosion problems. Wetland loss in parts of the province continues to be a concern. Limiting development in or near hazards such as flooding or erosion and limiting the reduction in the quantity and quality of wetlands on the landscape assist in mitigating the impacts of climate change on people and property in watershed communities.

2.4 Vision, Goals & Principles

In the context of the vision, mission, goals and values for SVCA's approach to integrated natural hazard management, the following planning and regulation principles will guide the work that SVCA carries out from a planning and regulatory perspective:

- Focus on mandatory programs and services for natural hazard planning and deliver on legislated responsibilities,
- Provide clear direction to watershed municipalities to distinguish between recommendations and requirements,
- Lead by example in carrying out natural hazard management responsibilities in accordance with provincial standards and published guidelines,
- Carry out natural hazard planning using an integrated approach that recognizes a healthy ecosystem as the preferred mitigative approach to natural hazard impacts and climate change resiliency,
- Maintain a watershed-scale perspective and consider the implications of cumulative impacts of development on the watershed, including upstream and downstream impacts,
- Make decisions and recommendations based on best available science and knowledge,
- Promote the transparent and timely sharing of information,
- Consider future impacts of climate change on water and other natural resources in assessing the impacts of development,
- Recognize that effective natural hazard management requires a collaborative approach with municipal planning partners,
- Acknowledge that those directly impacted by SVCA planning and regulatory responsibilities are

the landowners across the watershed and to this end, that there is an ongoing need to pursue practical approaches to environmental management,

- Be committed to ecological literacy and to educating watershed residents, member municipalities, partners and clients about the value of the watershed, its features and functions, and
- Work in collaboration with municipal partners to offer an integrated, consistent and streamlined approach to development review.

2.5 General Policies

This manual contains a number of general and specific policies intended to provide guidance to the administration and the implementation of Ontario Regulation 41/24 and SVCA's plan review responsibilities. General policies provide the basis for the formulation of the specific policies contained in the following sections. General policies also provide a set of considerations, restrictions and/or requirements applicable to proposed development and interference/ alteration that are within SVCA's scope and mandate related to Regulation 41/24 and Plan Review. The specific policies found herein do not address all potential forms of proposed development, site alteration or other alterations. It is intended that the general policies will provide guidance on how to respond to those proposals that are not specifically referenced. Furthermore, when considering proposals not specifically referenced in the manual, policies dealing with similar or like works/uses will also be considered.

3.Planning Advisory Services

3.1 Implementation

Saugeen Valley Conservation Authority (SVCA) will provide *Planning Act* review services whether acting on behalf of the Ministry of Natural Resources (MNR) or in our capacity as a public body under the *Planning Act* to ensure planning applications and other matters under the *Planning Act* are consistent with the natural hazard policies of the Provincial Planning Statement (PPS) and the SVCA's Regulation.

In some cases, there may be a need for coordination between planning applications and those under the Authority's Regulation and Permitting Program. This can also be complicated by the fact that the two applications may be received years apart. The Authority will ensure that its position on a *Planning Act* application is the same as its position on a permit application for the same property; except where planning policies supported by the PPS, municipal official plans or the Authority's Members, may be more restrictive. The principle of development is determined through the review process under the *Planning Act* and discussed elsewhere in this manual.

3.2 Introduction

This section provides specific information about SVCA'S planning advisory services and particularly about the Plan Input and Plan Review services that the Authority provides.

Plan Input refers to the responsibilities that SVCA has as a planning agency and public body under the *Planning Act* and to the planning advisory services that SVCA provides to watershed municipalities in submitting strategic level comments on Official Plans and Secondary Plans.

Plan Review refers to the technical advisory services SVCA provides to watershed municipalities on development applications including plans of subdivisions, plans of condominium, zoning by-law amendments, minor variances and consents to sever.

Saugeen Valley Conservation Authority has been actively involved in municipal planning matters for many years. SVCA's mandate to help build climate resilient communities throughout our watershed by protecting people and property from natural and human-made flooding and erosion hazards is carried out through our planning advisory services. This service supports our watershed municipalities in meeting their obligations and planning responsibilities associated with natural hazard management. These responsibilities include the legislative requirements that have been prescribed under the *Planning Act*, as well as, but not limited to, the SVCA's role in administering the *Conservation Authorities Act* (*CA Act*) and O. Reg. 41/24. Plan input and review comments that SVCA provides to its watershed municipalities may be articulated in a formal Memorandum of Understanding (MOU) or Service Level Agreement and reflect the Authority's goals and objectives.

In some cases, provincial plan requirements may exceed SVCA's regulatory requirements. In administering SVCA's legislative, regulatory, and plan review services, the more stringent requirements shall take precedence. For example, the provincial plans may have greater requirements for safe access, or more restrictions on the uses permitted than SVCA's regulation requirements. Similarly, where the SVCA's Regulation is more restrictive than those contained in these provincial plans, the more restrictive shall prevail.

3.3 The *Planning Act* and SVCA

In accordance with the *Conservation Authorities Act* (*CA Act*), SVCA must review policy documents and applications under the *Planning Act* to ensure that they are consistent with the natural hazard policies of the Provincial Planning Statement. The PPS focuses specifically on protecting public health and safety and addresses natural hazards directly. In keeping with our Mandatory Programs and Services and Municipal Partner Memorandum of Understanding (MOUs,) where applicable, the SVCA provides technical advisory services on a range of issues affecting natural hazards and wetlands as referenced in these policy documents, including but not limited to flood and erosion hazard studies, wetland environmental impact studies, and stormwater management.

The Municipal Partnership MOUs, where applicable, articulate the types of planning documents that SVCA is expected to review. SVCA also reviews and comments on other legislation as prescribed in Ontario Regulation 686/21 (Mandatory Programs and Services Regulation), including the *Environmental Assessment Act*, *Aggregate Resources Act*, and the *Drainage Act* (See Section 1.3.2 for more information.) However, these applications are not circulated under the *Planning Act*; they are circulated by applicants for works under these Acts.

SVCA is a watershed-based agency. Therefore, the approach to plan reviews that SVCA takes is to consider watershed-wide impacts as well as impacts upstream and downstream as detailed in Section 2 of this manual. SVCA considers its mandate under the *CA Act* as a natural resource manager. In this regard, approved watershed plans, where applicable, provide additional guidance beyond this manual to ensure development maintains and enhances the health of the watershed. Where there is a conflict with the policies in this chapter to any provision contained in an SVCA approved Watershed Plan, the more protective policies relating to shall prevail.

The *CA Act* defines the type of "development activities" prohibited in SVCA's area of jurisdiction and the PPS includes a definition of "development" for applications considered under the *Planning Act*. Although similar, the definitions differ in two primary ways:

1. The definition in the *CA Act* allows for the regulation of works that are typically not regulated under the *Planning Act* (e.g. placement of material).
2. The *Planning Act* includes lot creation as development which is not included in the *CA Act* definition.

Except for the above two key differences, the definitions are generally consistent. Typically, SVCA carries out its planning review and advisory function and processes these applications in coordination with SVCA's Regulation permitting requirements. Considering this, the policies outlined in Section 4 dealing with the administration of the SVCA's Regulation, are also to be used to guide the review for these types of applications, while being consistent with all other relevant policies throughout this document.

3.4 *Planning Act* Applications

Planning and development related applications affected by hazardous lands and hazardous sites (including SVCA regulated areas) are circulated by planning authorities to SVCA for comment. When an application is circulated to SVCA, application pre-submission consultation with the applicant, municipality, and SVCA staff is encouraged to scope technical studies that may be required and to provide guidance on other SVCA programs and services to ensure the application is complete.

Planning related applications circulated to SVCA for review typically include:

Official Plans and Official Plan Amendments

An Official Plan is a vision or guideline document established under the *Planning Act* that outlines the goals, objectives and policies necessary to manage growth and provide direction for the use of lands. It is prepared with input from communities and helps to ensure that future planning and development will meet the specific needs of a community.

An official plan deals mainly with issues such as:

- where new housing, industry, offices and shops will be located
- what services like roads, watermains, sewers, parks and schools will be needed
- when, and in what order, parts of a community will grow
- community improvement initiatives

It is expected that municipal councils or upper-tier planning authorities will regularly update their official plans to ensure that the plan implements any changes to the Provincial Planning Statement (PPS) or provincial plans. Official plan updates should be completed ten years after a municipality prepares a new comprehensive official plan or every five years after an update is done through an amendment to the plan.

When official plans are being updated, SVCA must ensure that proposed land use designations and associated policies for hazardous lands and hazardous sites are current and conform to the natural hazard policies of the PPS. SVCA must also provide municipalities and upper-tier planning authorities with current hazard mapping to be incorporated into the updated plan.

Zoning Bylaws and Zoning Bylaw Amendments

Zoning bylaws are precise documents that are used by Council to implement Official Plan policies through the regulation of land use. Zoning by-laws, as the legal implementing tool, must conform to the Official Plan. While the Official Plan divides a municipality into land use designations, zoning by-law provisions establish site specific requirements (setbacks, density) that are identified and implemented on a site-specific basis. Given their specific nature, zoning by-laws can directly compliment the Authority's regulations by prohibiting certain buildings or structures on land with steep slopes, unstable soils, wetlands, or areas that are subject to flooding.

When Council considers a zoning bylaw, its decision shall be consistent with the Provincial Planning Statement (PPS). This means that a council must ensure that the policies of the PPS are applied as an essential part of the land use planning decision-making process. Zoning bylaws must also conform with any applicable provincial plan. Provincial plans provide direction for specific geographic areas and address environmental, growth management and economic issues.

Similar to official plan updates, when zoning-bylaws are being updated, SVCA must ensure that

hazardous lands and sites are being appropriately zoned and mapped, and that associated policies are current and conform to the natural hazard policies of the PPS.

Minister's Zoning Orders

The *Planning Act* gives the Ministry of Municipal Affairs and Housing (MMAH) the authority to control the use of any land in the province. Zoning orders can be used to protect a provincial interest or to help overcome potential barriers or delays to critical projects. If there is a conflict between a minister's zoning order and a municipal bylaw, the minister's zoning order (MZO) prevails. The municipal bylaw remains in effect in all other respects.

The Minister of Municipal Affairs and Housing requires that before a City Council requests an MZO, they do their due diligence which includes:

- Consulting in their communities,
- Engaging with the conservation authority responsible for regulating the lands on which the zoning order is requested, and
- Engaging with potentially affected Indigenous communities.

The Minister also expects that Council requests for a zoning order include a supporting Council resolution. As Council meetings are generally open to the public, this expectation is meant to ensure public awareness of a request being made for the minister to consider making a zoning order**.** SVCA will have an opportunity to comment on natural hazards affecting the lands subject to an MZO if consulted on prior to the council meeting and if not consulted; SVCA can submit comments prior to the public meeting being held.

Plans of Subdivision

When land is being subdivided into multiple lots, a plan of subdivision is generally required. The plan of subdivision is first submitted and circulated as a draft under the *Planning Act*. The councils of some upper-tier, lower-tier and single-tier municipalities are the approval authorities for draft plans of subdivision. Upper-tier municipalities may further delegate the authority to approve plans of subdivision to their lower-tier municipalities. Municipalities may also delegate the authority to committees of council or appointed officers. In all other areas, the MMAH is the approval authority.

The *Planning Act* requires that, in deciding on an application, the approval authority shall be consistent with the PPS. Plans of subdivision must be considered in light of the effect that development will have on matters of provincial interest (e.g. floodplain management, wetlands, etc.), the suitability of the land for which it is to be developed, and the conservation of natural resources and flood control. Provisions under the *Planning Act* allow conditions of development to be imposed, and it is through this mechanism that conservation authorities like SVCA can identify matters of concern relating to its mandate.

Draft Plans of Condominium

Condominiums are a form of subdivision in which title to a unit (e.g. individual apartment) is held by an individual. A share in the rest of the property is held commonly by all owners. Condominiums are regulated under the *Condominium Act* and the process for approval of a plan of condominium is markedly similar to that of a plan of subdivision. Draft plans of condominium are circulated to SVCA for review by watershed municipalities. Condominiums can involve new development or the transition of an existing rental property to condominium ownership. Condominiums units can also apply in principle to any type of residential building as well as to commercial and/or industrial areas.

Consents (severances, lot-line adjustments, and easements)

A consent (sometimes referred to as severance) is the authorized separation of a piece of land into two or more adjoining properties. If several severances are intended on the same property, the planning authority may determine that a plan of subdivision may be required. Severance approval is generally delegated to a Committee of Council.

When a proposed severance is eligible for approval, the consent-granting authority can give provisional consent (sometimes called consent-in-principle). This approval typically has certain conditions attached to it including requirements for road widenings, parkland dedication, or a rezoning (or minor variance) to adjust the permitted lot dimensions. In addition, the property owner may be required to enter into an agreement with the municipality to provide future services or facilities. Severance conditions must be met within two years. Under the provisions of the *Planning Act*, the SVCA can request conditions of consent.

Minor Variances

A minor variance is generally considered a minor exception to the requirements of the zoning by-law. Usually, minor variances apply to specific properties and in most cases, municipalities appoint a Committee of Adjustment to deal with minor variance applications as they relate to:

- Minor variances to certain types of by-laws,
- Minor variances to non-conforming uses, and
- Minor variances to permit specific deviations in use where a by-law defines them in specific terms.

The review of minor variance applications is an effective method by which SVCA can generally monitor and assess the impact of development activities on key policy and program interests.

Under the provisions of the *Planning Act*, the Committee of Adjustment circulates the notice of a hearing on an application to agencies that it considers have an interest. As a result, SVCA can request conditions be placed on the minor variance application and can identify the need for a permit under the Authority's regulations, where such requirements apply.

Site Plan Control By-laws

Site plan control bylaws are not zoning bylaws. They are used to establish areas where site plan control will be applied. These areas must be described in the official plan.

Site plan control is used to ensure that:

- Developments are built and maintained in the way that council approved,
- New developments meet certain standards of quality and appearance,
- There is safe and easy access for pedestrians and vehicles,
- The appearance and design features of buildings, and their sustainable design, are satisfactory,
- There is adequate landscaping and drainage, and
- Nearby properties are protected from incompatible development.

For landowners to get a Site Plan Agreement, they must complete an application for Site Plan Approval. Once approved, the property owner must follow the site plan and agreement terms. In general, site plan control agreements deal with existing lots of record and tend to be more detail

design oriented. SVCA typically considers these applications in accordance with its Regulation permitting requirements (see Section 4).

3.4.1 *Planning Act* Approvals, Timelines, and Appeals

In June 2024, the Province made several changes to the *Planning Act* relating to the approval and appeals process for planning decisions made under the Act. To stay updated on these processes visit Citizen's guide to land use planning (https://www.ontario.ca/document/citizens-guide-land-use-planning).

SVCA's Approach to Plan Review and Input

Land use planning is dynamic and evolutionary. Areas of planning interest are subject to change over time. Evidence of this evolution is apparent in the amendments to the PPS (since its inception in 1996) but is also reflected in the release of new programs, new legislation and new guidelines.

The focus of interest also changes in response to the emergence of new issues and the availability of new science and information. For example, in accordance with the *More Homes Built Faster Act*, 2022 passed in the fall of 2021, amendments were made to the *Conservation Authorities Act* (*CA Act*) in support of Ontario's Housing Supply Action Plan, which came into effect January 1, 2023.

Following the passing of these legislative amendments, a new Ontario Regulation 596/22 was made under the *CA Act* which also became effective January 1, 2023. Under this new regulation, conservation authorities (CAs) are no longer able to review and provide commenting services on natural heritage for proposals under the *Planning Act*. The purpose of these changes was to re-focus CA programs and services to our core mandate related to natural hazard management in relation to plan review.

Therefore, SVCA's approach to planning review and input is premised on the following key principles:

- Conducting planning responsibilities on a watershed wide basis, recognizing the importance of integrated watershed management and the need for a holistic and ecological approach to planning,
- Making recommendations that are consistent with SVCA's vision, goals and objectives, and core mandate,
- Working with municipal partners to include natural hazard areas into municipal planning documents to ensure that any new development is in keeping with established provincial policy,
- Recognizing that the responsibility for decisions made under the *Planning Act* rests with the municipality and in this regard, making recommendations to planning authorities that are in alignment with existing legislation and approved policy and guidelines, and
- Providing sound technical advice and guidance on matters within SVCA mandate and as articulated in the municipal partner Memorandum Of Understandings (MOUs), where in place.

SVCA partnership memoranda specify the role and the responsibilities of both SVCA and the county/municipality with respect to environmental planning. These Agreements, where applicable, prescribe the processing fees for various planning applications and stipulate that SVCA will provide planning advisory services on a cost-recovery basis, in the following key areas:

- Natural hazard planning (flooding, erosion, unstable slopes, shorelines, and soils),
- Groundwater (CA regulatory requirements / natural hazard related functions),

- Wetlands (CA regulatory requirements / natural hazard related functions),
- Valleylands (CA regulatory requirements / natural hazard related functions),
- Stormwater (natural hazards related),
- Feature based water balance (CA regulatory requirements / natural hazard related functions),
- Buffer / setback to identified plan review component (CA regulatory requirements / natural hazard related functions),
- Source Protection Authority under the *Clean Water Act*, 2006,
- Climate Change (as it relates to natural hazards), and
- Special Policy Areas (as applicable).

More details on the items listed above and the extent of SVCA's involvement in natural hazard related stormwater review should be confirmed between the Municipality and the SVCA in a MOU.

Where there is a plan review component within a SVCA regulated area that is also located within a natural heritage feature or area as described by the Provincial Planning Statement or other municipal or provincial plan, the SVCA will continue to provide plan review comments related to natural hazard functions and CA regulatory requirements, but not natural heritage.

The SVCA will regularly review the MOU Agreements with member counties and municipalities within the SVCA Watershed.

3.4.2 Categorizing & Circulation

To coordinate planning responsibilities with watershed municipalities, the SVCA may develop circulation maps to be provided to the watershed counties/municipalities to determine when an application may require review by SVCA. In general, SVCA has an interest in the following:

- Any lands that contain and/or are adjacent to all hazardous lands and hazardous sites,
- Any lands containing wetlands,
- Watercourses and other natural features and areas that are within areas requiring special water management related measures, and/or
- Properties that are located adjacent to any SVCA owned property.

Where a service level agreement or municipal Memorandum of Understanding (MOU) exists, the circulation categorizing processes are described in detail. Where no MOU exists between the municipality and the SVCA, informal or formal categorizing and circulation processes should be developed based on municipal requirements, legal obligations and best practices.

3.4.3 Application Pre-submission Consultation & Processing Timelines

In addition to consulting with municipal staff, it is important for applicants to discuss development proposals with SVCA staff prior to submitting a formal *Planning Act* application when in or near the SVCA's areas of interest. For complex applications, this preliminary consultation is often done in coordination with the municipality to ensure all interests are met. Preliminary consultation should be done as early in the planning process as possible to determine how proposals may be affected by SVCA's programs and policies, including other partnering agencies such as the Ministry of Natural Resources (MNR).

The objective of pre-consultation is to prepare the applicant to make a high-quality submission by clearly outlining the approvals process(es), requirements for complete applications (e.g. technical studies and fees), review and approval timelines and to allow the approval authority(ies) and commenting agencies to understand the applicant's timelines, constraints, and communication preferences.

A successful pre-consultation meeting allows the applicant to introduce and clarify the proposal; allows the approval authorities (including the SVCA) to guide the applicant through the application review process and clarify any constraints; and allows for a review timeline to be discussed. After a successful pre-consultation meeting, the approval authority(ies) can provide the applicant with a clear route towards the submission requirements for their project. This includes written confirmation of the submission requirements for a complete application, and ideally, scoping of required studies.

SVCA may attend a pre-consultation meeting in person or provide applicants with application-specific information in writing. However, in-person consultation is strongly recommended for major and/or complex applications. Some of the detailed information that may be provided includes an overview of SVCA's general review process, an outline of specific components of the proposal that are of interest to SVCA, a discussion of any potential study requirements and anticipated processing timelines

Processing timelines will vary based on the completeness of the submission, nature and complexity of the proposal, and quality of the technical submissions. SVCA staff are committed to providing a thorough and expeditious review of planning related proposals in an effort to meet the processing timelines established under the *Planning Act*.

The submission of a complete application provides SVCA staff with an opportunity to review the application in a comprehensive, efficient and timely manner. In addition, it is important that applicants ensure the quality of the submission meets good practice and industry standards to minimize the extent and number of resubmissions and to avoid unnecessary delay.

It is the responsibility of the applicant to undertake due diligence to determine permit approvals beyond those provided by SVCA.

3.4.4 Submission Requirements

Where development proposals are located within an SVCA area of interest, *Planning Act* applications are determined complete by the municipal planner in consultation with the SVCA. To ensure SVCA's interests are met, and to properly address the technical aspects of a proposal, a number of documents and plans may be required. The level of detail required will vary as will report requirements based on the location of the property and the nature of the proposal. Technical requirements may vary from a letter of opinion to a scoped or comprehensive natural hazard assessment. Application pre-submission consultation will allow the proposal-specific requirements to be identified by SVCA staff. Technical study guidelines are being developed and those completed to date can be found in the Appendices of this manual.

3.4.5 Review Procedures

Planning and development applications are managed by the municipality or county involved and specific applications for approval under the *Planning Act* are managed by the planning department of that municipality or county. The municipal or county planner conducts an initial review, or in some cases, may send the application directly to SVCA for categorizing. A site visit may be arranged if

required and the application, once it has been determined to be of interest to SVCA, is circulated to planning and technical staff within the Authority. The municipality or county also circulates to its own internal departments as well as to other outside agencies. The nature of the proposal will determine which staff member at the SVCA needs to review the development. Upon completion of the review, a letter is forwarded from the SVCA to the affected municipality and in some cases to the applicant providing the SVCA comments, or if no SVCA comment is needed, a sign off will be provided.

The following diagram (Figure **3-1**) illustrates, in general, the plan review process carried out by SVCA:

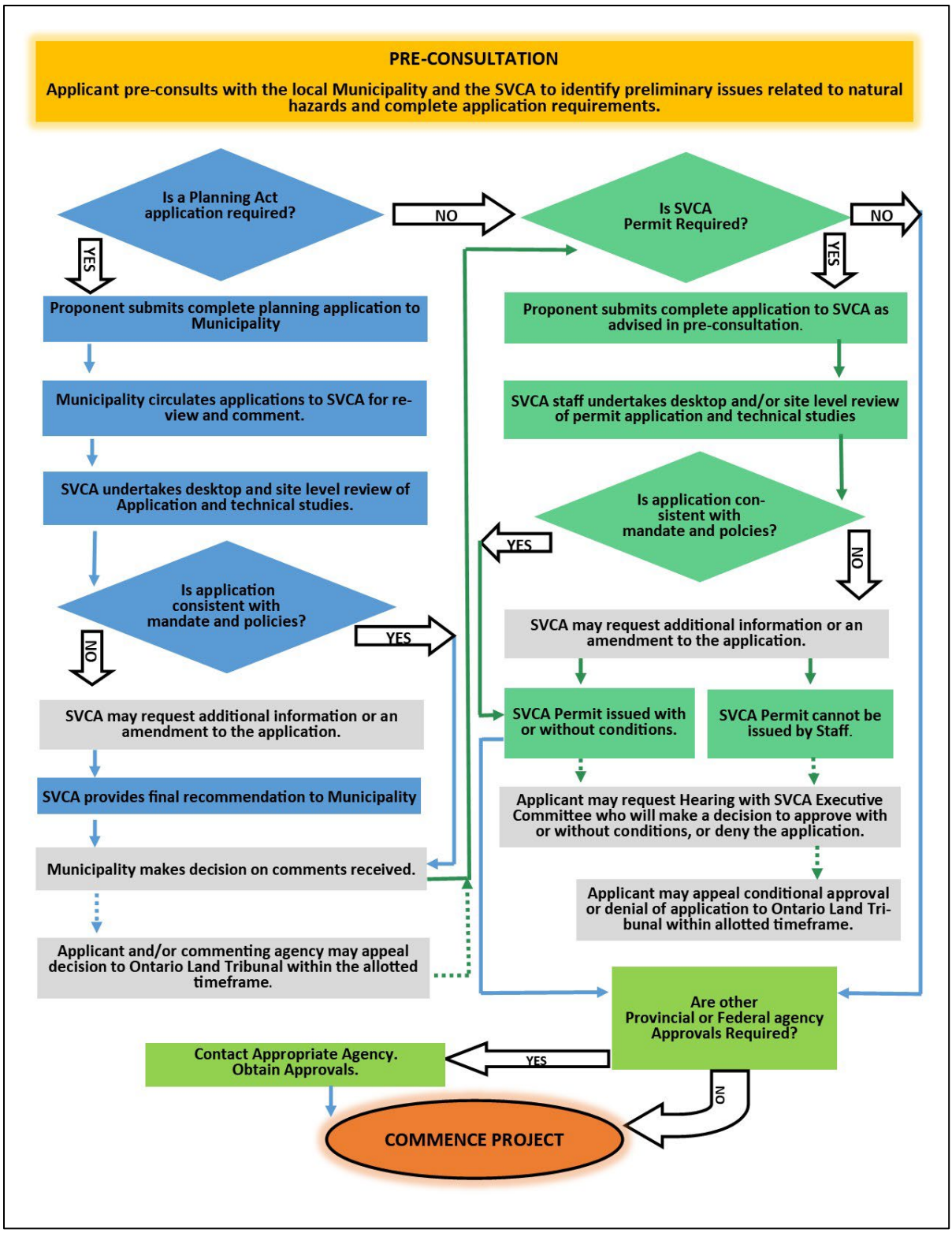


Figure 3-1 SVCA's Plan Review Process

3.4.6 Identifying and Addressing the Hazards

To aid SVCA staff in evaluating an area proposed for development, where permitted under natural hazard policies, consideration shall be given to both the physical and ecological influences and impacts. This includes:

1. Identify the hazards,
2. Identify development proposed within the hazardous lands or hazardous sites,
3. Identify appropriate hazard management response,
4. Determine potential impacts to physical processes and characteristics,
5. Assess off-site physical impacts,
6. Assess biological or environmental impacts, and the impacts to the hazard from a changing climate, and
7. Mitigate minor impacts of preferred hazard management response.

This procedure, developed by MNR, focuses on some basic questions and issues that must be addressed in any development decision-making process. It is recognized that some natural hazards may be more complex than others. As such the level of evaluation will be site specific and directly proportional to such factors as the size, severity, and type of risks and the potential physical, environmental and biological impacts that may result. The flow chart in Figure **3-2** will be used by SVCA staff as a general decision-making tool when evaluating development proposed within or adjacent to a natural hazard feature under the *Planning Act*. SVCA's planning and regulation policies in this manual must be referenced when evaluating permissible development, as SVCA's policies may be more restrictive. Staff can reference the following documents for more information on each step; (1) Understanding Natural Hazards (MNR, 2001); and (2) Technical Guide – River & Stream Systems Erosion Hazard Limit (MNR, 2002) for more information on each step.

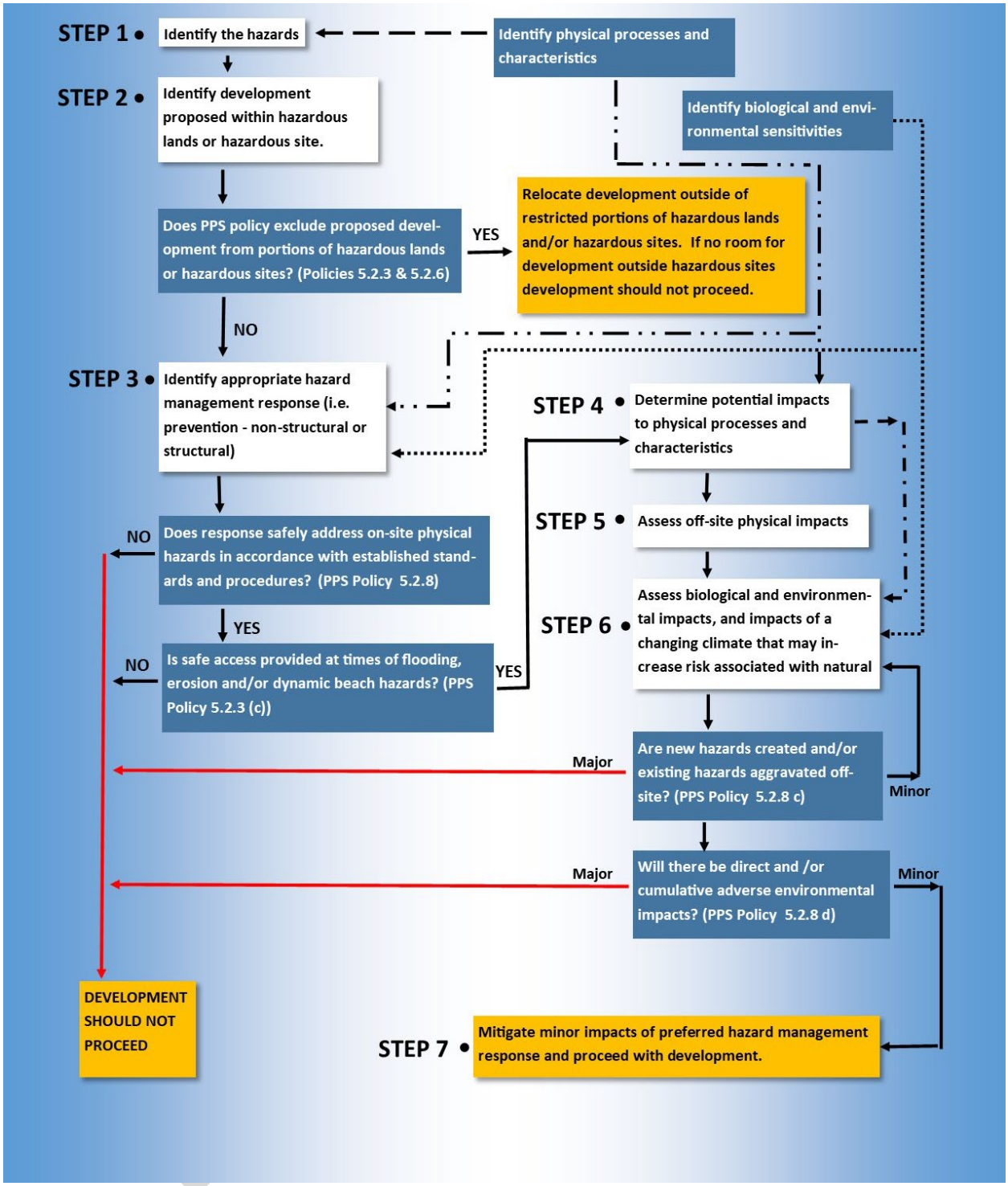


Figure 3- 2 Addressing the Hazards: 7 Step Procedure (Source: Technical Guide – River & Stream Systems Erosion Hazard Limit, MNR, 2002)

3.4.7 Plan Review Fees

SVCA has individual fee schedules in place in each municipal / county agreement to assist in cost recovery for planning services. The plan review fees reflect the type and scale of the proposed development as well as the complexity of the application. Fee schedules are reviewed by SVCA staff annually and are updated in a manner than is consistent with the Statistics Canada "Consumer Price

Index". The plan review fees are consistent with the Ministry of Natural Resources, Policies and Procedures for Charging of Conservation Authority Fees.

3.4.8 Right to Appeal by SVCA

In keeping with the provisions of the *Planning Act*, and for the purpose of helping to ensure decisions under that Act are consistent with the natural hazards policies in Provincial Policy, SVCA has the ability to appeal all or part of a decision of the approval authority to the Ontario Land Tribunal, provided that; the decision relates to natural hazard policies in any policy statement issued under the Act; and, that before the decision was adopted, SVCA made an oral submission at the public meeting or submitted comments to council. At the same time however, it is recognized that there may be historical planning approval decisions that were made in the absence of current technical information which could now preclude development under the *Conservation Authorities Act* requirements. Wherever possible, if an issue remains unresolved, SVCA will work with the proponent and the municipality to pursue a resolution.

3.5 SVCA Planning Areas of Interest

SVCA areas of interest pertaining to planning and development applications submitted under the *Planning Act* are defined under Ontario Regulation 686/21. The *Planning Act* also references conservation authorities (CAs) as public commenting bodies in relation to hazardous lands and sites. These reflect SVCA's mandate, role and responsibilities as described in Chapter 2, and fall under four key thematic areas, as follows:

Health and Safety

SVCA has a direct mandate to protect public safety and minimize property damage from natural hazards. SVCA will recommend that development be kept out of known hazard areas and that decisions made by municipal partners recognize the importance of protecting human life and guard against property damage. SVCA will promote a position that is consistent with the Provincial Policy Statement (PPS, as amended) and in recognition of its regulatory responsibilities under Ontario Regulation's 686/21 and the SVCA's Regulation, as amended, to ensure that new hazards are not created, that existing hazards are not aggravated and that adverse environmental impacts do not result.

Watershed-Based Planning and Management

SVCA supports the sustainable management and wise use of natural resources within the watershed. There is potential that planning applications within and adjacent to hazard lands could have an adverse impact on environmental features which may in turn, affect the ecological sustainability of the area. For example, the concept of maintaining undisturbed buffers between areas proposed for development and natural features is a concept that is well understood and one that has broad acceptance. SVCA recognizes the importance of conservation buffers. Buffer zones help to stabilize stream banks, prevent erosion, and trap waterborne contaminants that can pollute watercourses, and they provide important habitat areas for critical species of fish and wildlife. Generally, buffers are needed to address:

- Access and maintenance issues,
- Attenuation of pollutants,
- Maintenance of existing ecological functions and hydrologic functions,
- External and unpredicted factors, and

- Areas of future potential enhancements.

When updating planning documents and making decisions for applications under the *Planning Act*, planning approval authorities shall have regard to all the natural hazard policies encompassed within Natural Hazard policies of the *Planning Act*, which includes consideration to environmental impacts. Specifically, development proposed within or adjacent to natural hazard features, where permitted in accordance with policy.

SVCA recognizes that as a watershed-based organization, there is an important focus on integrated human and natural processes to achieve ecosystem sustainability. As indicated in Section 2 of this manual, SVCA advocates for a comprehensive and integrated approach to planning and managing natural hazards that is consistent with the PPS. SVCA will promote the conservation and wise use of resources in the watershed.

Watershed Science

SVCA recognizes the importance of science-based decision making and continuous improvement. To this end, SVCA will support updates to comprehensive environmental studies to reflect advancements in science and information.

Stewardship

SVCA recognizes that natural hazard management in the watershed requires the engagement of landowners and organized partners and stakeholders. SVCA will work with clients and partners to continue to promote on-the-ground action and will continue to recognize that the wise use and management of the watershed depends on shared ownership and collective action.

3.6 SVCA Position on Natural Hazards

In recognition of SVCA's areas of interest described in Section 3.5 above, SVCA will take the following position on natural hazard planning:

That development be directed away from areas of natural hazards where there is an unacceptable risk to public health and safety or of property damage in accordance with the natural hazard policies of the Provincial Planning Statement, as amended; and,

SVCA will recommend lands susceptible to natural hazards be placed in a protective designation in Official Plans and in a protective zone in Zoning By-laws to recognize the environmental hazard; and,

That SVCA Board approved policies be developed in accordance with the natural hazard policies of the Provincial Planning Statement, as amended from time to time.

3.7 SVCA Plan Input and Review Policies

The following policies for plan input and review are established in accordance with SVCA's mandate, goals, and key principles for natural hazard management discussed above and in Sections 1 and 2 of this manual.

3.7.1 SVCA General Planning Policies – Natural Hazards

Hazardous lands and hazardous sites are defined in the Provincial Planning Statement (PPS).

Hazardous lands include lands that could be unsafe for development due to naturally occurring processes associated with:

- The shorelines of the Great Lakes-St. Lawrence River System, this means the land, including that covered by water, between the international boundary, where applicable, and the

furthest landward limit of the flooding hazard, erosion hazard or dynamic beach

- hazard limits, and dynamic beaches,
- Along the shorelines of large inland lakes, this means the land, including that covered by water, between a defined offshore distance or depth and the furthest landward limit of the flooding hazard, erosion hazard or dynamic beach hazard limits, and
- Along river, stream and small inland lake systems, this means the land, including that covered by water, to the furthest landward limit of the flooding hazard or erosion hazard limits.

Hazardous sites defined in the PPS means property or lands that could be unsafe for development and site alteration due to naturally occurring hazards. These may include unstable soils (sensitive marine clays [Leda], organic soils) or unstable bedrock (karst topography).

SVCA takes the following approach to hazard land management:

- Preventing new development from locating in areas where there is a potential for loss of life and/or property damage from natural hazards,
- Protecting existing development from natural hazards by implementing structural and non-structural mitigation measures that may include the acquisition of lands that are subject to known natural hazards,
- Assessing ingress and egress for areas that would be rendered in accessible during times of flooding hazards, erosion hazards and/or dynamic beach hazards to ensure safe access is available for both people and vehicles,
- Providing notification and supporting emergency response and recovery measures through flood forecasting and early warning systems,
- Coordinating between natural hazards management and planning and development related activities to ensure that decision makers have the necessary information they need and are well informed of any natural hazards, and
- Ensuring planning staff are onboarded and appropriately trained to review and assess current risks associated with managing natural hazards.

Eliminating natural hazards completely is not possible and consequently, the approach taken is to manage the risk. Minimum standards for acceptable levels of risk to the public are established by the province.

SVCA adheres to the following in carrying out its natural hazard management responsibilities:

- Proper natural hazard management requires that natural hazards (flooding, erosion, dynamic beaches, karst bedrock, organic soils) be simultaneously recognized and addressed in a manner that is integrated with land use planning and maintains environmental and ecosystem integrity,
- Effective floodplain management can only occur on a watershed and littoral reach basis with due consideration given to the effects of development and the associated environmental and ecosystem impacts,
- Local conditions must be considered in the planning and management of natural hazards,
- Natural hazard management through land use planning requires overall coordination on the

part of Municipalities, SVCA, MNR and MMAH, and

- New development which is susceptible to natural hazards, or which will cause or aggravate hazards to existing and approved land uses, or which will cause adverse environmental impacts will not be permitted unless the natural hazard and environmental impacts can be addressed.

In applying these guiding principles, SVCA has established the policy positions outlined below.

3.7.1.1 Comprehensive Approach

SVCA will recommend that a comprehensive approach to natural hazard management be adopted taking into consideration the risks to life and property, economic feasibility (i.e. cost benefit analysis), upstream and downstream impacts, social impacts and cumulative impacts as well as the impact to natural systems and areas.

3.7.1.2 Provincial Standards

SVCA will make recommendations consistent with established provincial policy, standards and guidelines when determining the extent of hazardous lands and sites, and when assessing impacts of development and site alteration on the hazards.

3.7.1.3 Mitigation for Existing Development

Where the policies of this manual supports additions, reconstruction, and infilling for existing development SVCA will promote mitigation and remediation works for existing development within hazardous land through the preparation and review of technical studies.

3.7.1.4 Sensitive Land Uses

SVCA will not recommend the following types of development on lands susceptible to natural hazards:

1) **Institutional** and associated uses including hospitals, nursing homes, pre-schools, day cares and schools, which may pose a significant threat to the safety of inhabitants if involved in an emergency evacuation situation because of flooding, failure of flood proofing and/or protection works, and/or erosion.
2) **Uses associated with essential services** such as those provided by fire, police and ambulance stations and electrical substations that may be impaired during a flood emergency because of flooding, failure of flood-proofing and/or protection works; or
3) **Uses associated with the manufacture, collection, storage, disposal and/or consumption of hazardous substances** that may pose an unacceptable threat to public safety if they were to escape their normal containment/use because of flooding, failure of flood proofing and/or protection works and/or erosion.

3.7.1.5 Technical Guidelines and Studies

Where technical reports are required by SVCA to support proposed development under the *Planning Act*, SVCA staff will refer to the technical guidelines in the Appendices of this manual where available. The guidelines will be provided to applicants during application pre-submission consultation. In the event a technical submission is not in accordance with SVCA's guidelines, the report may be peer reviewed by an expert at the applicant's cost.

SVCA's technical guidelines will be developed in consultation with experts and shall remain current

based on the latest science and methodologies. Amendments to the technical guidelines can be updated as a housekeeping item on an as needed basis to be approved by the General Manager and SVCA's Executive Committee.

When reviewing applications submitted under the *Planning Act*, SVCA may require the following technical studies be submitted to support the application;

- Geotechnical/Soils Report,
- Watershed or Sub-watershed Plan,
- Environmental Servicing Plan,
- Planting or Vegetation Plan,
- Vegetation Preservation Plan,
- Watercourse and/or Slope Stabilization Plan,
- Slope Stability – Erosion Study,
- Environmental Impact Study,
- Stormwater Management Plans,
- Erosion/Sediment Control Plan,
- Grading and Drainage Plan,
- Floodplain Study,
- Coastal Report,
- Fluvial Geomorphology Report,
- Water Budget, Hydrological and Hydro-Geological Studies,
- Compliance Monitoring Plan, and/or
- Any additional report or study required by SVCA to provide additional information relating to a specific concern.

When development proposals involving site disturbance or alterations are submitted, SVCA will require a site-specific evaluation. Typically, this evaluation will consist of an on-site constraint assessment and is to be completed before any site disturbance or alteration takes place.

3.7.1.6 Natural Systems Supporting Conservation of Hazardous Lands

SVCA supports and encourages an ecosystem approach to land use planning. SVCA will recommend development be directed away from the following systems that support conservation of hazardous lands in a natural state;

- Regulatory Floodplains,
- Areas of unstable bedrock, soils and slopes,
- Valleylands,
- Wetlands,
- Woodlands,

- Surface water features,
- Ground water features associated with hazardous lands,
- Shorelines of small inland lakes,
- Shoreline of Lake Huron and related flooding and erosion hazards, and
- Dynamic beach areas.

3.7.1.7 Climate Change

In accordance with the Provincial Planning Statement, SVCA will recommend planning authorities prepare for the impacts of a changing climate that may increase the risk associated with natural hazards in the following ways:

1. Promote the use / creation of low impact development, green infrastructure and technologies to reduce runoff from new/existing development (i.e., engineered wetlands for SWM, rain gardens, bioswales, forests, parks, and riparian zones, etc.).
2. Require new development (including re-development) be setback as far as feasible from flooding and erosion hazards in preparation for increased potential risks associated with unpredictable weather patterns.
3. Recommend retention of existing wetlands and woodlands (natural infrastructure) in the watershed, regardless of size and provincial classification, and encourage wetland construction and tree/vegetation planting to promote climate change resiliency.
4. Encourage existing green spaces (wetlands, woodlands, etc.) be maintained for new lot development.
5. Encourage municipalities/counties to establish tree preservation by-laws.

3.7.1.8 Consideration of Ingress/Egress

The consideration for safe ingress and egress (safe access) when reviewing proposals for development in hazard lands is best described in Appendix 6 of the Ministry of Natural Resources, Technical Guide for River and Stream Systems Flooding Hazard Limit. The policies below consider these safe access guidelines for both vehicles and pedestrians in the flood hazard but should also be considered for access through other hazardous lands (i.e. erosion hazards) in accordance with natural hazard policy, which states:

> Development and site alteration shall not be permitted within areas that would be rendered inaccessible to people and vehicles during times of flooding hazards, erosion hazards and/or dynamic beach hazards, unless it has been demonstrated that the site has safe access appropriate for the nature of the development and the natural hazard.

The ability for the public and emergency operations personnel (police, firefighters, ambulance, etc.) to safely access hazardous lands during an emergency, such as a flooding or erosion event, is an important factor when considering any application for development. Development applications in hazard lands must be reviewed to ensure access to the proposed development (via municipal roadway or private laneway) is safe and appropriate for the proposed use and the natural hazard. The provision of means by which people, vehicles and equipment can gain access to and from the hazard feature for maintenance and/or construction of remedial works must also be considered. The highest priorities for access to emergency vehicles should be given to police, ambulance and fire services, especially where evacuation is a distinct possibility in areas surrounded by flooding. All local agencies involved in local emergencies should be consulted regarding the adequacy of access.

Major accessways to development potentially located in the flood fringe or other hazardous land must be examined. It is not acceptable to have development isolated during a flood event because roads and escape routes are not passable.

1) New Development and Infilling

   a) SVCA will recommend new development (residential, commercial) and the creation of new lots be prohibited in dangerous or inaccessible portions of a natural hazard, including:

   i. Areas where safe access cannot be achieved, and

   ii. A floodway regardless of whether the area of inundation contains high points of land not subject to flooding.

   b) Under a regulatory flood event, where dry access cannot feasibly be achieved, SVCA will require safe ingress and egress for pedestrians and vehicles under a regulatory flood event be:

      i. That the depth of flooding does not exceed 0.3 metres, and

      ii. That flow velocities do not exceed 1.7 m/s.

c) Notwithstanding policy 3.6.1.8 1) above, ingress/egress shall remain dry at all times for institutional buildings servicing the sick, the elderly, the disabled or the young and in buildings utilized for public safety (i.e. police, fire, ambulance and other emergency measures) purposes.

d) Notwithstanding policy 3.6.1.8 1) above, where the proposed development requires access

onto an existing flooded roadway or access to a roadway is subject to flooding where the depth and velocity criteria above cannot be met, the development may be permitted provided the following is addressed:

i. Access to/from the site must have flood depths and velocities less than or equal to those experienced on the existing roadway, and

ii. Safe alternate or secondary access for pedestrians and emergency vehicles that is appropriate for the nature of the development and the natural hazard is provided, or

iii. Where the affected municipal emergency services provide confirmation that acceptable provisions for emergency ingress/egress, appropriate for the nature of the development and the flood hazard are available for a site and/or the nature of the development is such that a significant risk to property damage and public health is not created.

2) Existing Development – Additions, Reconstruction, and Increase to Habitable Space

For existing development safety risks are a function of the occupancy of structures, the susceptibility of the structure and the access routes to the structure. For existing development, the following factors will be considered in addition to Section 4 policies when reviewing proposed additions, reconstruction, and increases to habitable space where safe access is being evaluated:

- The degree of risk with the use of the existing access,
- The ability to modify the existing access or construct a new safe access,
- The ability to find and use the access during an emergency,
- The ability and willingness of the municipality (emergency vehicles) to use
- the access,
- The risk to public health will be controlled by limiting the size (and therefore limiting the occupancy) of additions or reconstruction projects. If the risk is determined to be too great, no modifications/alterations/reconstructions of existing structures will be considered, and
- Redevelopment should not be permitted if it results in greater risk to safe access.

3) Non-Habitable Structures

Where a non-habitable structure requires wet floodproofing, access ways into and from the building should allow for safe pedestrian movement and will be reviewed by SVCA on a case-by-case basis. For example, a product of depth and velocity less than or equal to 0.4 m^2/s defines the low-risk area for pedestrians provided depth does not exceed 0.8 m and the velocity does not exceed 1.7 m/s.

3.7.1.9 Maintenance Access Allowance

SVCA will recommend through conditions of draft plan approval or consent those applications adjacent to flooding, erosion hazard, and dynamic beach hazards be required to include protection of the flooding, erosion, and dynamic beach hazards with associated allowances in perpetuity. It is SVCA's preference that this be done through dedication to the municipality however there may be other acceptable methods to ensure that these areas are protected.

3.7.1.10 Land Use Designations and Zoning

SVCA will recommend that official plans (OP), zoning by-laws (ZB), and applications for OP/ZB amendments identify and address all natural hazards in accordance with the Provincial Planning Statement (PPS) and that appropriate provisions for safe ingress and egress (i.e. safe access) be identified in accordance with provincial guidelines.

SVCA will not support proposed zoning, land use designation or official plan changes that further intensify land use (i.e. seasonal residential to year-round residential, or single family residential to multi-unit dwelling) within hazardous lands or where safe access cannot be achieved.

3.7.1.11 Lot Creation

1) SVCA will recommend that any lots created through plan of subdivision or consent are set back a distance from hazardous lands and sites, to be determined through the completion of a technical report [to the satisfaction of SVCA] and be consistent with provincial / municipal policy.
2) SVCA will not recommend the creation of new lots through plan of subdivision or consent that extend into hazardous lands and sites, in consideration of the long-term management concerns related to risks to life and property.
3) Lot creation by individual severance may be supported provided there is a sufficient lot area outside of the hazardous land or site, including flooding/erosion access allowances to accommodate the proposed development.
4) Creation of a lot in some circumstances will be supported where the creation of a new lot is for the purpose of flood and/or erosion control works or for passive non-structural uses which do not affect flood flows.
5) SVCA will not recommend the creation of new lots unless it has been confirmed that a suitable building envelope exists that is consistent with relevant SVCA requirements. This includes sufficient space within the suitable building envelope to incorporate necessary infrastructure including private sewage disposal systems, wells, driveway and parking areas, and sufficient allowance adjacent to the hazard for maintenance.
6) SVCA will not recommend the creation of new lots unless safe access can be achieved without creating new hazards and aggravating existing hazards. See Section 3.6.1.3 for SVCA's safe access policies.
7) SVCA will not recommend the creation of new lots where new access is required through environmentally sensitive lands without confirmation that the impacts will be mitigated via technical study.

3.7.1.12 Structures Abutting Hazardous Lands

Where a proposal involves a building, structure or ancillary use that abuts the limit of flooding, erosion, or dynamic beach hazards, the proposal will be considered by SVCA to be flood susceptible and the policies of this document will apply. Ancillary uses can include such things as driveways, parking lots and/or sewage disposal systems. SVCA will make recommendations to the planning authority to this effect.

3.7.1.13 Existing Development – Redevelopment, Additions, and Infilling on Existing Lots of Record

It is not the intent of Provincial Planning Statement that the presence of existing development be used as a justification for increasing or intensifying the development. The first and primary premise of PPS Natural Hazard Policy is to direct development and site alteration to locations outside of hazardous lands and sites.

When a *Planning Act* application is circulated to the SVCA where infilling or redevelopment, or additions/alterations to existing structures is being considered within hazardous lands or sites, SVCA will advise that the development and site alteration must adhere to PPS Policy 5.2.3 (identifies where development and site alteration is not permitted) and fulfil all the requirements outlined in PPS Policy 5.2.5 and 5.2.7. Where all the requirements of Policy 5.2.5 and 5.2.7 cannot be fulfilled, SVCA will recommend that the development and site alteration should be directed to a location outside of the hazardous lands.

SVCA's preferred management approach is prevention. Prior to any structural protection works being considered, it should be clearly demonstrated that the following options are not feasible:

1. Relocation of existing building,
2. Siting of building/structures landward of the hazardous lands, and
3. Acquiring adjacent properties to provide additional developable area landward of the hazardous lands.

Where development (including additions, alterations, infilling, redevelopment, replacement, etc.) is being considered within the hazardous lands, SVCA will critically evaluate the development with respect to the flooding, erosion, dynamic beaches, unstable soils and bedrock, ingress/egress provisions, the creation or aggravation of hazards at other sites, and environmental considerations. The proposed must also meet SVCA's Section 4 policies. SVCA will make recommendations based on this critical assessment and will include, but not be limited to several key factors:

- Ensuring that new buildings are in keeping with size and nature of existing buildings,
- Utilizing the total lot depth to maximize the siting of development as far from the hazard as possible,
- Preventing proposed changes which intensify the land use (i.e., seasonal to permanent, increased dwelling units),
- Consideration of the various and "preferred" floodproofing measures as outlined in Section 4.7.4 of this document,
- Ensuring that the development does not encroach within the stable slope allowance from top of bank or from the toe of slope erosion hazard as described in Section 4.8 of this document,

- Using extreme caution in areas of high to severe recession rates,
- Consideration of the risk and impact that a changing climate may have on the development,
- Being aware of and recognizing that along cohesive shorelines ongoing downcutting of the nearshore profile may seriously undermine existing protection works in the short-term and that this undermining may go undetected by a casual, visual observation of the protection works from the shore,
- Encourage the design of buildings to be readily moveable by design,
- Evaluating the condition, effectiveness, and estimated residual design life of any existing protection works at the site (residual life should be determined based on suggested design life of new structures less the approximate age of the existing structure),
- Evaluating the condition, effectiveness, and estimated residual design life of adjacent protection works,
- Minimizing impacts to dynamic beach shores.

In accordance with PPS policy 5.2.3, SVCA will recommend that the following not be permitted for existing structures:

1. Additions to structures (footprint and square footage) within the floodway, stable slope allowance, and the dynamic beach hazard,
2. Accessory structures (including pools) within the floodway, stable slope allowance and the dynamic beach hazard, and
3. Replacement of structures destroyed by flooding and/or erosion.

3.7.1.14 Infrastructure, Stormwater Management, and Erosion and Sediment Control

Where infrastructure, stormwater management (SWM) and Erosion and Sediment Control is required as part of a *Planning Act* application and where proposals are in or partially within the SVCA's areas of interest, SVCA will review these plans for impacts to natural hazard features. Where SVCA / municipal service agreement exists, SVCA may provide technical review services on behalf of the planning authority. SVCA will recommend that planning applications associated with these types of structures, and the infrastructure itself, are consistent with all other policies contained in this document.

In addition to meeting SVCA's Plan Review and Input policies, any component of any development proposal that requires infrastructure services (storm, sanitary) that are situated within a SVCA Regulated Area require a permit under the SVCA's Regulation. SVCA's review of infrastructure, stormwater management, and erosion and sediment control plans must also conform to the policies and procedures associated with SVCA's Regulation permitting responsibilities in Section 4 of this document.

SVCA is committed to implementing watershed-based planning principles for natural hazard management outlined in this document. As such, for new multi-lot creation or large-scale development proposals, SVCA will recommend low impact development and green infrastructure be used when stormwater management is required.

Stormwater Management Ponds / Facilities in Natural Hazard Areas

SVCA will recommend that Stormwater Management (SWM) ponds and facilities be located outside of natural hazard areas. See Section 3.8.1.1.4 for SWM ponds proposed in floodplains.

Low Impact Development and Green Infrastructure

In accordance with the planning methodologies discussed in Sections 2.2 and 2.3, SVCA will recommend low impact development (LID) and green infrastructure be used for stormwater management when reviewing *Planning Act* applications for new development. Low Impact Development (LID) practices are increasingly being used to deal with problems related to urban stormwater runoff including erosion, sedimentation and pollution.

The traditional approach to dealing with stormwater has been to move it away from city streets as quickly and efficiently as possible. This results in large volumes of water entering watercourses at high velocities, carrying the pollutants picked up along the way and increasing flooding and erosion to receiving watercourses.

LID, by contrast, deals with stormwater by mimicking natural water cycles. It increases the infiltration of stormwater into the soil, where it can be filtered and/or absorbed by plants. LID is a lower-cost alternative to conventional grey infrastructure and provides several ecological, economic and social benefits.

The benefits of low impact development include:

- Improved water quality
- Improved groundwater recharge
- Reduced number of costly flooding events
- Reduced urban heat island effects
- Restored aquatic habitat
- Increased habitat for pollinators and other wildlife
- Enhanced neighborhood beauty

SVCA will recommend the following for new development:

1. All existing natural infrastructure / features contributing to stormwater and flood control should be maintained (i.e. wetlands, woodlands, natural watercourse buffers, etc.).
2. Upon pre-consultation for new development, SVCA staff will provide clients with stormwater management guidelines that include recommendations for LID and green infrastructure.

Erosion and Sediment Control

SVCA will recommend the implementation of erosion control at the source and supplementary treatment between the source and receiving watercourse; and further that sediment and erosion control measures be used on all construction sites to limit the effect of development on the surrounding environment and receiving drainage network.

3.7.1.15 Conservation or Restoration Projects and Passive Recreational Use

SVCA will recommend conservation or restoration projects, or passive recreational use associated with *Planning Act* applications within hazard lands only where it has been demonstrated to the satisfaction of SVCA that the control of flooding, erosion, dynamic beaches, and unstable soil and bedrock will not be negatively affected and where the proposed conforms to Section 4 of this document.

3.8 SVCA Hazard Specific Planning Policies

3.8.1 Riverine Flooding and Erosion Hazards

Below is a summary of riverine flooding and erosion hazards as defined by the Provincial Planning Statement and implementing technical guidelines. Section 4 of this document expands on these hazards from a regulatory position.

River and stream valleys perform important hydrological and ecological functions. River and stream valleys are shaped and re-shaped by the natural processes of erosion, slope stability, and flooding. Erosion and slope stability are related processes that are sometimes linked together. Erosion is the continued loss of earth material (i.e. soil or sediment) over time because of the influence of water or wind action. Slope stability, usually described in terms of the potential for slope failure, refers to a mass movement of earth material, or soil, sliding down a bank or slope face because of a single event in time.

The degree and frequency with which physical change will occur depends on the interaction of a number of interrelated factors including hydraulic flow, channel configuration, sediment load in the system, storage and recharge functions and the stability of banks, bed and adjacent slopes. The constant shaping and re-shaping of the river and stream systems by the physical processes can result in hazardous conditions that can pose a risk to life and result in property damage.

Erosion hazards pose a threat to life and property through the loss of land due to human or natural processes. The erosion hazard limit is determined using the 100-year erosion rate (the average annual rate of recession extended over a hundred-year time span), and includes allowances for toe erosion, meander belt, and slope stability. The erosion hazard component of the actual river and stream systems is intended to address both erosion potential of the actual river and stream bank as well as erosion or potential slope stability issues related to valley walls.

Flooding of river or stream systems typically occurs following a spring freshet and may occur because of extreme rainfall events. Rivers naturally accommodate flooding in their valleys. Historically, development occurred in floodplain areas because of the availability of water for power, transportation, energy, waste assimilation and domestic as well as industrial use. However, development within the floodplain is susceptible to flooding which can result in property damage and/or loss of life.

The exact limits of valleylands will be determined through site specific field investigations and technical reports (where required). These limits will be established and confirmed to the satisfaction of SVCA and the affected planning authority, as appropriate.

The limits of the flood hazard will be determined through SVCAs floodplain mapping program in accordance with established Provincial standards. Where floodplain limits for a watercourse are required and not available, the applicant (or agent) is responsible for carrying out and completing appropriate technical reports to the satisfaction of SVCA and the affected planning authority, as appropriate.

Where development proposals or *Planning Act* applications are within or close to valleylands, SVCA may require the submission of a Vegetation Plan, a Tree Preservation Plan and/or a Tree Management Plan for review and approval.

Where there are concerns with *Planning Act* applications on potentially unstable slopes, a study using accepted geotechnical principles, signed and stamped by a Qualified Engineer, may be required to

determine a safe setback from the top of bank (i.e. most slopes steeper than 3:1 are considered potentially unstable, slopes in sandy soil areas may be unstable if the slope is 5:1). Any such study would need to be reviewed and approved by SVCA.

Riverine Flooding: One Zone Floodplain Concept

Across the watershed, there are areas where SVCA applies a one-zone concept to floodplain management based on the regulatory flood standard, in accordance with Provincial standards. In a one-zone concept, the entire area within the flood hazard limit is one management unit. It is referred to as the floodway.

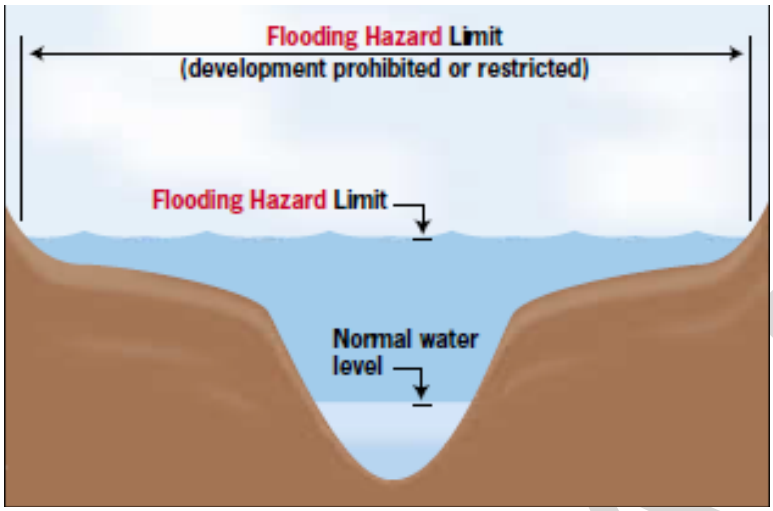


Figure 3-3 Riverine Flooding Hazard – One Zone Concept

The one-zone concept is the most restrictive but also the most effective way to manage flood hazards from a risk management perspective.

Riverine: Two-Zone Floodplain Concept:

As noted in Section 4, there are several areas across the watershed where two-zone provisions apply.

This concept identifies the floodway and the flood fringe. The floodway refers to that portion of the floodplain where development and site alteration would cause a threat to public health and safety and property damage. It is that portion of the floodplain required for the safe passage of flood flow and/or that area where flood depths and/or velocities are such that they pose a potential threat to life and property damage. The flood fringe lies between the floodway and the edge of the floodplain. Depths and velocities of flooding in the flood fringe are much less than those in the floodway. The flood fringe is the portion of the floodplain where development may be permitted subject to certain established standards and procedures.

The technical considerations used to determine the floodway-flood fringe delineation and the suitability of applying a Two-Zone policy are described in the Ministry of Natural Resources Technical Guide River and Stream Systems Flooding Hazard Limit (2002).

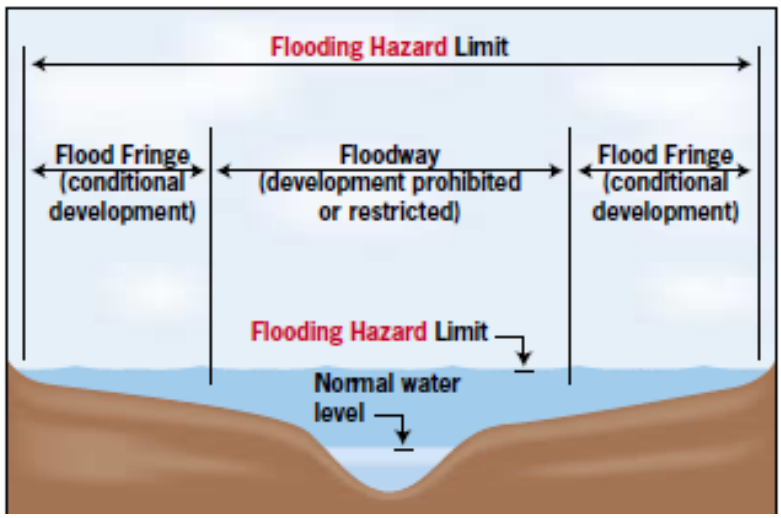


Figure 3-4 Riverine Flooding Hazard – Two Zone Concept

A Two-Zone Policy Area permits new development or redevelopment in the flood fringe provided that it is protected to the level of the Regulatory Flood and consistent with Two-Zone policies. A Two-Zone Policy Area may be considered where the SVCA, in cooperation with the municipality, after due consideration of local circumstances, agrees that application of the concept is suitable. The feasibility of a Two-Zone Policy Area requires the examination of several factors and implementation requires the assurance that various conditions will be complied with. Where the SVCA and the municipality agree to the use of a Two-Zone Policy Area, appropriate official plan designations and zoning must be put into place.

It is not the intention that a two-zone approach would apply across the watershed. A Two-Zone policy may be considered for new infill development in existing settlement areas. The two-zone concept is explained in more detail below.

The two-zone concept is not intended to be considered on a lot-by-lot basis, but on a sub watershed or major reach basis. A number of community related and technical criteria as outlined by the Province including local need, changes in land use, administrative capability, constraints to the provision of services, frequency of flooding, physical characteristics of the valley, impacts of proposed development (flood levels at the site, upstream, and downstream), feasibility of floodproofing, and ingress and egress are taken into consideration when determining whether or not to implement a Two-Zone Policy. Within the SVCA watershed, Silver Creek in Walkerton is one area where a modified Two-Zone Policy applies. Portions of the communities of Walkerton, Paisley, Teeswater, Neustadt, and Durham are located within Two-Zone floodplain policy areas.

3.8.1.1 Floodplain Lands Designation

SVCA will recommend that floodplain lands be placed in a separate designation with appropriate policies to reflect the Provincial Policy Statement, as amended. SVCA will recommend that floodplain lands be placed in an appropriate zone to recognize the hazard.

Floodplain Mitigation

SVCA will recommend that development and/or site alteration within the flood fringe be required to comply with the floodproofing requirements in Section 4.7, and the vehicular and pedestrian safe access requirements in Section 3.7.1.8.

Existing Development in the Floodplain

In addition to Section 3.7.1.13 of this document, SVCA will recommend approval of *Planning Act* applications where existing development occurs within the floodplain, provided the proposed development:

1. Is not located in a floodway,
2. Is floodproofed to the satisfaction of the SVCA,
3. Will not be subject to flows that could cause structural damage,
4. Will not affect flood flows,
5. Safe Access is provided in accordance with Section 3.7.1.8, and
6. Conforms to the policies outlined in Section 4.

Stormwater Management (SWM) Facilities in Floodplains

SVCA may support the location of SWM facilities in the floodplain if it can be demonstrated there is no feasible alternative location outside of the floodplain, in accordance with Section 3.7.1.14.1; and that, there is a net public benefit that will result. Encroachment of SWM facilities into the floodplain must be justified with a catchment scale assessment as part of a Catchment Strategy, Area Plan, Sub watershed Plan, Master Drainage Plan or *Environmental Assessment Act* process. This type of assessment provides the opportunity to evaluate the location and function of SWM facilities based on technical, environmental, economic, and social factors. The following principles will be considered when assessing proposals to locate SWM facilities in the flood plain:

1. The impact of the SWM facility on floodplain function (conveyance, flood storage etc.) and implications for other natural hazards,
2. The net ecological benefit of locating the SWM facility in the floodplain, and
3. Cultural benefits of locating the SWM facility in the floodplain. While cultural benefits are considered, the natural hazard implications are paramount.

3.9 Riverine Erosion Hazard Limit

The SVCA watershed features confined and unconfined river valley systems. The application of the erosion hazard limit for rivers and stream systems is based on two simplified landforms, confined and unconfined systems.

The limit of the river or stream valley is the furthest extent of the erosion hazard or flooding hazard plus an allowance. Section 4 identifies the approach taken to identify the erosion hazard and includes detailed information for both confined and unconfined valleylands.

Confined Systems

Those where the watercourse is located within a valley corridor, either with or without a floodplain, and is confined by valley walls. The watercourse may be located at the toe of the valley slope, in close proximity to the toe of the valley slope (less than 15 metres) or removed from the toe of the valley slope (more than 15 metres). The watercourse can contain perennial, intermittent or ephemeral flows and may range in channel configuration, from seepage and natural springs to detectable channels. The valley walls are clearly definable from the surrounding landscape, either by field investigations, aerial photography or map interpretation and the valley slopes are greater than or equal to 2 metres in height.

At a minimum, the limit of confined valleylands is determined by the methodology that is used to map confined valleylands, as described in Chapter 4.

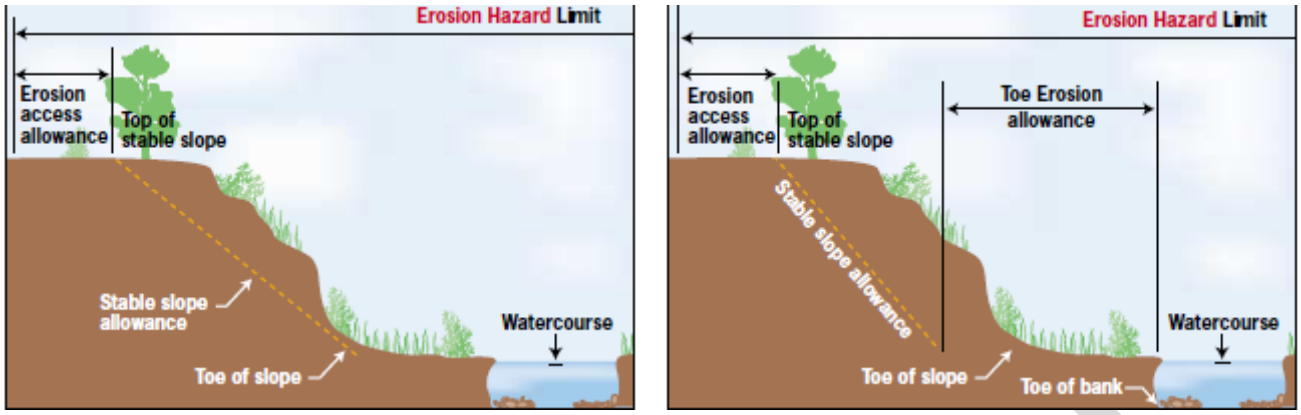


Figure 3-5 Confined River Valley Erosion Hazard Limit

Unconfined Systems

Those systems where the watercourse is not located within a valley corridor with discernable slopes, but relatively flat to gently rolling plains and is not confined by valley walls. The watercourse can contain perennial, intermittent or ephemeral flows and may range in channel configuration, from seepage and natural springs to detectable channels. Generally, these undefined features are found in flatter or gently rolling landscapes and may be described as headwater areas. In addition, unconfined valleylands include those features that exhibit the features or characteristics of defined valleylands, but the valley slopes are less than 2 metres in height.

The limit of an unconfined valleyland is determined by the greater of the riverine flood hazard or the riverine erosion hazard, as described in more detail in Chapter 4. Where topography does not define the valley form well, criteria based on flood lines or the meander belt width of a river system may be used. Valleys are dynamic and should be delineated based on the historic, current and likely future zone of geomorphic influences.

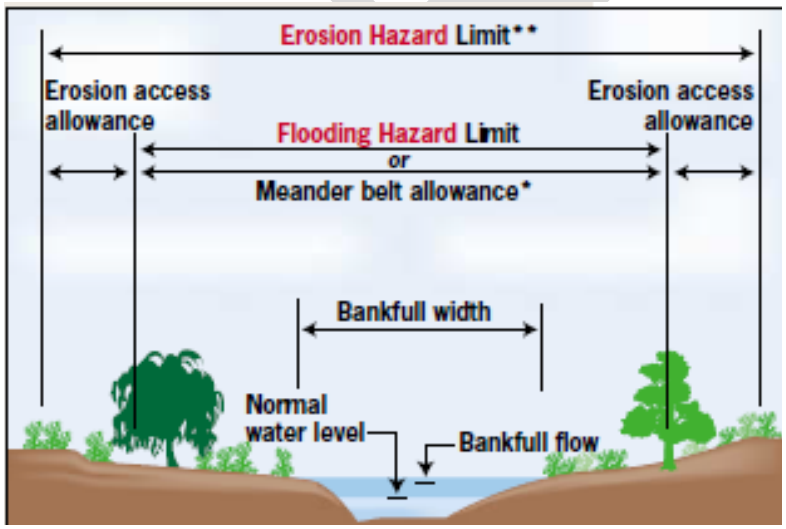


Figure 3-6 Unconfined River Valley Erosion Hazard Limit

Natural Features Maintained

SVCA will recommend that existing valleylands be maintained in their natural state.

Private and Public Infrastructure

SVCA will not recommend the encroachment of individual sewage disposal systems or public infrastructure (roads, sewers, flood and erosion control works) and various utilities (pipelines) into or through valleylands subject to flooding and erosion hazards unless it can be demonstrated that such works cannot be located outside of the valleylands. SVCA will recommend the location of private and public infrastructure within a valleyland only where the activity is being established under an approved Environmental Assessment and/or if it has been demonstrated to the satisfaction of SVCA that the infrastructure will be safe from the hazard and that the proposed conforms to policies contained in Sections 3.6.1 and 4 of this document.

Erosion Hazard Setbacks

SVCA will indicate to planning authorities that where safe setbacks are determined using a geotechnical study, the setback must be based on the natural state of the slope and not through the use of structures or devices to stabilize the slope.

Existing Development within the Erosion Hazard

Where permitted in accordance with the natural hazard policies of the Provincial Policy Statement, as amended, Section 3.7.1 and Section 4 policies of this document, SVCA will recommend that development and/or site alteration within the erosion hazard of a valleyland be required to comply with provincial standards for protection works and vehicular and pedestrian access requirements (See Section 3.7.1.8 above for SVCA safe access policies).

Valleyland Crossings

SVCA will recommend that valleyland crossings meet the following criteria:

- The crossings are proposed to be located in areas of low sensitivity,
- A satisfactory erosion and sediment control plan be submitted for approval,
- A site restoration plan is completed and submitted for approval,
- The number of crossings be kept to the minimum required for the proposed development,
- Crossings are located as close to perpendicular as possible to the valleyland or watercourse and are designed in a manner that is most sensitive to the characteristics of the valley,
- The design of valley crossings considers the sensitivity of flora and fauna and identifies mitigative measures, and
- The crossing does not create a new hazard or increase an existing hazard.

3.9.1.1 Lake Huron Shoreline Flooding and Erosion Hazard

Below is a summary of Lake Huron flooding and erosion hazards as defined by the Provincial Policy Statement and implementing technical guidelines. Section 4 of this document expands on these hazards from a regulatory position.

Shoreline Flooding Hazard Limit

The limit of flooding along the Lake Huron shoreline is defined as the 100-year flood level plus an allowance for wave uprush and other water related hazards (i.e. ice piling/jamming, ship-generated waves).

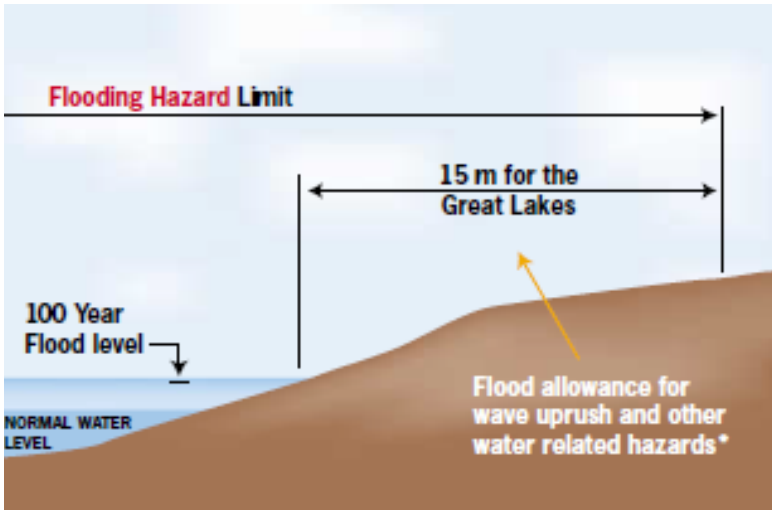


Figure 3-7 Lake Huron Shoreline Flooding Hazard Limit

Lake Huron Shoreline Erosion Hazard Limit

All shorelines are erosion-prone – even bedrock formations, if they are soft. The shoreline erosion hazard limit is determined using the 100-year erosion rate (the average annual rate of recession extended over a hundred-year time span), an allowance for slope stability, and an erosion allowance. When drawing the limits of erosion hazards, engineers consider three components:

1) Stable slope allowance: The suggested angle of a slope for stability is about three-to-one (horizontal: vertical), or approximately 18 degrees. The stable slope allowance is a horizontal allowance measured landward from the toe of the shoreline cliff, bluff or bank that is three times the height of the cliff, bluff or bank. The height is the difference in elevation between the toe of the shoreline cliff, bluff or bank, which may be above the surface of the water, or below it, and the top or first lakeward break in slope.
2) Average annual recession: The recession rate average for a site where there is at least 35 years of reliable recession information.
3) Erosion allowance: Where there is no reliable recession information, the province suggests a setback distance of 30 metres to allow for erosion along the Great Lakes-St. Lawrence River system.

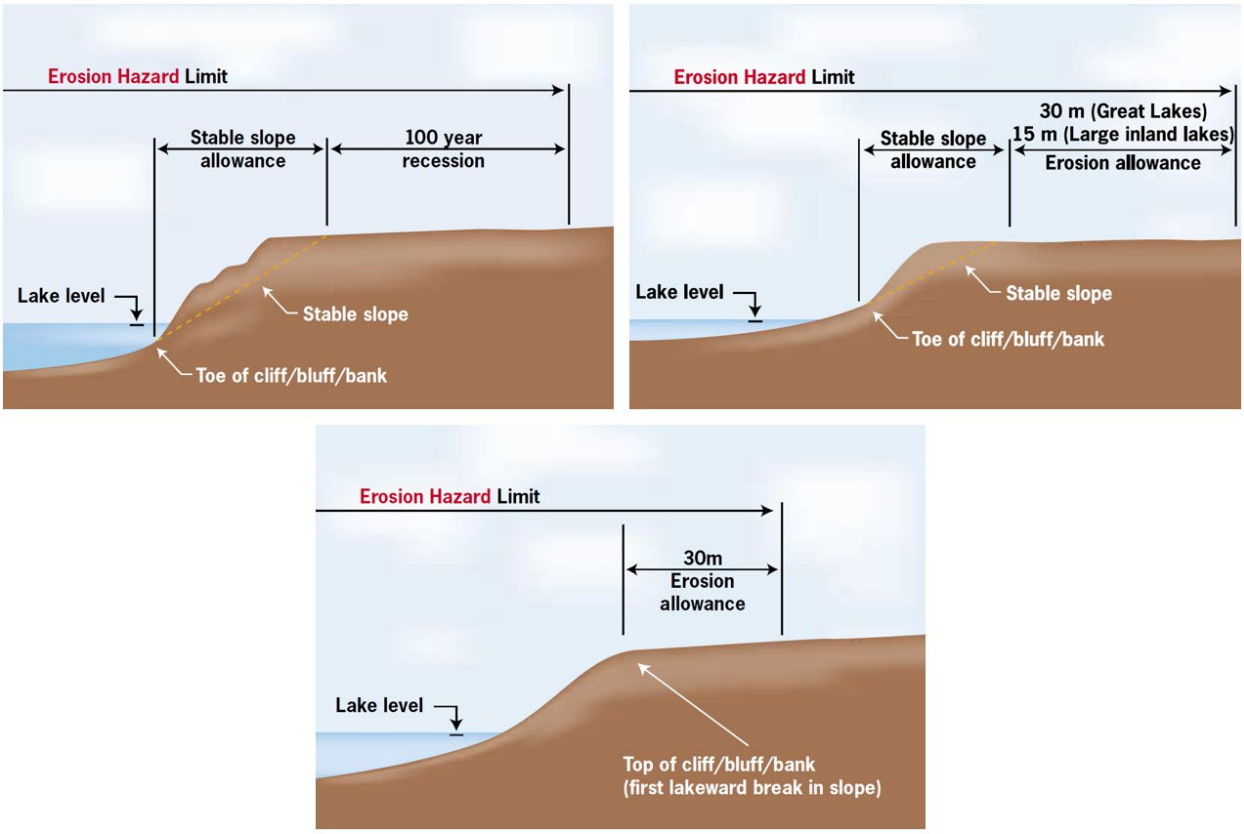


Figure 3-8 Lake Huron Erosion Hazard Limit

New Development, Private and Public Infrastructure, and Infilling

SVCA will not recommend new development, new infrastructure, and/or infilling within the flooding and erosion hazard limits along the shoreline of Lake Huron that would be contrary to the Provincial Planning Statement, as amended, or SVCA policies contained in this document.

3.9.1.2 Dynamic Beach Hazard

A dynamic beach moves and because the elevation of any point on the beach changes. It is not possible to define the hazard limit of a dynamic beach in terms of a single elevation, as can be for a stable shoreline.

To define a dynamic beach, the first step is to know where the flooding hazard limit is. The flooding hazard limit combines the 100-year flood elevation plus wave uprush. In dynamic beach areas, elevations can change quite dramatically from season to season and year to year due to build up and erosion of sand, cobbles and other beach deposits. When elevations change, so does the location of the flooding hazard limit. This is an especially important consideration, because in times of low lake levels, the near shore areas that have been submerged under normal or high lake levels are now exposed, subjected to accretion and erosion processes. It may seem that the landward extent of the dynamic beach has changed, thereby introducing potential for development or expansion of existing development.

Where an engineered study has not been undertaken, the dynamic beach hazard limit is the combined flooding hazard limit, (the 100-year flood level plus an allowance for wave uprush and other water related hazards), plus the dynamic beach allowance of 30 metres on Lake Huron. If the dynamic

beach is subject to erosion or is receding, the flooding hazard limit is added to the horizontal distance representing 100 times the average annual recession rate, plus dynamic beach allowance of 30 metres on Lake Huron.

SVCA may undertake a large-scale study or request a client to undertake a site specific study to determine the dynamic beach limit which would be based on the flooding hazard limit (the 100-year flood level plus an allowance for wave uprush and other water related hazards) plus Scientific and engineered dynamic beach allowance as determined by a valid study.

Within the SVCA watershed, an engineered Dynamic Beach Hazard assessment was undertaken between 2008 to 2010 along portions of the Huron-Kinloss shoreline. In 1996, there was an assessment completed for the Geographic Town of Southampton, which revised the 30-metre setback.

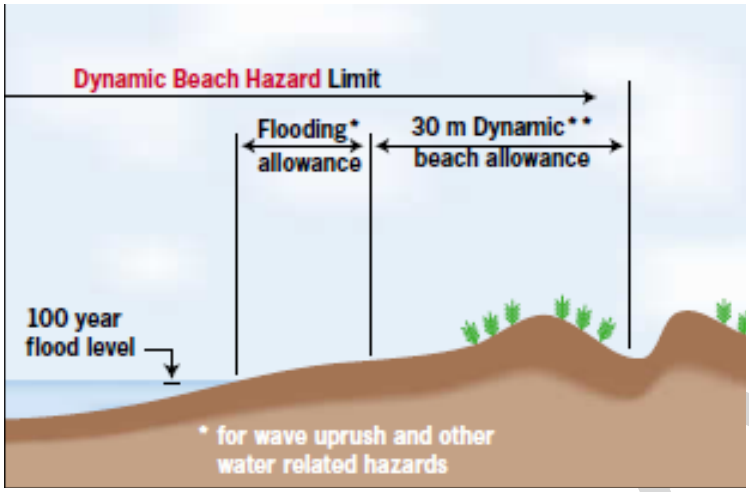


Figure 3-9 Dynamic Beach Hazard Limit

New Development, Private and Public Infrastructure, and Infilling

SVCA will not recommend new development, new infrastructure, and/or infilling within the dynamic beach hazard limits along the shoreline of Lake Huron that would be contrary to the Provincial Policy Statement, as amended, or SVCA policies contained in this document.

3.9.1.3 Hazardous Land Associated with Unstable Soil or Unstable Bedrock (Karst Bedrock)

Hazardous land associated with unstable soil or unstable bedrock includes, but is not limited to, sensitive marine clays, organic soils and karst topography. Within the watershed organic soils and karst-like topography can be found. Organic soils are normally formed by the decomposition of vegetative and other organic materials. A soil is organic when the percentage weight loss of the soil, when heated, is five to eighty percent. Peat soils are the most common, but not the only type of organic soil in Ontario. Karst topography may be present in limestone or dolomite bedrock and are extremely variable in nature. While there is karst topography within the SVCA watershed, precise locations are unknown, and it is largely not located at the surface.

Due to the specific nature of organic soils and karst topography it is difficult to accurately identify the location and extent of the hazard without undertaking site specific technical reports. In this regard, the potential for catastrophic failures in some areas of unstable soil and unstable bedrock require site specific studies to determine their characteristics and therefore the appropriate limits of the hazard.

Unstable Soil/Bedrock: Determination & Identification

The limits of hazardous land associated with unstable soil or unstable bedrock will be determined through site specific field investigations and technical reports where required, to the satisfaction of SVCA and the affected planning authority as appropriate.

New Development and Infilling

SVCA will recommend that new development and infilling occur outside of the boundaries of unstable soil or unstable bedrock.

Public Infrastructure

Where it can be demonstrated there is no feasible alternative for infrastructure to be located outside of the hazard lands, SVCA will only recommend public infrastructure (roads, sewers, flood and erosion control works) and various utilities (pipelines) within or adjacent to hazardous lands associated with unstable soil or bedrock, subject to the activity being permitted through an approved Environmental Assessment process and/or if it has been demonstrated to the satisfaction of SVCA that the infrastructure will be safe from the hazard, avoid negative impacts of the hazard, and that the proposed can be permitted in accordance with the policies contained in Chapter 4.

3.9.1.4 Wetlands

Wetlands are important natural features on the landscape, whether they are permanently or seasonally wet. Wetlands perform many significant ecological and hydrological functions and act as a natural defense against many different natural hazards. Specifically, wetlands play a critical role in:

- Flood and drought mitigation: Wetlands moderate water flow by absorbing much of the surface water runoff from the land and then slowly releasing it. This helps to reduce flooding and to sustain stream flows during dry spells.
- Carbon Sequestering / Carbon Sinks: Wetlands capture carbon dioxide from the atmosphere, making them nature's own solution to climate emergency. They store more carbon than any other ecosystem.
- Erosion Control: Coastal / shoreline wetlands are well known storm buffers, providing a natural shield against storm surges that can drastically erode shorelines.

- Improve water quality: Many wetland areas recharge groundwater by moving surface water into the groundwater system, while filtering pollutants.
- Biologically diverse ecosystems: Wetlands are earth's most productive ecosystems that support many plant, bird, fish, mammal and amphibian species.

In addition to the above benefits, wetlands are also a hazard to development due to being flood susceptible and containing unstable, organic soils.

Given the extraordinary benefits of wetlands and their hazard susceptibility to development, SVCA supports maintaining and enhancing existing wetlands within the watershed. This position conforms to SVCA's approach to watershed-based natural hazard management (Section 2.2) and our policies for preparing for a changing climate (Section 2.3). As such, SVCA will make the following policy recommendations regarding wetlands:

Wetlands Designation / Zoning

SVCA will recommend that wetlands be identified and protected from development and site alteration in Official Plans and Zoning By-laws.

Public Infrastructure

SVCA will not recommend the location of public infrastructure (roads, sewers, flood and erosion control works) and various utilities (pipelines) through wetlands unless it can be demonstrated that such works cannot be located outside of the wetland and only where the activity is being established under an approved Environmental Assessment and if it has been demonstrated to the satisfaction of SVCA that the infrastructure will be safe from wetland hazards and the proposed conforms to policies contained in Sections 3.7.1 and 4 of this document.

Conservation or Restoration Projects and Passive Recreational Use (low intensity outdoor recreation)

SVCA will recommend conservation or restoration projects or passive recreational use associated with *Planning Act* applications within a wetland only where it has been demonstrated to the satisfaction of SVCA that the control of flooding, erosion, dynamic beaches, or unstable soils or bedrock will not be negatively affected, and the interference on the natural features and hydrologic functions of the wetland has been deemed to be acceptable by SVCA and conforms to Sections 3.6.1 and 4 of this document.

Stormwater Management Facilities

SVCA will not recommend development, site alteration or the location of stormwater management facilities within a wetland.

Hydrologic Area of Interference Adjacent to Wetlands:

In accordance with provincial guidance used to implement PPS policies for development proposed within and adjacent to wetlands, the area of interference adjacent to a wetland has been established as 120 metres to Provincially Significant Wetlands and 30 metres adjacent to other wetlands. Most official plan policies require Environmental Impact Studies (EIS) for development within this area of interference. As part of the EIS or where no EIS has been required by the municipality, SVCA may require that a water balance study be undertaken to assess the hydrologic impact to a wetland. Where the hydrology/hydrogeology adjacent to a wetland is interfered with existing hazards could be aggravated or new hazards could be created. SVCA will not recommend development and/or site alteration within adjacent lands to any wetland unless the SVCA is satisfied that the development

would not aggravate existing hazards or create new hazards associated with the wetland.

3.10 Aggregate Resource Policies

SVCA will provide planning authorities within its watershed and the Ministry of Natural Resources (MNR) with natural hazard and natural resource information related to aggregate proposals. SVCA will also provide technical review assistance to watershed municipalities to assist in their decision-making responsibilities under the *Planning Act*.

3.11 Watercourses

Watercourses are dynamic systems that include complex processes constantly undergoing change. A watercourse is defined to include rivers, streams, lakes, creeks and drains and are further defined in the Glossary of Terms. The health of watercourses is integral to the health of a watershed as they provide key ecological functions and hydrologic functions such as fish habitat and habitat for wildlife, sediment and nutrient transport and deposition, transfer media for energy and organisms, source of water supply and important contributions to the hydrologic cycle.

The structure and functions of watercourses are influenced by channel morphology, sediment characteristics and the nature of the riparian vegetation. Each of these aspects is interrelated and as a result, impacts on one are likely to impact others. Changes to channel morphology reduce the ability of the watercourse to process sediment causing erosion and changing the amount or size of bed load being moved. Loss of riparian vegetation results in more pollutants and run-off being transferred from the land to the water, impacting water quality and flooding downstream reaches. In addition, loss of riparian vegetation or change to source of water supply can have impacts to the thermal regime of the watercourse. These changes degrade near shore and aquatic habitat and impair the watercourse for use by fish, wildlife, humans and other organisms.

Watercourse limits within the SVCA watershed will be determined through site specific field investigations and technical reports where required, to the satisfaction of SVCA and affected planning authorities, as appropriate.

3.11.1.1 Watercourse Alterations

Where a *Planning Act* application proposes development and site alteration within and adjacent to watercourses, SVCA will recommend the following:

1. That all watercourses and adjacent banks and valleys remain in their natural state and that base flow and velocity be maintained. SVCA will not recommend applications for development and/or site alteration that are within the existing channel of a watercourse, except in accordance with the policies in Section 4.
2. SVCA will not recommend proposals to realign or re-channelize significant portions of a natural watercourse to accommodate development unless such alterations have been proven to the satisfaction of the SVCA to control flooding and/or erosion or provide environmental enhancement. An erosion and sediment control plan must also accompany such a proposal and be found satisfactory to the Authority. The alteration must not adversely impact municipally owned properties (including road allowances) and privately-owned properties. Proposals to realign or re-channelize significant portions of a natural watercourse to accommodate development would not generally be found acceptable by the Authority.
3. Except for approved bridges and other watercourse crossings, the SVCA will not generally

permit the spanning of buildings or structures across valleylands or watercourses.

3.11.1.2 Buffer Policies

The SVCA shall encourage municipalities to place a 15-metre protective zoning on watercourses, this protective zoning or buffer should extend on each side of the watercourse.

For minor alterations, additions (additions that do not encroach on the watercourse) and replacements to existing development or where the development will not increase the existing footprint, it is recognized that the above-noted buffers may not be achievable. SVCA will encourage the achievement of maximum buffer wherever possible.

Greater buffer widths may be required for areas of sensitive soil conditions (i.e. high permeability, shallow depths, or extensive organics, peat, etc.), areas subject to the recommendations of sub watershed plans, where applicable.

3.11.1.3 Watercourse Crossings

The SVCA shall take the position that the buffer may be interrupted to allow watercourse crossings where required.

3.11.1.4 Recreational Trails

The SVCA shall take the position that recreational trails and paths may be allowed in buffer areas provided that:

1. There is a compensating buffer allowance added to the width of the buffer strip,
2. The trail/path does not come closer than 4 metres to the edge of the watercourse except for crossings, and
3. The trail/path does not impede the natural function of the valleylands; and trail design and construction are to be to the satisfaction of SVCA.

3.12 Natural Resource Systems

As has been referenced throughout this manual, SVCA advocates for an integrated approach to natural hazard planning and watershed management. The following policies support this approach:

3.12.1.1 Assessing Impacts to Natural Hazard and Natural Resource Systems

All development and site alteration will be assessed with regard to the potential impacts on natural hazards and natural resource systems. The assessment of the resource, the identification of the development limit and mitigation measures will be undertaken through the completion of comprehensive technical studies where required.

3.12.1.2 Cumulative Effect of Development

SVCA will recommend that studies to support development consider the implications of the affected planning area and should be based on logical natural boundaries or planning area boundaries. Studies completed at this scale can characterize the cumulative effects of development.

3.12.1.3 Site Specific Technical Studies

SVCA will take the approach that a site-specific study (a technical study for a specific property or group of properties) may be acceptable due to the scale of the development or the limited development area available. Although this type of study has a narrower scope than one that considers

the entire affected planning area, it must still address the broader natural hazard or natural resource systems of the area. It should be noted that due to its narrower scope, the site-specific study is less capable of assessing cumulative impacts on the system and as a result, the Authority will take a more precautionary approach when assessing the acceptability of impacts.

3.12.1.4 Comprehensive Studies

SVCA will work with watershed municipalities to identify the need for comprehensive studies on priority issues. Comprehensive studies based on logical management boundaries are required to support large scale urban expansions.

4. Administration of Ontario Regulation 41/24 and Related CA Act

Section 4 provides detailed information about the regulatory responsibilities assigned to SVCA with respect to the administration of Ontario Regulation 41/24: Prohibited Activities, Exemptions and Permits (referred to hereafter as "the Regulation"), and related sections of the *Conservation Authorities Act* (*CA Act*), including s. 28, s. 28.1, s. 28.1.1, s. 28.1.2, s. 28.2 - 28.5, s. 30.1 - 30.7, ss. 40(1)(g), and ss. 40(4).

Planning and Permit Applications

In some cases, there may be a need for coordination between planning applications (Section 3) and those under the Authority's Regulation and Permitting Program (Section 4). This can also be complicated by the fact that the two applications may be received years apart. Except where legislation or policies have changed, or where planning policies supported by the PPS, municipal official plans or the SVCA are more restrictive, the Authority will ensure that its position on a *Planning Act* application is the same as its position on a permit application for the same or similar proposal on the same property. The principal of development is determined through the review process under the *Planning Act*.

4.1 Purpose & Objectives of the Regulation

The purpose of *the Regulation* is not to necessarily restrict development, but rather to ensure that people are protected from risk and that properties are protected against natural hazards including flooding, erosion, unstable slopes and soils and dynamic beaches.

The objectives of *the Regulation* are to:

- Prevent loss of life because of flood or erosion hazards,
- Minimize property damage and social disruption resulting from flooding or erosion,
- Minimize public and private expenditure for emergency operations, evacuations, disaster relief and restoration,
- Prevent hazardous development within floodplains, flood and erosion areas and unstable soils and slopes which may in future require expensive protection measures,
- Ensure that development activity does not increase risks to upstream and downstream landowners,
- Prevent filling and/or draining of natural storage areas, and development that may limit floodplain storage capacity, increase flood elevations and/or decrease slope stability, and
- Prevent the interference with the hydrologic function of wetlands.

Regulating development in areas subject to natural hazards is frequently well understood, however, regulating development and works in wetland areas may not be. The reasons why conservation authorities have this responsibility results from the important role wetlands play in flood attenuation. Wetlands provide natural water storage and flood attenuation functions and can support efforts to minimize and reduce shoreline erosion. Filling and dredging wetland areas can result in a reduced capacity to retain water resulting in higher flows in connected watercourses with an increase in subsequent flooding and erosion. In addition, development in wetland areas could be at risk because

of unstable conditions including the presence of organic soil and a high-water table.

4.2 Administration of *the Regulation*

Conservation authorities regulate development and other works through a permitting process for the purposes of natural hazard management and prevention. Areas of focus include development in areas related to water-based natural hazards such as floodplains or shorelines. Under the Act and associated Regulations, conservation authorities must consider development applications based on the potential impacts to the control of flooding, erosion, dynamic beaches, or unstable soil or bedrock. In addition, conservation authorities are also concerned with interference with or alterations to a watercourse or wetland as well as public safety.

Permit decisions are based on the text of the *Conservation Authorities Act* (*CA Act*) and *the Regulation*. Conservation authorities find the direction in several documents including but not limited to the Policies and Procedures for Conservation Authority Plan Review and Permitting Activities, MNR's Natural Hazard Technical Guides, and applicable Conservation Authority (CA) approved policy or practice if these policies, practices and/or protocols are within the intent of the Act and *the Regulation*.

As is the case with all provincial legislation, unless specific reference is made to the Crown, the statute is non-binding on Federal Departments, Provincial Ministries, Crown Agencies or Corporations, unless a third party is undertaking the project. While most provincial government agencies voluntarily agree to comply with the requirements of all applicable law, it is important to note that the *CA Act* does not formally bind the Crown. *The Regulation* also does not:

- Limit the use of water for domestic or livestock purposes,
- Interfere with the rights or powers conferred upon a municipality in respect of the use of water for municipal purposes,
- Interfere with any rights or powers of any board or commission that is performing its functions for or on behalf of the Government of Ontario,
- Interfere with any rights or powers under the *Electricity Act* or the *Public Utilities Act*, and/or
- Apply to activities approved under the *Aggregate Resources Act*.

The Regulation and the *CA Act* outlines what and where the SVCA can regulate. The principal mandate of the Authority is to prevent the loss of life and property damage due to flooding and erosion, social disruption and to conserve and enhance natural resources. *The Regulation* is a key tool in fulfilling this mandate because it directs development in areas where the control of flooding, erosion, dynamic beaches or unstable soils or bedrock may be negatively affected by development, or where public safety could be put at risk.

SVCA recognizes that sustainable management of the watershed requires the engagement of landowners and organized partners and stakeholders. SVCA will work with clients and partners to continue to promote on-the-ground action and will continue to recognize that the wise use and management of the watershed depends on shared ownership and collective action.

4.2.1 Important Definitions and Areas

One of the most critical things to understand regarding the scope of the Conservation Authority's (CA's) jurisdiction is that the definition of 'development activity' under *the Regulation* is different than the definition that is provided for 'development' under the *Planning Act*. Under the *Planning Act* (discussed in Section 3), development is defined as approval and designation activities that occurs on the land base and not on the ground works (site grading, construction, etc.). This is not the case under *the Regulation* where the definition of development activity is much broader and includes buildings and structures under construction and works such as the temporary or permanent placement, dumping or removal of any material originating on the site or elsewhere as well as site grading. This broader definition of development activity under *the Regulation* and *CA Act* enables CAs to regulate active or recent site works that occur on the land base. 'Development activity' and other important definitions under Ontario Regulation 41/24 ("*the Regulation*") include:

Development Activity means,

a. the construction, reconstruction, erection or placing of a building or structure of any kind,
b. any change to a building or structure that would have the effect of altering the use or potential use of the building or structure, increasing the size of the building or structure or increasing the number of dwelling units in the building or structure,
c. site grading, or
d. the temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere.

Hazardous Land means land that could be unsafe for development because of naturally occurring processes associated with flooding, erosion, dynamic beaches or unstable soil or bedrock.

Watercourse means a defined channel, having a bed and banks or sides, in which a flow of water regularly or continuously occurs[1]

Wetland means land that:

a. is seasonally or permanently covered by shallow water or has a water table close to or at its surface,
b. directly contributes to the hydrological function of watershed through connection with a surface watercourse;
c. has hydric soils, the formation of which has been caused by the presence of abundant water, and
d. has vegetation dominated by hydrophytic plants or water tolerant plants, the dominance of which has been favoured by the presence of abundant water;

but does not include periodically soaked or wet land that is used for agricultural purposes and no longer exhibits a wetland characteristic referred to in clause (c) or (d).

The *CA Act* and *the Regulation* do not define "interfere" or "interference", nor has any definition been found in any other technical guide or planning document; hence, the interpretation below was developed by the Ministry of Natural Resources and Conservation Ontario in 2008. Under *the*

[1] Open Municipal drains, by their very nature, usually meet this definition and usually qualify as a *watercourse*

Regulation, "interference" only applies to projects within watercourses and wetlands.

"*Interference*" or "*interfere*" is interpreted as any anthropogenic act or instance which hinders, disrupts, degrades or impedes in any way the natural features or hydrologic functions of a wetland or watercourse. The common uses of words in this interpretation are:

- Hinder: to delay or impede
- Disrupt: to interrupt or disturb (an activity or process)
- Degrade: to lower the character or quality of
- Impede: to delay or block the progress or action of

Regulated Activities and Areas

The *CA Act* and *the Regulation* enable SVCA to regulate:

1. Activities to straighten, change, divert or *interfere* in any way with the existing channel of a river, creek, stream or *watercourse*, shoreline, or to change or *interfere* in any way with a *wetland*; and
2. Development activities within:

a. *hazardous lands*;

b. *wetlands*, as defined above, and includes swamps, marshes, bogs and fens;

c. river or stream valleys that have depressional features associated with a river or stream, whether or not they contain a *watercourse*; and

d. the Lake Huron shoreline.

Development and Alteration Activities

To improve the readability of this manual, the term '*development and alteration activities*' will be used when referring to 'development activities' and 'activities to straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream or watercourse, shoreline, or to change or interfere in any way with a wetland'.

The Regulation requires CAs to regulate setbacks or buffers associated with the features listed above, including 15 metres from flooding, erosion and dynamic beach hazards, and 30 metres from wetlands. A not-to-scale cross section through a typical regulated area is shown in **Figure 4-1** for reference.

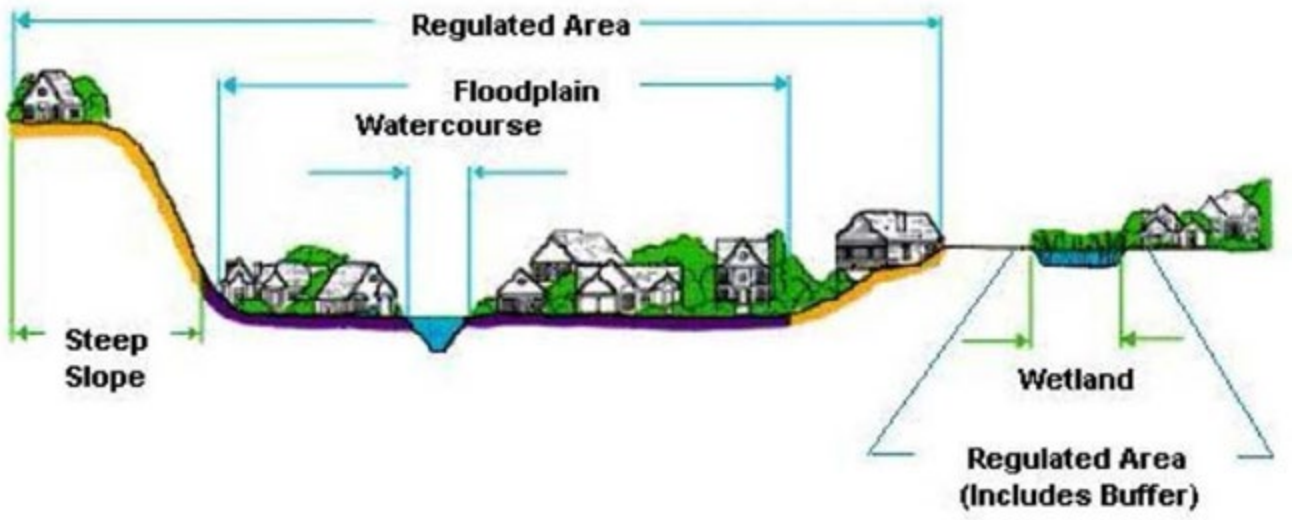


Figure 4- 1 Cross Section through a typical regulated area

Please note that for wetlands, the regulated area includes "Other Areas" where development and alteration activities could interfere with the hydrologic function of a wetland and may include an area of interference.

4.2.2 Approximate Regulation Mapping

The Regulation requires all CAs to create maps depicting the areas within their jurisdiction where development and alteration activities are regulated. SVCA's Regulation screening mapping is available digitally on the SVCA website and has been provided to counties within the SVCA jurisdiction for inclusion in their online mapping programs.

As the Regulation is 'text based', regardless of mapping, all proponents as well as the SVCA are required to consider the applicability of the Regulation given the features present or near the proposed works site. The Regulation applies even when these features are not included within the mapping.

In case of a conflict regarding the boundaries of the areas where development activities are prohibited, the description of those areas in the text of the Regulation and the *CA Act* prevail over the depiction of the areas in the maps.

4.3 Permit Applications

The Regulation provides requirements for permit applications and related pre-submission consultation, review timelines, and validity periods. An application to undertake a *development or alteration activity* within a regulated area must include sufficient information for SVCA staff to understand the proposal and determine whether it addresses the policies in this manual. Pre-submission consultation is a key step in this process, as it allows the applicant and staff to discuss a proposal, review the site of the proposed works, discuss alternatives if necessary, and confirm the application requirements before an application is submitted.

4.3.1 Pre-submission Consultation

Pre-submission consultation is the process where a landowner or their agent share information about their proposed *development or alteration activity* with SVCA staff before they apply for a permit. While the SVCA Permit Application form contains a checklist of the general requirements for a permit

application (see Appendix B), the pre-submission consultation refines these requirements based on the specific proposal. Section 6 of *the Regulation* addresses pre-submission consultation:

6. (1) Prior to submitting an application for a permit under section 28.1 of the Act, the authority and the applicant may engage in pre-submission consultation for the purposes of confirming the requirements of a complete application to obtain a permit for the activity in question, which may include,

(a) requests by the authority to the applicant for,

(i) initial information on the proposed activity such as a description of the project and any associated plans; or

(ii) details about the property upon which the activities are proposed to be carried out, including copies of plans, maps or surveys; or

(b) meetings between the authority and the applicant prior to the submission of an application, including any site visits to the property where the activities are proposed to be carried out.

(2) If the applicant requests a pre-submission consultation under subsection (1), the authority is required to engage in the pre-submission consultation.

SVCA staff initiate the pre-submission consultation process after collecting basic information from an applicant about their proposal.

4.3.2 Processing of Applications

All applications, as a first step, are reviewed to determine if they conform to the policies set out in Section 4 of this document. SVCA staff may request revisions to plans or reports submitted as part of an application. This is a normal part of the review process and applicants are encouraged to consult with SVCA staff as reports and plans are prepared to make the most efficient use of time involved in the design and review process. If, in the opinion of SVCA staff, a complete application does not conform, the applicant will be advised of options that may be pursued to either bring the application into conformity or of steps that can be taken to seek a formal hearing before the SVCA Authority Members.

SVCA staff may also contact other review agencies to discuss the proposed project, however, it is the proponent's responsibility to obtain all other necessary approvals from federal, provincial, and municipal authorities.

4.3.3 Permit Application Requirements

The submission of a complete application is a critical component for the SVCA to review an application and provide timely feedback and approvals (where appropriate). The regulation outlines the minimum requirements for an application, which are listed below. SVCA staff confirms all requirements with applicants through the Pre-Submission Consultation process.

The CA is responsible for determining when an application is deemed complete, and this determination initiates the timelines and appeal processes as outlined in the *CA Act*. Therefore, clear and detailed policies or guidelines are critical technical and communication tools for CAs and applicants.

The minimum requirements for a complete application as outlined in O. Reg 41/24 s. 7, includes content of the application and specific timelines for notifications to the applicant:

7. (1) An application for a permit under section 28.1 of the Act shall be submitted to the authority and

shall include,

a. a plan of the area showing the type and location of the proposed development activity or a plan of the area showing plan view and cross-section details of an activity to straighten, change, divert or interfere with the existing channel of a river, creek, stream watercourse, or change or interfere with a wetland,

b. the proposed use of any buildings and structures following completion of the development activity or a statement of the purpose of an activity to straighten, change, divert or interfere with the existing channel of a river, creek, stream or watercourse or to change or interfere with a wetland,

c. the start and completion dates of the development activity or other activity,

d. a description of the methods to be used in carrying out an activity to straighten, change, divert or interfere with the existing channel of a river, creek, stream or watercourse, or change or interfere with a wetland,

e. the elevations of existing buildings, if any, and grades and the proposed elevations of any buildings and grades after the development activity or other activity,

f. drainage details before and after the development activity or other activity,

g. a complete description of any type of fill proposed to be placed or dumped,

h. a confirmation of authorization for the proposed development activity or other activity given by the owner of the subject property, if the applicant is not the owner, and

i. any other technical information, studies or plans that the authority requests including information requested during pre-submission consultations between the authority and the applicant.

(2) Upon receipt of the information required under subsection (1) and payment by the applicant of the fee charged by the authority under subsection 21.2 (4) of the Act, the authority shall notify the applicant in writing, within 21 days, whether or not the application complies with subsection 28.1 (3) of the Act and is deemed to be a complete application.

(3) If the authority notifies an applicant under subsection (2) that the application is complete, the authority shall not require new studies, technical information or plans under clause (1) (i) from the applicant to make a determination on the application, unless agreed to by the authority and the applicant. For greater certainty, the authority may ask the applicant for clarification or further details regarding any matter related to the application.

The determination and communication of a complete application starts the timeline for SVCA's decision on the application and any appeals that may be considered by the applicant. It is common that the process for reviewing an application and applicable studies and plans is an iterative process between the applicant and the SVCA. This process includes the need to clarify technical information, address any information that may be missing in the submission, correction of errors etc. SVCA may consider conducting a site visit as part of the pre-submission requirements to ensure that all natural hazards are identified on the site.

4.3.4 Application Fees

Fees for the processing of applications are set by the SVCA Board of Directors and must be paid at the time of submission. Fees are non-refundable and are to be paid prior to issuance of the permit. The

fee schedule is updated annually and available on the SVCA website (https://www.saugeenconservation.ca/en/about-us/fees.aspx#Planning-and-Regulations-Fee-Schedule). Effective April 1, 2024, the *CA Act* was updated to allow for the reconsideration of fees for permit applications in accordance with the following:

21.2 (13) If an authority receives a request for reconsideration of a fee charged for an application for a permit made under subsection 28.1 (2), the authority shall make its decision within 30 days after receiving the request. 2020, c. 36, Sched. 6, s. 10.

(14) If an authority fails to reconsider a fee described in subsection (13) within 30 days of receiving the request for reconsideration, the person who made the request may appeal the amount of the fee directly to the Ontario Land Tribunal. 2020, c. 36, Sched. 6, s. 10; 2021, c. 4, Sched. 6, s. 39 (1).

(15) If, after reconsideration of a fee charged for an application for a permit made under subsection 28.1 (2), an authority orders a person to pay the fee under clause (12) (a) or (b), the person shall pay the fee in accordance with the order. 2020, c. 36, Sched. 6, s. 10.

(16) A person who pays a fee under subsection (15) may,

(a) when paying the fee, indicate to the authority in writing that the fee is being paid under protest; and

(b) within 30 days after payment of the fee, appeal the amount charged by the authority upon reconsideration to the Ontario Land Tribunal. 2020, c. 36, Sched. 6, s. 10; 2021, c. 4, Sched. 6, s. 39 (1).

(17) For greater certainty, an appeal of the amount of a fee under subsection (14) or clause (16) (b) applies even if the amount charged was set out in the fee schedule prepared by the authority under subsection (6). 2020, c. 36, Sched. 6, s. 10.

(18) The Ontario Land Tribunal shall hear an appeal made under subsection (14) or clause (16) (b). 2020, c. 36, Sched. 6, s. 10; 2021, c. 4, Sched. 6, s. 39 (1).

(19) After hearing the appeal, Ontario Land Tribunal may,

(a) dismiss the appeal;

(b) vary the amount of the fee charged by the authority; or

(c) order that no fee be charged. 2020, c. 36, Sched. 6, s. 10; 2021, c. 4, Sched. 6, s. 39 (1).

(20) If the Ontario Land Tribunal makes an order under clause (19) (b) or (c), it may order that the authority provide a refund to the appellant in such amount as the Tribunal determines. 2020, c. 36, Sched. 6, s. 10; 2021, c. 4, Sched. 6, s. 39 (1)

(21) Despite subsection (19), the Ontario Land Tribunal shall dismiss the appeal if it determines that the fee complies with a regulation made under clause 40 (3) (b). 2020, c. 36, Sched. 6, s. 10; 2021, c. 4, Sched. 6, s. 39 (1).

4.3.5 Approval of the Permit

Saugeen Valley Conservation Authority has established types/classes of applications where approval has been delegated to staff.

Applications that conform to the policies set out in Section 4 will be recommended for approval, along with any conditions, and submitted to the General Manager/Secretary Treasurer of the Saugeen Valley Conservation Authority or designate for authorization and permit issuance under Ontario

Regulation 41/24 and the *CA Act*.

The General Manager/Secretary Treasurer or designate may refer applications to the Saugeen Valley Conservation Authority Board of Directors for review and ruling if deemed warranted by SVCA staff or the applicant.

In all cases, any approval is only valid upon issuance of a permit on the prescribed form, signed by the General Manager/Secretary Treasurer or designate.

Any proposed amendments to the approval will require review and approval and may be subject to additional fees.

4.3.6 Conditions of the Permit

SVCA may apply conditions of approval to a permit. These conditions must be completed to the satisfaction of SVCA. Generally, the decision to issue permits under Section 28.1 of the *Conservation Authorities Act* is based on several considerations, including: the Act and the accompanying regulations, the proposed works (activities and timing), current site conditions and alignment with current applicable Board-approved policies or guidelines.

The regulation includes the following requirements for conditions that are requirements of a permit from the CA:

9. (1) An authority may attach conditions on a permit issued under section 28.1 only if, in the opinion of the authority, the conditions,

(a) assist in preventing or mitigating any effects on the control of flooding, erosion, dynamic beaches or unstable soil or bedrock.

(b) assist in preventing or mitigating any effects on human health or safety or any damage or destruction of property in the event of a natural hazard; or

(c) support the administration or implementation of the permit, including conditions related to reporting and notification, monitoring and compliance with the permit.

4.3.7 Application Review Timelines and Appeals

Once a permit application is received that includes the information required, SVCA will notify the applicant within 21 days whether the application is deemed to be a complete application. If SVCA does not meet this timeline, or if the applicant does not agree with the complete application requirements, the applicant may request an Administrative Review by the SVCA General Manager, as outlined in the Administrative Review Policies in Appendix C.

When an application is deemed to be complete, SVCA shall, within 90 days, issue a permit or provide the reasons why a permit cannot be issued. If SVCA fails to give the applicant notice of a decision with respect to the application within 90 days, the applicant may appeal the application directly to the Ontario Land Tribunal as per S. 28.1 (22) of the *CA Act*.

If, in the opinion of SVCA staff, an application does not conform to policy or it does not satisfy technical requirements, or if the applicant does not agree with any recommended condition of permit approval, the application may be recommended for refusal. In such a case, the applicant may request a hearing before the Saugeen Valley Conservation Authority Members. Hearing Guidelines are provided in Appendix D.

An applicant who has been refused permission or is not in agreement with conditions of an approval may, within thirty 30 days of the receipt of the reasons for the decision, appeal to the Minister of

Natural Resources, care of the Ontario Lands Tribunal, who may dismiss the appeal or grant permission.

4.3.7.1 Emergency Works

The *Emergency Management and Civil Protection Act* defines an emergency as "a situation or an impending situation that constitutes a danger of major proportions that could result in serious harm to persons or substantial damage to property and that is caused by the forces of nature…an accident or an act whether intentional or otherwise". From a Section 28.1 perspective, this typically refers to unexpected and/or imminent (immediate) situation(s) that might jeopardize the health or safety of persons or result in injury or loss of life, or damage or destruction of property.

It is acknowledged that all Conservation Authorities will work with applicants to expedite emergency approvals. Depending upon the severity of the situation, this interim approval could be done by electronic communications e.g., email.

4.3.8 Permit Expiration and Extensions

Permits are typically valid for one or two years, depending on the nature of the proposal and needs of the applicant. In special circumstances permits with validity periods that exceed two years can be issued by SVCA, up to a maximum period of 5 years, depending on the complexity of the project e.g., large-scale public infrastructure, and consideration for limited construction windows due to other agency seasonal criteria, multiple agencies permit, etc.

Requests for an extension, provided that the scope of work remains unchanged from the original application and any ongoing activities are in compliance with the original approval or will be brought into compliance within the requested extension period. The request must be made in writing prior to the expiration date of the original permit and is subject to a fee.

Section 11 of *the Regulation* addresses the period of validity of permits and extensions:

11. (1) The maximum period of validity of a permit issued under sections 28.1, 28.1.1 and 28.1.2 of the Act, including any extension, is 60 months.

(2) If a permit is issued for less than the maximum period of validity, the holder of a permit may, at least 60 days before the expiry of the permit, submit an application for an extension of the permit to,

(a) the authority that issued the permit, in the case of permits issued under section 28.1 or 28.1.2 of the Act; or

(b) the Minister, in the case of permits issued under section 28.1.1 of the Act.

(3) An authority or the Minister, as the case may be, may approve an extension of the period of validity of a permit that was issued for a period of less than 60 months but the total period of validity of the permit, including the extension, shall not exceed 60 months.

(4) If an authority intends to refuse a request for an extension, the authority shall give notice of intent to refuse to the holder of the permit, indicating that the extension will be refused unless the holder requests a hearing under subsection (5).

(5) Within 15 days of receiving a notice of intent to refuse a request for an extension, the holder of the permit may submit a written request for a hearing to the authority.

(6) If a request for hearing is submitted under subsection (5), the authority shall hold the hearing within a reasonable time and shall give the holder at least five days notice of the date of the hearing.

(7) After holding a hearing under subsection (6), the authority may,

(a) confirm the refusal of the extension; or

(b) grant an extension for such period of time as it deems appropriate, as long as the total period of validity of the permit does not exceed the applicable maximum period specified in subsection (1).

4.3.9 Compliance with Permits and Violations

A violation of *the Regulation* or related sections of the *Conservation Authorities Act* (*CA Act*) has occurred when *development and alteration activities* are undertaken within a Regulated Area in one of two ways*:*

- contrary to the terms and/or conditions stipulated in a *CA Act* permit, or
- without written permission associated with the *CA Act*.

An SVCA permit may be revoked by the Board of Directors if the permit or permit conditions are not adhered to.

Any initiators of unauthorized works that contravene the *Regulation* will be requested to halt the works immediately upon the SVCA confirming the works are of interest to the SVCA and becoming aware of the works. The landowner and/or individuals involved with unauthorized works may be unaware that permission is required from the SVCA. However, this does not absolve the landowner and/or individuals involved from obtaining permission. Works that proceed without the proponent or their agent obtaining any permission required under the *Regulation* may result in charges being laid pursuant to the *Regulation* the *CA Act*.

Normally a "Notice of Violation" will be sent to the landowner, their agent and/or the contractor. This notice will advise that the subject area is regulated, describe the development or alteration activity, advise that activities observed require permission and will request that work cease, and the respective parties contact SVCA to discuss options for resolution of the matter.

Should the violator not contact the Authority within the specified time period, legal action may be pursued under the *CA Act*.

Once contacted, SVCA will subsequently review the violation in more detail and notify the offender(s) by registered mail with an option(s)/recommendation(s) for resolution of the matter. It may be necessary to obtain additional information/details of the violation before options for resolution of the matter can be provided. In this case, specific information will be requested from the offender, by registered mail.

If the violation is contrary to the policies in Section 4 of this manual, the offender(s) will be requested to remove the works and restore the site to its original condition (i.e. prior to the works being undertaken). If the offender(s) choose not to remove the violation, SVCA may elect to pursue legal action under the *CA Act*.

The offender may not apply for a permit for approval of the works but is recommended to work with the SVCA to resolve the issue. If proposal is in, or brought into, conformity with the policies outlined in Section 4 of this document the SVCA will indicate that the item is resolved. The Authority will work with the owner to ensure that the works meet all the criteria for approval outlined in the appropriate sections of this procedure document. Permit application review fees apply, though they are doubled.

SVCA will work to resolve violations within two (2) years unless the works are too severe and/or the landowner is not cooperative. If the matter is not resolved the SVCA may pursue legal action. This will

allow for ample time for court preparation, if required. This deadline will be made clear to the violator(s) at the onset of negotiations.

The provisions of the *CA Act* and the *Provincial Offences Act* direct SVCA staff when investigating a violation. It is normal that in addition to any penalty levied by the court upon conviction, SVCA will seek an order for rehabilitation of the site and/or removal of any buildings and/or structures ruled in contravention of the *Regulation* and the Act.

If convicted, an individual who commits an offence may be subject to a fine of not more than $50,000 or to a term of imprisonment of not more than three months, or to both, and to an additional fine of not more than $10,000 for each day or part of a day on which the offence occurs or continues. A Corporation that commits an offence may be subject to a fine of not more than $1,000,000 and to an additional fine of not more than $200,000 for each day or part of a day on which the offence occurs or continues (*CA Act* s. 28, ss. 30.5(2)). In addition, if convicted, the *development or alteration activity* may be required to be removed at the expense of the landowner. The landowner may also be required to rehabilitate the impacted area in a manner prescribed by the courts (*CA Act* s. 28, ss. 30.7).

Violations are not eligible for the administrative options afforded to proposals, such as Administrative Reviews, Hearings, and Permits. Instead, violations that are in conformity with the policies outlined in this document are eligible for compliance approvals. In instances where projects include multiple components, only those components that commenced without permission will be subject to the compliance approval process. Works that have not yet begun will follow the permit application process.

4.3.10 Other Terms and Conditions

Permission granted by SVCA cannot be changed or transferred.

Approvals, permits, etc., may be required from other agencies prior to undertaking the work proposed. SVCA's permission does not exempt the applicant from complying with any or all other approvals, laws, statutes, ordinance, directives, regulations, by-laws, etc., that may affect the property or the use of same.

SVCA may, at any time, withdraw any permission given if, in its opinion, the representations contained in the application for permission are not carried out or the conditions of the permit are not complied with.

4.4 General Policies

4.4.1 Implementation/Interpretation

SVCA will be guided by the following general administrative guidance with respect to the implementation of its regulatory responsibilities:

4.4.1.1 General Administrative Activities Policies

a. All *development and alteration activities* taking place in a Regulated Area require SVCA permission unless exempted under **Section 4.5.1** of this manual,

b. Where regulated lands contain more than one regulated feature (e.g. lands susceptible to flooding that are also part of a wetland), policies will be applied jointly, and where applicable, the more restrictive policies will apply,

c. Information regarding technical criteria, evaluation, and guidelines are contained within the

Appendices attached hereto. It is important to note that the Appendices must be read in conjunction with this manual, and

d. When policies support *development activities* within a hazard, it must first be demonstrated to the Authority's satisfaction that the *development activities* cannot be relocated to an area outside the hazard, that there is no feasible alternative site, and that it is in an area of least (and acceptable) risk.

Each application will be evaluated on its own merits, on a case-by-case basis, consistent with the policies in this manual.

Is Your Project in a Regulated Area?

People who are contemplating 'development or alteration activities' are encouraged to contact SVCA to determine if their property falls within a Regulated Area prior to the commencement of any on-site work. If applicable, SVCA staff will advise of the permit application process and are available to provide additional information and assistance.

In addition to obtaining a permit from SVCA, other permits may be required from other federal, provincial or municipal bodies in conjunction with a development proposal.

4.4.2 Prohibiting or Regulating Development and Alteration Activities

The specific policies listed in Sections 4.6 to 4.12 of this manual outline when permission will be granted for *development and alteration activities* within areas defined by *the Regulation* (the 'Regulated Area'), and under what conditions. Where an activity is not addressed in the specific policies, the following general policies will apply:

4.4.2.1 Prohibiting or Regulating Development and Alteration Activities

Development and alteration activities will generally not be permitted by SVCA within a Regulated Area, except in accordance with the policies in Section 4 of this manual.

4.4.2.2 Prohibiting or Regulating Development and Alteration Activities

For SVCA to permit d*evelopment and alteration activities* within a Regulated Area, it must be demonstrated to the Authority's satisfaction that:

a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock ('the tests of the Regulation'), when undertaken or afterwards,

b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property,

c. grading (e.g. placing and removing fill) is minimized and maintains stage-storage discharge relationships and floodplain flow regimes for a range of rainfall events, including the Regulatory Storm (Hurricane Hazel Flood Event Standard),

d. there are no negative or adverse hydrologic impacts on wetlands,

e. sedimentation and erosion during construction and post construction is minimized using best management practices including site, landscape, infrastructure and/or facility design (whichever is applicable based on the scale and scope of the project), construction controls,

and appropriate remedial measures,

f. intrusions on hydrologic functions are avoided, and no adverse impacts to hydrologic functions will occur,

g. groundwater discharge areas which support hydrologic functions on-site and adjacent to the site are avoided,

h. groundwater recharge areas which support significant natural features or hydrologic functions on-site and adjacent to the site will be maintained or enhanced,

i. access for emergency works and maintenance of flood or erosion control works is available,

j. works are constructed, repaired and/or maintained according to accepted engineering principles and approved engineering standards or to the satisfaction of the SVCA, whichever is applicable based on the scale and scope of the project,

k. if required, technical studies and/or assessments, site plans and/or other plans submitted as part of a permit application must be completed by a qualified professional to the satisfaction of the SVCA and, where available, in keeping with the most current technical guidelines approved by the SVCA, and

l. any other requirements that may be prescribed by the regulations are met.

4.5 Exemptions from *the Regulation* – No Permission Required

There are several instances where permission from SVCA is not required for development and alteration activities within a Regulated Area. Section 5 of *the Regulation* can be referenced for the legislated exemptions that are listed in detail below, with other SVCA-specific exemptions.

4.5.1 Exempt Development and Alteration Activities

The following *development and alteration activities* do not require permission from SVCA, subject to the listed conditions. The applicant is responsible for obtaining approvals from other agencies where necessary.

4.5.1.1 Agricultural Activities - Exempt

Non-structural agricultural activities

are exempt, such as cropping and pasturing within existing agricultural fields and woodlot management (selective timber harvesting with no permanent watercourse crossings, permanent landing areas, etc.).

The installation of new agricultural drainage tile is exempt where:

a. it is not within a wetland or watercourse, within 30 metres of a wetland or within 15 metres of a watercourse, and

b. it has an outlet of water that is not directed or connected to a watercourse, wetland or river or stream valley (See Sections 4.9 and 4.11 in manual for permit requirements).

The maintenance or repair of existing tile drains is exempt.

The installation, maintenance or repair of a pond for watering livestock is exempt where:

a. it is not connected to or within a watercourse or wetland,

b. it is not within 15 metres of a watercourse or wetland, and

c. no excavated material is deposited within an area where subsection 28 (1) of the *CA Act* applies.

Agricultural in-field erosion control structures are exempt that:

are not within and that do not have any outlet of water directed or connected to a watercourse, wetland or river or stream valley.

4.5.1.2 Accessory Buildings or Structures - Exempt

Non-habitable accessory building or structures are exempt that:

a. are incidental or subordinate to the principal building or structure,

b. have a footprint that is equal to or less than 15 square metres (161.5 square feet), and

c. is not within a wetland or watercourse.

Notes: they should be secured to the ground when located within a flood hazard; associated filling or grading may not be exempt; and they should be located at least 1 metre from other exempt buildings or structures, not including a platform base or pad that otherwise meets these criteria.

Examples: storage sheds, decks (see additional deck exemption below), pergolas, gazebos, picnic shelters, concrete pads etc.

Reconstruction of a non-habitable garage with no basement is exempt, if the reconstruction:

a. does not exceed the existing footprint of the garage, and

b. does not allow for a change in the potential use of the garage to create a habitable space.

Decks are exempt, regardless of size, that:

a. are not located within a hazard,

b. will never be enclosed or converted in use,

c. are not dependent on another building or structure for support, and

d. will not create a hazard or increase a hazard that presently exists.

Seasonal or temporary docks and related facilities (e.g. swimming platforms) are exempt, that:

a. will not cause flooding or erosion,

b. will not obstruct flow, and

c. will be removed in the fall and stored beyond the floodplain area or, alternatively, if stored within the floodplain area, are well secured to prevent dislodging during flood events. Re-installation must not occur prior to flooding events that may be expected in the springtime of the year.

Note: Permanent docking and related facilities to be placed wholly or partially within the water are discouraged. Any such facilities proposed will require full SVCA staff review, formal application and a permit to be obtained, including permission from the owner of the bed of the lake or watercourse.

Note: Seasonal docks and related facilities may be attached to existing permanent facilities that are located completely on the shoreline area beyond the water's edge.

Fencing is exempt, that:

a. does not impede the conveyance of flow[2], and

b. limits the potential for collection of debris during high flow/flooding events.

Examples: page wire fencing, split rail fencing, chain link fencing, board fencing, or temporary snow or sand fencing. Stone or concrete walls are not included in this general exemption.

Footbridges (seasonal or temporary) are exempt, that:

a. are for pedestrian use,

b. have a maximum width of 1.2 metres (4 feet),

c. are secured at one or both ends in a manner that will not become dislodged with flooding, and

d. will clear span the watercourse channel and not obstruct flow within the channel.

Note: footbridges should be stored away from the watercourse and secured to prevent dislodging when flooding is likely to occur (spring thaw or when severe storms are forecast).

4.5.1.3 Filling and/or Grading Activities – Exempt

General filling and/or grading is exempt where:

a. the quantity moved and/or imported is less than 23 cubic metres,

b. it is not located in a wetland, dynamic beach, or between the banks of a watercourse,

c. it will not direct riverine flood waters onto neighbouring properties,

d. it is completed within one calendar year and is not an ongoing fill project,

e. all imported fill is comprised of inert, granular material,

f. it will not cause erosion, sedimentation, or slope instability, and

g. it will not be used as shoreline erosion protection.

Road and/or driveway maintenance activities are exempt, where:

a. the road or driveway is not extended or widened,

b. the elevation of the road or driveway is not altered beyond its original design, and

c. bedding materials and/or existing culverts are not altered.

Landscaping paths are exempt that:

a. are flush with existing grade,

b. are made of natural materials (concrete or asphalt may be acceptable depending on location),

c. do not require significant excavation, clearing, etc.,

d. will not exceed a width of 1.2 metres,

e. do not include other structures related to the landscaping, and

[2] In the case of board fencing located in a floodplain or dynamic beach, design considerations must ensure there is minimal impact on water or sand flow and/or deposition with appropriate board spacing in accordance with the Regulation and *Conservation Authorities Act*.

f. will be the only path per property.

Note: Shared paths along or at side yards of adjoined properties are encouraged.

Note: If all or part of the path is within a wetland, please contact SVCA staff to determine whether this exemption is applicable.

Municipal mechanical beach grooming is exempt where:

the work is completed in accordance with a beach maintenance plan prepared by or for the municipality that has been reviewed and found acceptable by SVCA.

4.5.1.4 Minor alterations and repairs – Exempt

Maintenance and upkeep of existing buildings and structures is exempt.

Repairs and renovations to an existing building are exempt, that:

a. are within the existing roofline and exterior walls,

b. are above the existing foundation, and

c. are not associated with a change in use, or potential use, or increase the number of dwelling units.

Interior and exterior repairs or maintenance of a building are exempt

such as siding, painting, window and door replacements, roof shingling etc.

Replacing or installing a furnace or electrical panel is exempt, unless:

some other aspect of the overall project is considered construction or reconstruction.

Minor alterations and maintenance or operation of existing dams is exempt, that:

a. would not affect the control of flooding, or erosion,

b. would not result in changes in the capacity of river flows or impacts on integrity of the structure or in-water works, and

c. do not include changes to the original dimensions of the existing dam.

Maintenance to stormwater management facilities is exempt, that:

a. would not affect the control of flooding, erosion, dynamic beaches, unstable soils or bedrock, and

b. does not involve a change to the original dimensions of the existing infrastructure.

Minor watercourse works, not including dams or ponds, are exempt, where:

a. the watercourse is less than or equal to one metre in width at the project site (top of bank measured),

b. will not disturb more than 8 metres of channel length,

c. will not cause flooding or erosion, and

d. will not obstruct flow.

Maintenance or repair of municipal drains

as described in and conducted in accordance with the mitigation requirements set out in the

Drainage Act and the *Conservation Authorities Act* Protocol is exempt, except where work is within a regulated area associated with a wetland.

Replacement of private sewage disposal systems are exempt, where:

a. the disposal bed is no closer to a natural hazard than that which is being replaced,

b. the bed is the same size or smaller than the existing, and

c. there will be no negative impacts on the local drainage.

4.5.1.5 Non-structural uses and activities – Exempt

Replacement of existing service connections (e.g. comms., water, sewer) is exempt, where:

a. it is not located within a wetland, watercourse, and

b. ground disturbance is minimized and immediately returned to former conditions.

Other non-structural uses

such as gardens, nurseries, open arboretums and forestry/wildlife management are exempt.

4.5.1.6 Previously approved uses – Exempt

On-going operations

associated with existing commercial/industrial uses that have been previously approved by SVCA are exempt.

4.6 Lake Huron Shoreline Specific Policies

The area regulated by SVCA along the Lake Huron Shoreline is described in *the Regulation* under Section 2:

2 (2) For the purposes of subparagraph 2 iv of subsection 28 (1) of the Act, areas adjacent or close to the shoreline of the Great Lakes-St. Lawrence River System or to inland lakes that may be affected by flooding, erosion or dynamic beach hazards include,

(a) the area starting from the furthest offshore extent of the authority's boundary to the furthest of the following distances:

(i) the 100-year flood level, plus the appropriate allowance for wave uprush, and, if necessary, for other water-related hazards, including ship-generated waves, ice piling and ice jamming, except in respect of Wanapitei Lake in the Nickel District Conservation Authority, the applicable flood event standard for that lake being the one set out in item 1 of Table 16 of Schedule 1,

(ii) the predicted long-term stable slope projected from the existing stable toe of the slope or from the predicted location of the toe of the slope as that location may have shifted as a result of shoreline erosion over a 100-year period, and

(iii) where a dynamic beach is associated with the waterfront lands, an allowance of 30 metres inland to accommodate dynamic beach movement, except in the areas within the jurisdictions of the Mattagami Region Conservation Authority, the Nickle District Conservation Authority and the North Bay-Mattawa Conservation Authority where the allowance is 15 metres inland; and

(b) the area that is an additional 15 metres allowance inland from the area described in clause (a).

Regulation Allowances

Regulating the allowance adjacent to shoreline hazards allows SVCA to provide protection against unforeseen or predicted conditions that could have an adverse effect on natural conditions or shoreline processes. It likewise protects access to the shoreline hazard areas and addresses issues related to accuracy of modeling and analysis used to establish the limits of flooding, erosion and dynamic beach hazards.

Sections 4.6.1, 4.6.2, and 4.6.3 provide summaries of the flooding, erosion and, where applicable, dynamic beach processes and functions that affect the shoreline of Lake Huron and indicate how the extent of the Lake Huron shoreline is determined for the purpose of administering *the Regulation*.

4.6.1 The Lake Huron Shoreline Flooding Hazard

In general, flooding along the Lake Huron Shoreline is a phenomenon influenced by water level fluctuations. Where flooded lands are coupled with storm events, the cumulative impact can and frequently does pose significant degrees of risk to development.

Understanding the interrelationship between pre-storm flooding, storm setup, wave height, wave uprush and other water related hazards (i.e. wave spray, ice) is important in managing a potentially flood susceptible shoreline. In terms of human use and occupation of the low-lying Great Lakes – St. Lawrence River system shorelines, development decisions based on or during periods of low water levels can present the most serious problem. During lower water levels, the potential flood hazard to homes, cottages and other development often goes unrecognized. Consequently, when water levels return to long-term averages or high-water levels, flood damages are sustained. These damages are frequently quite significant (MNR, 1996b).

The variable nature of water elevations of the Great Lakes is apparent from historical records. Of the two key factors influencing long-term and short-term changes in lake levels, natural phenomena (e.g. rainfall, evaporation, wind, storms, etc.) by far, cause the greater magnitudes of changes, than does human intervention (i.e. diversions, water control structures, etc.). The most familiar changes in lake levels are seasonal fluctuations as evidenced by average differences of about 0.6 to 1.1 metres in lake levels between the summer and winter months. Superimposed on these seasonal fluctuations are some extremely short periods of significantly larger magnitudes of lake level changes. The most temporary of these are caused by storm winds which blow over the lake surfaces pushing the water to the opposite side or end of the lake. When a wave breaks, it results in an increase in the mean water level in shore from the breaking point, referred to as wave set-up. Wave run-up refers to the uprush movement of a wave breaking on a shoreline. This is a function of the height and periodicity of the wave as well as the foreshore slope.

Flooding from Lake Huron affects the entire shoreline area, backshore areas, and extends up the lower portions of several rivers.

SVCA's 100-year Lake Level

In SVCA's jurisdiction, the 100-year flood level for Lake Huron is 177.6 m GSC, except for south of Point Clark where the elevation is 177.7 m GSC (Great Lakes System Flood Levels and Water Related Hazards, MNR 1989). These elevations were mapped based on the shoreline elevations that were present when the mapping was created in the 1980s.

SVCA will revise the mapped location of the 100-year flood level only where new information suggests it should be located farther inland, not lakeward. This is because shoreline erosion and accretion are natural processes that typically correspond to periods of high and low lake levels, respectively.

Revising the hazard lakeward when lake levels are low, and the shoreline is accreting would place any development permitted under this standard at risk when lake levels return to normal. In contrast, if shoreline processes, since mapping was completed, indicate the shoreline has been eroding, the SVCA's hazard and Regulated Area must follow the shoreline inland to control the appropriate hazard areas.

The Lake Huron Flooding Hazard limit is defined as the combined influence of the following:

- 100-year flood level (static water level and storm surge), as determined by SVCA;
- Flood allowance for wave uprush; and
- Other water-related hazards, as shown in **Figure 4-2** below:

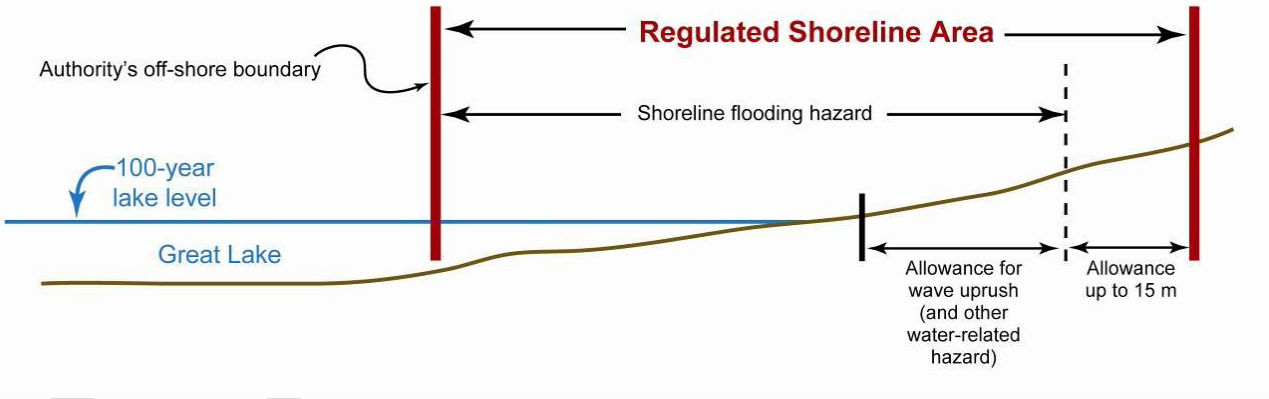


Figure 4-2 Lake Huron Shoreline Flooding Hazard and Regulated Area

When determining the flooding hazard, other factors such as ice jamming or ship generated waves may result in an increased flood hazard. All shoreline areas and connecting channels form an ice cover. There are two types of ice which impact on shoreline features:

- Drift ice (slush, frazil, pancake, floe and composite ice), and
- Shorefast ice (anchor ice).

The impact to the shoreline by drift ice is dependent on the physical orientation and composition of the shoreline, wave action, wind setup and duration of ice action as the ice is transported alongshore and thrown onshore and then drawn offshore by wave action. Anchor or shorefast ice action on a shoreline has both a horizontal and vertical impact on shoreline features as the stationary ice grows

or diminishes in response to the temperature fluctuations over the winter period. Ice piling results from wind blowing over the ice, pushing the ice landward. This can produce ridging and a large build–up of ice at the shore. This shore ice can then scour sections of the beach and nearshore as well as destroy structures close to the shore.

The moving ice can also remove boulders from the shallow areas, thereby reducing the level of shore protection provided by the boulders. Ice jamming, the build-up of ice at the outlets of the lakes into the connecting channels, can cause extensive damage to shore structures and nearshore profiles. At the same time, ice jams frequently pose problems by impeding water flows out letting from the lakes and into the connecting channels causing varying magnitudes in lake level increases depending on the size and duration of the ice jam blockage. A reduction to the established hazard limit shall only be considered if an engineering analysis (submitted by the applicant and approved by SVCA) justifies the reduction.

4.6.1.1 Lake Huron Shoreline Flood Hazard – Not Permitted

In general, *development and alteration activities* will not be permitted within the shoreline flood hazard.

4.6.1.2 Lake Huron Shoreline Flood Hazard – Permitted

Notwithstanding the policies referenced above, the following will be permitted:

Permitted Uses	Conditions
Reconstruction or relocation of a building or structure that has not been damaged or destroyed by the flooding hazard.	If it has been demonstrated to the satisfaction of the SVCA that: a. it cannot be relocated to an area outside the flooding hazard, b. it is located in an area of least (and acceptable) risk, c. it will be protected from the flood hazard, d. it will not exceed the habitable floor area nor the footprint size of the previous structure, and e. it will be located no closer to the hazard than the previous structure.
Development associated with the construction of a driveway or similar, to provide access to lands outside of the shoreline hazard	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property, and

Permitted Uses	Conditions
	c. the provision of safe access (Section 4.7.5) has been met.
Public infrastructure including but not limited to roads, sanitary sewers, utilities, water supply wells, well houses, and pipelines. Development associated with public parks (e.g. passive or low intensity outdoor recreation and education, trail systems). Minor removal or placement of fill and site grading. Stream bank, slope and valley stabilization work to protect existing development. Conservation or restoration projects.	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, and b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.
Shoreline erosion protection including revetments, shore walls, etc.	See Policies 4.6.1-3 and 4.6.1-4
Replacement of sewage disposal systems	The replacement system should be located outside of the shoreline flood hazard where possible and only permitted within the shoreline flood hazard if located in the area of lowest risk.
Shoreline dredging	The submitted proposal demonstrates that: **a.** dredging will not occur within a wetland **b.** dredging will not create a new or aggravate an existing hazard (flooding, erosion, dynamic beach), **c.** all dredged material will be removed from the lake and placed in a location acceptable to SVCA, **d.** appropriate erosion and sediment control measures are implemented, and **e.** landowner permission is obtained.

Protection Structures

The Lake Huron shoreline is a dynamic and ever-changing landscape due to fluctuating lake levels, wave action and other natural processes. Where previously constructed buildings and structures are at risk to these processes, landowners will sometimes consider the installation of shoreline protection structures to safeguard their investment.

Shoreline protection structures come in many forms, such as concrete vertical walls and sloped revetments, and can incorporate a variety of different materials. Many such structures were installed along the shoreline following the record high lake levels experienced in the mid-1980s, at a time when shoreline development was not regulated the same way it is today.

If not built correctly, shoreline protection structures can fail pre-maturely or aggravate the flooding and erosion hazards they are meant to protect against. They can also deflect powerful wave energy onto adjacent properties that may not have the same degree of protection. All shoreline protection structures have lifespans and should be viewed as temporary solutions that will require future maintenance.

Where such structures are permissible, SVCA suggests considering shoreline protection structures as a last resort to protect existing development and infrastructure, and to otherwise allow natural shoreline processes to proceed as they always have.

4.6.1.3 Maintenance and Reconstruction of Lake Huron Shoreline Protection Structures – Permitted

Repairs or reconstruction of existing shoreline protection structures will be permitted where:

a. the original design is generally followed,

b. the same or similar type of material is used,

c. the height, length, and location of the original structure does not change, and

d. SVCA staff are satisfied the structure will not negatively impact erosion on adjacent properties.

SVCA will review the proposal and site-specific conditions to ensure that these conditions can be addressed to SVCA's satisfaction. If they cannot be addressed, Policy 4.6.1-4 shall apply.

4.6.1.4 New or Modified Lake Huron Shoreline Protection Structures – Permitted

New shoreline protection structures or modifications will be permitted where:

a. the structure is meant to protect existing development or infrastructure, rather than to allow new or more intensive development to encroach into the shoreline hazard,

b. it is located on land owned by the applicant and will be located as close to the existing development or infrastructure as possible,

c. a study is completed and stamped by a qualified professional engineer with coastal qualifications at the applicant's expense and to the satisfaction of SVCA staff, that:

i. provides a description of the coastal processes impacting the subject property,

ii. determines the approximate lifespan and maintenance requirements of the proposed

structure, and

iii. demonstrates that the structure will not create a new or aggravate an existing flooding, erosion or dynamic beach hazard on the subject property or on adjacent properties.

SVCA staff may require evidence of the professional engineer's coastal qualifications in the form of a brief CV outlining academic/training qualifications and any subsequent professional activities such a studies, reports, and publications. The engineer responsible for the study must contact the SVCA to discuss these requirements and the formation of a project-specific Terms of Reference, as needed.

4.6.1.5 Allowance Adjacent to the Lake Huron Shoreline Flood Hazard – Permitted

Development and alteration activities will be permitted within the allowance adjacent to the shoreline flood hazard if the submitted plans demonstrate to the satisfaction of the SVCA that:

a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, and

b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.

The submitted plans shall demonstrate that:

a. the activity will not create a new or aggravate an existing shoreline flooding hazard,

b. the activity will not impede access for emergency works, maintenance and evacuation, and

c. the potential for surficial erosion has been addressed through proper drainage, erosion and sediment control and site stabilization/restoration plans.

4.6.2 The Lake Huron Shoreline Erosion Hazard

Many geological, topographical and meteorological factors determine the erodibility of a shoreline. These include soil type, surface and groundwater, bluff height, vegetation cover, shoreline orientation, shoreline processes, wind and wave climate, and lake level fluctuations. The rate of erosion may be heightened during severe storm events, resulting in large losses of land over a very short period of time. These large losses, which are more evident immediately following major storm events, can periodically obscure the long-term processes. In the absence of human intervention and/or the installation of remediation measures, once material is removed, dislodged or extracted from the shore face and near shore profile, it cannot reconstitute with the original material and is essentially lost forever. Even with the installation of remedial measures (i.e. assumed to address the erosion hazard), the natural forces of erosion, storm action/attack and other naturally occurring water and erosion related forces may prove to be such that the remedial measures may only offer a limited measure of protection and may only reduce or address the erosion hazard over a short period of time.

Beach or Bluff?

The extent of the shoreline erosion hazard limit depends on the shoreline type: bluff or beach. Beaches are the dominate shoreline type in SVCA's jurisdiction. The landward limit of the erosion hazard in these environments is equal to the flooding hazard, being 15 metres inland from the 100-year lake level. Where bluffs are present, the erosion hazard limit is determined using the 100-year erosion rate (the average annual rate of recession extended over a hundred-year time span), an allowance for slope stability, and an erosion allowance. Bluffs exist where the shore profile landward of the beach material rises steeply, where the slope ratio is typically greater than 3 (horizontal) to 1 (vertical) and where the elevation above the beach is greater than 2 metres.

The shoreline bluff erosion hazard limit includes the 100-year erosion allowance plus the predicted long-term stable slope projected from the stable toe of slope. The Regulated Area includes these hazard areas plus an additional allowance of 15 metres (**Figure 4-3**).

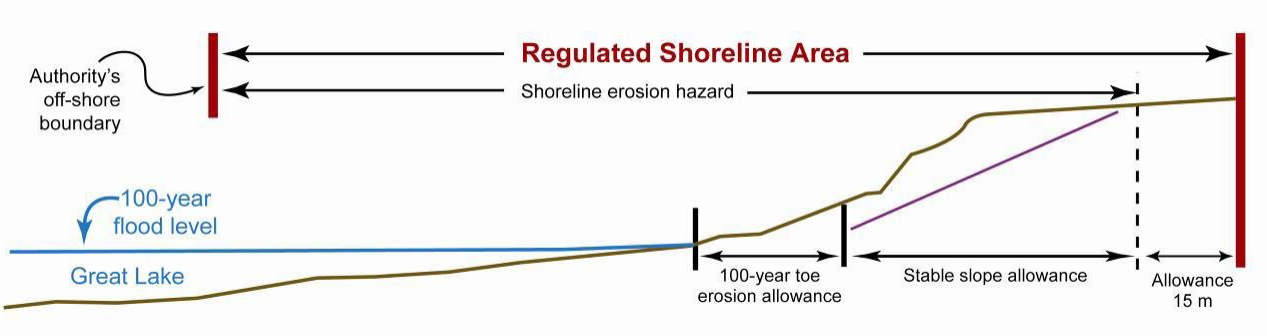


Figure 4-3 Lake Huron Shoreline Erosion Hazard (Bluffs) and Regulated Area

The 100-year erosion or recession allowance is calculated by multiplying the average annual recession rate by 100. There must be at least 35 years of reliable recession information to determine the annual recession rate. Where reliable recession information is not available, provincial guidelines call for a standard erosion allowance of 30 metres.

The stable slope allowance is a horizontal allowance measured landward from the toe of the shoreline bluff that is three times the height of the bluff. The height is the difference in elevation between the toe of the shoreline bluff, which may be above the surface of the water, or below it, and the top or first lakeward break in slope.

A reduction to the established hazard limit shall only be considered if a geotechnical engineering analysis (submitted by the applicant and approved by SVCA), justifies the reduction.

To slow down the erosion of shorelines, structures such as breakwaters, seawalls and revetments have been used. MNR Technical Guidelines provide additional guidance for considering how these structures may be considered. Even with the installation of these measures however, the natural forces of erosion, storm action and other naturally occurring water and erosion related forces may prove to be such that the remedial measures may only offer a limited measure of protection and may only reduce or address the erosion hazard temporarily. Even if the shoreline is successfully armoured, the near shore lake bottom continues to erode, and this process is typically more active on cohesive shorelines. Eventually, lakebed down cutting will undermine the shoreline armouring causing the

structure to fail. These problems usually occur on updrift or downdrift properties, aggravating off-site hazards and posing detrimental impacts to a wide variety of environmental components of the shoreline ecosystem.

Shoreline hardening should generally be avoided. It is further recommended that Shoreline Management Plans be undertaken to assist in developing shoreline specific policies and to evaluate whether the implementation of erosion protection measures is appropriate.

4.6.2.1 Shoreline Erosion Hazard – Not Permitted

In general, *development and alteration activities* will not be permitted within the shoreline erosion hazard.

4.6.2.2 Shoreline Erosion Hazard – Permitted

Notwithstanding the policies referenced above, the following *development and alteration activities* will be permitted:

Permitted Uses	Conditions
Reconstruction or relocation of a building or structure that has not been damaged or destroyed by the erosion hazard.	If it has been demonstrated to the satisfaction of the SVCA that: a. it cannot be relocated to an area outside the erosion hazard, b. it is located in an area of least (and acceptable) risk, c. it will be protected from the erosion hazard through the incorporation of appropriate building design parameters, d. it will not exceed the habitable floor area nor the footprint size of the previous building or structure, and e. it will be located no closer to the hazard than the previous building or structure.
Development associated with the construction of a driveway or similar to provide access to lands outside of the shoreline hazard.	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property, and c. the provision of safe access (Section 4.7.5) has been met.

Permitted Uses	Conditions
Public infrastructure including but not limited to roads, sanitary sewers, utilities, water supply wells, well houses, and pipelines. Stream bank, slope and valley stabilization work to protect existing development. Conservation or restoration projects. Development activity associated with public parks (e.g. passive or low intensity outdoor recreation and education, trail systems). Minor removal or placement of fill and site grading. Construction of stairs. Minor landscaping.	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, and b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.
Shoreline erosion protection including revetments, shorewalls, etc.	See Policies 4.6.1-3 and 4.6.1-4 within the Shoreline Flood Hazard section.
Replacement of sewage disposal systems	The replacement system should be located outside of the shoreline erosion hazard where possible and only permitted within the shoreline erosion hazard if located in the area of lowest risk.

4.6.2.3 Allowance Adjacent to the Shoreline Erosion Hazard – Permitted

Development and alteration activities will be permitted within the allowance adjacent to the shoreline erosion hazard if the submitted plans demonstrate to the satisfaction of the SVCA that

a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, and

b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.

The submitted plans shall demonstrate that:

a. the activity will not create a new or aggravate an existing erosion hazard,

b. the activity will not impede access for emergency works, maintenance and evacuation, and

c. the potential for surficial erosion has been addressed through proper drainage, erosion and sediment control and site stabilization/restoration plans.

4.6.3 The Lake Huron Shoreline Dynamic Beach Hazard

A dynamic beach is considered an unstable accumulation of shoreline sediments along the Great

Lakes – St. Lawrence River system and large inland lakes. In dynamic beach areas, topographic elevations can change due to the accumulation or loss of beach materials through the effects of wind and wave action. These changes can occur seasonally or yearly and, at times, quite rapidly and dramatically. As such, the depiction and evaluation of the hazard susceptibility of dynamic beaches should be dependent on the level of information, knowledge and understanding of the beach sediment budget and the cross-profile width over which most of the dynamic profile changes are taking place. The dynamic beach hazard is only applied where:

- Beach or dune deposits exist landward of the water line (e.g. land/water interface),
- Beach or dune deposits overlying bedrock or cohesive material are equal to or greater than 0.3 metres in thickness, 10 metres in width and 100 metres in length along the shoreline, and
- Where the maximum fetch distance measured over an arc extending 60 degrees on either side of a line perpendicular to the shoreline is greater than 5 km. This normally does not occur where beach or dune deposits are located in embayment's, along connecting channels and in other areas of restricted wave action where wave related processes are too slight to alter the beach profile landward of the waterline.

The criteria used to define and classify a section of shoreline as a dynamic beach are intended to be applied over a stretch of shoreline in the order of 100 metres or more in length. Where shorter sections of sediments occur on a rocky or cohesive shoreline, they are likely to be transitory. Beach width and thickness should be evaluated under calm conditions and at water levels between datum (IGLD) and the average annual low water level. When lake level conditions are higher, consideration should be given to the submerged portion of the beach.

Mapping should not take place during high lake level conditions. It is expected that the person carrying out the mapping will exercise judgment, based on knowledge of the local area and historical evidence, in those areas where the beach width is close to the suggested criteria for defining a dynamic beach.

The shoreline reaches that are identified as dynamic beach were previously classified by the Ministry of Natural Resources. Approximately 35% of the total length of the SVCA shoreline is classified as dynamic beach.

Regulating the Dynamic Beach Hazard

To delineate and determine the regulation limit for the dynamic beach hazard, the flooding hazard limit must be known. The flooding hazard limit combines the 100-year flood elevation plus wave uprush.

SVCA's 100-year Lake Level

In SVCA's jurisdiction, the 100-year flood level for Lake Huron is 177.6 m GSC, except for south of Point Clark where the elevation is 177.7 m GSC (Great Lakes System Flood Levels and Water Related Hazards, MNR 1989). These elevations were mapped based on the shoreline elevations that were present when the mapping was created in the 1980s. SVCA will revise the mapped location of the 100-year flood level only where new information suggests it should be located farther inland, not lakeward. This is because shoreline erosion and accretion are natural processes that typically correspond to periods of high and low lake levels, respectively. Revising the hazard lakeward when lake levels are low, and the

shoreline is accreting would place any development permitted under this standard at risk when lake levels return to normal. In contrast, if shoreline processes, since mapping was completed, indicate the shoreline has been eroding, the SVCA's hazard and Regulated Area must follow the shoreline inland to control the appropriate hazard areas.

The dynamic beach hazard includes:

- 100-year flood level, as determined by SVCA,
- An allowance for wave uprush and if necessary, an allowance for other water related hazards, including ship generated waves, ice piling and ice jamming, and
- An allowance inland of 30 metres to accommodate for dynamic beach movement on the Great Lakes.

The Regulated Area associated with dynamic beaches includes the dynamic beach hazard, plus a 15-metre allowance. See Figure **4-4**.

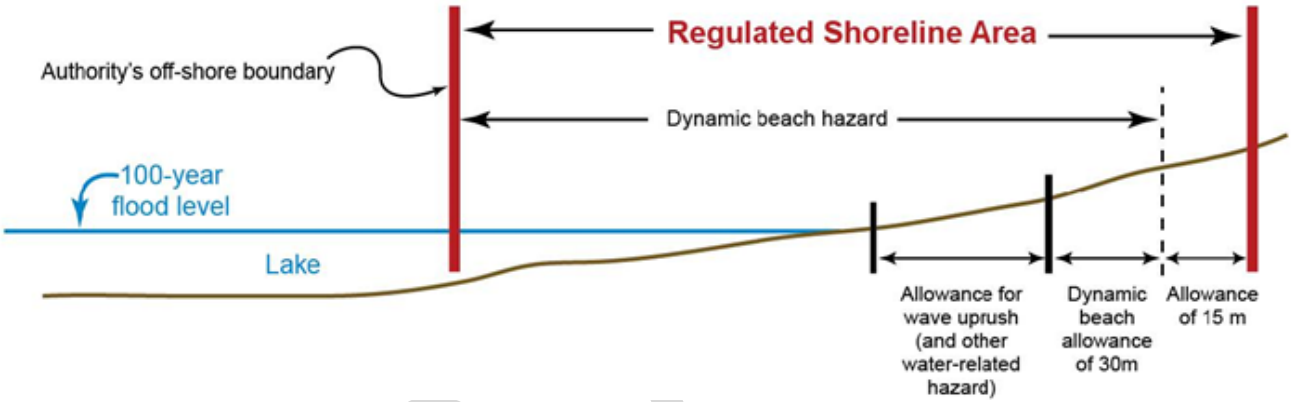


Figure 4-4 Lake Huron Dynamic Beach Hazard and Regulated Area

Where the dynamic beach hazard intersects a building or structure, the dynamic beach hazard limit ends at that point, while the SVCA's Regulated Area would include the entire building or structure.

Regulation Allowances

Regulating the 15-metre allowance adjacent to shoreline hazards, including the dynamic beach, allows SVCA to provide protection against unforeseen or predicted conditions that could have an adverse effect on natural conditions or shoreline processes. It likewise protects access to the shoreline hazard areas and addresses issues related to accuracy of modeling and analysis used to establish the limits of flooding, erosion and dynamic beach hazards.

4.6.3.1 Dynamic Beach Hazard – Not Permitted

In general, *development and alteration activities* will not be permitted within the dynamic beach hazard.

4.6.3.2 Dynamic Beach Hazard – Permitted

Notwithstanding the policies referenced above, the following *development and alteration activities*

will be permitted:

Permitted Uses	Conditions
Reconstruction or relocation of a building or structure that has not been damaged or destroyed by the shoreline hazard.	If it has been demonstrated to the satisfaction of the SVCA that: a. it cannot be relocated to an area outside the dynamic beach hazard, b. it is located in an area of least (and acceptable) risk, c. it will be protected from the dynamic beach hazard through the incorporation of appropriate building design parameters, d. it will not exceed the total floor area nor the footprint size of the previous building or structure, and e. it will be located no closer to the hazard than the previous building or structure.
Development activity associated with public parks (e.g. passive or low intensity outdoor recreation and education, trail systems). Underground public infrastructure (e.g. sewers, pipelines) Conservation or restoration project	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, and b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.
Repairs to existing shoreline erosion protection including revetments, shorewalls, etc.	If completed in accordance with the conditions listed under Policy 4.6.1-3. New shoreline erosion protection is generally not permissible within the dynamic beach hazard.
Replacement of sewage disposal systems	The replacement system should be located outside of the dynamic beach hazard and will only be permitted within the dynamic beach hazard if located in the area of lowest risk.

4.6.3.3 Allowance Adjacent to the Dynamic Beach Hazard – Permitted

Development and alteration activities will be permitted within the allowance adjacent to the dynamic beach hazard if the submitted plans demonstrate to the satisfaction of the SVCA that:

a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, and

b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.

The submitted plans shall demonstrate that:

a. the activity will not create a new or aggravate an existing dynamic beach hazard,

b. the activity will not impede access for emergency works, maintenance and evacuation, and

c. the potential for surficial erosion has been addressed through proper drainage, erosion and sediment control and site stabilization/restoration plans.

4.6.3.4 Inverhuron Specific Policies

Some existing dwellings located along the Lake Huron Shoreline in the community of Inverhuron on Lake Street and Victoria Street are partially or entirely within the wave uprush and/or the dynamic beach allowances associated with Lake Huron. The following policies apply:

a. new development activities are not permitted in the flood hazard of Lake Huron, including the allowance for wave uprush,

b. reconstruction or redevelopment activities may be permitted in the allowance for wave uprush provided the redevelopment does not intensify the use and the building or structure is improved with regards to ability to withstand applicable hazards to the satisfaction of SVCA,

c. reconstruction or redevelopment activities may be permitted within the dynamic beach allowance provided the work will not result in more than a 25% increase to the building or structure size at the time of the application of the SVCA's Regulation to the area (2006), and will not result in additional dwelling units,

d. *development and alteration activities* within the 15-metre allowance adjacent to the shoreline hazard shall be permitted in accordance with Policy 4.6.1-5, and

e. new development shall not extend to the west of any existing development on the lot.

4.6.3.5 Baird Coastal Reports[3] Shoreline Management Area Policies

Existing dwellings located along the Lake Huron Shoreline in the Township of Huron Kinloss are often partially or entirely within the Dynamic Beach setback or are within or adjacent to the wave uprush allowance associated with Lake Huron. The following policies apply:

a. new development is not permitted in the wave uprush allowance or within the flood hazard of Lake Huron,

b. reconstruction or redevelopment may be permitted in the wave uprush allowance provided the redevelopment does not intensify the use and the building or structure is improved with regards to ability to withstand applicable hazards,

c. new development within the dynamic beach hazard may be permitted provided the development is located at least 30 metres inland from the 100-year lake level and is:

d. elevated to 181.5 m GSC for openings located less than or equal to 30 metres from the 100-

[3] Huron-Kinloss Dynamic Beach Study Phase II prepared by W.F. Baird & Associates Coastal Engineers Ltd.; dated April 2008; Huron-Kinloss Dynamic Beach Study Phase III-South of Concession 6 prepared by W.F. Baird & Associates Coastal Engineers Ltd.; dated August 2010

year flood level,

e. elevated to 179.5 metres GSC for openings located 45 metres from the 100-year flood level, or

f. elevated to the linearly interpolated elevation between 181.5 metres GSC and 179.5 metres GSC for openings located between 30 metres and 45 metres respectively from the l00-year flood level, and

g. for shoreline areas south of Jardine's Creek in Point Clark where the profile is uncharacteristically shallow, lower elevation requirements will be considered by SVCA on a case-by-case basis, and may require comment from a Coastal engineer to determine site-specific flood-proofing requirements.

h. Existing shoreline sand dunes should be avoided and improved to original condition, avoided by new development by at least 5 metres, and allowed to have approximately 1 vertical to 5 horizontal side slopes; and,

i. Natural dune vegetation species and features will need to be avoided or addressed by the proposed development.

4.7 Regulatory Floodplain of River or Stream Valley Specific Policies

The area regulated by SVCA within regulatory floodplains of river and stream valleys is described in Section 2 of Ontario Regulation 41/24 (*the Regulation*):

2. (1) For the purposes of subparagraph 2 (iii) of subsection 28 (1) of the Act, river or stream valleys include river or stream valleys that have depressional features associated with a river or stream, whether or not they contain a watercourse, the limits of which are determined as follows:

1. Where the river or stream valley is apparent and has stable slopes, the valley extends from the stable top of the bank, plus 15 metres, to a similar point on the opposite side.

2. Where the river or stream valley is apparent and has unstable slopes, the valley extends from the predicted long term stable slope projected from the existing stable slope or, if the toe of the slope is unstable, from the predicted location of the toe of the slope as a result of stream erosion over a projected 100-year period, plus 15 metres, to a similar point on the opposite side.

3. Where the river or stream valley is not apparent, the valley extends,

(i) to the furthest of the following distances:

A. the distance from a point outside the edge of the maximum extent of the flood plain under the applicable flood event standard to a similar point on the opposite side, and

B. the distance from the predicted meander belt of a watercourse, expanded as required to convey the flood flows under the applicable flood event standard to a similar point on the opposite side, and

(ii) an additional 15-metre allowance on each side, except in areas within the jurisdiction of the Niagara Peninsula Conservation Authority.

Riverine floodplains are further captured in subparagraph 2 (i) of subsection 28 (1) of the *CA Act*, under *hazardous lands*, which is defined in *the Regulation* and in Section 4.2.1 of this manual.

4.7.1 Riverine Flooding Hazards: Definition and Context

For most of the Saugeen Valley watershed, the Riverine Flooding Hazard is based on the greater of the Hurricane Hazel storm event (the Regional Storm), the 100-year return period flood, or an observed

flood event such as Frazil Ice flooding in specific areas. For the Saugeen, Penetangore, Pine River and Lake Fringe watersheds, the Riverine Flooding Hazard is largely based on the Hurricane Hazel event. However, near the mouth of the Saugeen River in Southampton the 100-year return period flood is used. The larger flood event is called the Regulatory Flood, the limits of which define the extent of the Riverine Flooding Hazard. This is specified in Ontario Regulation 41/24.

The Regulated Area includes the Riverine Flooding Hazard (also referred to as the Regulatory Floodplain), plus a 15-metre allowance (see **Figure 4-6**). The allowance is included to address limitations in base mapping scale and accuracy and to consider works directly adjacent to the Riverine Flooding Hazard, which could aggravate or increase the hazard risk.

Within Ontario, there are three policy concepts for floodplain management: One-Zone, Two-Zone, and special policy area (SPA). The Regulated Areas within the Saugeen Valley watershed associated with the Riverine Flooding Hazard consist of One-Zone and Two-Zone Policy Areas. Regardless of the approach applied, development and alteration activities within the Regulated Area associated with the riverine floodplain requires permission from the SVCA.

4.7.2 One Zone Policy Areas

In a One-Zone Policy Area, the entire Regulatory Floodplain is considered the floodway. **Figure 4-5** illustrates the Regulated Area associated with a One-Zone floodplain and includes a 15-metre allowance. The majority of the SVCA watershed is managed as a One-Zone Policy Area.

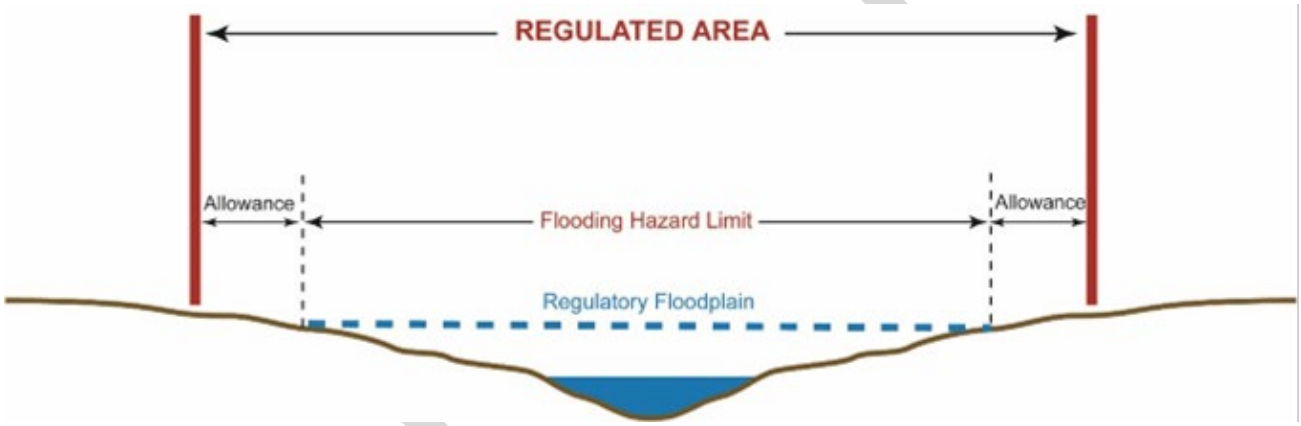


Figure 4-5 Riverine Flooding Hazard – Regulated Area for One-Zone Policy Areas

The following policies apply to *development and alteration activities* proposed in a One-Zone Policy Area subject to a Riverine Flooding Hazard. Please note, where specific activities are not addressed in these policies, the general provisions listed in **Section 4.4.2** apply.

4.7.2.1 Floodproofing

Where *development and alteration activities* are permissible within the flood hazard limit, they must be floodproofed to the satisfaction of SVCA in accordance with the specific policies below and the floodproofing information included in Section 4.7.4.

4.7.2.2 One Zone – Not Permitted

In general, *development and alteration activities* will not be permitted.

4.7.2.3 One Zone – Permitted

Notwithstanding the policies referenced above, the following *development and alteration activities*

will be permitted within the flood hazard limit of a river or stream valley:

Permitted Uses	Conditions
Reconstruction or relocation of a building or structure that has not been damaged or destroyed by riverine flooding.	If it has been demonstrated to the satisfaction of the SVCA that: a. it cannot be relocated to an area outside the flooding hazard, b. it is located in an area of least (and acceptable) risk, c. it will be protected from the flood hazard through the incorporation of appropriate floodproofing measures (see Section 4.7.4), that will not negatively impact flooding on adjacent properties, d. it will not exceed the habitable floor area nor the footprint size of the previous structure, e. it will be located no closer to the hazard than the previous structure, and f. existing habitable floor space and electrical, mechanical and heating services located below the elevation of the Regulatory Flood that cannot feasibly be located above the elevation of the Regulatory Flood, i. shall be reconstructed at the same or higher elevations as existing, ii. shall ensure the total habitable floor space below the elevation of the Regulatory Flood will not exceed the total habitable floor space below the elevation of the Regulatory Flood of the existing building; and iii. shall use passive dry floodproofing methods in accordance with Section 4.7.4.
Development associated with public parks (e.g. passive or low intensity outdoor recreation and education, trail systems). Minor removal or placement of fill and site grading. Minor encroachment by a sewage disposal system.	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, and b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.
Replacement of sewage disposal systems.	The replacement system should be located outside of the flood hazard where possible and only permitted within the

Permitted Uses	Conditions
	flood hazard if located in the area of lowest risk.
Activities associated with the construction of a driveway or similar to provide access to lands outside of the flood hazard.	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property, c. the provision of safe access (Section 4.7.5) has been met, and d. for undeveloped lots in the floodway, any proposed habitable buildings would not be surrounded by land subject to flooding under the regulatory flood event.
Public infrastructure including but not limited to roads, sanitary sewers, utilities, water supply wells, well houses, and pipelines Stream bank, slope and valley stabilization work to protect existing development. Conservation or restoration projects. Infrastructure which by its nature must locate in floodplains, including but not limited to stairways and access points.	If it has been demonstrated to the satisfaction of SVCA staff that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, and b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.
In-ground pools, grading, decks, open-sided shelters, landscape retaining walls not used for streambank stabilization.	If it has been demonstrated to the satisfaction of the SVCA that: a. there is no viable alternative outside of the Regulatory floodplain or if there is no feasible alternative site, that the proposed development is located in an area of least (and acceptable) risk, b. the proposed works do not create new hazards or aggravate flooding on adjacent or other properties and there are no upstream or downstream hydraulic impacts, c. the development is protected from the flood hazard

Permitted Uses	Conditions
	in accordance with established floodproofing techniques, d. the proposed development will not prevent access for emergency works, maintenance and evacuation, e. the potential for surficial erosion has been addressed through the submission of proper drainage, erosion and sediment control and site stabilization/restoration plans, and f. erosion hazards have been adequately addressed.
Above-ground parking lots.	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property, and c. the provision of safe access (Section 4.7.5) has been met.

Floodplain Spill Areas

There are areas within SVCA's watershed in which floodplain "spills" occur. A floodplain spill area exists where flood waters are not physically contained within the valley or stream corridor and exit into surrounding lands. Consequently, the limit and depth of flooding are difficult to determine. Spill Areas occur naturally or can occur because of downstream barriers to the passage of flood flows such as undersized bridges or culverts.

SVCA does not regulate development in Spill Areas in the same manner as development within floodplain areas, as these areas are not readily defined and the storage/flow that occurs in these areas is not considered as part of the natural floodplain, hence preservation of flood storage is not required. Where spill locations can be identified, such as in the community of Southampton and elsewhere, SVCA may permit development provided appropriate flood hazard mitigation can be established. Regulated Spill Areas are located within 50 metres of the indicated "Spill" Area on engineered floodplain mapping and are subject to the Policy 4.7.3-2. Mitigation for development proposed within a spill area generally include raising the elevation of proposed buildings or structures above the anticipated flood level and/or raising the lands within the spill location.

4.7.2.4 Flood Hazard Allowance of the Regulatory Floodplain – Permitted

Development and alteration activities will be permitted within the allowance of a Regulatory floodplain if it has been demonstrated to the satisfaction of the SVCA that:

a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable

soil or bedrock, and

b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.

The submitted plans shall demonstrate that

a. the activity will not create a new or aggravate an existing shoreline flooding hazard,

b. the activity will not impede access for emergency works, maintenance and evacuation, and

c. the potential for surficial erosion has been addressed through proper drainage, erosion and sediment control and site stabilization/restoration plans.

4.7.3 Two-Zone Policy Areas

A Two-Zone Policy Area divides the Regulatory Floodplain into a floodway and a flood fringe (see **Figure 4-6**). The floodway is the portion of the floodplain where flood depths and velocities are such that development and site alteration would cause a danger to public health and safety or property damage. The floodway is treated similar to the One-Zone floodplain, where new development is generally not permitted. The flood fringe is the portion of the floodplain that could potentially be safely developed or altered with no adverse impacts. New development or redevelopment is permitted in the flood fringe if it is protected to the level of the Regulatory Flood and consistent with Two-Zone policies.

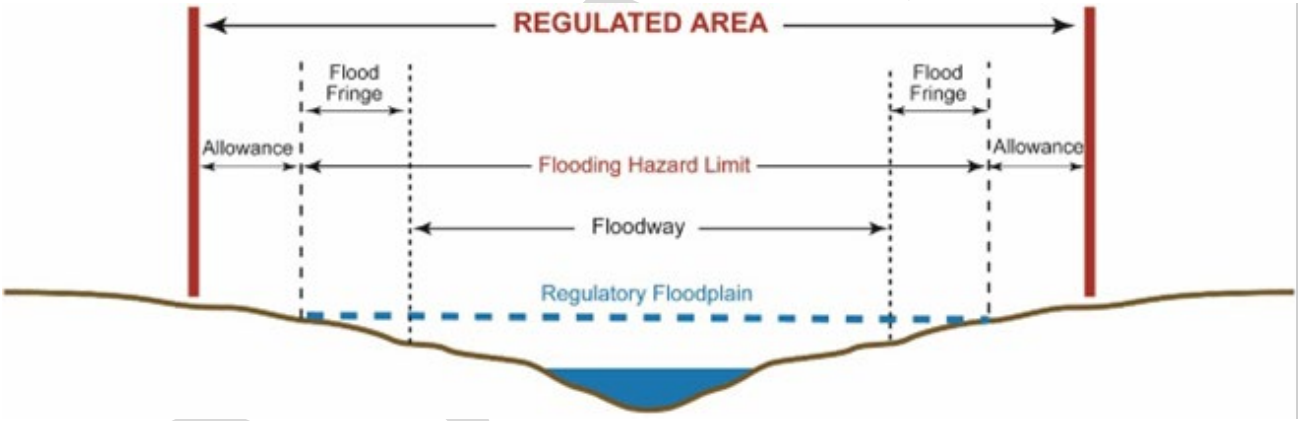


Figure 4-6 Riverine Flooding Hazard – Regulated Area for Two-Zone Policy Areas

A Two-Zone Policy area may be considered where SVCA in cooperation with the municipality, after due consideration of local circumstances, agrees that application of the concept is suitable. The application of a Two-Zone Policy may be applied in urban settlement areas where the following conditions have been met:

a. the application of a One-Zone Policy would cause undue hardship to the community in existing serviced areas and/or where channel enhancements or major dyke works have been carried out,

b. the application of a Two-Zone Policy Area is supported by the SVCA and the municipality after due consideration of a number of community-related and technical factors

c. a higher level of risk is accepted by the municipality and the SVCA,

d. a hydraulic study is undertaken which determines the extent of the floodway and flood fringe

in a Two-Zone scenario for the area, and

e. the municipality incorporates appropriate policies and standards into its official plan and zoning by-laws.

The application of a Two-Zone Policy Area is not intended to be applied to the entire watershed or on a lot-by-lot basis, but rather on a sub-watershed or major reach basis. Where the SVCA and the municipality agree to the use of a Two-Zone Policy Area, appropriate official plan designations and zoning must be put into place by the municipality. The Two-Zone approach to floodplain management in SVCA's watershed applies to the communities of Durham, Neustadt, Paisley, Teeswater, and Walkerton.

Two-Zone Policy Areas

In a Two-Zone Policy Area, the floodplain is divided into two distinct sections – the floodway and the flood fringe. The floodway is that area of the floodplain that is required to pass the flows of greatest depth and velocity. The flood fringe lies between the floodway and the edge of the floodplain. Depths and velocities of flooding in the flood fringe are generally less than those in the floodway. The technical considerations used to determine the floodway-flood fringe delineation and the suitability of applying a Two-Zone policy are described in the Ministry of Natural Resources Technical Guide River and Stream Systems Flooding Hazard Limit (2002).

4.7.3.1 Floodway (Two Zone) – Permitted

Development and alteration activities in the floodway will only be permitted in accordance with One-Zone Policy Area policies (4.7.2).

4.7.3.2 Flood Fringe and Spill Areas – Permitted

The following *development and alteration activities* will be permitted in the Flood Fringe portion of a Two-Zone Policy Area, or within 50 metres of a designated Spill Area as identified on engineered floodplain mapping:

Permitted Uses	Conditions
Construction or reconstruction of a building or structure.	If it has been demonstrated to the satisfaction of the SVCA that: a. the building or structure is floodproofed to the elevation of the Regulatory Flood in accordance with Section 4.7.4, b. grading is kept to a minimum, c. structural engineering will be required should the lowest floor elevation be below the flood elevation, d. safe access (Section 4.7.5) is achievable where feasible, e. no basement is proposed, or the basement is floodproofed to the elevation of the Regulatory Flood. This may include structural engineering to ensure

Permitted Uses	Conditions
	hydrostatic uplift and side pressure, velocity, impact loading, and waterproof design are addressed, f. for new construction, all habitable floor space and electrical, mechanical and heating services are above the elevation of the Regulatory Flood, and g. for reconstructions, habitable floor space and electrical, mechanical and heating services may be located below the elevation of the Regulatory Flood if: i. locating them above the elevation of the Regulatory Flood is not feasible, ii. the total habitable floor space below the elevation of the Regulatory Flood will not exceed the total habitable floor space below the elevation of the Regulatory Flood of the existing building, and iii. the building is passive dry floodproofed as per Section 4.7.4.
Additions to existing buildings and structures or proposed changes of use.	If it has been demonstrated to the satisfaction of the SVCA that: a. there is no feasible alternative site outside the Flood Fringe, b. ingress and egress is “dry” where this standard can be practically achieved, or floodproofed to an elevation which is practical and feasible, but no less than “safe”, c. the risk of structural failure due to potential hydrostatic/dynamic, impact loading, pressures is addressed, d. all habitable floor space is floodproofed, e. no basement is proposed, and any crawl space is non-habitable and designed to facilitate non-essential services only, f. for industrial, agricultural or commercial uses, when in a flood fringe area, floodproofing is recommended to the highest extent possible for additions up to 50 percent of the original ground floor area of the building or structure[4] to a maximum of 100 square metres (1,076 square feet). All additions (built after Two-Zone

[4] Where an addition has been previously constructed, it will be considered part of the "original ground floor" of the building or structure if it was constructed before Two-Zone Policy was introduced for that community (1990 in Durham, Neustadt, Paisley, and Walkerton; 2016 in Teeswater).

Permitted Uses	Conditions
	Policy was introduced), combined must be equal to or less than 50 percent of the original ground floor area of the building or structure to a maximum footprint of 100 square metres (1,076 square feet). There is no size restriction to industrial, agricultural or commercial additions in a Spill Area. Additions beyond the above noted size threshold must be floodproofed in accordance with Section 4.7.4, and g. for residential uses, when in the flood fringe, floodproofing is recommended to the highest extent possible for additions up to 50 percent of the original ground floor area of the building or structure[5] to a maximum of 46.5 square metres (500 square feet). All additions (built after Two-Zone Policy was introduced), combined must be equal to or less than 50 percent of the original ground floor area of the building or structure to a maximum footprint of 46.5 square metres (500 square feet). There is no size restriction to residential additions in a Spill Area. Residential additions beyond the above noted size threshold must be passive dry floodproofed in accordance with Section 4.7.4.
Public infrastructure including but not limited to roads, sanitary sewers, utilities, water supply wells, well houses, and pipelines. Stream bank, slope and valley stabilization work to protect existing development. Conservation or restoration projects. Infrastructure which by its nature must locate in floodplains, including but not limited to stairways and access points. Development associated with public parks (e.g. passive or low intensity outdoor recreation	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, and b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.

[5] Same as previous footnote.

Permitted Uses	Conditions
and education, trail systems). Minor removal or placement of fill and site grading. Minor encroachment by a sewage disposal system.	
Replacement of sewage disposal systems.	The replacement system should be located outside of the flood hazard where possible and only permitted within the flood hazard if located in the area of lowest risk.
Activities associated with the construction of a driveway or similar to provide access to lands outside of the flood hazard. Above-ground parking lots.	If it has been demonstrated to the satisfaction of the SVCA that: **a.** the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, **b.** the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property, and **c.** the provision of safe access (Section 4.7.5) has been met.

4.7.3.3 Silver Creek Policy Area – Permitted

In accordance with SVCA Motion E86-48, the floodway is 20 feet from the bank of Silver Creek in Walkerton and the rest of the floodplain area is considered flood fringe.

4.7.4 Floodproofing

Floodproofing is a combination of structural changes and/or adjustments incorporated into the basic design and/or construction or alteration of individual buildings, structures or properties subject to flooding to reduce or eliminate flood damages. Total protection from flood damage cannot always be assured, however, if applied effectively, floodproofing can play a significant role in comprehensive floodplain management.

Floodproofing is most appropriate in situations where moderate flooding with low velocity and short duration is experienced. Although measures can be applied to both existing and new developments, it is usually impractical, expensive and extremely difficult to floodproof existing buildings. Since floodproofing is best incorporated into the initial planning and design stages, new development has the greatest potential for permanent structural adjustment. In general, floodproofing can be applied most economically and effectively in the design of new buildings in developing areas. It can also be applied to infilling situations and proposed additions in developed areas.

All floodproofing measures can be described as passive or active. The type of floodproofing required by SVCA depends on the nature of the development and the flood hazard at that location. The use of a building, particularly whether it is habitable or not, is a key factor. The habitable portion of a structure is defined as living space intended for use by the occupant with the key concern being overnight occupancy. A habitable room is further defined as any room in a dwelling unit used for or

capable of being used for living, cooking, sleeping or eating purposes. Recognizing the required floodproofing measures are the minimum standard, where feasible, SVCA will require the most effective floodproofing measures to reach the requirements.

Passive Floodproofing

Passive floodproofing measures tend to be incorporated into a building when it is being constructed and do not require flood warning or other action to put the flood protection into effect. Passive floodproofing can provide 'dry' protection (the building is designed to stay dry during a flood), or 'wet' protection (the building is designed to be flooded without being damaged). Passive floodproofing is the only acceptable floodproofing methodology for residential uses, and more specifically, passive dry floodproofing is the only acceptable floodproofing methodology for habitable uses.

Passive dry floodproofing methods generally include:

- raising a building or structure above the flood elevation on suitable fill material, and/or
- structurally engineering a building or structure to be waterproof and to withstand flood forces experienced at the site, up to and including the regulatory flood.

Passive wet floodproofing methods generally include:

- design elements that allow flood waters to enter a building
- the use of water-resistant construction materials
- elevating electrical and mechanical services and keeping areas below the flood elevation unfinished
- sloping floors and/or installing sump pumps for easier cleanup

The intent of wet floodproofing is to maintain structural integrity by avoiding external unbalanced forces from acting on buildings during and after a flood, to reduce flood damage to contents, and to reduce the cost of post flood clean up. Its use is limited to certain non-habitable structures (e.g. open-sided structures, parking garages, sheds), where flooding will not damage the structure.

4.7.4.1 Passive Dry Floodproofing - Permitted

Where the specific policies in Section 4.7 allow for development in a floodplain, the use of passive dry floodproofing methods can be suitable for habitable and non-habitable uses, subject to conditions that SVCA will identify during review of the proposal. Examples of typical conditions include:

a. all openings (windows, vents, doors) and electrical shall be located above the regulatory flood level, with elevations clearly indicated on submitted plans and confirmed post-construction by a qualified engineer or certified Ontario Land Surveyor,

b. structural details of foundation elements and/or specifications for fill materials and compaction procedures shall be prepared or approved by a qualified engineer at the applicant's expense,

c. the responsible engineer shall certify in writing that the design has taken into account regulatory flood (velocity and depth of flow) and site (soil type, bearing capacity, etc.) conditions encountered at the specific location of the development,

d. the engineer's certificate shall confirm that the foundation and building are designed to withstand hydrostatic pressures and/or impact loading that would develop under water levels

equivalent to the regulatory flood,

e. the responsible engineer shall identify all operation and maintenance requirements that will ensure the effective performance of the floodproofing measures over the design life of the structure, and

f. notwithstanding the conditions above, passive dry floodproofing shall not be suitable for the uses described in Policy 4.7.4-4.

4.7.4.2 Passive Wet Floodproofing - Permitted

Where the specific policies in Section 4.7 allow for development in a floodplain, passive wet floodproofing methods can be suitable for non-habitable uses, subject to conditions that SVCA will identify during review of the proposal. Examples of typical conditions include:

a. basements are not permitted,

b. the interior space below the regulatory flood level shall remain unfinished,

c. proposals shall clearly indicate how flood waters can enter the structure to equalize hydrostatic pressure on either side of the foundation walls and slab

d. proposals must clearly indicate how impact loading is to be addressed,

e. all mechanical and electrical equipment, heating/cooling units and ductwork, and hazardous materials shall be located above the regulatory flood level,

f. construction material below the regulatory flood level shall be able to withstand anticipated flood conditions without being damaged,

g. buildings shall be securely anchored to avoid becoming dislodged,

h. top of windowsills shall be at least 150 mm below the finished exterior grade (to allow flood waters into the structure relieving hydrostatic pressure as soon as flooding of the surrounding land commences),

i. to facilitate clean up, a sump pump or sloped floors may be required, and

j. notwithstanding the conditions above, passive wet floodproofing shall not be suitable for the uses described in Policy 4.7.4-4.

Active Floodproofing

Active floodproofing provides 'dry' protection and requires some action for the measure to be effective, like closing watertight doors or installing flood shields. Operators typically require advance warning of the flood to make the flood protection operational. Active floodproofing is not an acceptable floodproofing methodology for habitable or residential uses.

4.7.4.3 Active Floodproofing - Permitted

Where the policies listed in Section 4.7 allow for development in a floodplain, active floodproofing methods can be suitable for non-residential and non-habitable uses, subject to conditions that SVCA will identify during review of the proposal. Examples of typical conditions include:

a. structural details of active floodproofing measures shall be prepared or approved by a qualified engineer at the applicant's expense,

b. the responsible engineer shall certify in writing that the design has taken into account

regulatory flood (velocity and depth of flow) conditions encountered at the specific location of the development,

c. the engineer's certificate shall confirm that the measures are designed to withstand impact loading that would develop under water levels equivalent to the regulatory flood,

d. the responsible engineer shall also all operation and maintenance requirements that will ensure the effective performance of the floodproofing measures over the design life of the structure,

e. flood shields, if used, shall not exceed three feet in height, and

f. notwithstanding the conditions above, active floodproofing shall not be suitable for the uses described in Policy 4.7.4-4.

4.7.4.4 Uses Not Suitable for Floodproofing

New development, regardless of the type of floodproofing proposed, will not be permitted to locate in the floodplain where the use is:

a. associated with the manufacture, storage, disposal and/or consumption of hazardous substances or the treatment, collection and disposal of sewage, which would pose an unacceptable threat to public safety if they were to escape their normal containment/use as a result of flooding or failure of floodproofing measures,

b. associated with institutional services, such as hospitals, nursing homes and schools, which would pose a significant threat to the safety of the inhabitants (i.e., the sick, the elderly, the disabled or the young), if involved in an emergency evacuation situation as a result of flooding or failure of floodproofing measures, or

c. associated with services such as those provided by fire, police and ambulance stations and electrical sub-stations, which would be impaired during a flood emergency as a result of flooding or failure of floodproofing measures.

4.7.5 Safe Access (Ingress / Egress)

The ability for the landowner, future landowners/occupants, public and emergency operations staff (police, firefighters, ambulance, municipal flood response teams etc.) to safely access a site during an emergency, such as a flooding or erosion event, is an important factor when considering any application for development activities. A permit application must be reviewed to ensure access to the proposed development is safe and appropriate for the proposed use. The applicant shall provide to the satisfaction of the CA, studies and/or plans that demonstrate how pedestrians, vehicles, emergency responders and equipment can gain access to and from the regulated feature in the event of a natural hazard. This includes ingress/egress that meets the access standards in these circumstances: during an event, for maintenance or repair, and/or construction of new remedial works.

In the context of new development activities, the risks should be controlled by prohibiting development in potentially dangerous or inaccessible portions of the regulated feature.

Where applications propose development within areas that have ingress/egress issues, it is recommended that the CA work with the applicant to ensure that safe access is achieved. Where safe access is not demonstrated or is not possible based on the proposed permit application, the CA should advise the applicant and try to work with the applicant to identify alternative options (if available).

If safe access cannot be ensured to the satisfaction of the CA, consideration should be given to recommending refusal of the permit application.

Specific Safe Access Criteria for Flood Hazards

In accordance with the MNR Technical Guide: River & Stream Systems: Flooding Hazard Limit (2002), access to and from a site may be considered 'safe' for both pedestrians and automobiles where the following depth and velocity criteria are met:

a. the depth of flooding to the site of the building does not exceed 0.3 metres under regulatory flood conditions,

b. the velocity of floodwaters overtopping the access route does not exceed 1.7 metres per second under regulatory flood conditions, or

c. the product of flooding depth and velocity to the site of the building does not exceed 0.4 square metres per second.

Notwithstanding the above criteria, where the proposed development requires access onto an existing flooded roadway, the development may be permitted provided the following is addressed:

a. access to/from the site must have flood depths and velocities less than or equal to those experienced on the existing roadway, and

b. the affected municipal emergency services provides written confirmation that acceptable provisions for emergency ingress/egress, appropriate for the nature of the development and the flood hazard, are available.

For existing developed sites, safe access does not need to be addressed where a proposed secondary or accessory building or structure is non-habitable and no additional risk to life or property would result.

Access/egress shall always remain dry for institutional buildings servicing the sick, the elderly, the disabled or the young and in buildings utilized for public safety purposes (i.e. police, fire, ambulance and other emergency measures).

For reconstruction of an existing structure, the following factors will be considered:

- The degree of risk with the use of the existing access,
- The ability to modify the existing private or public access or construct a new safe access,
- The ability to find and use the access during an emergency, and
- The ability and willingness of the municipality to allow staff and emergency vehicles to use the access (confirmation in writing may be considered).

Cut / Fill Analysis

It may be possible to meet the criteria for safe access by filling portions of the floodplain to elevate an access route. However, doing so can aggravate the flood hazard on other properties and increase the risk to life or property. Proposals must demonstrate that the obstruction to flow caused by the elevated access and the loss of flood storage capacity does not have a negative impact on the control of flooding.

Under the right circumstances, the issue of flood storage capacity can be addressed by

removing the same volume of fill from the same general area of the floodplain that was elevated to achieve a cut/fill balance. Plans must be outlined in a Cut/Fill Analysis, usually completed by a qualified engineer after completing a detailed topographic survey. Due to the unique nature of every site and proposal, applicants must work closely with SVCA to understand the requirements of the Cut/Fill Analysis to ensure all concerns are addressed.

4.7.6 Inland Lakes

Lands that are adjacent to and/or are close to the shorelines of inland lakes that have a surface area of greater than 2 hectares (5 acres) and less than 100 square km (39 square miles) and/or that respond to a single runoff event could be affected by flooding or erosion. These lands are within the jurisdiction of the SVCA. Any *development or alteration activities* proposed within or on the regulated areas immediately adjacent to an inland lake will require permission from the SVCA.

4.7.6.1 Inland Lakes

Development and alteration activities along inland lake shorelines that are impacted by flooding or erosion hazards will be subject to the riverine flooding and erosion policies listed in Sections 4.7 and 4.10. *Development and alteration activities* will generally not be permitted within a minimum 15 metres of the shoreline. In situations where no development currently exists, a minimum 30 metre setback will be encouraged.

4.7.6.2 Permanent Docks on Inland lakes

Temporary docks are encouraged and exempt from permitting if the conditions outlined in Policy 4.5.1-2 are addressed. Permanent docking and related facilities to be placed wholly or partially within the water of inland lakes are discouraged. Any such facilities will be permitted if it has been demonstrated to the satisfaction of the SVCA that:

a. it is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock,

b. it is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property, an

c. the applicant is the owner of the bed of the lake or has obtained written permission from the landowner.

4.7.6.3 Boathouse Reconstruction on Inland Lakes

Boathouses are non-habitable structures meant to shelter boats from sun and rain that are situated partially or completely on a body of water. Boathouse reconstruction will be permitted on inland lakes if it has been demonstrated to the satisfaction of the SVCA that

a. it will not exceed the footprint or floor space of the existing boathouse,

b. it will be passive wet floodproofed in accordance with Policy 4.7.4-2,

c. it is not likely to affect the control of flooding or erosion,

d. it is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property, and

e. the applicant is the owner of the bed of the lake or has obtained written permission from the landowner.

4.7.6.4 Geographic Township of Brant Inland Lakes Specific Policies (Marl Lake, Lake Rosalind, Pearl Lake, Dankert Lake)

It is SVCA practice to assume a flooding hazard of the above referenced lakes to be 1.5 metres/5 feet above the typical highwater level of the lake. Therefore, in locations where only the flooding hazard exists, the SVCA Hazardous Lands line is assumed to be drawn at the location where the elevation/contour is 1.5 metres/5 feet above the water level of the lake. The SVCA Regulated Area extends 15 metres beyond/outwards from the SVCA Hazardous Lands line.

4.7.7 Dug Out/Isolated Ponds

4.7.7.1 New Dug Out/Isolated Ponds – Permitted

New dug out/isolated ponds and enlargements, where not exempt from permitting in accordance with Policy 4.5.1-1, will be permitted within the Riverine Flooding Hazard if it has been demonstrated to the satisfaction of SVCA that:

a. the pond is not located within the riverine erosion hazard,
b. the pond is not located in a wetland,
c. the pond is not connected to a watercourse channel,
d. the finished side slopes are stable,
e. appropriate sediment and erosion control measures are installed and maintained, and
f. there are no negative impacts to the floodplain (includes considerations for spoil material).

4.7.7.2 Existing Dug Out/Isolated Ponds – Permitted

The maintenance of an existing dug out/isolated pond, where not exempt from permitting in accordance with Policy 4.5.1-1, will be permitted in the Riverine Flooding Hazard if it has been demonstrated to the satisfaction of SVCA that:

a. the finished side slopes are stable,
b. the pond is not deepened beyond the removal of accumulated sediment and vegetation,
c. if within a wetland, the maintenance will not have an impact on wetland hydrology,
d. appropriate sediment and erosion control measures are installed and maintained, and
e. there are no negative impacts to the floodplain (includes considerations for spoil material).

4.8 Riverine Erosion Hazard Specific Policies

The area regulated by SVCA within river and stream valleys is described in Section 2 of Ontario Regulation 41/24 (*the Regulation*):

2. (1) For the purposes of subparagraph 2 (iii) of subsection 28 (1) of the Act, river or stream valleys include river or stream valleys that have depressional features associated with a river or stream, whether or not they contain a watercourse, the limits of which are determined as follows:

1. Where the river or stream valley is apparent and has stable slopes, the valley extends from the

stable top of the bank, plus 15 metres, to a similar point on the opposite side.

2. Where the river or stream valley is apparent and has unstable slopes, the valley extends from the predicted long term stable slope projected from the existing stable slope or, if the toe of the slope is unstable, from the predicted location of the toe of the slope as a result of stream erosion over a projected 100-year period, plus 15 metres, to a similar point on the opposite side.

3. Where the river or stream valley is not apparent, the valley extends,

(i) to the furthest of the following distances:

A. the distance from a point outside the edge of the maximum extent of the flood plain under the applicable flood event standard to a similar point on the opposite side, and

B. the distance from the predicted meander belt of a watercourse, expanded as required to convey the flood flows under the applicable flood event standard to a similar point on the opposite side, and

(ii) an additional 15-metre allowance on each side, except in areas within the jurisdiction of the Niagara Peninsula Conservation Authority.

4.8.1 Riverine Erosion Hazards: Definition and Context

Erosion is a natural process of soil loss due to human or natural processes. The Riverine Erosion Hazard within river or stream valleys is that area of riverbank and lands adjacent to watercourses where erosion is actively occurring and/or where development could create slope stability issues. According to the MNR Technical Guide for River and Stream Systems, Erosion Hazard Limit, the riverine erosion hazard applies to all watercourses and lake systems in the SVCA watershed. Large Inland Lake criteria for defining the erosion hazard does not apply.

The Riverine Erosion Hazard applies to those portions of the valleyland system that are both apparent (confined) and not apparent (unconfined). The extent of the hazard varies and is dependent on the characteristics of the bedrock and soils which comprise the valley slope, the degree to which the valley slope is stable or unstable, and whether the valley slope is subject to active erosion. Valley systems are considered to be apparent or confined where valley walls are greater than 2 metres, with or without a floodplain.

Apparent Valleys can exhibit three different conditions within which erosion hazards exist or may develop:

- valley slopes that are presently stable,
- valley slopes that are over-steepened and potentially unstable, and
- valley slopes that are subject to stream bank erosion.

Where a watercourse is not contained within a clearly visible valley section, valleys are considered to be not apparent (unconfined).

Defining the Regulated Area for Apparent Valleys (Confined Systems)

Where valley slopes are not over-steepened and toe erosion is not a concern, the Regulated Area includes the river or stream valley extending to the top of slope and an allowance of 15 metres from the top of slope (Figure **4-7**).

Where the valley slopes in apparent valleys have a slope inclination of 3 (horizontal): 1 (vertical) or steeper, the limit of the Regulated Area includes three components: the Stable Slope Allowance, the

Toe Erosion Allowance (if applicable), plus an allowance of 15 metres (Figure **4-8** and Figure **4-9**). The Toe erosion allowance is included where active toe erosion is occurring or where a watercourse is located within 15 metres of a valley slope.

An exception to the above stable slope profile may occur in specific area(s) of the SVCA watershed where a geotechnical assessment (reviewed and approved by SVCA) determines that a different stable slope profile is appropriate. This geotechnical assessment may be conducted on either a site-specific basis, or on a larger slope or valley system basis.

Stable Slope Profile in Kincardine

A geotechnical assessment was completed for the geographic Town of Kincardine and that study concluded an alternative appropriate Stable Slope Allowance. Where this slope stability study applies, the Stable Slope Allowance is calculated using a 2.25:1 slope gradient, plus ½ the height of the bank offset, measured from the toe of slope horizontally inland of the valley slope.

Access Allowances

River or stream valley allowances allow SVCA to regulate development adjacent to erosion and flooding hazards in a manner that provides protection against unforeseen or predicted external conditions that could have an adverse effect on the natural conditions or processes of the river or stream valley.

Development and alteration activities within the allowance must be regulated to ensure that existing erosion and flooding hazards are not aggravated, that new hazards are not created, and to ensure that public safety will not be negatively affected. The allowance provides SVCA and its watershed municipalities with the opportunity to maintain and enhance the natural features of the river or stream valley.

Regulation is also required to deal with issues related to accuracy of the modeling and analysis tools utilized to establish the limits of the erosion and flooding hazards. To provide access and protection against unforeseen conditions, provincial guidelines recommend a minimum 6-metre access allowance as part of defining erosion and flooding hazards (sections 3.0 and 3.4, Erosion Access Allowance, Technical Guide – River and Stream Systems: Erosion Hazard Limit (MNR, 2002b)). As a result, a provision for a 6-metre access allowance shall be considered for development within the Regulated Area. SVCA may determine that a reduced access allowance is appropriate where the existing development already encroaches within the recommended 6-metre setback, and where further development will not aggravate the erosion or flooding hazard.

Technical Analysis for Riverine Erosion Hazards

Frequently technical analysis is required to determine the appropriate toe erosion, slope stability, and meander belt allowances. Technical studies should be carried out by a qualified professional, with recognized expertise in the appropriate discipline, and should be prepared using established procedures and recognized methodologies to the satisfaction of SVCA.

With respect to riverine erosion hazards, technical studies should be in keeping with the Technical Guide – River and Stream Systems: Erosion Hazard Limit, (MNR, 2002b) and must demonstrate that there is no increased risk to life or property. The Technical Guide provides four methods of determining the toe erosion allowance. The Technical Guide also states that toe erosion rates are

best determined through long-term measurements and that a minimum of 25 years of data is recommended for erosion assessment rates. (See sections 3.0, 3.1, 4.1, and 4.3 of the Technical Guide for more information).

It is essential that qualified professionals properly characterize the watercourse in question to identify what processes are occurring. For channels where processes indicative of instability, such as downcutting, are identified, very detailed fluvial geomorphic analyses would likely be required to predict erosion rates. As well, watercourses in catchments experiencing rapid land use change where the sediment and hydrologic regimes are changing could be experiencing erosion rates that are shifting in response, and that rate of change may not be quantifiable without significant detailed analysis.

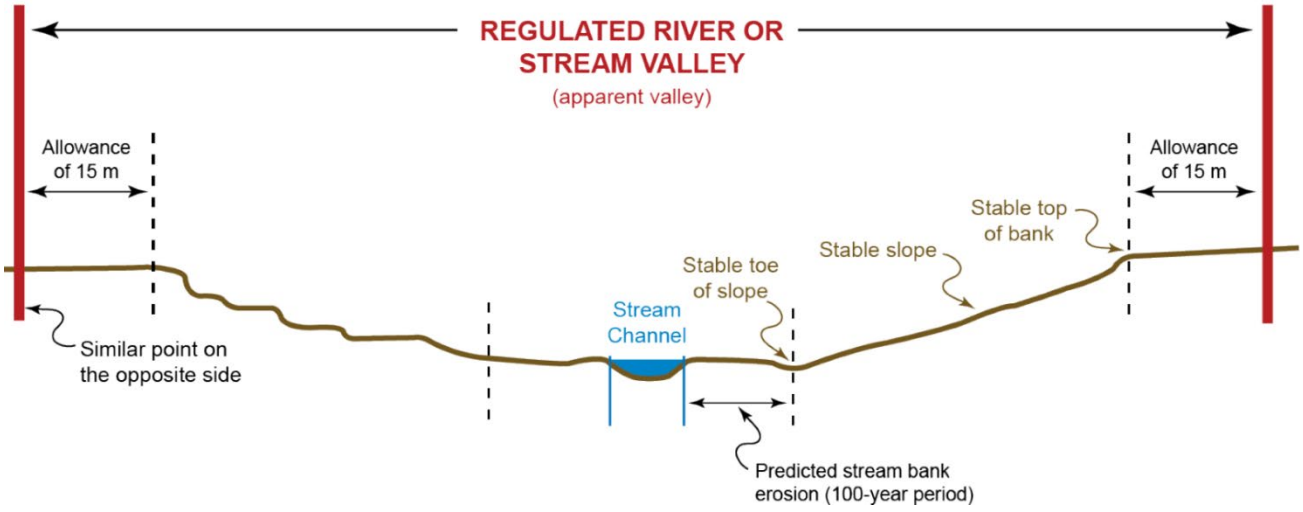
The Technical Guide provides important information respecting slope stability analysis. Slope stability analysis shall be undertaken in accordance with Appendix E: Geotechnical Principles for Stable Slopes, Terraprobe Limited for Ontario Ministry of Natural Resources, 1994.

4.8.2 Riverine Erosion Hazard for Apparent Valleys (Confined Systems) with Stable Slopes

Valley slopes that are less steep than 3 (horizontal): 1 (vertical) are considered stable. Steeper slope profiles can also be considered stable where a geotechnical assessment[6] (reviewed and approved by SVCA) determines that a different stable slope profile is appropriate. This geotechnical assessment may be conducted on either a site-specific basis, or on a larger slope or valley system basis.

While stable slopes do not pose an immediate erosion hazard, development should be directed away if possible because the long-term stability of the slope, and therefore public health and safety, cannot be guaranteed. Over time, meandering watercourses can de-stabilize otherwise stable slopes, and poorly engineered *development and alteration activities* can create hazards where they otherwise do not exist.

Likewise, activities should be set back from the top of valley slopes far enough to avoid increases in loading forces on the top of the slope or changes in drainage patterns that would compromise slope stability or exacerbate erosion.



[6] Slope stability analysis shall be undertaken in accordance with Appendix E: Geotechnical Principles for Stable Slopes, Terraprobe Limited for Ontario Ministry of Natural Resources, 1994

Figure 4-7 Apparent River or Stream Valley where Valley Slopes are Stable

4.8.2.1 Stable Valley Slopes – Permitted

Development and alteration activities will be permitted on stable slopes of an apparent river or stream valley, including over-steepened slopes where technical assessment or studies demonstrate that lands are not subject to an erosion or flooding hazard, if it has been demonstrated to the satisfaction of SVCA that:

a. alternative locations have been considered for the *development and alteration activities* outside of the apparent river or stream valley,

b. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock,

c. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property,

d. there is no impact on existing and future slope stability,

e. streambank stabilization or erosion protection works are not required,

f. development will have no negative impacts on natural stream meandering/fluvial processes,

g. structural development would not be susceptible to stream erosion,

h. development will not prevent access into and through the valley to undertake preventative actions /maintenance or during an emergency,

i. access through an erosion susceptible area is not required, and

j. the potential for surficial erosion has been addressed through the submission of proper drainage, erosion and sediment control and site stabilization/restoration plans.

4.8.3 Riverine Erosion Hazard for Apparent Valleys (Confined Systems) with Over-steepened Slopes

On over-steepened slopes where the toe of the slope is stable and located more than 15 metres from a watercourse, the Riverine Erosion Hazard is defined using a Stable Slope Angle. The standard Stable Slope Angle is 18 degrees / 33.3 percent / 3 (horizontal): 1 (vertical), or where determined otherwise from a geotechnical study or engineering assessment[7].

The Stable Slope Allowance is the distance between the existing valley top of slope and the point at which a stable slope gradient, rising from the same toe position, intersects the ground surface and includes an appropriate factor of safety. This is the distance required for the slope to reach a stable slope inclination. Therefore, setbacks from both the top of slope and bottom of slope are required to address the slumping hazard on over-steepened slopes with new development.

Figure 4-8 shows the components used to establish the Regulated Area with over-steepened slopes, no active toe erosion, and the toe of the valley slope is located more than 15 metres from a watercourse.

[7] Slope stability analysis shall be undertaken in accordance with Appendix E: Geotechnical Principles for Stable Slopes, Terraprobe Limited for Ontario Ministry of Natural Resources, 1994

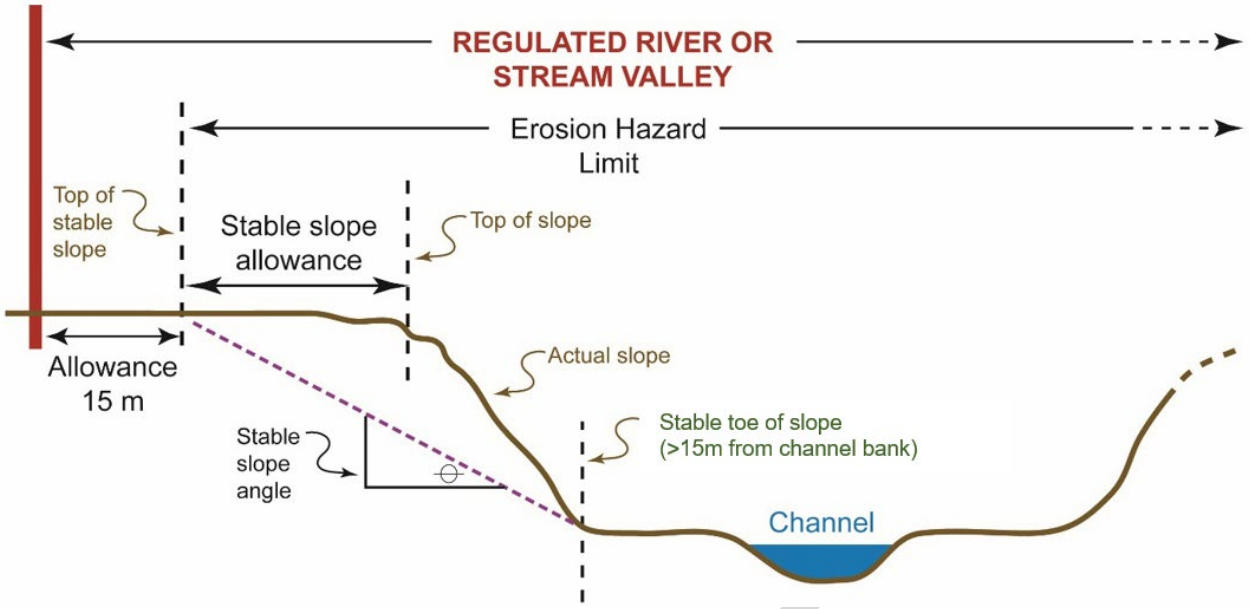


Figure 4-8 Regulated Area and Erosion Hazard Limit for Apparent Over-steepened Valleys without Toe Erosion and Toe of Valley Slope more than 15 metres from Watercourse

A Toe Erosion Allowance is added into the Riverine Erosion Hazard where valley slopes are located 15 metres or less from a watercourse (Figure **4-9**). The standard Toe Erosion Allowance is 15 metres from the watercourse bank. Site specific investigations by SVCA staff or a qualified engineer may determine that the allowance should be larger or smaller based on factors such as active toe erosion, the width of the watercourse channel, the soil type, and the annual recession rate, in accordance with the MNR Technical Guide for River and Stream Systems. These considerations will also apply where the toe of slope is more than 15 metres from the watercourse but, despite the distance from the watercourse, active toe erosion is occurring.

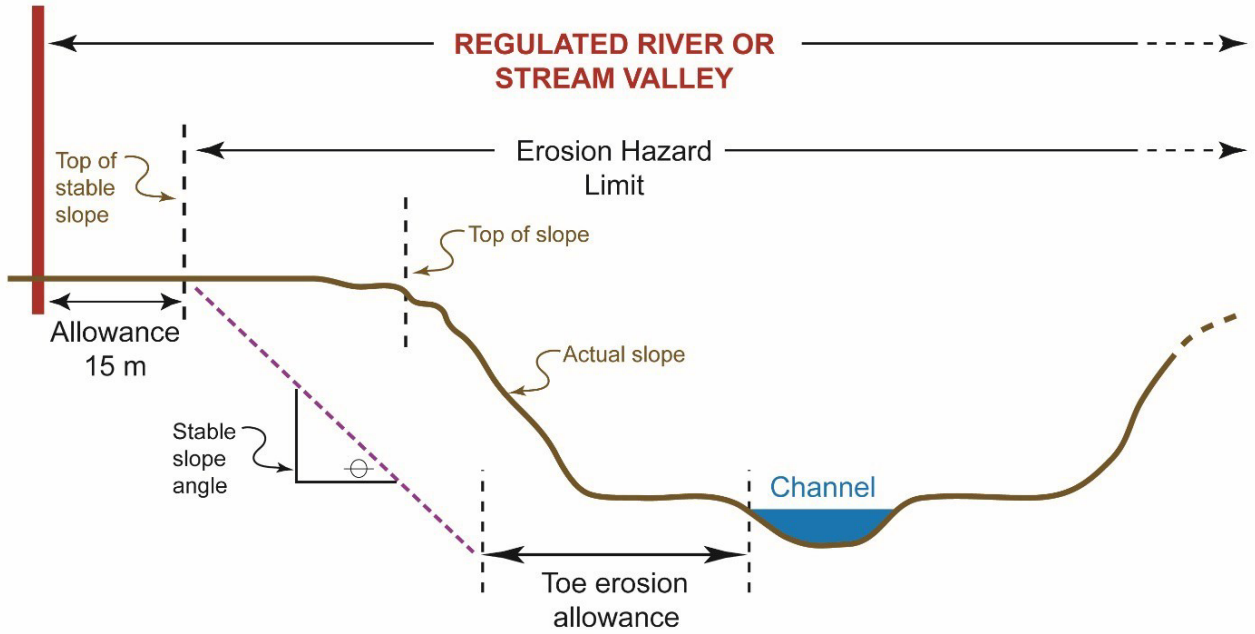


Figure 4-9 Regulated Area and Erosion Hazard Limit for Apparent Valleys with Over-steepened Slopes where Toe of Slope is less than 15 metres from the Watercourse

4.8.3.1 Erosion Hazard Limit of an Apparent River or Stream Valley - Not Permitted

In general, *development and alteration activities* will not be permitted within the erosion hazard limit of an apparent river or stream valley.

4.8.3.2 Erosion Hazard Limit of an Apparent River or Stream Valley – Permitted

Notwithstanding the policies referenced above, the following *development and alteration activities* will be permitted within the erosion hazard limit of an apparent river or stream valley:

Permitted Uses	Conditions
Public infrastructure including but not limited to roads, sanitary sewers, utilities, water supply wells, well houses, and pipelines. Development associated with public parks (e.g. passive or low intensity outdoor recreation and education, trail systems). Stream bank, slope and valley stabilization work to protect existing development. Conservation or restoration projects. Removal or placement of fill and site grading. Recreational infrastructure which by its nature must locate in river valleys such as fencing, stairways, and access points, and other recreational uses deemed appropriate by the SVCA.	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, and b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property. Addressing these conditions may require a site-specific geotechnical or engineering assessment based on established provincial guidelines and appropriate factor of safety to demonstrate that: a. there is no impact on existing and future slope stability, b. the risk of creating new Riverine Erosion Hazards or aggravating existing Riverine Erosion Hazards is minimized through site and infrastructure design and appropriate remedial measures, c. facilities are designed and constructed to minimize the risk of structural failure and/or property damage, d. the potential for surficial erosion is addressed by a drainage plan, and e. where unavoidable, intrusions on hydrologic functions are minimized and it can be demonstrated that best management practices including site and infrastructure design, and appropriate remedial measures will adequately restore and enhance functions.
Development associated with the construction of a driveway or similar to provide access to lands outside of the apparent river or	Ontario Regulation 41/24 indicates that: the maintenance or repair of a driveway or private lane that is outside of a wetland or the maintenance or repair of a public road, provided that the driveway or road is not extended or

Permitted Uses	Conditions
stream valley	widened and the elevation, bedding materials and existing culverts are not altered does not require SVCA permission. For other laneway works, submitted plans shall demonstrate to the satisfaction of SVCA that: a. there is no viable alternative outside of the regulated area; and b. the provision of safe access (Section 4.7.5) has been met.
Development associated with existing uses (e.g., non-habitable accessory buildings, pools, stairs, landscape retaining walls, grading, decks)	If it has been demonstrated to the satisfaction of SVCA that: a. there is no feasible alternative site outside of the apparent river or stream valley or in the event that there is no feasible alternative site, that the proposed development is located in an area that will not affect flood control, erosion, or public safety, b. no development is located on an unstable slope, c. there is no impact on existing and future slope stability, d. bank stabilization or erosion protection works are not required, e. development will have no negative impacts on natural stream meandering/fluvial processes, f. structural development would not be susceptible to stream erosion, g. development will not prevent access into and through the valley to undertake preventative actions /maintenance or repairs, h. the potential for surficial erosion has been addressed through the submission of proper drainage, erosion and sediment control and site stabilization/restoration plans, and i. natural features and/or ecological functions are protected, and flooding hazards have been adequately addressed.
Reconstruction or relocation of a building that has not been damaged or destroyed by erosion	The submitted plans should demonstrate that the building: a. cannot be relocated to an area outside the erosion hazard and that there is no feasible alternative site, that it is located in an area of least (and acceptable) risk;

Permitted Uses	Conditions
	b. will be protected from erosion through the incorporation of appropriate building design parameters; and c. will not exceed original habitable floor area nor the original footprint of the previous structure.
Replacement of sewage disposal systems	The replacement system should be located outside of the erosion hazard where possible and only permitted within the erosion hazard subject to being located in the area of lowest risk.

4.8.3.3 Erosion Hazard of an Apparent River or Stream Valley – Other Slope Hazards

In the SVCA watershed some post glacial re-entrant river valley and shoreline slopes no longer interact with the current watercourse or shoreline location. Although they are not at risk from riverine or shoreline erosion processes, these slopes can pose an erosion risk where they are over-steepened and potentially unstable. Similar to the erosion hazard illustrated in Figure 4-9, the erosion hazard for other slope hazards is defined using a Stable Slope Angle. The Stable Slope Angle is 18 degrees / 33.3 percent / 3 (horizontal): 1 (vertical), or where determined otherwise from a geotechnical study or engineering assessment[8].

The Stable Slope Allowance is the distance between the existing valley top of slope and the point at which a stable slope gradient, rising from the same toe position, intersects the ground surface and includes an appropriate factor of safety. This is the distance required for the slope to reach a stable slope inclination. Setbacks from both the top of slope and bottom of slope are required to address the slumping hazard on over-steepened slopes with new development.

Development and alteration activities within and adjacent to other slope hazards have the same permitted uses and conditions as listed in Policy 4.8.3-1 and Policy 4.8.3-2.

Where technical assessment or studies demonstrate that lands within the other slope hazard are not subject to an erosion or flooding hazard, Policy 4.8.2-1 applies.

4.8.3.4 Allowance Adjacent to the Erosion Hazard of an Apparent River or Stream Valley – Permitted

Development and alteration activities will be permitted within the allowance adjacent to the erosion hazard of an apparent river or stream valley if it has been demonstrated to the satisfaction of the SVCA that the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock and the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property. The submitted plans must demonstrate to the satisfaction of SVCA that:

a. activities will not create or aggravate an erosion hazard,

b. activities are set back a sufficient distance from the stable top of bank to avoid increases in

[8] Slope stability analysis shall be undertaken in accordance with Appendix E: Geotechnical Principles for Stable Slopes, Terraprobe Limited for Ontario Ministry of Natural Resources, 1994

loading forces on the top of the slope,

c. activities will not prevent access to repair the top of the valley slope, which typically requires a 6-metre access allowance from the top of stable slope unless determined to the satisfaction of SVCA that a reduced erosion access allowance is appropriate, and

d. the potential for surficial erosion has been addressed through proper drainage, erosion and sediment control, and site stabilization/restoration plans.

4.8.4 Riverine Erosion Hazard for Unconfined Systems (Meander Belt)

Where there is no apparent valley associated with a watercourse, the system is considered unconfined, and the channel is free to shift or meander. Although toe erosion and slope stability are not potential hazards in unconfined systems, consideration is necessary for the meandering tendencies of the system. In unconfined systems, the Regulated Area is the greater of the extent of the Riverine Flooding Hazard plus the prescribed allowance or the Meander Belt Allowance plus an allowance of 15 metres.

The Meander Belt Allowance provides a limit to development within the areas where the river system is likely to shift. This allowance is based on twenty (20) times the bankfull channel width, where the bankfull channel width is measured at the widest riffle section of the reach. A riffle is a section of shallow rapids where the water surface is broken by small waves. The meander belt axis is centered over the channel – the schematic below (Figure **4-10**) provides additional detail:

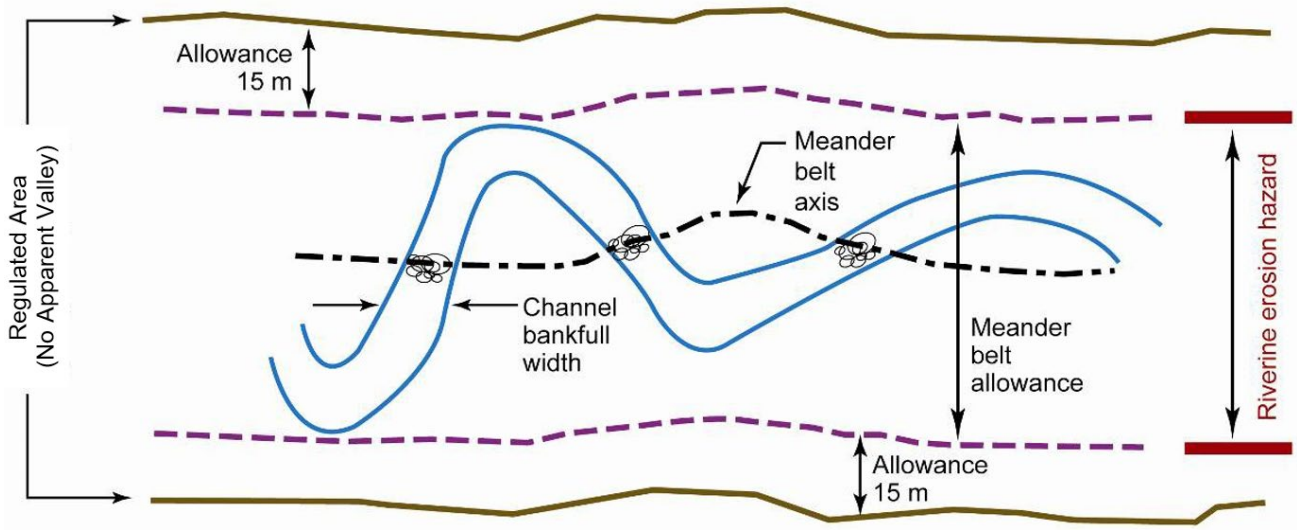


Figure 4-10 Riverine Erosion Hazard (Meander Belt Allowance) and Regulated Area – Unconfined Systems

More details and examples for calculating the meander belt allowance are provided in Sections 3.0, 3.3 and 4.4 of the MNR Technical Guide – River and Stream Systems: Erosion Hazard Limit and the supporting documentation entitled TRCA Belt Width Delineation Procedures (Parish, 2004). Site-specific technical investigations are required to consider deviance from the standard use of 20 times the bankfull channel width to determine the meander belt allowance. The determination of the appropriate meander belt allowance usually involves a wide range of study areas such as geomorphology, engineering, ecology and biology. The existing and the ultimate configuration of the channel in the future must be considered. Due to the challenges in assessing meander belt widths, more than one method of determining the meander belt width may be required for any given application.

4.8.4.1 Riverine Erosion Hazard Limit for Unconfined Systems – Not Permitted

In general, *development and alteration activities* will not be permitted within the erosion hazard limit (meander belt allowance) of unconfined riverine systems.

4.8.4.2 Riverine Erosion Hazard Limit for Unconfined Systems – Permitted

Notwithstanding the policies referenced above, the following *development and alteration activities* will be permitted within the erosion hazard limit (meander belt allowance) of unconfined riverine systems:

Permitted Uses	Conditions
Development associated with public parks (e.g. passive or low intensity outdoor recreation and education, trail systems). Removal or placement of fill and site grading. Recreational infrastructure which by its nature must locate in riverine areas such as fencing, stairways, and access points, and other recreational uses deemed appropriate by the SVCA.	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property, c. development will not prevent access into and through the riverine erosion hazard in order to undertake preventative actions /maintenance or repairs d. bank stabilization or erosion protection works are not required, and e. the potential for surficial erosion has been addressed through the submission of proper drainage, erosion and sediment control and site stabilization/restoration plans. Addressing these conditions may require a site-specific technical assessment based on established provincial guidelines to demonstrate that: a. activities will have no negative impacts on natural stream meandering/fluvial processes, b. structural development would not be susceptible to stream erosion, c. the risk of creating new or aggravating existing riverine erosion hazards are minimized through site and infrastructure design and appropriate remedial measures, and d. facilities are designed and constructed to minimize

Permitted Uses	Conditions
	the risk of structural failure and/or property damage.
Streambank stabilization activities to protect existing development. Conservation or restoration projects.	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, and b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property. Addressing these conditions may require a site-specific technical assessment based on established provincial guidelines to: a. demonstrate that the protection has been designed to adequately address the erosion hazard, b. demonstrate the protection will not create new or aggravate existing erosion hazards, and c. outline the anticipated lifespan and maintenance requirements of the protection.
Development associated with the construction of a driveway or similar to provide access to lands outside of the riverine erosion hazard	Ontario Regulation 41/24 indicates that: the maintenance or repair of a driveway or private lane that is outside of a wetland or the maintenance or repair of a public road, provided that the driveway or road is not extended or widened and the elevation, bedding materials and existing culverts are not altered does not require SVCA permission. For other laneway works, submitted plans shall demonstrate to the satisfaction of SVCA that: a. there is no viable alternative outside of the regulated area, and b. the provision of safe access (Section 4.7.5) has been met.
Development activities associated with existing uses (e.g., non-habitable accessory buildings, pools, landscape retaining walls, grading, decks, etc.)	If it has been demonstrated to the satisfaction of SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.,

Permitted Uses	Conditions
	c. there is no feasible alternative site outside of the riverine erosion hazard, d. the activity is located in an area of least (and acceptable) risk, e. the activity will not prevent access into and through the riverine erosion hazard in order to undertake preventative actions/maintenance or during an emergency, f. bank stabilization or erosion protection works are not required, and g. the potential for surficial erosion has been addressed through the submission of proper drainage, erosion and sediment control and site stabilization/restoration plans. Addressing these conditions may require a site-specific technical assessment based on established provincial guidelines to demonstrate that: a. the activity will have no negative impacts on natural stream meandering/fluvial processes, and b. accessory buildings would not be susceptible to stream erosion within the 100-year planning horizon.
Reconstruction or relocation of a building that has not been damaged or destroyed by erosion	The submitted plans shall demonstrate to the satisfaction of SVCA that the building: a. cannot be relocated to an area outside the erosion hazard, b. is located in an area of least (and acceptable) risk, c. will not exceed original habitable floor area nor the original footprint of the previous structure, and d. will be protected from erosion through the incorporation of appropriate design parameters. Addressing these conditions may require a site-specific technical assessment based on established provincial guidelines to: a. demonstrate that erosion protection measures have been designed to adequately address the erosion hazard, b. demonstrate the erosion protection measures will not create new or aggravate existing erosion hazards,

Permitted Uses	Conditions
	and c. outline the anticipated lifespan and maintenance requirements of the erosion protection measures.
Replacement of sewage disposal systems	The replacement system should be located outside of the erosion hazard and shall only be permitted within the erosion hazard where in the opinion of SVCA, it would be located in the area of lowest (and acceptable) risk.

4.8.4.3 Allowance Adjacent to the Riverine Erosion Hazard Limit for Unconfined Systems

Development and alteration activities will be permitted within the allowance adjacent to the riverine erosion hazard limit for unconfined systems (meander belt) if it has been demonstrated to the satisfaction of the SVCA that the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock and the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property. The submitted plans must demonstrate to the satisfaction of SVCA that:

a. activities will not create or aggravate an erosion hazard,

b. activities will not prevent access to and along the meander belt for maintenance and/or repair,

c. the potential for surficial erosion has been addressed through proper drainage, erosion and sediment control, and site stabilization/restoration plans, an

d. flooding hazards have been adequately addressed.

4.9 Wetlands and "Other Areas"

SVCA's authority to regulate wetlands and their "other areas" comes from the *CA Act* and O. Reg. 41/24 (the *Regulation*). Under the *CA Act*:

28 (1) No person shall carry on the following activities, or permit another person to carry on the following activities, in the area of jurisdiction of an authority:

1. Activities to straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream or watercourse or to change or interfere in any way with a wetland.

2. Development activities in areas that are within the authority's area of jurisdiction and are, …

a. wetlands, …, or

v. other areas in which development should be prohibited or regulated, as may be determined by the regulations. 2017, c. 23, Sched. 4, s. 25."

28.1 (1) An Authority may issue a permit to a person to engage in an activity specified in the permit that would otherwise be prohibited by section 28, if, in the opinion of the authority,

a) the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock; and

b) the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property; …

The tests in the clauses outlined above apply to "change" or "interfere with" a wetland and development activities in the wetland and "other areas" (s. 28 (1) 1 and 2). The tests will be used by SVCA staff in the review of a permit for both of these regulated areas and types of activities.

The *Regulation* defines a "Wetland" as land that:

a. is seasonally or permanently covered by shallow water or has a water table close to or at the surface,

b. contributes directly to the hydrological function of a watershed through connection with a surface watercourse[9],

c. has hydric soils, the formation of which have been caused by the presence of abundant water, and

d. has vegetation dominated by hydrophytic (water tolerant) plants, the dominance of which has been favoured by the presence of abundant water.

The definition of "wetland" does not include periodically soaked or wet land used for agricultural purposes which no longer exhibits a wetland characteristic referred to in clause (c) or (d) of that definition.

The *Regulation* delineates "other areas" as being "within 30 metres of a wetland". These are areas where *development and alteration activities* may interfere with the natural features or hydrologic function of a wetland or watercourse.

"Interference in any way" is interpreted as any anthropogenic act or instance which hinders, disrupts, degrades or impedes in any way the natural features or hydrologic functions of a wetland or watercourse (Conservation Ontario, 2008).

Wetland Functions

Wetlands are important natural features on the landscape, whether they are permanently or seasonally wet. Wetlands perform many important hydrologic functions. Wetlands moderate water flow by absorbing much of the surface water runoff from the land and then slowly releasing it into watercourses or the water table. This helps to reduce flooding and to sustain stream flows during dry spells. Many wetland areas recharge groundwater by moving surface water into the groundwater system. As a result, they play an important role in protecting and improving water quality, provide for fish and wildlife habitat and offer a number of associated recreational opportunities. The lands that surround wetland areas are important in sustaining their vital hydrological and ecological functions.

"Hydrologic function" is defined in the Provincial Policy Statement (2020) as the functions of the hydrological cycle that include the occurrence, circulation, distribution and chemical and physical properties of water on the surface of the land, in the soil and underlying rocks,

[9] Note that all wetlands are deemed to directly contribute to the hydrological function of a watershed. Where a surface connection between a wetland and a watercourse is not apparent, it is assumed a groundwater connection exists between them, unless there is information to the contrary as per the MNR and Conservation Ontario "Guidelines for Creating Scheduled Areas" (2005)

and in the atmosphere, and water's interaction with the environment including its relation to living things. This is a comprehensive definition for the hydrologic cycle, which allows many factors to be considered when reviewing interference to wetlands.

Development and Interference

There are three ways in which the *CA Act* and *Regulation* addresses wetlands:

a. Development within the wetland boundary:

Development and alteration activities must be assessed with respect to the "tests" outlined in s. 28.1 (1) of the *Conservation Authorities Act*. Generally, a scoped Environmental Impact Study (EIS) is required to ensure there will be no adverse impact on the hydrologic functions of the wetland which would have a negative impact on flooding or public safety as a cumulative piece of the inherent wetland flood protection infrastructure.

b. Development within "other areas":

To be regulated, the activity must meet the definition of a *development activity* and be assessed regarding interference with the hydrologic function of the adjacent wetland, including areas within 30 m from wetlands. Hydrologic functions include both water regime and biogeochemical. If a measurable hydrologic impact to the wetland is predicted, then the development must be assessed with respect to the "tests" outlined in s. 28.1 (1) of the *Conservation Authorities Act*.

c. Activities to change or interfere in any way with a wetland:

The activity must constitute a change or interference in any way with the wetland and to be regulated, the 'activity' should occur within the wetland boundary. Applications that include change or interference may be assessed with respect to the natural features (e.g., hydrophytic plants) and hydrologic functions etc.

Environmental Impact Studies

As part of the review of an application, SVCA may request a scoped Environmental Impact Study (EIS) to address potential impacts to a wetland. An EIS is a mechanism for assessing impacts to determine the suitability of a proposal and the minimum buffer from development to ensure no negative impact on the wetland. The submission of an EIS does not guarantee approval of the works. An EIS must be carried out by a qualified professional, with recognized expertise in the appropriate area of concern and shall be prepared using established procedures and recognized methodologies to the satisfaction of the SVCA.

An EIS requirement is associated with an SVCA permit application and is not and should not be considered an 'Environmental Appraisal' as referenced in the *Drainage Act* process.

Portions of wetlands may also be regulated due to presence of hazardous lands such as regulated floodplains or unstable soils. The applicable policies should be referenced with respect to these hazards. Removal, filling, dredging, or changing the hydrologic regime of wetlands (e.g. ponds or drains) can result in reducing the capacity of wetlands to retain water. This can result in higher flows in watercourses with resulting increases in flooding and erosion. As well, with no ability to retain water, the ability to recharge the aquifer is reduced, and the hydrologic cycle is modified.

Development in wetlands has the potential to interfere with many of the natural features or

ecological functions of wetlands. Development may remove or impact wildlife species and their habitat, degrade or remove natural vegetation communities and impair water quality and quantity in both surface and groundwater. As a result, development within wetlands can impact public safety via loss of flood storage areas cumulatively across the watershed. Many wetlands develop on organic soils and, as a result, when reviewing development within a wetland, the soil composition should be reviewed.

Proposals to drain stormwater management facilities into existing wetlands do not benefit the wetland through constant flows for dilution and moving particulate matter. Nutrients, chemicals, and sediments could enter the wetland impeding the function of the wetland. Many individual and cumulative hydrologic impacts to a wetland commonly occur within the catchment area of the wetland.

It is important to consider the linkages between small wetlands and headwater areas, impacts of stormwater, and upstream constrictions to flow. Impacts to the hydrologic function of a wetland due to development within the "other areas" may also result from changes in imperviousness/infiltration due to a removal or change in vegetation, soil compaction during construction, disruption or alteration of groundwater flow paths due to underground construction, etc.

4.9.1.1 Development and Interference with Wetlands – Not Permitted

In general, the following are not permitted within wetlands:

a. *development and alteration activities,*

b. ponds and drains, and

c. stormwater management facilities.

Policy 4.9-2: Development and Interference with Wetlands – Permitted

Notwithstanding the policies referenced above, the following *development and alteration activities* will be permitted within wetlands:

Permitted Uses	Conditions
Public infrastructure including but not limited to roads, sanitary sewers, utilities, water supply wells, well houses, and pipelines, but not including drains or stormwater management facilities. Development associated with public parks (e.g. passive or low intensity outdoor recreation and education, trail systems). Conservation or restoration projects. Minor trails or access lanes.	Subject to the proposal being approved through a satisfactory EA approval process where applicable and if it has been demonstrated to the satisfaction of the SVCA that: **a.** there is no feasible alternative site outside the wetland, **b.** the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, **c.** the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property, an

Permitted Uses	Conditions
	d. there will be no impact on the hydrologic functions of the wetland or the impacts are deemed acceptable by SVCA.

4.9.1.2 Area Within 30 Metres of a Wetland Boundary – Not Permitted

In general, *development and alteration activities* are not permitted within 30 metres of the boundary of a wetland.

4.9.1.3 Area Within 30 Metres of the Boundary of a Wetland – Permitted

Notwithstanding the policies referenced above, the following *development and alteration activities* will be permitted:

Permitted Uses	Conditions
Public infrastructure including but not limited to roads, sanitary sewers, utilities, water supply wells, well houses, and pipelines. Development associated with public parks (e.g. passive or low intensity outdoor recreation and education, trail systems). Conservation or restoration projects.	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property**,** and c. there will be no impact on the hydrologic functions of the wetland or the impacts are deemed acceptable by SVCA.
Systematic agricultural tile drainage	If it has been demonstrated to the satisfaction of the SVCA that: a. there will be no impact on the hydrologic functions of the wetland, and b. proposed perforated tile will maintain a distance from the wetland boundary that is equal to or greater than half of the tile spacing, or as otherwise directed from SVCA.
Buildings or structures. Filling and/or grading. Sewage disposal systems.	If the interference on the hydrologic function of the wetland has been deemed to be acceptable by the SVCA. A scoped EIS to assess the hydrologic impact shall be required if the plans do not demonstrate the following: a. all development activities (including grading) are located outside the wetland and maintain as much

Permitted Uses	Conditions
	setback as possible (7-10 metres recommended), b. disturbances to natural vegetation communities contributing to the hydrologic function of the wetland are avoided, c. overall drainage patterns for the lot will be maintained, d. disturbed area and soil compaction is minimized, e. development is above the high-water table, f. sewage disposal systems are located a minimum of 15 metres from the wetland and a minimum of 1 metre above the water table.

4.10 Hazardous Land – Unstable Soil or Bedrock

Hazardous land is defined by the *Conservation Authorities Act* as "land that could be unsafe for development because of naturally occurring processes associated with flooding, erosion, dynamic beaches or unstable soil or bedrock". Where an activity is within unstable soil or unstable bedrock then this section applies, otherwise refer to the appropriate section(s) for other hazardous land such as flooding or erosion hazards.

Due to the specific nature of areas of unstable soil or unstable bedrock, it is difficult to identify these hazards. The potential for catastrophic failures in some areas of unstable soil and unstable bedrock warrant site specific studies to determine the extent of these hazardous lands, and therefore the appropriate limits of the hazard and regulation limits. The Regulated Area will be based on the conclusions and recommendations of such studies, to the satisfaction of SVCA.

Development within areas deemed as hazardous land is considered through the "development activity" provision of the Regulation. Works proposed within unstable soil and unstable bedrock hazardous lands must therefore meet the definition of "development activity" in the *Conservation Authorities Act* to be regulated.

Unstable Soil

Unstable soil includes but is not necessarily limited to areas identified as containing sensitive marine clays (e.g. leda clays) or organic soils (MNR et al, 2005).

Organic soils are normally formed by the decomposition of vegetative and organic materials into humus, a process known as humification. A soil is organic when the percentage weight loss of the soil, when heated, is five to eighty per cent (MNR, 2001). As a result, organic soils can cover a wide variety of soil types. Peat soils, however, are the most common type of organic soil in Ontario. Therefore, a CA's wetland inventory may provide guidance in the location of organic soils. In addition, maps by the Geological Survey of Canada, MNR, Ministry of Northern Development & Mines, and the Ministry of Agriculture, Food and Rural Affairs may provide additional information on the location of organic soils.

Due to the high variability of organic soils, the potential risks and hazards associated with development in this type of hazardous land are also highly variable. As such, assessment of development potential in areas of organic soils is site specific. Section 4.0 of the Hazardous Sites Technical Guide (MNR 1996a) provides important guidance in this regard.

Unstable Bedrock

Unstable bedrock includes, but is not necessarily limited to, areas identified as karst formations. Karst formations may be present in limestone or dolomite bedrock and are extremely variable in nature. Local, site-specific studies are required for identifying karst formations. Air photo interpretation of surface features such as sink holes may provide an indication of karst formations (MNR et al, 2005).

Any development within hazardous lands requires permission from the SVCA.

4.10.1.1 Unstable Soils or Unstable Bedrock – Not Permitted

In general, *development and alteration activities* will not be permitted on unstable soils or unstable bedrock.

4.10.1.2 Unstable Soils or Unstable Bedrock – Permitted

Notwithstanding the policies referenced above, the following *development and alteration activities* will be permitted:

Permitted Uses	Conditions
Public infrastructure including but not limited to roads, sanitary sewers, utilities, water supply wells, well houses, and pipelines. Development associated with public parks (e.g. passive or low intensity outdoor recreation and education, trail systems). Conservation or restoration projects.	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property**.**
Reconstruction or relocation of a building that has not been damaged or destroyed by erosion	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property**,** and c. there is no feasible alternative site, d. that it is located in an area of least (and acceptable) risk, e. it will not exceed original habitable floor area nor the original footprint of the previous building, and f. all hazards/risks associated with unstable soils or unstable bedrock have been adequately addressed.

4.11 Activities to Straighten, Change, Divert or Interfere with a Watercourse

In accordance with Sections 28(1) and 28.1 of the *CA Act*, activities to straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream or watercourse are prohibited unless a permit is obtained from SVCA. To improve the readability of this manual, these types of activities will be referred to as "*watercourse interference activities*".

Ontario Regulation 41/24 includes the following definition of a watercourse:

> **"**watercourse**"** means a defined channel, having a bed and banks or sides, in which a flow of water regularly or continuously occurs.

At minimum, SVCA regulates lands within 15 metres of all watercourses. The regulated areas for the flooding and erosion hazards associated with watercourses are described elsewhere in Section 4 of this manual.

Typical projects that involve w*atercourse interference activities* include, but are not limited to, culvert placement or replacement, bridge construction, bed level crossings, piping of watercourses, installation or maintenance of linear infrastructure crossings (pipelines, telecoms), construction or maintenance of by ponds, straightening and diversions as well as any work on the bed or the banks of the watercourse such as tile outlets and bank protection projects.

The area along both sides of any river, creek, stream or watercourse, called the riparian zone, not only provides habitat for a wide range of flora and fauna, it also filters surface runoff before it reaches open waterways. As runoff passes through, the riparian zone retains excess nutrients, some pollutants and reduces the sediment flow. A healthy zone can also keep stream flow going during the dry seasons, by holding and releasing groundwater back into the watercourse. This interface between terrestrial and aquatic environments acts as a sponge for storing water, which in turn helps to reduce flooding and shelters the banks against shoreline erosion. Alterations to the channel of a watercourse can negatively impact the hydrologic and ecological features and functions provided by riparian zones.

SVCA In-Water Works Timing Window

Any work within or below the bed or banks of a watercourse, regardless of whether there is flow, is subject to timing windows associated with erosion and sediment control. SVCA timing windows within which works may occur with a permit, are June 15 to September 15 and during low flow conditions in the watercourse. If works are an emergency in nature, and site and weather conditions permit, works outside of these timing windows can be considered by SVCA on a case-by-case basis.

4.11.1.1 Watercourse Interference – General – Not Permitted

In general, *watercourse interference activities* are not permitted.

4.11.1.2 Watercourse Interference – General – Permitted

Notwithstanding the policies referenced above, the following will be permitted subject to timing window considerations:

Permitted Uses	Conditions
Public infrastructure (e.g., roads, sewers, utilities, pipelines, flood and erosion control works, etc.) Development associated with public parks (e.g. passive or low intensity outdoor recreation and education, trail systems).	Subject to the activity being approved through a satisfactory EA process where applicable and if it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, b. the activity is not likely to create conditions or

Permitted Uses	Conditions
Minor interference (e.g., tile outlets, etc.)	circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property, and c. the interference on the natural features and hydrologic functions of the watercourse has been deemed to be acceptable by SVCA.
Stream bank and channel stabilization work to protect existing development	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property, c. the interference on the natural features and hydrologic functions of the watercourse has been deemed to be acceptable by SVCA, and d. the purpose of the work is not to facilitate development by reducing the hazard.
Any works located below the bed of a watercourse	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property, c. the interference on the natural features and hydrologic functions of the watercourse has been deemed to be acceptable by SVCA, and d. the work is located below the long-term scour depth to the satisfaction of SVCA.
Bridges, culverts and other crossings	Subject to the activity being approved through a satisfactory EA process where applicable and if it has

Permitted Uses	Conditions
	been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock, b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property, c. the interference on the natural features and hydrologic functions of the watercourse has been deemed to be acceptable by SVCA. At a minimum, the submitted plans should demonstrate the following based on morphological characteristics of the watercourse system: a. culverts have an open bottom where it is feasible, or where it is not feasible, the culverts should be appropriately embedded into the watercourse b. culvert crossings for private driveways or lane entrances where the travelled portion of the access exceeds 30 feet may be subject to watercourse enclosure Policy 4.11.1-16. c. crossing location, width, and alignment should be compatible with stream morphology, which typically requires location of the crossing on a straight and shallow/riffle reach of the watercourse with the crossing situated at right angles to the watercourse, d. the crossing is sized and located such that there is no increase in upstream or downstream erosion or flooding, and e. have regard for upstream and downstream effects when installing/ replacing a culvert.
Conservation projects (e.g., stream rehabilitation works, small impoundments and realignments that restore or enhance watercourse morphology or aquatic health)	If it has been demonstrated to the satisfaction of the SVCA that: a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock,

Permitted Uses	Conditions
	b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property, c. the hydrologic and ecological benefits of the project are demonstrated to the satisfaction of the SVCA, d. streambank stability is enhanced, e. significant natural features and hydrologic functions are restored and enhanced using best management practices including site and/or infrastructure design and appropriate remedial measures, f. natural channel design principles are followed to the extent possible, g. maintenance requirements are minimized.

4.11.1.3 Watercourse Interference – Water Control Structures

Water control structures to protect existing development or other uses deemed appropriate by the SVCA from the Riverine Flooding Hazard including dykes and berms, but excluding stormwater management facilities and dams, will be permitted to be constructed, maintained or repaired in accordance with the infrastructure policies outlined in 4.11.1-2 and where it can be demonstrated that:

a. all feasible alignments have been considered through an Environmental Assessment supported by the SVCA or other site-specific technical studies, whichever is applicable based on the scale and scope of the project,
b. intrusions on hydrologic functions are minimized and it can be demonstrated that best management practices including site and infrastructure design, and appropriate remedial measures will adequately restore and enhance features and functions,
c. the SVCA's timing window are accommodated, and
d. the proposed works will not negatively impact surrounding landowners.

4.11.1.4 Watercourse Interference – New Dams and Stormwater Management Infrastructure

Dams which by their nature must be located within or directly adjacent to a river, stream, creek or watercourse, and stormwater management infrastructure that outlets to a watercourse, will be permitted in accordance with the infrastructure policies outlined in 4.11.1-2 and where it can be demonstrated that:

a. all feasible alternative sites and alignments have been considered through an Environmental

Assessment supported by the SVCA or through site-specific studies, whichever is applicable based on the scale and scope of the project,

b. the water management benefits of the dam or stormwater management facility are demonstrated to the satisfaction of the SVCA,

c. sedimentation and erosion during construction and post construction are minimized using best management practices including site, landscape, infrastructure design, construction controls, and appropriate remedial measures,

d. where unavoidable, intrusions on significant natural features or hydrologic or are minimized, and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions,

e. works are constructed according to accepted engineering principles and approved engineering standards or to the satisfaction of the SVCA, whichever is applicable based on the scale and scope of the project,

f. the SVCA's timing window are accommodated, and

g. the proposed works will not negatively impact surrounding landowners.

The Ministry of Natural Resources has a regulatory role to play with respect to dams and water control structures. Please contact MNR for more information on the Ministry's mandate and responsibilities as it pertains to dams.

4.11.1.5 Watercourse Interference – Alterations to Dams

Alterations[10] to existing dams will be permitted where it can be demonstrated that:

a. sedimentation and erosion during construction and post construction are minimized using best management practices including site, landscape, infrastructure design, construction controls, and appropriate remedial measures,

b. where unavoidable, intrusions on significant natural features or hydrologic functions are minimized, and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will be adequately restored and enhance features and functions,

c. there are no adverse impacts on the capacity of the structure to pass flows

d. the integrity of the original structure is maintained or improved,

e. works are altered according to accepted engineering principles and approved engineering standards or to the satisfaction of the SVCA, whichever is applicable based on the scale and scope of the project,

f. the SVCA's timing window are accommodated, and

g. the proposed works will not negatively impact surrounding landowners.

[10] Alterations to existing dams in watercourses that, in the opinion of the SVCA, would not affect the control of flooding, erosion, dynamic beach, and that would not result in changes in the capacity to pass river flows or impacts on integrity of the structure or in-water works do not require a permit.

4.11.1.6 Watercourse Interference – Dam Maintenance and Repair

The maintenance and repair of existing dams will be permitted where it can be demonstrated to the satisfaction of SVCA that:

a. sedimentation during maintenance and repair works is minimized using best management practices including site and infrastructure design, construction controls and appropriate remedial measures;

b. where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized, and it can be demonstrated that best management practices including site and infrastructure design, and appropriate remedial measures will adequately restore and enhance features and functions;

c. susceptibility to natural hazards is not increased or new hazards created;

d. works are maintained or repaired according to accepted engineering principles and approved engineering standards or to the satisfaction of the SVCA based on the scale and scope of the project; and

e. SVCA's timing window is accommodated.

4.11.1.7 Watercourse Interference – Dam Decommissioning or Retirement

The retirement of dams[11] or the removal of dams, located within a river, stream creek or watercourse will be permitted in accordance with the infrastructure policies outlined in 4.11.1-2 and where an Environmental Assessment or a detailed decommissioning plan supported by the SVCA demonstrates that:

a. all potential hydrologic and ecological impacts have been identified and considered,

b. significant natural features and hydrologic and ecological functions within or adjacent to the river, creek, stream or watercourse are restored and enhanced through the retirement or removal of the structure and a site restoration plan is provided and supported by the SVCA,

c. the risk of pollution and sedimentation during and after retirement or removal is addressed through a draw down plan supported by the SVCA,

d. susceptibility to natural hazards is not increased or new hazards created, and

e. SVCA's timing window is accommodated.

4.11.1.8 Watercourse Interference – Erosion and Sediment Control Structures

Erosion and sediment control structures to protect existing development and other uses deemed appropriate by the SVCA will be permitted where it can be demonstrated to the satisfaction of SVCA that:

a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock,

b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction

[11] Retirement of a dam refers to a situation in which its original purpose or use is no longer necessary, and its operation is cancelled. Some retirement activities may involve the demolition of a structure or a change in the purpose, use, capacity, or location of a structure.

of property,

c. erosion risk on adjacent, upstream and/or downstream properties is reduced or erosion and sedimentation processes are controlled to reduce existing or potential impacts from adjacent land uses, whichever is appropriate,

d. natural channel design principles are followed to the extent possible,

e. where unavoidable, intrusions on significant natural features or hydrologic functions are minimized, and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions,

f. the SVCA's timing window is accommodated,

g. sedimentation during future maintenance and repair works is minimized using best management practices including site and infrastructure design, construction controls and appropriate remedial measures, and

h. works are maintained or repaired according to accepted engineering principles and approved engineering standards or to the satisfaction of the SVCA based on the scale and scope of the project.

4.11.1.9 Watercourse Interference – Connected Ponds with No Water Intakes

Ponds that outflow to a watercourse but have no water intakes from a watercourse will be permitted if it has been demonstrated to the satisfaction of the SVCA that:

a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock,

b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property,

c. the interference on the natural features and hydrologic functions of the watercourse has been deemed to be acceptable by SVCA,

d. maximum berm heights above existing grades do not exceed the existing ground level within the Riverine Flooding or Erosion Hazard and all remaining fill is removed from the hazard area, and

e. maintenance activities are carried out in accordance with Policy 4.7.7-2.

4.11.1.10 Watercourse Interference – Bypass Ponds Associated with Site Restoration Plan and/or Conservation Projects

Bypass Ponds connected to watercourses created as part of site restoration plan or a conservation project will be permitted where it can be demonstrated that the water intake is set above the elevation that permits continuous flow (i.e., refreshing of the pond will depend on increased stream flows from snow melt and rainfall events).

4.11.1.11 Watercourse Interference – On-Line Ponds – Not Permitted

On-line ponds are designed to include inflows from and outflows to a watercourse and are generally not permitted.

4.11.1.12 Watercourse Interference – On-Line Ponds – Permitted

On-line ponds proposed or proposed to be maintained at the very upstream end of watercourses will be permitted for wetland restoration and fish and wildlife habitat enhancement in accordance with Conservation Projects in Policy 4.11.1-2 and where a site plan and/or other site-specific study demonstrates that:

a. there is no negative impact on hydrologic functions of the watercourse,
b. there are no negative impacts on areas of groundwater recharge/discharge,
c. SVCA's timing window is accommodated, and
d. maintenance activities are carried out in accordance with Policy 4.7.7-2.

4.11.1.13 Watercourse Interference – Dredging

Dredging of a river, creek, stream or watercourse will be permitted to improve hydraulic characteristics and fluvial processes where a dredging plan and/or other site-specific study demonstrates to the satisfaction of the SVCA that:

a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock,
b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property,
c. the interference on the natural features and hydrologic functions of the watercourse has been deemed to be acceptable by SVCA,
d. streambank stability is enhanced,
e. where unavoidable, intrusions on significant natural features or hydrologic functions are minimized, and it can be demonstrated that best management practices including site design and appropriate remedial measures will adequately restore and enhance features and functions,
f. all dredged material is removed from the Riverine Flooding and Erosion Hazard and safely disposed of in accordance with the policies in provincial guidelines, and
g. SVCA's timing window is accommodated.

4.11.1.14 Watercourse Interference – Realignment, Channelization or Straightening

Realignment, channelization or straightening of a river, creek, stream or watercourse will be permitted to improve hydraulic characteristics and fluvial processes or to improve aquatic habitat or water quality in accordance with the General Policies and where a site plan and/or other site-specific study demonstrates that:

a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock,
b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property,

c. the interference on the natural features and hydrologic functions of the watercourse has been deemed to be acceptable by SVCA,

d. all feasible alternative alignments have been considered through an Environmental Assessment supported by the SVCA or through site-specific studies, whichever is applicable based on the scale and scope of the project,

e. stream bank stability is enhanced,

f. where unavoidable, intrusions on significant natural features or hydrologic functions are minimized and it can be demonstrated that best management practices including site design and appropriate remedial measures will adequately restore and enhance features and functions,

g. natural channel design principles are followed to the extent possible, and

h. SVCA's timing window is accommodated.

4.11.1.15 Watercourse Interference – Enclosures – Not Permitted

Enclosures of creeks, streams or watercourses are generally not permitted.

4.11.1.16 Watercourse Interference – Enclosures – Permitted

Enclosures of creeks, streams or watercourses will be permitted where a proposal demonstrates that:

a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock,

b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property,

c. the interference on the natural features and hydrologic functions of the watercourse has been deemed to be acceptable by SVCA,

d. all feasible alternative options and methods have been explored,

e. susceptibility to natural hazards is not increased and no new hazards are created,

f. sedimentation and erosion during construction and post construction is minimized using best management practices including site and infrastructure design, construction controls, and appropriate remedial measures,

g. intrusions within or adjacent to the river, creek, stream or watercourse are minimized and it can be demonstrated that best management practices including site design and appropriate remedial measures will adequately restore and enhance features and functions to the extent possible,

h. works are constructed, repaired and/or maintained according to accepted engineering principles and approved engineering standards or to the satisfaction of the SVCA, whichever is applicable based on the scale and scope of the project, and

i. SVCA's timing window is accommodated.

4.12 Municipal Drains

Municipalities are responsible for managing, maintaining, repairing and improving drainage systems

that have been constructed under the authority of the *Drainage Act*. Generally, Municipal Drains are designed by a Drainage Engineer and constructed by the municipality.

The *Conservation Authorities Act* does not exempt Municipal Drains from requiring Conservation Authority Permission and drainage works may require permits subject to the conditions outlined below. The SVCA will ensure that comments to municipalities regarding proposed drainage works as per the *Drainage Act* will be consistent with the requirements under SVCA's Regulation to prevent conflicting issues and the *Drainage Act* Review Team Protocol.

4.12.1.1 Maintenance and Repairs to Existing Municipal Drains

Maintenance or repair of municipal drains as described in and conducted in accordance with the mitigation requirements set out in the *Drainage Act* and the *Conservation Authorities Act* Protocol is exempt, except where work is within a regulated area associated with a wetland. When such works are proposed within a regulated area associated with a wetland, they will be permitted if it has been demonstrated to the satisfaction of SVCA that:

a. the activity is not likely to affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock,
b. the activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property,
c. there will be no impact on the hydrologic functions of the wetland, or the impacts are deemed acceptable by SVCA,
d. the depth and/or width of the channel will not exceed its original design, and
e. SVCA's timing window is accommodated.

4.12.1.2 New Municipal Drains and the Extension of Existing Drains

New Municipal Drain works, including new sections of existing drains, will be permitted in accordance with the relevant policies included in Section 4 of this manual, including but not limited to Policy 4.11.1-14: Watercourse Interference – Realignment, Channelization or Straightening. Any requirement for an Environmental Impact Study is associated with an SVCA permit application and is not and should not be considered an 'Environmental Appraisal' as referenced in the *Drainage Act* process.

5. Additional Guidelines

Watershed management is constantly evolving and from time-to-time guidelines are adopted for use by the SVCA. In addition, reference is made to other legislation that must be considered in the review of any works proposed for permission under SVCA's Regulation. The following are the current guidelines commonly used by the SVCA and additional information requirements frequently requested by staff when reviewing applications.

5.1 Natural Hazards

The assessment of flooding, floodproofing, erosion and slope stability impacts, hydrology and hydraulic analysis and various technical review criteria are set out in the following provincial documents:

- Understanding Natural Hazards, Ministry of Natural Resources, 2001
- Technical Guide – River & Stream Systems: Flooding Hazard Limit, Ministry of Natural Resources & Watershed Science Centre, 2002
- Technical Guide – River & Stream Systems: Erosion Hazard Limit, Ministry of Natural Resources & Watershed Science Centre, 2002
- Belt Width Delineation Procedures, Prent & Parish, 2001
- Geotechnical Principles for Stable Slopes, Terraprobe Limited & Aqua Solutions, 1998
- Ministry Directive B-100, Ministry of Transportation, 1980
- Great Lakes – St. Lawrence System and Large Inland Lakes, Technical Guides for Flooding, Erosion and Dynamic Beaches in Support of Natural Hazards Policies 3.1 of the Provincial Policy Statement, Ministry of Natural Resources, 2001

5.2 Hydrological Evaluations

Where the policies identify a need for a hydrologic evaluation, the evaluation shall, at a minimum:

a. demonstrate that the development or site alteration will have no adverse effects on the hydrologically sensitive feature or on the related hydrological functions,
b. identify planning, design and construction practices that will maintain and, where possible, improve or restore the health, diversity and size of the hydrologically sensitive feature, and
c. determine whether the minimum vegetation protection zone is sufficient, and if it is not sufficient, specify the dimensions of the required minimum vegetation protection zone and provide for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within it.

5.3 Sediment and Erosion Control

All applications must demonstrate how disturbed areas will be stabilized to prevent soils and sediments from leaving the development site during or after work is complete. Erosion and Sediment Control Guideline for Urban Construction, March 2006 is a general guideline that can be used to prepare sediment and erosion control plans. However, as this is an evolving science, applicants are encouraged to consult other sources of information to supplement their plans.

5.4 Stormwater Management Practices

Stormwater management plans are required to meet the standards and criteria set out in the Stormwater Management Planning and Design Manual, Ministry of Environment, March 2003, as may be revised, in addition to requirements/recommendations of any relevant watershed or subwatershed study. Stormwater management facilities normally require a permit under Ontario

Regulation 41/24 and the *CA Act* as part of approval of their outlet to a watercourse or if they located within another area regulated by SVCA.

5.5 Natural Channel Design

Where a watercourse is to be altered, the use of state-of-the-art natural channel design will be encouraged. Adaptive Management of Stream Corridors in Ontario, Ministry of Natural Resources & Watershed Science Centre, 2002, is the primary document presently utilized by SVCA in conjunction with the documents outlined in Section 5.1. Ontario's Stream Rehabilitation Manual, M. Heaton, R. Grillmayer, and J. Imhof, 2002.

5.6 Watershed and Subwatershed Plans

Watershed and subwatershed plans provide specific direction for the overall water and resource management of specific creek systems. All applications will be reviewed to ensure their conformity with the applicable watershed and subwatershed plans.

5.7 Municipal Storm Drainage Policy and Criteria Manuals

Most municipalities utilize specific manuals for the design of various municipal infrastructures. It is the responsibility of any applicant to ensure that designs submitted for approval to SVCA are in conformity with local municipal drainage requirements and engineering standards manuals.

5.8 Other Related Legislation

Lakes and Rivers Improvement Act & *Public Lands Act*: The applicant should contact the Ontario Ministry of Natural Resources if any instream works are proposed to determine approval requirements under the *Lakes and Rivers Improvement Act* and the *Public Lands Act*.

Ontario Water Resources Act: The applicant should contact the Ontario Ministry of Environment, Climate Change & Parks for applicable policies and guidelines.

Navigation Protection Act: The applicant should contact Transport Canada and/or refer to the website at http://laws-lois.justice.gc.ca/eng/acts/N-22/for any works associated with a navigable waterway.

Building Code & Municipal Site Alteration and Tree Cutting By-laws: The applicant should contact their local municipality to determine additional approvals that may be required.

The above was not intended as a comprehensive listing of all legislation that could potentially affect the design or construction of an application.

5.9 Additional Information

Through the review of development and alteration applications, staff often require supplementary information. Stormwater management plans, sediment and erosion control plans, Environmental Impact Assessments/Environmental Impact Studies, tree preservation plans, revegetation/rehabilitation plans and geotechnical assessments are frequently requested prior to providing approval, or as conditions of approval. Please note that the Counties and local municipalities may have their own additional information requirements to facilitate their review of the documents. It is recommended that the applicant meet with all review agencies prior to initiating any studies to develop an agreed upon Terms of Reference.

Appendices

Appendix A: Glossary of Terms

Appendix B: Permit Application Checklist

Appendix C: Administrative Review Policies

Appendix D: Section 28.1 Hearing Guidelines

Appendix E: Slope Stability Assessment Guidelines

Appendix A: A Glossary of Terms

Accepted Engineering Principles means those current coastal, hydraulic and geotechnical engineering principles, methods and procedures that would be judged by a peer group of qualified engineers (by virtue of their qualifications, training and experience), as being reasonable for the scale and type of project being considered, the sensitivity of the locations, and the potential threats to life and property.

Access (Ingress/Egress) means standards and procedures applied in engineering practice associated with providing safe passage for vehicles and people to and from a shoreline or river-side property during an emergency situation as a result of flooding, other water related hazards, the failure of floodproofing, and/or protection works, and/or erosion that have been reviewed and approved by the Saugeen Valley Conservation Authority and/or the Ontario Ministry of Natural Resources.

Accessory Building or Structure means a use or a building or structure that is subordinate and exclusively devoted to a main use, building or structure and located on the same lot.

Adverse Hydraulic and Fluvial Impacts means flood elevations are not increased, flood and ice flows are not impeded and the risk of flooding to and erosion on adjacent upstream and/or downstream properties is not increased.

Apparent Valley or Confined Valley means that part of the valleyland system where the valley walls are greater than 2 metres, with or without a floodplain.

Anthropogenic means created by a human (e.g. activities carried out by humans; human impact).

Aquifer means an underground layer of water-bearing permeable rock or unconsolidated materials (gravel, sand, silt or clay).

Areas of Interference means those other areas where development could interfere with the hydrologic function of a wetland, typically within 30 metres of wetlands.

Bankfull Width means the formative flow of water that characterizes the morphology of a fluvial channel. In a single channel stream, “bankfull” is the discharge, which just fills the channel without flowing onto the floodplain.

Best Management Practices (BMPs) means methods, facilities and structures which are designed to protect or improve the environment and natural features and functions from the effects of development or interference.

Buffers means an area or band of permanent vegetation, preferably consisting of native species, located adjacent to a natural heritage feature and usually bordering lands that are subject to development or site alteration. The purpose of the buffer is to protect the feature and its function(s) by mitigating the impacts of the proposed land use and allowing an area for edge phenomena to continue. A buffer may also provide an area for recreational trails and a physical separation for new development that will discourage encroachment (adapted from Ontario Ministry of Natural Resources’ Natural Heritage Reference Manual, 2nd Edition, 2010). The vegetation within a buffer can be managed (e.g. trimmed, cut, thinned, but not cultivated) providing that the integrity of the buffer remains intact.

Confined River or Stream System means a watercourse located within a valley corridor, either with or without a floodplain, and is confined by valley walls. The watercourse may be located at the toe of the valley slope, in close proximity to the toe of the valley slope (less than 15 m) or removed from the toe of the valley slope (more than 15 m). The watercourse can contain perennial, intermittent or ephemeral flows and may range in channel configuration, from seepage and natural springs to detectable channels.

Comprehensive Plan means a study or plan undertaken at a landscape scale such as a watershed/subwatershed plan, an Environmental Assessment, a detailed Environmental Implementation Report (EIR) that has been prepared to address and document various alternatives and is part of a joint and harmonized planning or Environmental Assessment process, or a community plan that includes a comprehensive Environmental Impact Study.

Control of Flooding means the protection of people and property from flood related impacts from the regulatory flood or as defined in related case law.

Creek means a type of watercourse with a stream of water normally smaller than and often tributary to a river.

Cumulative Effects means the combined effects of all works in an area over time and the incremental effects associated with individual project in an area over time.

Cut and Fill Balance means all fill placed at or below the flood elevation is balanced with an equal amount of soil material removal at or below the flood elevation within a defined reach of a watercourse.

Dam means a structure or work holding back or diverting water and includes a dam, tailings dam, dyke, diversion, channel, artificial channel, culvert or causeway (*Lakes and Rivers Improvement Act*, R.S.O. 1990 c. L3, s. 1)

Development Activity as defined by the *Conservation Authorities Act* means:

- the construction, reconstruction, erection or placing of a building or structure of any kind;
- Any change to a building or structure that would have the effect of altering the use or potential use of the building or structure, increasing the size of the building or structure or increasing the number of dwelling units in the building or structure;
- site grading; or
- the temporary or permanent placing, dumping or removal of material, originating on the site or elsewhere.

Development as defined by the *Planning Act*, means the creation of a new lot, a change in land use, or the construction of buildings or structures, requiring approval under the *Planning Act*, but does not include:

- works that create or maintain infrastructure authorized under an environmental assessment process;
- works subject to the *Drainage Act*; or
- underground or surface mining or minerals or advanced exploration on mining lands in

significant areas of mineral potential in Ecoregion 5E, where advanced exploration has the same meaning as under the *Mining Act*.

Drainage Area means, for a point, the area that contributes runoff to that point.

Dug-out or Isolated Ponds mean anthropogenic waterbodies that are created by excavating basins with no inlet or outlet channels and in which surface and ground water collect.

Dwelling Unit means a suite operated as a housekeeping unit, used or intended to be used as a domicile by one or more persons and usually containing cooking, eating, living, sleeping and sanitary facilities.

Dynamic Beach means areas of inherently unstable accumulations of shoreline sediments along the Great Lakes – St. Lawrence System and large inland lakes, as identified by provincial standards, as amended from time to time. The dynamic beach hazard limit consists of the flooding hazard limit plus a dynamic beach allowance.

Ecological Function means the natural processes, products or services that living and non-living environments provide or perform within or between species, ecosystems and landscapes. These may include biological, physical and socio-economic interactions.

Ecosystem means systems of plants, animals and micro-organisms together with non-living components of their environment, related ecological processes and humans.

Enclosure means a pipe, tile, or other conduit for carrying a creek, stream or watercourse underground.

Endangered Species (federal), means any indigenous species of fauna or flora which on the basis of the available scientific evidence is facing imminent extinction or extirpation, listed in schedule 1 of the *Species at Risk Act* as updated and amended from time to time, by Order-In-Council (adapted from the *Species at Risk Act*, 2002).

Endangered Species (provincial), means any indigenous species of fauna or flora which on the basis of the available scientific evidence is categorized as an "endangered species" (i.e. a native species facing imminent extinction or extirpation) on the Ontario Ministry of Natural Resources & Forestry official species at risk in Ontario list, as updated and amended from time to time (adapted from the Provincial Policy Statement, 2014).

Engineering Principles means current coastal, hydraulic and geotechnical engineering principles, methods and procedures that would be judged by a peer group of qualified engineers (by virtue of their qualifications, training and experience), as being reasonable for the scale and type of project being considered, the sensitivity of the locations, and the potential threats to life and property.

Enhance (in the context of wetlands), means the altering of an existing functional wetland to increase or improve selected functions and benefits.

Environmental Assessment means a process that is used to predict the environmental, social and economic effects of proposed initiatives before they are carried out. It is used to identify measure to mitigate adverse effects on the environment and can predict whether there will be significant adverse environmental effects, even after the mitigation is implemented.

Environmental Impact Study (EIS) means a report prepared to address the potential impacts of

development or interference on natural features and functions. There are three main types:

- a *Comprehensive EIS* is a landscape scale, watershed or subwatershed study which sets the width of setbacks and offers guidance for the investigation, establishment and maintenance of buffers.
- a *Scoped EIS* is an area or site-specific study that addresses the potential negative impacts to features described previously in a comprehensive study.
- a *Full EIS* is an area or site-specific study prepared, in the absence of a comprehensive study to address possible impacts from a development. Due to the lack of guidance from a comprehensive study, the full EIS is typically much more detailed than a scoped study and will also include statements to address possible negative impacts at a regional scale.

Erosion means incremental or sudden dramatic riverine, shoreline, or slope processes that result in movements of large quantities of material which could include anthropocentric features, natural features, etc. and pose a hazard.

Erosion Access Allowance means a 6-metre development setback applied to the stable slope allowance/top of stable slope/meander belt allowance and forming part of the erosion hazard for confined (apparent) and unconfined (not apparent) river or stream systems. The erosion access allowance is applied to provide for emergency access to erosion prone areas, provide for construction access for regular maintenance and access to the site in the event of an erosion event or failure of a structure, and provide for protection against unforeseen or predicted external conditions which could have an adverse effect on the natural conditions or processes acting on or within an erosion prone area.

Existing Use means the type of activity associated with an existing building or structure or site on the date of a permit application.

Factor of Safety means the ratio of average available strength of the soil along the critical slip surface to that required to maintain equilibrium. The design minimum factors of safety are provided by the Ministry of Natural Resources Technical Guide for River and Stream Systems (2002). The higher factor of safety is used in complex geotechnical conditions or where there are geologically metastable materials.

Land Uses	Design Range in Factor of Safety
Passive: no buildings near slope. e.g., farm field, bush, forest, timberland, and woods.	1.10
Light: no habitable structures near slope. e.g., recreational parks, golf courses, buried small utilities, tile beds, barns, garages, swimming pool, sheds, satellite dishes, and dog houses.	1.20 to 1.30
Active: habitable or occupied structures near slope. e.g., residential, commercial and industrial buildings, retaining walls,	1.30 to 1.50

Land Uses	Design Range in Factor of Safety
decks, stormwater management facilities, and, storage/warehousing of non-hazardous substances.	
Infrastructure and Public Use: public use structures or buildings. e.g., hospitals, schools, stadiums, cemeteries, bridges, high voltage power transmission lines, towers, storage/warehousing of hazardous materials, and waste management areas.	**1.40 to 1.50**

Feasible means with regards to floodproofing of a proposed addition to an existing building or structure that such measures are achievable without significantly altering the usability and practicality of executing and utilizing that proposed work.

Fish Habitat as defined in the *Fisheries Act*.

Habitable mean that portion of a building or structure containing rooms or spaces required and intended for overnight occupancy and associated living space and includes those portions which contain facilities for storage, heating, air-conditioning, electrical, hot water supplies, etc., which are necessary to maintain the habitable condition, and any area that has the potential to be used as or converted to residential living space, including basements.

Habitable Floor Space means any area that has the potential to be used as or converted to residential living space, including basements.

Hazardous Land means land that could be unsafe for development because of naturally occurring processes associated with flooding, erosion, dynamic beaches or unstable soil or bedrock. These may include unstable soils (sensitive marine clays (leda), organic soils) or unstable bedrock (karst topography).

Hazardous Substances means substances which individually or in combination with other substances, are normally considered to pose a danger to or threat to public health, safety and the environment. These substances generally include a wide range of materials that are toxic, ignitable, corrosive, reactive, radioactive or pathological.

Headwater means the source and extreme upper reaches of a river, creek, stream or watercourse.

Hydrologic Function means the functions of the hydrologic cycle that include the occurrence, circulation, distribution and chemical and physical properties of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere, and water's interaction with the environment including its relation to living things.

Hydrologic Study means a report prepared to address the potential impacts of development and interference on the hydrologic functions of a wetland or other natural feature.

Karst means an area of irregular limestone in which erosion has produced fissures, sinkholes, underground streams, and caverns.

Littoral (associated with Lake Huron shoreline area), means the dry land at shoreline to the depth

at which sunlight no longer penetrates to the bottom of the water.

Lot of Record means a lot that has been severed from a larger parcel which has not yet been developed. It is a parcel or tract of land described in deed or other legal document that is capable of being legally conveyed and contains no pre-existing buildings or structures.

Meander Belt Allowance means a limit for development within the areas where the river system is likely to shift. It is based on twenty (20) times the bankfull channel width where the bankfull channel width is measured at the widest riffle section of the reach. A riffle is a section of shallow rapids where the water surface is broken by small waves. The meander belt is centred over a meander belt axis that connects the riffle section of the stream.

Meander Belt Axis means the line or "axis" that the meander belt is centred over which connects all the riffle sections of a stream.

Meander Belt means the area of land in which a watercourse channel moves or is likely to move over a period of time. It is generally considered 20 times of bankfull channel width at riffles in the reach.

Multi-lot means four lots or more.

Multi-unit means any building or structure or portion thereof that contains more than one unit for any use (e.g. a residential dwelling unit, an industrial/commercial/institutional space designed or intended to be occupied or used for business, commercial, industrial or institutional purposes).

Natural Heritage System means a system made up of natural heritage features and areas, and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species, and ecosystems. These systems can include natural heritage features and areas, federal and provincial parks and conservation reserves, other natural heritage features, lands that have been restored or have the potential to be restored to a natural state, areas that support hydrologic functions, and working landscapes that enable ecological functions to continue. The province has a recommended approach for identifying natural heritage systems, but municipal approaches that achieve or exceed the same objective may also be used.

Negligible means not measurable or too small or unimportant to be worth considering.

Normal High-Water Mark means the usual or average 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. In flowing waters (rivers, streams) this refers to the "active channel/bankfull level" which is often the one-to-two-year flood flow return level. For inland lakes, it refers to those parts of the waterbody bed and banks that are frequently flooded by water to leave a mark on the land and where the natural vegetation changes from predominantly aquatic vegetation to terrestrial vegetation (excepting water tolerant species).

Non-Apparent Valley or Unconfined Valley means that part of the valleyland system where a river, creek, stream or watercourse is not contained within a clearly visible valley section or where valley walls do not exceed 2 metres.

One Hundred Year Flood Event (100 Year Flood) - rainfall or snowmelt, or a combination of rainfall and snowmelt, producing at any location in a river, creek, stream or watercourse a peak flow that

has a probability of occurrence of one per cent during any given year.

One Hundred Year Erosion Rate means the predicted lateral movement of a river, creek, stream or watercourse or inland lake over a period of one hundred years.

Other Water-Related Hazards means water-associated phenomena other than flooding hazards and wave uprush which act on shorelines. This includes, but is not limited to ship-generated waves, ice piling and ice jamming.

Oversteepened Slope means a slope which has a slope inclination equal to or greater than 33 1/3 per cent (3H:1V)) or as determined by an area or property specific geotechnical report.

Pollution means any deleterious physical substance or other contaminant that has the potential to be generated by development.

Protect in the context of wetlands, means the preservation of wetlands in perpetuity through implementation of appropriate physical and/or legal mechanisms (e.g. ecological buffers, development setbacks, zoning, fencing, conservation easements, etc.).

Protection Works means structural or non-structural works which are intended to appropriately address damages caused by flooding, erosion and/or other water-related hazards.

Qualified Professional means a person with specific qualifications, training, and experience authorized to undertake work in accordance with the policies in accepted engineering or scientific principles, provincial standards, criteria and guidelines, and/or to the satisfaction of the SVCA.

Regulated Area means the area encompassed by all hazards and wetlands, plus any allowances, as defined by SVCA's Regulation.

Regulatory Flood means the inundation under a flood resulting from the rainfall experienced during the greater of the Hurricane Hazel Storm, the 100-year flood, or a known larger event (Frazil Ice Flooding in the Geographic Town of Durham, April 1, 2016 Flood McCullough Lake), the limits of which define the riverine flooding hazard.

Replacement/ Reconstruction means the removal of an existing building or structure and the construction of a new building or structure. Replacement does not include reconstruction on remnant foundations or derelict or abandoned buildings or structures.

Restore (in the context of wetlands), means the re-establishment or rehabilitation of a former or degraded wetland with goal of returning natural or historic functions and characteristics that have been partially or completely lost by such actions as filling or draining.

Riffle means a section of shallow rapids where the water surface is broken by small waves.

Riparian Vegetation means the plant communities in the riparian zone, typically characterized by hydrophytic plants.

Riparian Zone means the interface between land and a flowing surface water body. Riparian is derived from Latin ripa meaning riverbank.

River means a type of watercourse that contains a large natural stream of water emptying into an ocean, lake, or other body of water and usually fed along its course by converging tributaries.

Riverine Erosion Hazard means the loss of land, due to human or natural processes, that poses a

threat to life and property. The riverine erosion hazard limit is determined using considerations that include the 100-year erosion rate (the average annual rate of recession extended over a one-hundred-year time span), an allowance for slope stability and access or, in unconfined systems, the meander belt allowance.

Riverine Flooding Hazard means the inundation under a flood resulting from the rainfall experienced during the greater of the Hurricane Hazel Storm, the 100-year flood, or a known larger event (Frazil Ice Flooding in the Geographic Town of Durham, April 1, 2016, Flood McCullough Lake), wherever it is greater, the limits of which define the riverine flooding hazard.

Riverine Hazard Limit means the limit which encompasses the flooding and erosion hazards associated with a river, creek, stream or watercourse in both confined and unconfined valley systems.

Settlement Area means urban areas and rural settlement areas within municipalities that are:

- built up areas where development is concentrated and which have a mix of land uses; and,
- lands which have been designated in an official plan for development over the long-term planning horizon.

Safe Access means where access to and from a site may be considered 'safe' for both pedestrians and automobiles where the following depth and velocity criteria are met:

a. the depth of flooding to the site of the building does not exceed 0.3 metres under regulatory flood conditions,

b. the velocity of floodwaters overtopping the access route does not exceed 1.7 metres per second under regulatory flood conditions, or

c. the product of flooding depth and velocity to the site of the building does not exceed 0.4 square metres per second.

Stage-Storage Discharge Relationship means the relationship of flood storage and flood elevation values at various flood flow rates within a particular watercourse/floodplain reach. This relationship is used as a factor to determine whether the hydraulic function of the floodplain is preserved.

Stream means a type of watercourse with a stream of water normally smaller than and often but not always tributary to a river.

Thermal Impact means the impairment of water quality through temperature increase or decrease. Changes in temperature can also affect species composition of plants, insects and fish in a water body.

Toe of Slope means the lowest point on a slope, where the surface gradient changes from relatively shallow to relatively steep.

Top of Slope means the point of the slope where the downward inclination of the land begins, or the upward inclination of the land levels off. This point is situated at a higher topographic elevation of land than the remainder of the slope.

Valleyland means a natural area that occurs in a valley or other landform depression that has

water flowing through or standing for some period of the year.

Watercourse means a defined channel, having a bed and banks or sides, in which a flow of water regularly or continuously occurs. A watercourse also includes a lake with inflow and outflow and a municipal drain.

Watershed means an area that is drained by a river and its tributaries.

Wave Uprush means the rush of water up onto a shoreline or structure following the breaking of a wave; the limit of wave uprush is the point of furthest landward rush of water onto the shoreline.

Wetland (as defined by the Conservation Authorities Act), means land that:

a. is seasonally or permanently covered by shallow water or has a water table close or at the surface, and
b. directly contributes to the hydrological function of a watershed through connection with a surface watercourse, and
c. has hydric soils, the formation of which have been caused by the presence of abundant water, and
d. has vegetation dominated by hydrophytic plants or water tolerant plants, the dominance of which has been favoured by the presence of abundant water;
e. but does not include periodically soaked or wet land that is used for agricultural purposes and no longer exhibits wetland characteristics

Wetland (as defined by the Provincial Policy Statement), means lands that are

a. seasonally or permanently covered by shallow water, as well as
b. lands where the water table is close to or at the surface.

In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs and fens.

Woodland means treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels (2014 PPS).

Appendix B: Permit Application Checklist

SAUGEEN VALLEY CONSERVATION AUTHORITY (SVCA)

MINIMUM APPLICATION REQUIREMENTS CHECKLIST

The checklist below includes minimum application requirements for applications for a permit under Section 28.1 of the *Conservation Authorities Act*. We recommend pre-consultation with SVCA staff to ensure that all materials needed to complete the application are provided. Applicants will be notified if the application is incomplete. Should the application be deemed incomplete, the applicant will be notified about what information is required to complete the application.

Incomplete applications cannot be processed for a decision.

PER ONTARIO REGULATION NO. 41/24, 7(1), EACH APPLICATION WILL INCLUDE:

- Landowner and applicant contact information;
- Landowner Authorization Form, should the applicant be different from the landowner;
- The expected start and end dates of the project;
- A site plan of the area detailing the proposed work and its location;
- The proposed use of any buildings or structures following completion of the project, if applicable;
- The purpose of the watercourse or wetland alteration, if applicable;
- A summary of how work will be carried out, including the altering of watercourses or wetlands if applicable;
- Current and planned elevations of buildings and the land, if changes are to be made because of the project;
- How drainage will be managed during and after the project;
- A detailed description of any fill to be used or dumped;
- Any additional technical details, studies, or plans the authority asks for, including those discussed in early consultations (these could include a slope stability/erosion analysis, culvert design/calculations, flood plain surveys, etc.); and
- Payment of the applicable fee.

Appendix C: Administrative review policies

The policies outlined below are intended to guide the Authority (*or its delegate*) when receiving, evaluating, and making a decision related to a request for review (herein referred to as an "administrative review") submitted in accordance with s. 8 of O. Reg. 41/24 made under the *Conservation Authorities Act,* as amended*.*

1. Purpose of an Administrative Review

The purpose of an administrative review is to provide the applicant with an opportunity to resolve issues specified in ss. 8 (1) of the Regulation.

Administrative reviews do not determine whether a permit will be issued, or the scope of conditions proposed to be attached to a permit; these factors will be assessed throughout the permit review process, after the administrative review is complete. An applicant will be provided with an opportunity to be heard by the Authority in a hearing should staff recommend refusal of their application or should staff propose permit conditions the applicant disagrees with.

Additionally, administrative reviews are not intended to be a procedure to settle permit fee disputes. Disputes related to the charging of the Authority's permit fees will be addressed in accordance with Section 4.3.4 of the Environmental Planning and Regulations Policies Manual. Details regarding eligibility for administrative reviews are provided in Section 4 below.

2. Pre-submission Consultation

The Authority recommends that pre-submission consultation occur for the purpose of confirming the requirements of a complete application to obtain a permit. Please see Section 4.3.1 of the Environmental Planning and Regulations Policies Manual for more information.

Pre-submission consultation shall occur as a meeting between Authority staff, the applicant, and the municipality and/or other regulatory agencies (if applicable), prior to application submission. This meeting may occur prior to or at the same time as a site visit to the property where the activity is proposed to be carried out.

Pre-submission consultation is a critical value-added service that assists applicants with the application process. After the pre-submission consultation meeting, SVCA will provide the applicant with complete application requirements, scoping of required studies and inform the applicant of their right to an administrative review. A successful pre-submission consultation should result in a quality submission where the SVCA's complete application requirements are met; thereby minimizing potential for an administrative review request.

Where an application has been submitted without pre-consultation, complete application requirements should be communicated to the applicant, in writing, during the 21 days allotted for a complete application decision.

3. Complete Application Requirements

SVCA's complete application requirements are in accordance with s. 7 (1) and (2) of O. Reg. 41/24 and confirmed by SVCA staff to applicants during pre-submission consultation.

4. Eligibility

Requests for administrative review apply to applications made under s. 28.1 of the *Conservation*

Authorities Act. Administrative reviews undertaken by the Authority (*or its delegate*) shall be conducted under the following circumstances:

1. The applicant has not received written confirmation from SVCA within 21 days upon submission of the complete application and fee required by SVCA, or
2. The applicant disagrees with the SVCA's determination that the application for a permit is incomplete, and/or
3. The applicant is of the view that the request for other information, studies or plans is not reasonable.

The administrative review process is not available where the development activity has commenced without the necessary SVCA permit in place.

5. Timeline for Review

Administrative reviews are completed within 30 days of receipt of a requested review. However, there may be extenuating circumstances where it is not possible to complete the administrative review within 30 days. In these cases, the Authority (or its delegate) will provide notice to the applicant of any anticipated delays and obtain written approval of the applicant to extend the timeline, if feasible.

6. Authority (*or Delegate)* Powers

Subsection 8(2) of the Regulation establishes the outcome of an administrative review; being that the Authority (*or its delegate*) must:

a. confirm that the application meets the requirements for a complete application; or provide reasons why the application is incomplete, and/or,

b. provide reasons why a request for other information, studies or plans is reasonable or withdraw the request for all or some of the information, studies, or plans.

Section 28.4 of the *Conservation Authorities Act* enables an Authority to delegate any of its powers related to the issuance or cancellation of permits or to the holding of hearings in relation to the permits to its executive committee or to any other person or body subject to limitations or requirements prescribed by regulation. As such, the Authority delegates the above administrative review powers to the SVCA General Manager / Secretary-Treasurer (*insert resolution number here*).

7. Submitting a Request for Administrative Review

The administrative review process must be commenced by the applicant by notifying SVCA staff. The applicant will be provided with a "Request for Administrative Review" form. Upon submission of the completed form and permit application fee, the delegated Authority staff member will commence the administrative review.

8. Administrative Review Process

Upon receipt of a completed "Request for Administrative Review" form, the Authority (or delegate) shall review all the information provided through the submission as well as all information available on the application in question. The Authority (or its delegate) may also reach out to the applicant for clarification or questions regarding their request for administrative review.

The Authority (or its delegate) will evaluate the request for administrative review in accordance

with s. 8.1 below.

9. Evaluation Criteria

The Authority (*or delegate*) shall evaluate the request for administrative review in accordance with the following standards:

1. That the request for review meets the eligibility criteria outlined in section 4 of these policies.
2. That the application and/or the requests for information, studies and plans by the SVCA are consistent with the requirements of the *Conservation Authorities Act* and O. Reg. 41/24.
3. That the applicant has submitted all components of a complete application required by SVCA staff.
4. To determine if the SVCA's request for other information, plans and studies is reasonable, the request must be made in accordance with the SVCA's Environmental Planning and Regulations Development Policies Manual for the proposed project, must reflect site-specific hazards, and the request is consistent with similar application requirements within the watershed.

10. Decision

The decision for an administrative review is limited to determining a complete application and / or whether the request for all or some of the information, studies or plans is reasonable; it is not a decision as to whether to issue a permit, nor a process to settle permit fee disputes. The administrative review decision of the Authority (or its delegate) is final.

Upon completing the administrative review, the Authority (or delegate) will notify the applicant of the decision in writing, which must:

- Confirm that the application meets the SVCA's complete application requirements and is complete or provide reasons why the application is incomplete; or,
- Provide reasons why requests for other information, studies or plans are reasonable or withdraw the request for all or some of the information, studies or plans (if applicable).

A copy of or link to SVCA's policy and decision-making framework will be included in the decision notice.

11. Notice and Communication

The Authority (*or delegate)* shall provide the following correspondence in writing to the applicant:

1. Within 1-2 business days, upon receipt of a "Request for Review" form, confirm the receipt of the request, set out the start and end dates of the administrative review period (requests for administrative review shall be completed within 30 days upon receipt of the request, unless an extension is approved by the applicant); and,
2. Forthwith, upon completion of the review, provide notice of decision, with reasons.

12. Administrative Review Policies - Updates

The Authority will review and update the Administrative Review Policies consistent with the CA's Service Delivery Standards for Administration of Ontario Regulation 41/24. Draft updates to the

policies will be posted on the CA's website for a minimum of 30 days for stakeholder and public consultation in advance of consideration by the Authority's Members.

Appendix D: Section 28.1 Hearing Guidelines

Hearing Guidelines

Section 28.1 Conservation Authorities Act

Saugeen Valley Conservation Authority (SVCA)

1078 Bruce Rd 12, Formosa, ON N0G 1W0

October 17, 2024

Revision No. 5.0

Hearing Guidelines – Summary of Revisions October 2005,

Last Amended October 2024

Revision No.	Date	Comments	Approval Authority
0	October, 2005	Guidelines prepared as an update to the October 1992 hearing guidelines.	Ministry of Natural Resources Conservation Ontario Council
1	May, 2018	Housekeeping amendments made reflecting changes to appeal process as a result of the *Building Better Communities and Conserving Watersheds Act*, 2017 and subsequent Order in Council. Note: changes to appeal process are no longer valid	Conservation Ontario Staff
2	September, 2020	Amendments made to incorporate the use of electronic hearings.	Conservation Ontario Council
3	September, 2021	Amendments made to incorporate hearings under 28.0.1 and update references to the Ontario Land Tribunal (OLT)	Conservation Ontario Council
4	May, 2023	References to the Executive Committee being the Hearing Board and replaced with the Board of Directors per the SVCA Administrative Bylaws.	SVCA Board of Directors
5	October, 2024	Updated references to *CA Act* section numbers and O. Reg 41/24; changed deadline to appeal to OLT from 30 to 90 days; removed guidance for hearings under 28.0.1 (repealed).	SVCA Board of Directors

1.Purpose of Hearing Guidelines

This SVCA Hearing Guideline was prepared to be consistent with the Hearing Guidelines prepared for all conservation authorities by Conservation Ontario.

The *Conservation Authorities Act* requires that the applicant be provided with an opportunity for a hearing by the local Conservation Authority Board, (sitting as a Hearing Board) as the case may be, for an application to be refused or approved with contentious conditions. The SVCA's Board of Directors acts as the Hearing Board and will be referred to as the Hearing Board or Authority henceforth. Further, a permit may be refused if in the opinion of the Authority the proposal adversely affects the control of flooding, pollution, conservation of land, erosion and/or dynamic beaches. The Hearing Board is empowered by law to make a decision, governed by the *Statutory Powers Procedures Act*.

The Hearing Rules are adopted under the authority of Section 25.1 of the *Statutory Powers Procedures Act* (SPPA). The SPPA applies to the exercise of a statutory power of decision where there is a requirement to hold or to afford the parties to the proceeding an opportunity for a hearing before making a decision. The SPPA sets out minimum procedural requirements governing such hearings and provides rule-making authority to establish rules to govern such proceedings.

The Hearing Board shall hear and decide whether the application will be approved with or without conditions or refused.

These hearing guidelines at the SVCA have been prepared as an update to the October 1992 hearing guidelines and are intended to provide a step-by-step process to conducting hearings required under Section 28.1 of the *Conservation Authorities Act*. Similar to the 1992 guidelines, it is hoped that the guidelines will promote consistency across the SVCA's proceedings, and consistency with other Conservation Authorities; as well as ensure that hearings meet the legal requirements of the *Statutory Powers Procedures Act* without being unduly legalistic or intimidating to the participants.

2.Prehearing Procedures

2.1 Role of the Hearing Board

In considering the application, the Hearing Board is acting as a decision-making tribunal. The tribunal is to act fairly. Under general principles of administrative law relating to the duty of fairness, the tribunal is obliged not only to avoid any bias but also to avoid the appearance or reasonable apprehension of bias. The following are three examples of steps to be taken to avoid apprehension of bias where it is likely to arise.

a) No member of the Authority taking part in the hearing should have prior involvement with the application that could lead to a reasonable apprehension of bias on the part of that member. Where a member has a personal interest, the test is whether a reasonably well- informed person would consider that the interest might have an influence on the exercise of the official's public duty. Where a member is a municipal councillor, the *Municipal Conflict of Interest Act* applies. In the case of a previously expressed opinion, the test is that of an open mind, i.e. is the member capable of

persuasion in participating in the decision making.

b) If material relating to the merits of an application that is the subject of a hearing is distributed to Hearing Board members before the hearing, the material shall be distributed to the applicant at the same time. The applicant may be afforded an opportunity to distribute similar pre-hearing material. These materials can be distributed electronically.

c) The applicant will be given an opportunity to attend the hearing before a decision is made; however, the applicant does not have to be present for a decision to be made.

Board approved SVCA Guidelines with regard to complete permit applications (to be completed), Administrative reviews (policies manual), permit approvals (policies manual), and enforcement matters (policies manual) are available via the SVCA's website for public access.

2.2Application

The right to a hearing arises where staff is recommending refusal of an application or where conditions are being applied to the approval of an application where the applicant opposes such conditions. The applicant must request the hearing. The applicant is entitled to reasonable notice of the hearing pursuant to the *Statutory Powers Procedures Act.*

2.3Notice of Hearing

The Notice of Hearing shall be sent to the applicant within sufficient time to allow the applicant to prepare for the hearing. To ensure that reasonable notice is given, it is recommended that prior to sending the Notice of Hearing, the applicant be consulted to determine an agreeable date and time based on the SVCA Board of Directors' availability.

The Notice of Hearing must contain or append the following:

a) Reference to the applicable legislation under which the hearing is to be held i.e., *the Conservation Authorities Act*.

b) The time, place, and the purpose of the hearing, OR for Electronic Hearings: The time, purpose of the hearing, and details about the way the hearing will be held.

Note: for electronic hearings the Notice must also contain a statement that the applicant should notify the Authority if they believe holding the hearing electronically is likely to cause them significant prejudice. The Authority shall assume the applicant has no objection to the electronic hearing if no such notification is received.

c) Particulars to identify the applicant, property and the nature of the application which are the subject of the hearing.

Note: If the applicant is not the landowner but the prospective owner, the applicant must have written authorization from the registered landowner.

d) The reasons for the proposed refusal or conditions of approval shall be specifically stated. This should contain sufficient detail to enable the applicant to understand the issues so he or she can be adequately prepared for the hearing.

It is sufficient to reference in the Notice of Hearing that the recommendation for refusal or

conditions of approval is based on the reasons outlined in previous correspondence or a hearing report that will follow.

e) A statement notifying the applicant that the hearing may proceed in the applicant's absence and that the applicant will not be entitled to any further notice of the proceedings.

Except in extreme circumstances, it is recommended that the hearing not proceed in the absence of the applicant.

f) Reminder that the applicant is entitled to be represented at the hearing by a representative such as legal counsel, if desired. The conservation authority may be represented at the hearing by legal counsel or staff.

g) A copy of the Authority's Hearing Guidelines.

It is recommended that the Notice of Hearing be directed to the applicant and/or landowner by registered mail. Please refer to **Appendix A** for an example Notice of Hearing.

2.4Pre-submission of Reports

It is the practice of the SVCA to submit reports to the Hearing Board members in advance of the hearing (i.e., inclusion on a Board of Directors meeting agenda), the applicant shall be provided with the same opportunity. The applicant shall be given two weeks to prepare a report once the reasons for the staff recommendations have been received. Subsequently, this may affect the timing and scheduling of the staff hearing reports as the staff report would need to be made available at least four weeks from the hearing date and the applicant's report available two weeks from the hearing date.

3.Hearing

3.1 Public Hearing

Pursuant to the Statutory Powers Procedure Act, hearings, including electronic hearings, are required to be held in public. For electronic hearings, public attendance should be synchronous with the hearing. The exception is in very rare cases where public interest in public hearings is outweighed by the fact that intimate financial, personal or other matters would be disclosed at hearings.

3.2 Hearing Participants

The *Conservation Authorities Act* does not provide for third party status at the hearing. The hearing, however, is open to the public. Any information provided by third parties should be incorporated within the presentation of information by, or on behalf of, the applicant or Authority staff as appropriate.

3.3 Attendance of Hearing Board Members

In accordance with case law relating to the conduct of hearings, those members of the Authority who will decide whether to grant or refuse the application must be present during the full course of the hearing. If it is necessary for a member to leave, the remaining members can continue with the hearing and render a decision.

3.4 Adjournments

The Hearing Board may adjourn a hearing on its own motion or that of the applicant or Authority staff where it is satisfied that an adjournment is necessary for an adequate hearing to be held.

Any adjournments form part of the hearing record.

3.5 Orders and Directions

SVCA is entitled to make orders or directions to maintain order and prevent the abuse of its hearing processes. A hearing procedures example has been included as **Appendix B**.

3.6 Information Presented at Hearings

a) *The Statutory Powers Procedure Act*, requires that a witness be informed of their right to object pursuant to the *Canada Evidence Act.* The *Canada Evidence Act* indicates that a witness shall be excused from answering questions on the basis that the answer may be incriminating. Further, answers provided during the hearing are not admissible against the witness in any criminal trial or proceeding. This information should be provided to the applicant as part of the Notice of Hearing.

b) It is the decision of the hearing members as to whether information is presented under oath or affirmation. It is not a legal requirement. The applicant must be informed of the above, prior to or at the start of the hearing.

c) The Hearing Board may authorize receiving a copy rather than the original document. However, the Hearing Board can request certified copies of the document if required.

d) Privileged information, such as solicitor/client correspondence, cannot be heard. Information that is not directly within the knowledge of the speaker (hearsay), ifrelevant to the issues of the hearing, can be heard.

e) The Hearing Board may take into account matters of common knowledge such as geographic or historic facts, times, measures, weights, etc or generally recognized scientific or technical facts, information or opinions within its specialized knowledge without hearing specific information to establish their truth.

3.7 Conduct of Hearing

1. Record of Attending Hearing Board Members A record shall be made of the members of the Hearing Board.
2. Opening Remarks

The Chairperson shall convene the hearing with opening remarks which generally; identify the applicant, the nature of the application, and the property location; outline the hearing procedures; and advise on requirements of the Canada Evidence Act. Please reference Appendix C for the Opening Remarks model. In an electronic hearing, all the parties and the members of the Hearing Board must be able to clearly hear one another and any witnesses throughout the hearing.

3. Presentation of Authority Staff Information

Staff of the Authority presents the reasons supporting the recommendation for the refusal or conditions of approval of the application. Any reports, documents, or plans that form part of the presentation shall be properly indexed and received. Staff of the Authority should not submit new technical information at the hearing as the applicant will not have had time to review and provide a professional opinion to the Hearing Board.

Consideration should be given to the designation of one staff member or legal counsel who coordinates the presentation of information on behalf of Authority staff and who asks questions on behalf of Authority staff.

4. Presentation of Applicant Information

The applicant has the opportunity to present information at the conclusion of the Authority staff presentation. Any reports, documents or plans which form part of the submission should be properly indexed and received.

The applicant shall present information as it applies to the permit application in question. For instance, does the requested activity affect the control of flooding, erosion, dynamic beach, conservation of land, or pollution? The hearing does not address the merits of the activity or appropriateness of such a use in terms of planning.

- The applicant may be represented by legal counsel or agent, if desired
- The applicant may present information to the Hearing Board and/or have invited advisors to present information to the Hearing Board
- The applicant(s) presentation may include technical witnesses, such as an engineer, ecologist, hydrogeologist etc.

The applicant should not submit new technical information at the hearing as the Staff of the Authority will not have had time to review and provide a professional opinion to the Hearing Board.

5. Questions

Members of the Hearing Board may direct questions to each speaker as the information is being heard. The applicant and /or agent can make any comments or questions on the staff report.

Pursuant to the Statutory Powers Procedure Act, the Hearing Board can limit questioning where it is satisfied that there has been full and fair disclosure of the facts presented. Please note that the courts have been particularly sensitive to the issue of limiting questions and there is a tendency to allow limiting of questions only where it has clearly gone beyond reasonable or proper bounds.

6. Deliberation

After all the information is presented, the Hearing Board may adjourn the hearing and retire in private to confer. The Hearing Board may reconvene on the same date or at some later date to advise of the Hearing Board's decision. The Hearing Board members shall not discuss the hearing with others prior to the decision of the Hearing Board being finalized.

4. Decision

The applicant must receive written notice of the decision. The applicant shall be informed of the right to appeal the decision within 90 days upon receipt of the written decision to the Ontario Land Tribunal.

It is important that the hearing participants have a clear understanding of why the application was refused or approved. The Hearing Board shall itemize and record information of particular significance which led to their decision.

4.1 Notice of Decision

The decision notice should include the following information:

a) The identification of the applicant, property and the nature of the application that was the subject of the hearing.

b) The decision to refuse or approve the application. A copy of the Hearing Board resolution should be attached.

It is recommended that the written Notice of Decision be forwarded to the applicant by registered mail. A sample Notice of Decision and cover letter has been included as Appendix D.

4.2 Adoption

A resolution advising of the Hearing Board's decision and particulars of the decision should be adopted.

5. Record

The Authority shall compile a record of the hearing. In the event of an appeal, a copy of the record should be forwarded to the Ontario Land Tribunal. The record must include the following:

a) application for the permit;

b) Notice of Hearing;

c) any orders made by the Hearing Board (e.g., for adjournments);

d) all information received by the Board;

e) attendance of Hearing Board members;

f) the decision and reasons for decisions of the Hearing Board;.

g) the Notice of Decision sent to the applicant.

Appendix A – Notice of Hearing

IN THE MATTER OF

The Conservation Authorities Act,

R.S.O. 1990, Chapter 27

AND IN THE MATTER OF an application by (APPLICANT NAME)

For The Permission of Saugeen Valley Conservation Authority

TAKE NOTICE THAT a Hearing before the Board of Directors of the Saugeen Valley Conservation Authority will be held under Section 28.1 (5) of the *Conservation Authorities Act* at the offices of the said Authority, 1078 Bruce Road 12, Formosa, Ontario, at the hour of (**TIME**)**, on the day of (Month/Day), 20XX**, [for electronic hearings, include details about the manner in which the hearing will be held] with respect to the application by (**NAME**) to engage in an activity regulated by the authority in an area regulated by the Authority on Lot/Con / Plan/Lot , Street) in the Municipality of, County of

TAKE NOTICE THAT you are invited to make a delegation and submit supporting written material to the Board of Directors for the meeting of (***meeting number***). If you intend to appear [For electronic hearings: or if you believe that holding the hearing electronically is likely to cause significant prejudice], please contact (***name***). Written material will be required by (***date***), to enable the Committee members to review the material prior to the meeting.

TAKE NOTICE THAT this hearing is governed by the provisions of the *Statutory Powers Procedure Act*. Under the Act, a witness is automatically afforded a protection that is similar to the protection of the *Ontario Evidence Act*. This means that the evidence that a witness gives may not be used in subsequent civil proceedings or in prosecutions against the witness under a Provincial Statute. It does not relieve the witness of the obligation of this oath since matters of perjury are not affected by the automatic affording of the protection. The significance is that the legislation is Provincial and cannot affect Federal matters. If a witness requires the protection of the *Canada Evidence Act* that protection must be obtained in the usual manner. The Ontario Statute requires the tribunal to draw this matter to the attention of the witness, as this tribunal has no knowledge of the effect of any evidence that a witness may give.

AND FURTHER TAKE NOTICE that if you do not attend at this Hearing, the Board of Directors of the Conservation Authority may proceed in your absence, and you will not be entitled to any further notice in the proceedings.

DATED the (DAY) of (MONTH), 20XX

The Board of Directors of Saugeen Valley Conservation Authority

Per:

General Manager/Secretary-Treasurer

Appendix B – Hearing Procedures

1. Motion to sit as a Hearing Board.
2. Roll call followed by the Chairperson's opening remarks. For electronic hearings, the Chairperson shall ensure that all parties and the Hearing Board are able to clearly hear one another and any witnesses throughout the hearing.
3. Staff will introduce to the Hearing Board the applicant/owner, his/her agent and others wishing to speak.
4. Staff will indicate the nature and location of the subject application and the conclusions.
5. Staff will present the staff report included in the Authority agenda.
6. The applicant and/or their agent will present their material
7. Staff and/or the conservation authority's agent may question the applicant and/or their agent if reasonably required for a full and fair disclosure of matters presented at the hearing.[12]
8. The applicant and/or their agent may question the conservation authority staff and/or their agent if reasonably required for full and fair disclosure of matters presented at the hearing.[13]
9. The Hearing Board will question, if necessary, both the staff and the applicant/agent.
10. The Hearing Board will move into deliberation. For electronic meetings, the Hearing Board will separate from other participants for deliberation.
11. Members of the Hearing Board will move and second a motion.
12. A motion will be carried which will culminate in the decision.
13. The Hearing Board will move out of deliberation. For electronic meetings, the Hearing Board will reconvene with other participants. The Chairperson or ActingChairperson will advise the owner/applicant of the Hearing Board decision.
14. If decision is "to refuse" or "approve with conditions", the Chairperson or Acting Chairperson shall notify the owner/applicant of his/her right to appeal the decision to the Ontario Land Tribunal within 90 days of receipt of the reasons for the decision.
15. Motion to move out of the Hearing Board and sit as the Board of Directors.

[12] As per the *Statutory Powers Procedure Act* a tribunal may reasonably limit further examination or cross-examination of a witness where it is satisfied that the examination or cross-examination has been sufficient to disclose fully and fairly all matters relevant to the issues in the proceeding.

[13] As per the *Statutory Powers Procedure Act* a tribunal may reasonably limit further examination or cross-examination of a witness where it is satisfied that the examination or cross-examination has been sufficient to disclose fully and fairly all matters relevant to the issues in the proceeding.

Appendix C – Chairperson's Remarks

We are now going to conduct a hearing under section 28.1 of the *Conservation Authorities Act* in respect of an application by: (APPLICANT NAME), for permission to: (DESCRIPTION OF ACTIVITIES).

In accordance with Part 6 of the *Conservation Authorities Act* and Ontario Regulation 41/24, permission is required from the Authority to engage in development and alteration activities within an area regulated by the Authority.

Staff have reviewed the proposed activities and prepared a staff report, a copy of which has been given to the applicant and the Board. The applicant was invited to file material in response to the staff report, a copy of which has also been provided to the Board.

Under section 28.1 (5) of the *Conservation Authorities Act*, the person requesting permission has the right to a hearing before the Authority Board of Directors.

In holding this hearing, the SVCA Board of Directors is to determine whether or not a permit is to be issued, with or without conditions. In doing so, we can only consider the application in the form that is before us, the staff report, such evidence as may be given and the submissions to be made on behalf of the applicant. Only information disclosed prior to the hearing is to be presented at the hearing.

The proceedings will be conducted according to the *Statutory Powers Procedure Act*. Under section 5 of the *Canada Evidence Act*, a witness may refuse to answer any question on the ground that the answer may tend to incriminate the person, or may tend to establish his/her liability to a civil proceeding at the instance of the Crown or of any person.

The procedure in general shall be informal without the evidence before it being given under oath or affirmation unless decided by the hearing members.

If the applicant has any questions to ask of the Hearing Board or of the Authority representative, they must be directed to the Chairperson of the Board.

Appendix D – Notice of Decision

(Date)

By Registered Mail

(name) (address)

Dear:

RE: Notice of Decision

Hearing Pursuant to Section 28.1 of the *Conservation Authorities Act*
Proposed (e.g. residential development, watercourse alteration etc.)

(LOT/CON/PLAN/ Municipality of) (Application #)

In accordance with section 28.1 (7) of the *Conservation Authorities Act,* the Saugeen Valley Conservation Authority provides the following Notice of Decision:

On (***meeting date and number***), the Hearing Board refused/approved your application/approved your application with conditions. A copy the Boards/Committee's resolution # has been attached for your records. Please note that this decision is based on the following reasons: ***the proposed (full description of activities) (is / is not) likely to adversely affect the control of flooding, erosion, dynamic beaches or unstable soil or bedrock; and (is / is not) likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.***

In accordance with section 28.1 (20) of the *Conservation Authorities Act*, an applicant who has been refused permission or who objects to conditions imposed on a permission may, within 90 days of receiving the reasons under section 28.1 (7), appeal to the Minister who may refuse the permission, or grant permission, with or without conditions. Through Order in Council 332/2018 the responsibility for hearing the appeal has been transferred to the Ontario Land Tribunal. For your information, should you wish to exercise your right to appeal the decision, a letter by you or your agent/counsel setting out your appeal must be sent within 90 days of receiving this decision addressed to:

Ontario Land Tribunal

655 Bay Street, Suite 1500

Toronto, Ontario M5G 1E5

A carbon copy of this letter should also be sent to the Saugeen Valley Conservation Authority. Should you require any further information, please do not hesitate to contact (***staff contact***) or the undersigned.

Yours truly,

General Manager/Secretary-Treasurer

Appendix E: Slope Stability Assessment Guidelines

Slope Stability Assessment Guidelines

August 25, 2016

Prepared by: B. Singh, M.A.Sc., P. Eng., Principal Terraprobe Inc.

11 Indell Lane Brampton, Ontario L6T 3Y3

Contents

1.0 Introduction

The Ministry of Natural Resources defines natural hazards as "natural, physical environmental process that occurs near or at the surface of the earth (that) can produce unexpected events of unusual magnitude or severity".

One of the natural hazards as identified in MNR is the Erosion Hazard. The erosion hazard refers to the loss of land due to human or natural processes that poses a threat to life and/or property. The erosion hazard for a development is established for the long-term planning horizon, typically a one hundred-year time span. The determination of Erosion Hazard Limit is required for developments both near the stream valley corridors and shorelines of Great Lakes.

The natural valley systems in a stream corridor environment can either be a Defined Valley System or an Undefined Valley System. In a defined valley system the watercourse flows through a valley system confined by valley walls while in case of an undefined valley system the landscape is relatively flat, and the river or stream is not confined or bounded by any discernable valley walls.

The Erosion Hazard Limit associated with a slope in a defined or confined stream corridor environment is generally established based on the Toe Erosion Allowance, Stable Slope Allowance and Erosion Access Allowance. The toe erosion allowance is determined by using the 100-year erosion rate (the average annual rate of recession extended over the development planning horizon – typically a hundred-year time span) or default a value included in the Table 3 of Technical Guide MNR, River & Stream Systems: Erosion Hazard Limit. The stable slope allowance is a setback related to potential slope stability issues of the valley walls (slope) through which a river or stream flows (typically a 3 horizontal to 1 vertical setback is applied – in absence of a site-specific study). The erosion access allowance is provided at the top of the slope (tableland) in consideration of potential access required to the slope during emergencies or for maintenance. The erosion hazard limit for an unconfined valley system is determined based on flooding hazard limit OR meander belt allowance (20 times the bankfull channel width centred over the meander belt axis) OR as determined by a valid study, plus the erosion access allowance.

The Erosion Hazard Limit for shoreline slopes is typically determined based on Stable Slope Allowance (as described above) and 100-year recession OR Erosion Allowance where there is no reliable recession information (the province suggests a default setback distance to allow for 30 metre erosion allowance along the Great Lakes).

New developments are generally directed to be outside of the Erosion Hazard Limit to avoid natural risks associated with the slope instability and erosion hazards. A site-specific slope stability assessment and an erosion study (geomorphic or coastal, as applicable) may result in a lesser hazard limit than the one calculated based on the generalized and default setbacks.

The MNR policy guidelines for stable slopes typically apply to slopes over 2 meter in height and an inclination steeper than 3 horizontal to 1 vertical.

2.0 Typical Slope Features and Terminology

Slopes occur in many environments such as pits and quarries, shoreline bluffs, and river valleys. A slope in geological terms represents an inclined landform with an elevation relief along its profile. The slopes are natural and manmade:

Natural Slopes: Slopes formed by geological events (i.e., weathering, erosion, depositions)

Man-made Slopes: Artificial slopes constructed by humans; typically by cutting or filling (example, earth dams, earth berms, excavation slopes)

A typical slope consists of a slope toe (the point of lowest elevation along the slope profile), slope crest (the point of highest elevation along the slope profile) and the inclined surface with elevation relief along the profile. The landforms beyond the slope crest and the slope toe of a well-defined slope are relatively flat and are known as tableland and floodplain (if a slope is associated with a watercourse valley system), respectively.

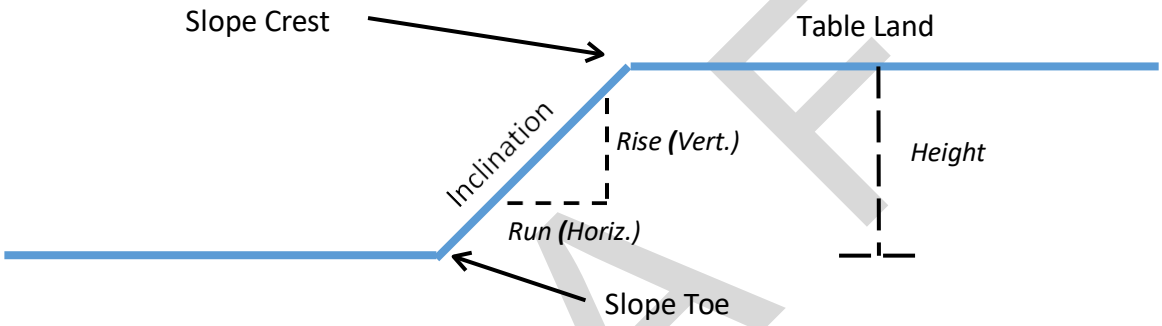


Figure 1 Slope Terminology

3.0 Slope Instability – Risks and Implications

Slope instability (commonly referred to as a 'slope failure of slope slide') can result in a sudden movement or sliding of a large mass of soil over a failure plane (also called slip plane) resulting in ground loss, that could affect structures or natural features at the top or bottom of the slope. Slope movements tend to occur rapidly, when compared to erosion processes. The slope movement often leaves a 'scarp' at the top of the slope movement area and a slumped ground below.

The slope movement could lead to loss of ground support and damage to property, buildings, roads, buried utilities, or to siltation or blockage of rivers (creeks or channels) and local flooding, damage to human life & livestock. Slope instability implications could be significant and may have legal implications and liabilities for review and enforcement authorities. Despite increased understanding and advancement in prediction and mitigation, worldwide slope failures are increasing, likely due to increased urbanization and development in slide prone areas, continued deforestation, and increased precipitation through climate change.

In view of the safety and potential liability issues associated with slope movements, it is important that there be awareness and recognition of slope stability principles. This is reflected by requirements for geotechnical engineering reports on slope stability in various government regulations including the Aggregate Resources and Petroleum Act, the National Building Code (building departments), and by policies of local conservation authorities and municipal planning authorities.

Through prolonged natural weathering, most slopes tend to achieve a stable inclination and vegetation cover. Changes or disturbances to the slope conditions can result in slope slides when a slope is attempting to achieve a more stable and flatter inclination. The instability is primarily driven by gravity, hence, the slope inclination or the steepness, has the greatest effect on its stability. Steep slopes are most susceptible or vulnerable to failure, even if there are relatively minor changes in other variables (loading, undercutting, wet weather). Flatter slopes tend to be affected less by changes in these other variables.

The stability of a slope depends on slope height and inclination, slope soil types, soil strengths, and ground water conditions. Decrease in soil strength caused by increase in ground water level, weathering, shocks and vibrations can also have a potential to trigger instability. The potential instability of a slope for the long-term planning horizon can be determined by a professional engineer based on visual inspection, and a limited or a detailed investigation - as deemed appropriate based on-site specific considerations. Factors of safety of 1.5 for normal ground water level (long-term condition) and 1.3 for elevated ground water level (temporary condition) are typically required to establish stable slope inclination.

Slope movement or instability can occur in many ways, such as rotational, flow, block and wedge, transitional, spread (refer to Figure 2), but is generally the result of:

- changes in slope configuration, such as height, steepness or inclination,
- increases in loading on a slope, such as structures or filling near the crest,
- changes in drainage of the soil which create higher water levels or water pressures, such as heavy rainfall, blocked drainage, broken watermains etc.
- loss of vegetation, and
- seismic events.

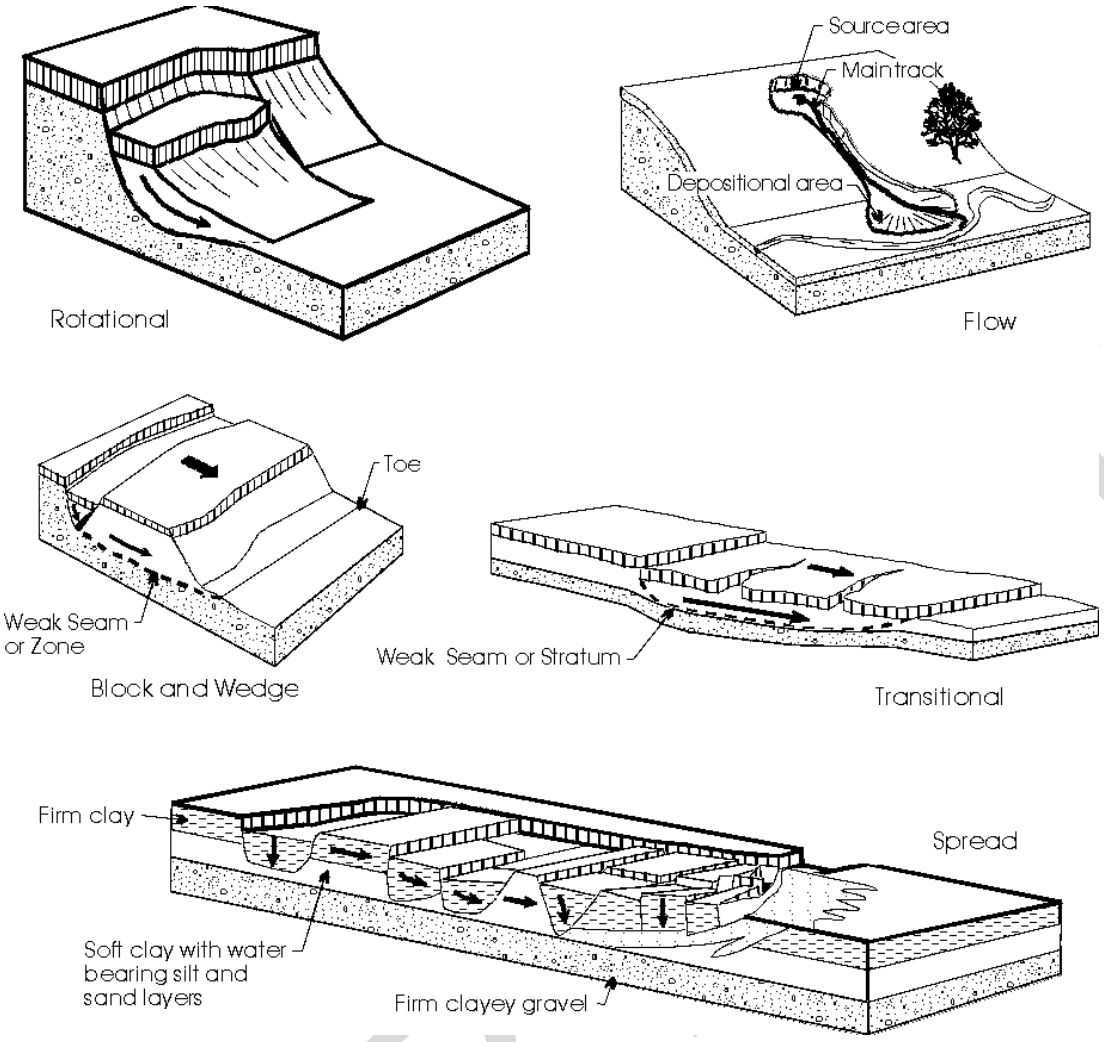


Figure 2 Typical slope movements

The presence of vegetation cover on a slope surface is critical and a primary defence against surficial soil erosion. By reducing the surface erosion, the likelihood of shallow slope instability is also decreased. The vegetation cover provides the long term protection against surface erosion and shallow translational slope slides by:

- holding, binding, or reinforcing the soil with a root system,
- removing water from the soil by uptake and transpiration,
- reducing run-off flow velocity,
- reducing frost penetration,
- buttressing or reinforcing action of large tree roots.

Urbanization and land development activities, fill placement near slope crests and excavations into slopes (or retaining walls) may alter the stability of shorelines, valleys, and sloping ground. Filling is a common practice in most urban areas to reclaim more usable flat tableland along existing slope crest. This fill placement often occurs in an uncontrolled manner (sometimes over an extended period of time) and may result in an unstable fill mass which eventually may experience movement, particularly related to heavy precipitation and high groundwater events. Slides within fill materials (placed in an uncontrolled manner without engineering design and supervision) can be

unpredictable and extensive. The resulting instability may occur through the fill materials only or through both fill and the underlying native soil (depending upon the native soil strength characteristics). However, filling on slopes if approved by applicable authorities, can be carried out in a safe and stable manner with suitable design, control, precautions and construction under the supervision of a qualified geotechnical engineer.

3.1 Typical Signs of Slope Instability

Sometimes there may be precursor(s) preceding a slope failure. The following information includes some of the typical slope instability signs. These signs may indicate that a slope slide is possible however the timing of the actual slide is often very difficult to predict. Experience indicates that a slide is relatively more likely to take place during or after heavy precipitation event. There may be other, or no evidence of slope instability at all, prior to a slope slide depending upon the site-specific conditions.

Bare Slope Areas (no vegetation)

Lack or loss of vegetation is a typical sign of over- steepened slope. Vegetation establishment is relatively difficult on steep slopes (generally steeper than 2 horizontal to 1 vertical). A recent formation of bare area or loss of vegetation on a slope may indicate a slump, soil erosion or formation of an over-steepening zone.

Figure 3 Bare slope areas

Bent Tree Trunks

Bent and bowed trees may be due to slope soil creep; however, it may also be due to initial root development and twisting or bowing growth in response to reaching for sunlight.

Figure 4 Bent tree trunks

Tension Cracks

A tension crack formation close to the top of slope may indicate a pending slope failure. A tension crack is a void that generally runs parallel to the slope face. It can significantly affect the future stability of the slope because a crack filled with water reduces the stability due to the hydrostatic pressure. The ice formation within the crack during sub-zero temperature expands and loosens the slope soil in the vicinity, increasing risk of future slope movement.

Figure 5 Tension cracks

Irregular Slope Surfaces, Slumps, Scarps, Bumps, Bulges

A presence of irregular slope surfaces such as slumps, scarps, bumps, bulges, etc. generally indicate a soil movement. Slumps and scarps result in an over-steepened (even near vertical) and bare zone at the 'head' or 'crown' where the sliding mass has separated from the slope. A slump or slide may also result in tension cracks above the slide.

Figure 6 Irregular slope surfaces, slumps, scarps, bumps, bulges

Other Indicators

Some other slope instability indicators may include displaced posts/fences, poles, monuments, guardrails, broken/displaced retaining walls, and stairs.

Figure 7 Other indicators of slope instability

3.2 Stable Slope Allowance

A stable slope allowance (setback) is applicable for slopes with a potential instability risk(s) over the planning horizon. The stable slope allowance is a setback that is applied to address and account for potential slope instability risk to the development over the planning horizon. A stable slope allowance of 3 horizontal to 1 vertical is applied in absence of a site specific study. A site-specific slope stability assessment may however result in a steeper stable slope inclination (lesser setback) than the one calculated based on the default setback value (3 horizontal to 1 vertical).

A generalized procedure to determine the Stable Slope Allowance (S.S.A.), a component of the total erosion hazard zone, is illustrated in the following flow chart:

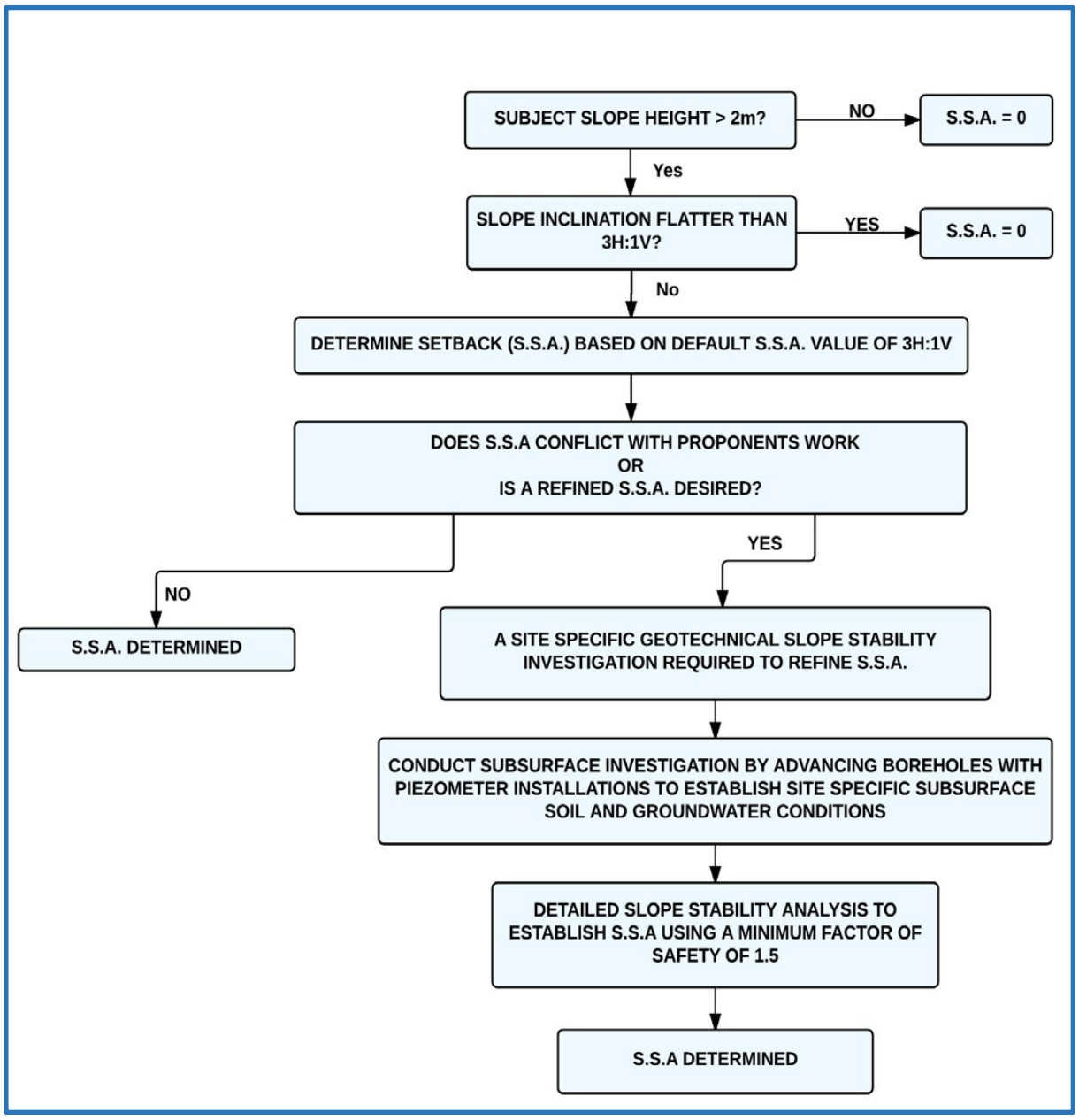


Figure 8 Determining the stable slope allowance

4.0 Erosion

The erosion process affects the soil at the particle level, by dislodging and removing (transporting) the soil particles from the parent mass (with water movement as the agent). Other processes such as wind and frost may assist in the weathering or dislodging and transport of soil particles. Erosion, in context of slopes, is generally a process of gradual washing away of soil by water movement or seepage. Erosion generally occurs in one of the following manners:

- rainfall or snowmelt and surface run-off (sheet or rill or gully erosion),
- internal seepage (springs) and piping,
- water flow (banks or base of river, creek, channel),
- wave action (shorelines of ponds, lakes, bays).

Slope instability and erosion are two, often associated but completely different processes which may or may not occur together. Erosion is the loss of soil at the ground surface, while slope failures consist of a large mass of soil sliding along a planar surface. One very common event is the 'toe erosion' that can trigger slope instability, due to steepening or undercutting of the slope.

Water action and erosion (by flowing water or waves) are integral to slope instability. Slope slides may be caused by undercutting or steepening of the slope toe (removing support for the slope). Water seepage or groundwater levels can also affect slope stability since they affect the slope properties.

4.1 Erosion Features

The erosion features may consist of (including but not limited to) the following:

- Rills and Gully Erosion,
- Piping Erosion,
- Streambank Erosion,
- Shoreline Bluff / Wave Erosion

4.1.1. Rills and Gully Erosion

Gully development is common on high bluff shorelines along the Great Lakes, and along river valleys where surface drainage may become concentrated. The process begins with the accumulation or concentration of surface run-off in narrow surficial channels (rills), which then experience progressive erosion and the formation of larger channels or gullies. The gully erosion process is attributed to downcutting of the gully base by swiftly flowing water and slumping or failure of the gully banks (causes the gully to become wider). The typical gully erosion process is summarized as follows;

- sufficient run-off drainage to disrupt natural vegetation cover,
- establishment of a drainage channel and start of downcutting,
- channel banks steepen by continuing base erosion, until slope failure
- gully widens with slope slides, and debris interrupts downcutting,
- cycle of downcutting and slumping is repeated after debris is washed away and downcutting resumes,
- gully can mature once stable gradient is achieved by drainage flows.

Figure 9 Rill erosion

Figure 10 Gully erosion

Erosion of the gully base followed by slumping of the side-slopes, results in the gully slope crest receding and the loss of table land. The erodibility (erosion) is influenced predominantly by the nature of the soil, and by the slope gradient (steepness). Strongly bonded 'cohesive' soils (clays, clayey silts, tills) are generally less erodible than 'cohesionless' soils (sands, silts).

4.1.2. Piping Erosion

'Piping' on a slope face can be related to 'springs' or seepage, where soil erosion occurs in water bearing sands on slopes. As water drains from a sand layer on the slope face, the flow sometimes dislodges and transports (erodes) the sand particles away from the parent soil mass, leaving voids termed 'pipes'. The most susceptible location for piping to occur is near the bottom of a sand layer where the underlying soil is much less permeable than the sand (silt, clay, till, rock).

Figure 11 Piping erosion

4.1.3. Streambank Erosion

Streambank erosion is caused by flowing water in rivers, creeks, and streams resulting in surface erosion of the bank or channel. The toe erosion results in steepening (undercutting) of the lower portion of the slope thus making the slope unstable. The lower over-steepened portion slumps to attain a relatively stable configuration but in turn makes the upper (unslumped) portion of the slope steep and unstable resulting in progressive slumping. The streambank erosion is usually due to increased flow velocities from climatic events such as heavy rains or snowmelt. Locations which are particularly susceptible to riverbank erosion, are where the river abuts the slope and changes flow direction such as the outside of 'meanders' or bends in the river alignment.

Streambank erosion primarily consists of the following:

Active Erosion: Bank material exposed directly to stream flow under normal or flood flow conditions where undercutting, over-steepening, slumping of a bank or downstream sediment loading is occurring.

No evidence of Active Erosion: An area may have erosion, but there may not be evidence of 'active erosion', either as a result of well rooted vegetation or as a result of a condition of net sediment deposition. The area may still experience erosion at some point in the future as a result of shifting of the channel.

The most important initial step in stabilization of river erosion is to ensure that the slope toe is suitably protected from the water flow velocity, prior to undertaking slope stabilization works.

Active Erosion (Bedrock)

Active Erosion & Slumping (overburden)

Figure 12 Examples of active streambank erosion

No Active Erosion

Figure 13 Example without streambank erosion

4.1.4. Shoreline Bluff / Wave Erosion

Wave action at the slope toe of Shoreline bluffs undercuts the slope toe resulting in cycles of erosion and slope instability. The slumping leads to crest recession (loss of table land). Toe erosion may start when lake levels rise and cover previous beach areas along the bluff toe. This allows wave action to undercut and locally over-steepen the slope toe. Similar to gully and river erosion, this toe undercutting initially triggers the loss of vegetation cover near the slope toe, which progressively spreads up the slope face. The lower over-steepened portion slumps to attain a comparatively stable configuration but in turn over-steepens the portion above the slump. This upper over-steepened portion then slumps resulting in a progressive slumping approaching the slope crest and hence the loss of tableland.

Figure 14 Examples of toe erosion

The most important initial step in stabilization of bluff erosion is to ensure that the slope toe is protected from wave action (where possible), prior to undertaking slope works. Any shore protection works should consider possible effects on the littoral system and sediment transport.

4.2 Toe Erosion Allowance River Slope

The toe erosion allowance (setback) for a river slope ensures safety if the toe of the slope adjacent to the river or stream erodes and weakens the bank, increasing the risk of slumping. The setback is determined by one of the four following methods:

Average annual recession rate (25 years of data extended over a 100-year horizon)

- 15 metre toe erosion allowance where the distance between the watercourse and the base of the valley wall is 15 meters or less
- Toe erosion allowance based on soil types and hydraulic processes where the watercourse is 15 meters or less from the base of the valley wall
- Study using accepted geotechnical & engineering principles on a minimum of 25 years of record or data

Table 3: Determination of Toe Erosion Allowance

MINIMUM TOE EROSION ALLOWANCE - River Within 15 m of Slope Toe*

Type of Material Native Soil Structure	**Evidence** of Active Erosion** **OR** Bankfull Flow Velocity > Competent Flow Velocity***	**No evidence** of Active Erosion** **OR** Bankfull Flow Velocity <Competent Flow Velocity***		
	RANGE OF SUGGESTED TOE **EROSION ALLOWANCES**	Bankfull Width		
		< 5m	5-30m	> 30m
1.Hard Rock (granite) *	0 - 2 m	0 m	0 m	1 m
2.Soft Rock (shale, limestone) Cobbles, Boulders *	2 - 5 m	0 m	1 m	2 m
3.Stiff/Hard Cohesive Soil (clays, clay silt), Coarse Granular (gravels) Tills *	5 - 8 m	1 m	2 m	4 m
4.Soft/Firm Cohesive Soil, loose granular, (sand, silt) Fill *	8 - 15 m	1-2 m	5 m	7 m

*Where a combination of different native soil structures occurs, the greater or largest range of applicable toe erosion allowances for the materials found at the site should be applied

****Active Erosion** is defined as: bank material is exposed directly to stream flow under normal or flood flow conditions where undercutting, oversteepening, slumping of a bank or down stream sediment loading is occurring. An area may have erosion but there may not be evidence of 'active erosion' either as a result of well rooted vegetation or as a result of a condition of net sediment deposition. The area may still suffer erosion at some point in the future as a result of shifting of the channel. The toe erosion allowances presented in the right half of Table 3 are suggested for sites with this condition. See Step 3.

*****Competent Flow Velocity** is the flow velocity that the bed material in the stream can support without resulting in erosion or scour. For *bankfull width* and *bankfull flow velocity*, see Section 3.1.2.

Figure 15 Determining toe erosion allowance using table 3 from MNR Technical Guide, River & Stream Systems: Erosion Hazard Limit

A generalized procedure to determine the Toe Erosion Allowance in a stream corridor environment, a component of the total erosion hazard zone, is illustrated in the flow chart in Figure 16:

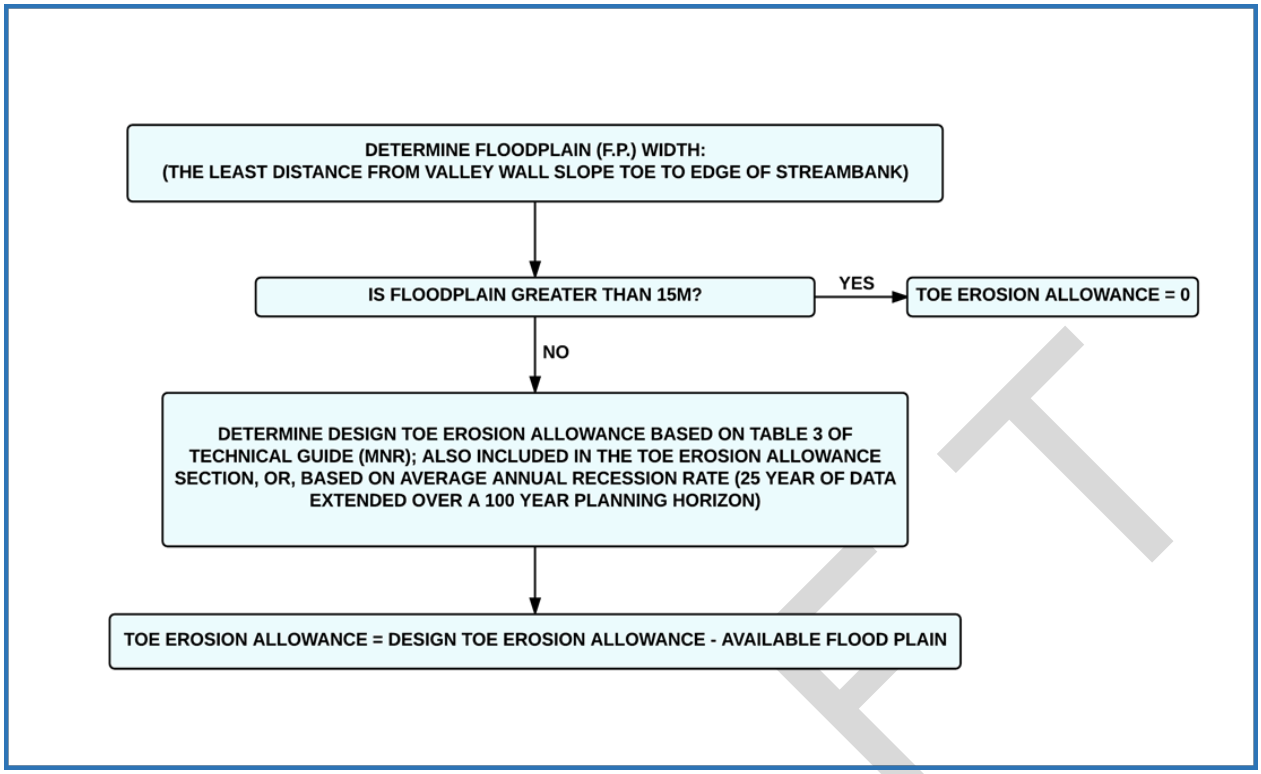


Figure 16 Flow chart to determine the Toe Erosion Allowance in a stream corridor environment

Shoreline/Bluff Slope

Erosion setback for shoreline/Bluff slopes is determined based on Average Annual Recession rate. The average annual recession rate is an average rate of erosion of the shoreline per year for a site where there is at least 35 years of reliable recession information is available.

Where there is no reliable recession information, the province suggests a setback distance to allow for 30- metre Erosion Allowance along the Great Lakes.

4.3 Erosion Access Allowance

Erosion Access Allowance is the setback required to ensure that there is an adequate safety zone for people and vehicles to enter and exit an area during an emergency, such as a slope failure or flooding. This is one of the components used to determine the landward limit of the erosion hazard and is applied for both confined and unconfined systems.

The erosion access allowance is provided to facilitate:

- access during emergencies,
- regular maintenance and construction access to repair failed structures, and
- protection from external events that affect an erosion prone area.

The suggested minimum erosion access allowance for river and stream systems is 6 metres 40 but allows for planning boards or municipalities to have flexibility. The erosion access allowance also helps connect green space, bicycle paths, natural habitat, and acts as a buffer. The 6 m allowance was originally designed to allow two-way traffic of large vehicles.

5.0 Long-term Stable Slope Crest

The long-term Stable Slope Crest (LTSSC) is the location on the tableland which is determined based on both the Stable Slope Allowance and Toe Erosion Allowance (as applicable). This location represents the worst-case scenario of the physical top of slope/slope crest recession over the long-term planning horizon (100 year). A Long-term Stable Slope Crest model illustrating the methodology to determine LTSSC position is presented in Figure 17 below:

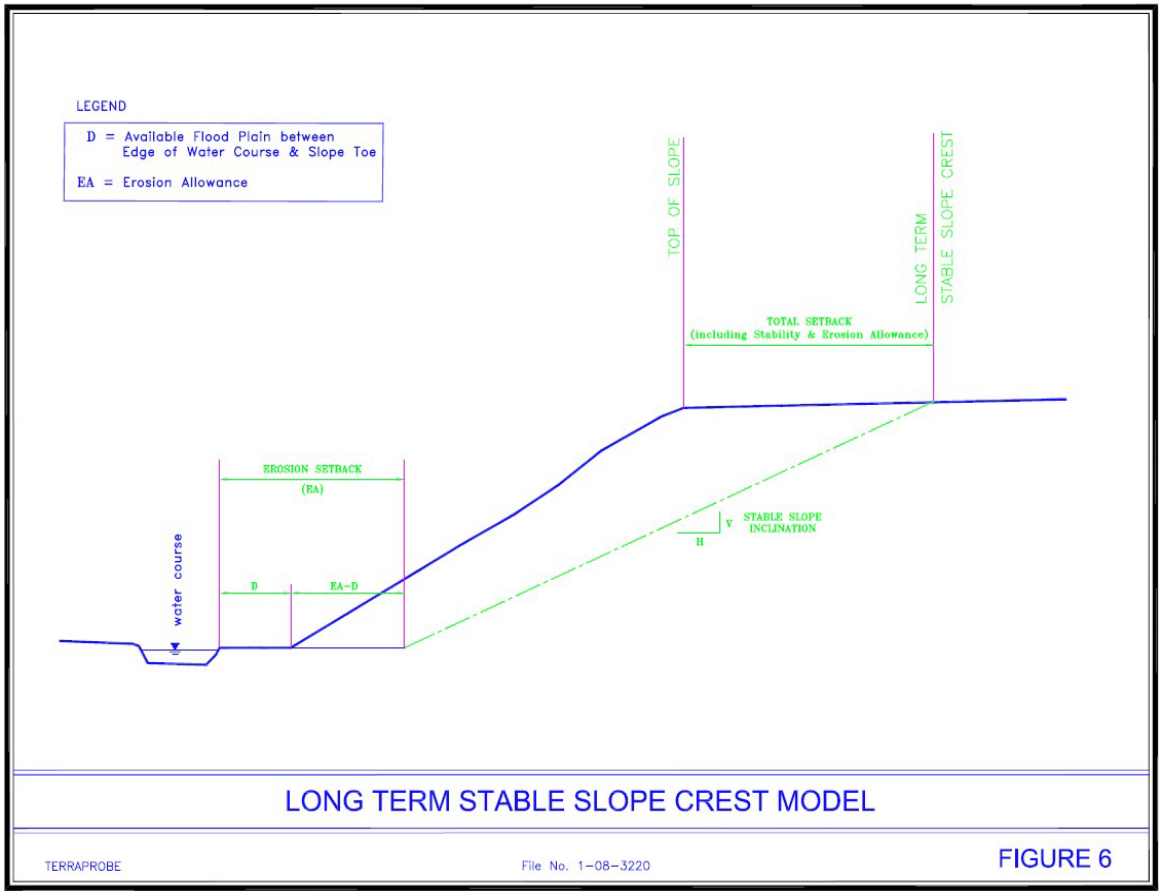


Figure 17 Illustrating the methodology to determine Long-term Stable Slope Crest position

Note: LTSSC does not include Erosion Access Allowance LTSSC = Toe Erosion Setback + Stability Setback (No Toe Erosion Setback if watercourse is 15m or more away from the slope toe).

6.0 Erosion Hazard Limit

The erosion hazard limit for a confined valley system is the limit that estimates the expected extent of erosion/slope crest loss (due to both toe erosion and slope instability) over the planning horizon of 100 year, plus the erosion access allowance.

The Erosion Hazard Limit = Toe Erosion Allowance + Stable Slope Allowance + Erosion Access Allowance, as indicated in Figure 18:

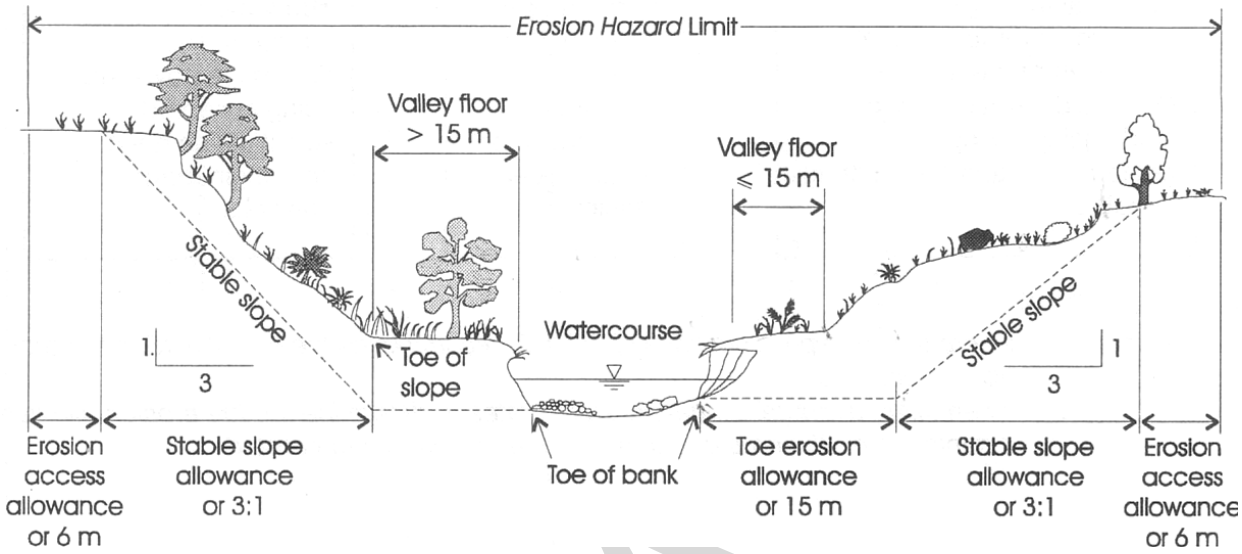


Figure 18 Illustrating the erosion hazard limit for a confined valley system

Figure 19 illustrates the erosion hazard limit where the toe of slope is stable (floodplain ≥ design toe erosion allowance). Figure 20 illustrates the erosion hazard limit where the toe of slope is unstable (floodplain < design toe erosion allowance).

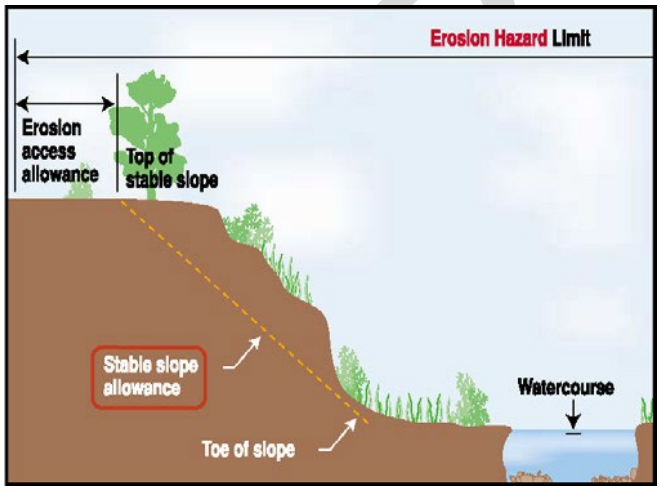


Figure 19 Erosion hazard limit with a stable toe

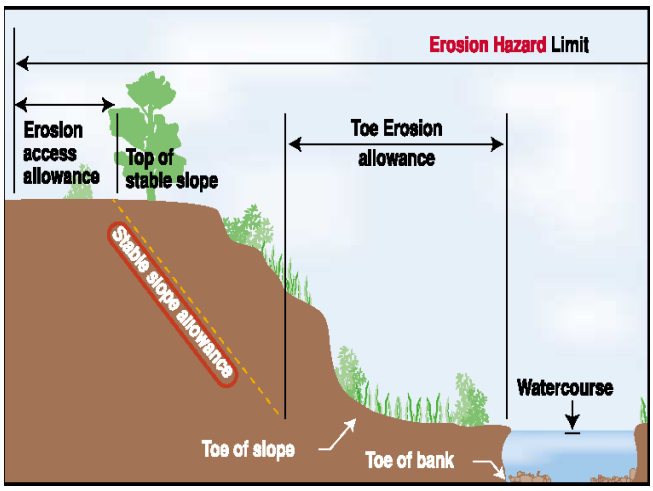


Figure 20 Erosion hazard limit with an unstable toe

The erosion hazard limit for **shoreline/bluff** (Figure 21) is determined based on the stable slope allowance and average annual recession (the average annual recession rate is an average rate of erosion of the shoreline per year for a site where there is at least 35 years of reliable recession information is available) extended over 100- year time span. Alternatively, if reliable average annual recession information is not available, the province suggests a setback distance to allow for 30 metre erosion allowance along the Great Lakes[1].

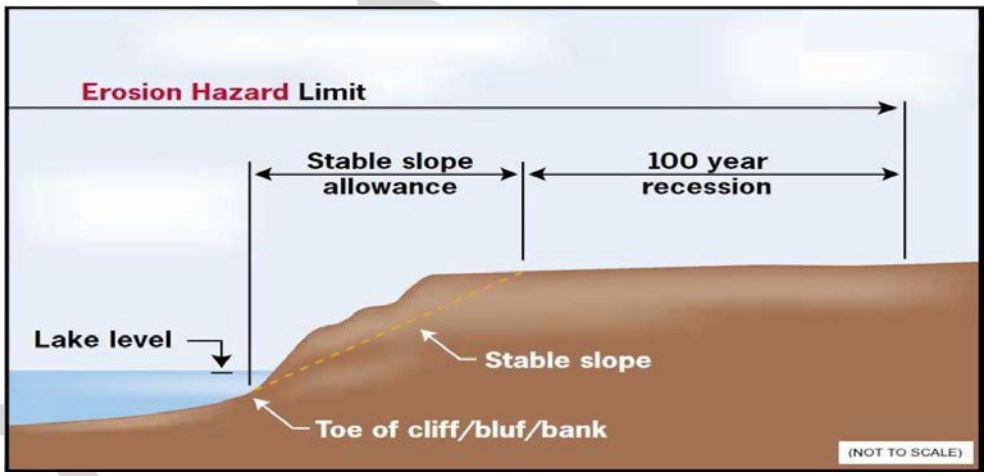


Figure 21 Illustrating the erosion hazard limit for shoreline/bluff

The erosion hazard limit for an unconfined valley system is determined based on flooding hazard limit OR meander belt allowance (20 times the bankfull channel width centred over the meander belt axis) OR as determined by a valid study, plus the erosion access allowance.

[1] Understanding Natural Hazards - Great Lakes – St. Lawrence River System and large inland lakes, river and stream systems hazardous sites.

7.0 Geotechnical Report – Terms of Reference

The following terms of reference should be followed in the geotechnical slope stability and streambank erosion assessment:

- Determine subsurface conditions and groundwater conditions to a depth equal to at least the height of the slope/ravine.
- Evaluate the pertinent soil strength parameters and slope geometry Assess the stability of the slope
- Provide relevant cross-sections and Factor of Safety
- Assess toe erosion allowance
- Determine the location of the Long-Term Stable Slope Crest (LTSSC) line and plot it on the topographical site plan
- Provide a geotechnical engineering analysis for retaining structures, if applicable
- Provide retaining wall design details, if applicable including depth of embedment, buttressing gradient, tie-backing, drainage and fines migration protection.

A geotechnical report should include:

- Site and project description
- Field procedure
- Subsurface conditions
- Discussion and recommendations
- Visual slope inspection results
- Slope stability analysis
- Toe erosion allowance, Development setback/erosion access allowance
- Summary
- Appendices
    - Borehole logs
    - Laboratory test results
    - Site location plan
    - Aerial photograph
    - Topographic plan with long-term stable slope crest location
    - Existing slope cross-sections
    - Long-term stable slope crest sections
    - Slope stability analysis results
    - Photographs