March 19, 2024

Policy and Procedural Document

For Land Use Planning and Regulation

Made Pursuant to the Requirements of

Section 12 of *Ontario Regulation 41/24*

Adopted by CLOCA Board Resolution #23/24

Contents

Part A:

The Policy Document

CHAPTER 1 – ROLES AND RESPONSIBILITIES

1.1 History of Conservation Authorities

As local, watershed-based organizations, Conservation Authorities (CAs) have a history in Ontario that dates back to the period of 'reconstruction' after World War II. Recognizing the need for sound planning for post-war growth and prosperity, environmental restoration, protection from flooding, erosion, and job creation for troops returning from war, the Government of Ontario passed two pieces of historic legislation in 1946: The *Conservation Authorities Act* (CA Act) recognized that the watershed unit that transcends political boundaries while supporting local leadership and control were an appropriate model to base the formation of Conservation Authorities. At the same time, the Planning Act was established to give municipalities tools to undertake comprehensive land use planning that were integrated and coordinated with local Conservation Authorities.

After severe economic and human losses associated with flooding from Hurricane Hazel (1954), including the loss of 81 lives and over $1 billion in economic damage, it was recognized that Conservation Authorities were an appropriate agency to mitigate future flood risks, in part, through effective regulation of development activity. Changes were made to the *CA Act* in 1956 to empower CAs to make regulations to prohibit filling in flood plains. These regulatory powers were refined in the 1960's, 1970's, and again in the 1990's to ultimately ensure that all development and site alteration activities in relation to river-based and Great Lake-based flooding and erosion natural hazards were effectively addressed.

The current CA regulations were enacted in 2024. They identify and regulate certain *development* activities in and adjacent to watercourses (including valleylands), wetlands, shorelines of Lake Ontario and *hazardous lands*. Permits are issued if a development or site alteration proposal meets six "tests," as set out in the CA Act. These include *'(1) the control of flooding, (2) erosion, (3) dynamic beaches, (4) pollution or the (5) conservation of land' and (6) 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'* are explored in further detail in this document.

1.2 CLOCA's Strategic Plan

CLOCA's work is guided by a Strategic Plan, which provides the fundamental context for the formulation of the policies set out in this Planning and Procedural Document (PPD). The 2021-25 Strategic Plan contains a Vision, Mission, Core Values and five strategic Goals. The current Strategic Plan may be found at cloca.com.

1.3 Legislative Mandate

The following outlines the legislative mandate for CLOCA's land use planning and regulatory roles:

1.4 Conservation Authorities Act (CA Act)

The purpose of the 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." CLOCA is a public organization established under the *CA Act* and is governed by a Board of Directors. The Board of Directors is appointed by the municipalities in CLOCA's jurisdiction pursuant to the *CA Act*.

Part V of the *CA Act* sets out the Objects, Powers and Duties of conservation authorities. This includes the provision of a suite of "mandatory, municipal or 'other' programs and services"

Part VI of the *CA Act* sets out the Regulatory Powers of conservation authorities. Specifically, the *CA Act* prohibits, in the absence of a permit "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." Development activities are also prohibited in hazardous lands, wetlands, river or stream valleys and shorelines in the absence of a permit issued by CLOCA.

To implement, in part, the provisions of Part VI of the *CA Act,* Ontario Regulation 41/24 has been made by the Minister of Natural Resources and Forestry, which has application to all conservation authorities in the province, including CLOCA. A principal mandate of CLOCA is to prevent the loss of life and property due to flooding and erosion and to conserve and enhance natural resources. Ontario Regulation 41/24 is a key tool in fulfilling this mandate because it prevents or restricts *development* activity in areas where the *control of flooding*, *erosion*, *dynamic beaches*, *unstable soil or bedrock* may be affected by *development*. Further *development* activity is prohibited if an activity *is 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 damage or destruction of property*.

1.5 Planning Act and Provincial Policy Statement

The *Planning Act* sets out the ground rules for land use planning in Ontario and describes how land uses may be controlled, and who may control them. The *Planning Act* also establishes the machinery for the review and approval of development proposals and gives citizens and public organizations, such as CLOCA, the opportunity to be notified about planning proposals, to give their views to their municipal council and, where permitted, to appeal decisions to an administrative tribunal known as the Ontario Land Tribunal.

Two essential elements of the *Planning Act* include the listing of key planning issues, known as "Provincial Interests" and provisions that enable the Provincial Policy Statement to provide specific province-wide policy direction to address Provincial Interests. This includes policies of paramount importance to CLOCA's mandate: "Protecting Public Health and Safety" through flooding and erosion related Natural Hazards policies. CLOCA has responsibility for the Provincial Interests related to Natural Hazards through a provincial Memorandum of Understanding. The current Provincial Policy Statement may be viewed at Ontario.ca/pps.

Finally, the *Planning Act* requires CLOCA's review of planning applications and comments to "be consistent" or, alternatively "to conform to" the Provincial Policy Statement and Provincial Plans.

Regular reviews of municipal Official Plans are required under the *Planning Act* to ensure that municipal policies are up to date. CLOCA participates and represents the Provincial Interest for natural hazards in these regular reviews.

1.6 Clean Water Act, 2006

One of CLOCA's "mandatory programs" includes "programs and services related to the authority's duties, functions and responsibilities as a source protection authority under the *Clean Water Act, 2006*". CLOCA's mandate in this regard includes: supporting the local Source Protection Committee, regular reviews and updates of the CTC Source Water Protection Plan and in assisting in the review of development applications that have a source water protection component.

1.7 Environmental Assessment Act (EA Act)

Under the provisions of the *EA Act,* CLOCA reviews and comments on class and individual environmental assessments that occur in the watershed. CLOCA brings local natural hazard and watershed knowledge into the review and assessment process.

It is a requirement for proponents to identify and consult with government agencies and may include CAs if the proposed project may have an impact on an issue related to the CAs areas of interest.

CAs as landowners may also be a project proponent under the *EA Act* for proposed projects that may occur on CA lands. The C*lass EA for remedial flood and erosion control projects* (Class EA) establishes a planning and approval process for a variety of remedial flood and erosion control projects that may be carried out by CAs including CLOCA.

1.8 Building Code Act, 1992

CLOCA works closely with local building officials to ensure that legislative requirements for *development*/construction within regulated areas are adhered to. The *Building Code Act, 1992* specifies a need to conform to other existing legislation, which is referred to as "applicable law. Ontario Regulation 41/24 is applicable law, meaning that where Ontario Regulation 41/24 applies, a permit must be obtained from CLOCA before a municipal building permit may be issued.

1.9 CLOCA Watershed Plans and Action Plans

Watershed Plans

Watershed Plans are science-based documents that make recommendations to achieve specific watershed health targets. CLOCA's Watershed Plans provide guidance to CLOCA, watershed municipalities, planning authorities, and agencies regarding the effective management of

watershed resources in response to a changing environment. The Watershed Plans recognize urban, rural and natural environment conditions present in each watershed, consider future growth and planning policy, and recommend specific measures to protect natural resources, including goals, targets and recommendations that, when implemented, will ensure healthy and more sustainable watersheds. Current Watershed Plans may be viewed at cloca.com/watershed-plans

Action Plans

Action Plans, including this document, have been prepared by CLOCA with an objective to achieve and attain specific watershed health objectives, contributing to the fundamental watershed goal of a healthy and resilient watershed. All Action Plans address watershed concerns, issues and actions identified during development of the Watershed Plans. Some of the Action Plans are designed to be implemented at a larger scale i.e., the CLOCA jurisdiction, while other Action Plans will be directed to specific watersheds, subwatersheds or even a site-specific area. Current Action Plans may be viewed at cloca.com/action-plans

1.10 Memoranda of Understanding for Planning Services

To support transparency and to define roles and responsibilities in the local land use planning process, CLOCA has a formal Partnership Agreement (Agreement) for planning services with the Region of Durham and watershed municipalities. The Agreements recognize the technical expertise provided by CLOCA in watershed management and natural hazard planning. The Agreements include address, in part:

- Attendance at pre-consultation meetings;
- Advising of technical requirements for complete applications;
- Reviewing and commenting on planning applications and documents within the context of the relevant legislation, as listed above in this chapter;
- Reviewing and commenting on planning applications and documents within the context of the identification, function and significance of hydrological features and systems and the review of studies which assess impacts on these features and areas;
- The need for and adequacy of stormwater management plans from a watershed management perspective; and,
- Information and analysis of natural hazards and water management.

Current Memoranda of Understanding for Planning Services may be viewed at cloca.com/policies-guidelines

CHAPTER 2 – GENERAL POLICY

2.1 General Policies

The PPD contains general and specific policies intended to provide guidance to CLOCA's flooding and erosion natural hazard land use planning responsibilities under the *Planning Act* and the corresponding administration and the implementation of Ontario Regulation 41/24 under the *Conservation Authorities Act*.

General policies provide the basis for the formulation of the specific policies contained in Chapters 3-7. General policies also provide a set of considerations, restrictions and/or requirements applicable to proposed *development* and interference/alteration that are within CLOCA's scope and mandate related to land use planning and Ontario Regulation 41/24.

The specific policies found in Chapters 3-7 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 PPD, policies dealing with similar or like activities/uses will also be considered.

General Policies:

- In the face of rapid climate change that is increasing the risk of natural hazards, our watershed community's prosperity, health and social well-being depends on taking positive steps and managing development effectively to reduce the potential for risk and costs to residents from flooding and erosion natural hazards;
- Proper natural hazard management requires that natural hazards be recognized and addressed on a watershed basis. This is achieved by ensuring that provincial and municipal land use policy directions are effectively integrated and implemented to direct development away from areas of natural hazards, and to not create new or aggravate existing hazards, through the land use planning system before implementing site-specific regulatory approaches under Ontario Regulation 41/24;
- Effective natural hazard management can only occur with the province, municipalities and conservation authorities working together on a watershed and littoral reach basis with due consideration given to cumulative development effects;
- Local conditions vary along flood plains and shorelines including depth, velocity, littoral drift, fetch, accretion, deposition, valleyland characteristics, etc. and accordingly must be taken into account in the planning and management of natural hazards;
- Where a regulated area pertains to more than one water-related hazard (e.g., lands susceptible to flooding that are part of a wetland), policies will be applied jointly, and where applicable, the more restrictive policies will apply.
- Applications related to existing *development* that is susceptible to natural hazards must demonstrate that there is no increase in risk to public safety or property damage and no

new hazards are created by prohibiting additional development in the form of additional habitable floor space, and/or additional units and/or a larger building envelope in areas where CLOCA has determined that there is no safe access;

- *Development*, specifically infrastructure development, shall ensure that there are no *adverse hydraulic or fluvial impacts* on watercourses;
- *Development* must not preclude access for emergency works and maintenance to erosion hazards;
- Works are constructed, repaired and/or maintained according to accepted *engineering principles* and approved engineering standards or to the satisfaction of CLOCA, whichever is applicable based on the scale and scope of the project;
- All additional development in the form of increased additional habitable floor space, and/ or additional units and/or a larger building envelope is prohibited unless it has safe access to the satisfaction of CLOCA;
- Wherever possible, groundwater recharge functions which support natural features or hydrologic or ecological functions on-site and adjacent to the site will be maintained or enhanced;
- *Development* is prohibited in the *dynamic beach hazard*, areas without safe access in relation to *flooding hazards, erosion hazards,* and/or *dynamic beach hazards* and in *hazardous lands* and *hazardous sites* where the use is:
    a. an institutional use including, but not limited to, those associated with hospitals, nursing homes, preschool, school nurseries, day care and schools, as there is a threat to the safe evacuation of the sick, the elderly, persons with disabilities or the young during an emergency as a result of flooding and/or failure of floodproofing measures or protection works; or
    b. an essential emergency service such as that provided by fire, police and ambulance stations and electrical substations as it would be impaired during an emergency as a result of erosion, the failure of floodproofing measures and/or protection works; or
    c. uses associated with the disposal, manufacture, treatment or storage of hazardous substances;
- With the exception of certain minor additions (described in the detailed policies below), flood and/or erosion control works, infrastructure, or passive non-structural uses which do not affect flood flows, *development* shall not be permitted within a riverine *floodway* regardless of whether the area contains high points of land not subject to flooding; and,
- As it relates to administration of *Ontario Regulation 41/24*, prior to the issuance of a permission, CLOCA must be satisfied that the activity proposed is not likely to affect the control of flooding, erosion, dynamic beaches, or unstable soil or bedrock and that 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 or property.

CHAPTER – 3 LAND USE POLICIES

3.1 Context

The Land Use Planning Framework in the CLOCA Watershed

Land use planning and development in the CLOCA watershed is directed by policies approved by the province in the Provincial Policy Statement and Provincial Land Use Plans and by policies approved at the local level by the Region of Durham and area municipalities through their Official Plans. CLOCA supports environmentally sound decision-making and effective implementation of provincial and municipal land use planning policy by providing the following services through Memoranda of Understanding between CLOCA, the Region of Durham and the area municipalities:

- key components of necessary scientific and technical environmental information, including flood plain and erosion hazard mapping;
- the preparation of watershed plans and policy support for up-to-date municipal plans and zoning; and,
- active participation with individual development proposals through an integrated review and commenting role in municipal planning and development processes throughout the watershed.

CLOCA Helps Support Implementation of Land Use Planning in the Watershed

Ensuring that land use planning and development safeguards healthy watersheds for today and tomorrow means actively pursuing efficient and effective integration and implementation of critical environmental and natural hazard elements of provincial and municipal land use planning policy. For CLOCA, this includes supporting updates to the Regional and area municipal official plans to ensure they have up-to-date policy and mapping consistent with provincial policy direction. It also includes working collaboratively to modernize local zoning by-laws to incorporate the latest environmental and natural hazard information to properly regulate development and keep people safe.

An integrated and collaborative approach to implementation is specifically recognized in the Provincial Policy Statement with respect to natural hazards: "Mitigating potential risk to public health or safety or of property damage from natural hazards, including the risks that may be associated with the impacts of a changing climate, will require the Province, planning authorities, and conservation authorities to work together[1]."

A "Planning First" Approach to Regulation – Integration

Efficient and effective local planning decision-making that is based on modern official plans and

[1] Provincial Policy Statement, 2020, Section 3.0, Protecting Public Health and Safety

zoning by-laws, will integrate information related to natural hazards and other environmental features, such as wetlands, and streamline review and approvals under the Conservation Authorities Act. CLOCA supports a "planning first" approach to its regulatory mandate, which means that development proposals should be evaluated through up-to-date provincially and municipally approved planning policy and zoning before any regulatory requirements under Part VI of the Conservation Authorities Act are integrated and applied.

Accordingly, the following are CLOCA's Land Use Policies:

3.2 Provincial Policy Statement

3.2.1 In the review and comment on development proposals and making decisions on permit applications, and pursuant to the Memorandum of Understanding between the Province and conservation authorities, CLOCA will seek to ensure consistency with the policies contained in:

- Policy 3.0, Protecting Public Health and Safety and Policy 3.1, Natural Hazards; and,
- The associated implementing Technical Guides issued by the province and amended from time-to-time.

3.2.2 In the review and comment on development proposals and making decisions on permit applications, and pursuant to the Memorandum of Understanding between the Region of Durham and CLOCA and Memoranda between area municipalities and CLOCA, CLOCA will seek to ensure consistency with the policies contained in:

- Policy 1.6.6.7, Stormwater Management;
- Policy 2.2, Water
- Policy 3.0, Protecting Public Health and Safety, including Policy 3.1, Natural Hazards and Policy 3.2.3, Excess Soil.

3.3 Provincial Plans

3.3.1 In the review and comment on development proposals, and making decisions on permit applications, and pursuant to the Memorandum of Understanding between the Region of Durham and CLOCA and Memoranda between area municipalities and CLOCA, CLOCA will seek to ensure conformity with the policies contained in provincial plans in relation to water resource systems, hydrologic features and their functions, and natural hazards. In addition, CLOCA helps implement CTC Source Protection Plan, as its function as Source Protection Authority under the *Clean Water Act, 2006*.

3.4 Region of Durham Official Plan

3.4.1 In the review and comment on development proposals, and making decisions on permit applications, and pursuant to the Memorandum of Understanding between the Region of Durham and CLOCA, CLOCA will seek to ensure conformity with the policies of the Region of

Durham Official Plan relation to water resource systems, hydrologic features and their functions, and natural hazards.

3.5 Local Municipal Official Plans

In the two-tiered municipal land use planning system within the CLOCA watershed, the Regional Official Plan and Local Municipal Official Plans work together to provide one integrated set of land use planning policy, which integrates direction from the Provincial Policy Statement and Provincial Plans. Local Municipal Official Plans provide the most detailed and precise level of planning direction that is directly related to site-specific development proposals, including critical water related hazard planning directions.

3.5.1 In the review and comment on development proposals, and making decisions on permit applications, and pursuant to the Memorandum of Understanding between the Region of Durham, Local Municipalities in the watershed and CLOCA, CLOCA will seek to ensure conformity with the following policy directions of Local Municipal Official Plans (and Regional Official Plan, where appropriate):

- Climate Change Mitigation, Adaption and Resiliency;
- Watershed and Subwatershed Planning;
- Natural Hazards and Hazard Lands;
- Water Resource Systems;
- Hydrologic Features and Areas;
- Water Resources and Stormwater Management;
- Drinking Water Source Protection; and,
- Lake Ontario Shoreline Management.

CLOCA Objectives for Official Plan Municipal Official Plan Reviews

Further to the discussion in Section 1.4, Legislative Framework, above, the Planning Act requires municipalities to ensure their official plans are up to date via a process known as a Municipal Official Plan Review.

3.5.2 In the review and comment on Official Plan Reviews, CLOCA will seek to achieve the following objectives:

- Implementation of Watershed Plans through corresponding policies and designations;
- Effective policy direction and land use structure that addresses and prepares for climate change resiliency to impacts, mitigation, and adaptation at the watershed, subwatershed and local scales;
- Policies and designations that ensure that natural hazards are properly recognized and managed pursuant to provincial policy and implementation guidance, including the provision of minimum 6 m access allowances;
- Provision for stormwater management innovation including low impact

development stormwater management techniques and best practices; and,
- Directions related to excess soil management and more sustainable built form (i.e. passive and net-zero design) that meet or exceed provincial standards.

3.6 Infrastructure

Infrastructure and transportation projects shall demonstrate that there will not be any impediment to wildlife movement, stream flow, fish movement or aquatic habitat. Improvements to existing infrastructure, including roads, shall incorporate measures to eliminate any existing and/or future impediment to stream flow, fish movement or aquatic habitat. Where existing in stream barriers exist, the Municipality and CLOCA will work together to determine the best method of removal.

Where it is not feasible to avoid wildlife barriers, adequate wildlife crossing provisions must be provided as part of the approval, to the satisfaction of the Municipality in consultation with CLOCA. Improvements to existing infrastructure, including roads, shall incorporate measures to eliminate barriers to wildlife movement and include measures to accommodate enhanced wildlife movement.

Green Infrastructure that provides ecological and hydrological benefits is encouraged. Green infrastructure can include components such as natural heritage features and systems, parklands, stormwater management systems, urban forests, permeable surfaces, and green roofs.

All new infrastructure shall respect natural drainage patterns, and approval will require confirmation of appropriate minor/major systems, management of external drainage, and discharge to appropriate outlets.

Generally, linear infrastructure should cross perpendicular to the valley or stream corridor and at its most narrow point.

Where natural hazards exist, infrastructure should consider options for remediation.

When infrastructure cannot protect a natural feature, or part of a natural feature, (and the feature is not protected by any other applicable federal, provincial, or municipal requirement(s), opportunities for compensation be provided in consultation with the municipality(ies).

3.7 Water Resources

Water resources are vital components of both environmental and human health. The quality, quantity, and temperature characteristics of water resources significantly impact ecosystem ecology, human well-being, recreational activities and city aesthetics.

CLOCA supports the protection, improvement and restoration of vulnerable surface and ground water, sensitive surface water features and sensitive ground water features, and their hydrologic functions. CLOCA's Watershed Plans contain objectives, targets and policies related to sustainable and functioning water resources within our watershed. In addition, CLOCA has

prepared a Guideline for Hydrogeological Assessment submissions. The Guideline provides information and guidance material related to hydrogeological assessment requirements to ensure comprehensive evaluations of potential impacts associated with development on natural ecological features and functions that are supported by groundwater resources.

3.8 Stormwater Management

CLOCA supports the effective management of stormwater run-off to protect the ecological health of the watershed and contribute to the protection of human life and property during storm events. Stormwater run-off will be controlled and treated for quality and quantity to the satisfaction of the Municipality in consultation with CLOCA. Pre- development runoff rates, flow paths, water quality, water quantity, and stream temperature shall be maintained. Where appropriate, the Municipality and CLOCA may determine that stormwater quantity controls are not required. CLOCA supports the use of enhanced stormwater quality treatment for all new development.

CLOCA has a Board approved Technical Guideline for Stormwater Management Submission that outlines CLOCA's expectations for all stormwater management submissions, which include a description of CLOCA policies, guidance on approved methods and techniques, a summary of key hydrologic parameters, and a summary of submission requirements.

Stormwater management practices should minimize stormwater volumes and contaminant loads, and maintain or increase the extent of vegetative and pervious surfaces. CLOCA also supports incorporation of a best management treatment train approach with increased emphasis on lot level/source, low impact development (LID) technologies and conveyance methods in addition to traditional end-of-pipe methods.

Discharge of stormwater to a receiving watercourse must be occur in a manner that does not adversely impact channel morphology, stream bank erosion or natural water temperature regimes of the receiving stream /feature. A geomorphological investigation shall be conducted to ensure that the impacts of stormwater discharge on streambank erosion are minimized.

Where stormwater management facilities do not exist or provide limited water quality treatment, efforts will be made to retrofit all areas with approved stormwater management measures using the most recent technologies and best management practices.

Redevelopment and infill development shall provide measures to improve water quality and quantity controls, including where possible, treatment of run-off from existing adjacent development.

Diversion of water from an existing drainage catchment to another catchment is discouraged and every effort shall be made to maintain drainage patterns and watershed boundaries.

3.9 High Volume Recharge Areas (HVRA) and Ecologically Significant Recharge Areas (ESGRA)

Prior to any *development* within a HVRA and ESGRA or other significant groundwater recharge area, a Hydrogeological Report shall be completed to the satisfaction of CLOCA demonstrating that the proposed *development* or site alteration will have no adverse effects on groundwater recharge rates, quantity or quality or on wetland functions and other hydrological features that rely on groundwater.

CHAPTER 4 - LAKE ONTARIO SHORELINE HAZARDS

4.1 Statutory Requirements

The *Conservation Authorities Act* and *Ontario Regulation 41/24* contain the following provisions which establish regulatory boundaries and prohibit *development* along Lake Ontario shoreline unless permission is granted by CLOCA after it has been determined that the specific legislated tests have been met:

Prohibited Activities (subsection **28**(1) of the *Conservation Authorities Act*)

28(1) "... **no person shall carry on the following activities**, or permit another person to carry on the following activities...

2. **Development activities** in areas that are...

iv. ... **adjacent or close to the shoreline of [Lake Ontario]** and that may be affected by flooding, erosion or dynamic beach hazards..."

Permits (subsection **28.1**(1) of the *Conservation Authorities Act*)

28.1(1) "**[CLOCA] may issue a permit** to a person to engage in [a development] activity specified in the permit that would otherwise be prohibited by section 28, **if, in the opinion of [CLOCA]**

(a) the [development] activity is **not likely to affect the control of flooding, erosion, dynamic beaches** ...;

(b) the [development] 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**..."

4.2 Guidance for Shoreline Processes and Functions

Natural Hazards along the Lake Ontario shoreline within the CLOCA watershed are comprised of three components, which are often overlapping on the coastal landscape:

1) flooding hazards,
2) erosion hazards, and
3) dynamic beach hazards.

These three Lake Ontario hazards are described further in *Ontario Regulation 41/24* and in the following provincial guidance documents *Understanding Natural Hazards* (at section 6) and in the *Great Lakes-St. Lawrence River System Technical Guide (2001)* prepared and updated from time-to-time by the Ministry of Natural Resources and Forestry.

4.3.1 Policies for Development within Shoreline Flood Hazard

Where more than one hazard exists, the farthest combined landward extent of the hazards plus the access allowance delineates shoreline hazard lands.

In accordance with the procedural chapter, all required plans and reports must be carried out by a qualified expert. In the review of the plans and reports CLOCA may retain the services of an expert consultant to carry out a peer review. Such a peer review will be carried out at the applicant's expense.

1) *Development* is prohibited within the shoreline flood hazard except where the requirements under policies 4.3.1.2 – 4.3.1.9, and the General Policies have been addressed to the satisfaction of CLOCA,

2) Repairs, maintenance and interior alterations may be permitted provided it does not result in additional *dwelling units,* additional habitable floor area or an enlarged *building envelope*;

3) Public infrastructure (e.g. roads, sewers, flood and erosion control works) and various utilities (e.g. pipelines) may be permitted;

4) Public parks (e.g. passive or low intensity outdoor recreation and education, trail systems) may be permitted;

5) A new building/structure on an *existing vacant lot of record* or a *minor addition* to an existing building/structure or *reconstruction* associated with *existing uses* may be permitted if it has been demonstrated to the satisfaction of CLOCA that:

   a. All *Planning Act* permissions are in effect prior to April 1, 2024;

   b. the *development* 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 is safe access, as determined to the satisfaction of CLOCA, to the lot;

   d. there is no feasible alternative location outside of the shoreline flood hazard for the proposed *development*;

   e. the proposed *development* does not result in an increase of flooding risk (i.e. floodproofing measures applied) and is located in an area of least risk (i.e. located furthest possible distance from the lake);

   f. the proposed works do not create new or aggravate flooding on the subject, adjacent or other properties;

   g. the *development* is protected from the shoreline flood hazard in accordance with established floodproofing and protection techniques. *Habitable* buildings must be dry-floodproofed. Non *habitable* buildings/structures must as a minimum be wet floodproofed;

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

plans;

i. the proposed *reconstruction* is not for a building/structure that was destroyed by erosion and/or flooding and provided the *reconstruction* does not exceed the original *habitable* floor area and/or the original footprint of the previous structure, contains the same or fewer number of *dwelling units*, and the use of the reconstructed dwelling/structure does not increase the risk to property and public safety.

6) Non-*habitable accessory* building/structures, pools, landscaping retaining walls, grading, unenclosed decks, etc., associated with *existing uses* may be permitted if:

a. proposed *development* larger than $15m^2$ demonstrates to the satisfaction of CLOCA that:

- All *Planning Act* permissions are in effect prior to April 1, 2024;
- the *development* is anchored and is less than 50 square metres;
- there is no feasible alternative site outside of the shoreline flood hazard;
- the development 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;
- that there will not be an increase of flooding risk (i.e. floodproofing measures applied) and is located in an area of least risk (i.e. located furthest possible distance from the lake);
- there will not be new or aggravated flooding on the subject, adjacent or other properties;
- there will be access for emergency works, maintenance and evacuation; and
- the *development* will be flood proofed to the satisfaction of CLOCA.

7) The repair or replacement of a malfunctioned sewage disposal system may be permitted. The replacement system should be located outside of the shoreline flood hazard where possible and only permitted within the shoreline flood hazard in the area of lowest risk.

8) Parking lots associated with existing non-residential uses may be permitted if it has been demonstrated to the satisfaction of CLOCA that:

a. all *Planning Act* permissions are in effect prior to April 1, 2024;

b. there is no feasible alternative site outside the flood hazard;

c. the development 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,

d. floodproofing is undertaken to the extent practical.

9) In general, underground parking within the shoreline flood hazard shall not be permitted.

Parking lots must be floodproofed 0.3m above the shoreline flood hazard unless it can be demonstrated to the satisfaction of CLOCA that floodproofing is not technically feasible or would result in a compromise of other policy objectives in the PPD and that flood elevation will not exceed a depth of 0.2m.

4.3.2 Policies for Development within the Regulated Area Adjacent to the Shoreline Flood Hazard

1) *Development* may be permitted within the allowance adjacent to the shoreline flood hazard if it has been demonstrated to the satisfaction of CLOCA that the General Policies shave been satisfied and:
   a. the *development* will not create new or aggravate existing flood hazards;
   b. safe access, to the satisfaction of CLOCA, is provided;
   c. the potential for surficial erosion has been addressed through proper drainage, erosion and sediment control and site stabilization/restoration plans; and,
   d. the development is not in the erosion and dynamic beach hazards plus the required allowance.

Shoreline Erosion Hazard

4.4.1 Policies for Development within the Shoreline Erosion Hazard

1) *Development* is prohibited in the shoreline erosion hazard except where the requirements under policies 4.4.1.2 - 4.4.1.8 and the General Policies have been addressed to the satisfaction of CLOCA;

2) Public and private infrastructure (e.g. roads, sewers, flood and erosion control works) and various utilities (e.g. pipelines) may be permitted subject to acceptable detailed design;

3) Public parks (e.g. passive or low intensity outdoor recreation and education, trail systems) may be permitted if it has been demonstrated to the satisfaction of CLOCA that the *development* is located as far as possible from the hazard;

4) Stabilization/erosion protection works within the shoreline erosion hazard to allow for future/proposed *development* or an increase in a *development* envelope or area shall not be permitted. New *development* may be considered within the erosion hazard, where protection stabilization works has previously been constructed, which are acceptable to CLOCA , provided all *Planning Act* permissions are in effect prior to April 1, 2024 and the *development* complies with the provincial guideline – *Technical Guide For Great Lakes - St. Lawrence River Shorelines Appendix A7.2)*.

5) Shoreline, bank, and slope stabilization to protect existing *development* and conservation or restoration projects may be permitted if it has been demonstrated to the satisfaction of CLOCA that all matters outlined in section 4.6 of this chapter have been addressed;

6) *Development* associated with *minor additions* to buildings/structures and *reconstruction* of existing buildings/structures may be permitted if it has been demonstrated to the satisfaction of CLOCA that:

   a. All *Planning Act* permissions are in effect prior to April 1, 2024;

   b. the *development* 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 is safe access, as determined to the satisfaction of CLOCA, to the lot;
d. there is no feasible alternative site outside of the shoreline erosion hazard;
e. the proposed *development* does not result in an increased risk of erosion damage and is located in an area of least and acceptable risk;
f. there is no impact on existing and future slope stability and bank stabilization;
g. the potential of increased risk due to loading forces on the top of the slope is addressed;
h. the proposed *development* will not prevent access into and along the shoreline erosion hazard in order to undertake preventative actions/maintenance or during an emergency;
i. the proposed *development* will have no negative impacts on natural shoreline processes;
j. the potential for surficial erosion has been addressed through the submission of proper drainage, erosion and sediment control and site stabilization/ restoration plans;
k. there is no increase in the number of *dwelling units*; and
l. the proposed *reconstruction* is not for a building/structure that was destroyed by erosion or flooding and provided the *reconstruction* does not exceed the original *habitable* floor area and/or the original footprint of the previous structure and contains the same or fewer number of *dwelling units*.

7) Non-*habitable accessory* structures, pools, small-scale (i.e. under 0.5 m in height) landscaping retaining walls, grading, unenclosed decks, etc. associated with *existing uses* may be permitted provided:

- the *development* will not prevent access into and through the shoreline erosion hazard in order to undertake preventative actions/maintenance or during an emergency;
- there is no feasible alternative site outside of the shoreline erosion hazard;
- the proposed *development* is located in an area of least (and acceptable) risk;
- there is no impact on existing and future slope stability and bank stabilization;
- there is no ability for conversion into *habitable* space in the future.

8) Exterior repairs and interior alterations may be permitted provided it does not result in additional *dwelling units*.

4.4.2 Policies for Development within the Regulated Area Adjacent to the Shoreline Erosion Hazard

Development may be permitted within the allowance adjacent to the shoreline erosion hazard if it has been demonstrated to the satisfaction of CLOCA that all applicable General Policies are addressed and submitted plans demonstrate that:

a. the *development* 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;
b. there is no new or aggravated erosion hazard;
c. safe access, to the satisfaction of CLOCA, to and from a public road is provided;
d. the potential for surficial erosion has been addressed through proper drainage, erosion and sediment control and site stabilization/restoration plans; and,
e. the development is not in the erosion, flooding and dynamic beach hazards plus the required access allowance.

4.5 Dynamic Beach Hazard

4.5.1 Policies for Development within the Dynamic Beach Hazard

1) *Development* within a dynamic beach hazard is prohibited except where the requirements under policies 4.5.1.2 – 4.5.1.6 and the General Policies have been addressed to the satisfaction of CLOCA;

2) Underground public infrastructure (e.g. sewers) and various utilities (e.g. pipelines) shall avoid the dynamic beach hazard to the extent possible, however if no feasible alternative exists, may be permitted;

3) Public parks (e.g. passive or low intensity outdoor recreation and education, trail systems) may be permitted if it has been demonstrated to the satisfaction of CLOCA that the *development* is located in an area of least risk;

4) Conservation or restoration projects may be permitted.

5) New stabilization/protection works within the dynamic beach hazard to protect existing habitable *development* at risk of damage from dynamic beach or erosion hazards may be permitted, however works to facilitate an increase in a *development* envelope or area shall not be permitted will not be permitted.

6) Exterior building repairs and maintenance and interior alterations may be permitted provided it does not result in additional *dwelling units*.

4.5.2 Policies for Development within the Regulated Area Adjacent To the Dynamic Beach Hazard

1) *Development* may be permitted within the allowance adjacent to the dynamic beach hazard if it has been demonstrated to the satisfaction of CLOCA that the General Policies have been satisfied and:
   a. there is no new or aggravated hazard;
   b. safe access, to the satisfaction of CLOCA, to and from a public road is provided;
   c. the potential for surficial erosion has been addressed through proper drainage, erosion and sediment control and site stabilization/restoration plans; and,
   d. the *development* is not in the dynamic beach, flooding and erosion hazards plus the required access allowances.

4.6 Lake Ontario Shoreline Protection Works

In an attempt to manage the erosion of shorelines, structures such as breakwaters, seawalls and revetments may be used under certain circumstances. 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 temporary period of time. Even if the shoreline is successfully armoured, the near shore lake bottom continues to erode or down cut eventually on all shorelines. This process is more active typically on cohesive shorelines. Eventually the lakebed down cutting will undermine the shoreline armouring causing the structure present to ultimately fail (Figure 1). The failure and ultimate property loss may extend back to the point at which the natural shoreline occurs. The natural shoreline position is typically not the present waterline or break wall interface, but actually some point inland from the armoured shoreline position.

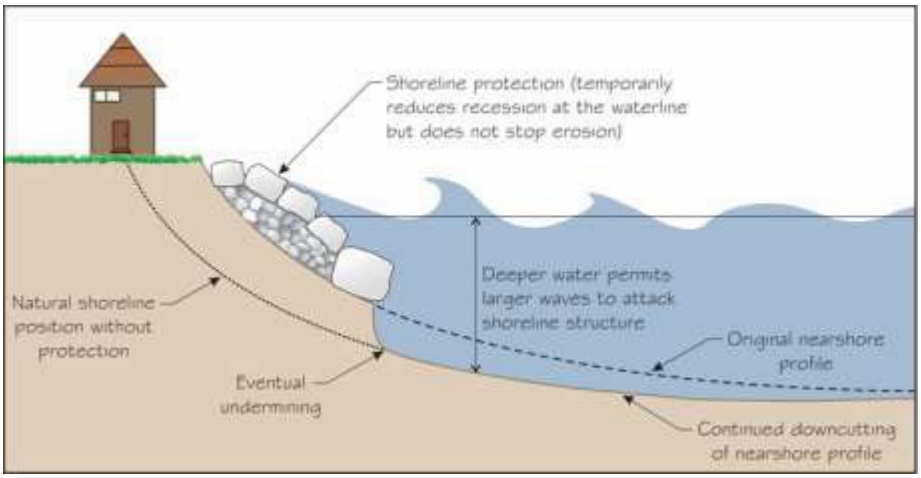

Figure 1 - Lake Erosion Down Cutting - See also Technical Guidelines - Great Lakes - St. Lawrence River (MNR)

These problems usually occur on updrift and/or downdrift properties, aggravating existing off-site hazards, and/or posing unacceptable detrimental impacts on a wide array of environmental components of the shoreline ecosystem (e.g. fisheries, wetlands, water quality). The natural movement of the shoreline due to erosion can be aggravated by these human activities and the impact of the activity can be transferred some distance from the impact site.

As a result of the temporary nature of erosion protection works, measures which harden the shoreline to facilitate new *development* should be avoided wherever possible and should only be considered to lessen the threat of a risk to areas with existing *development* provided it can be demonstrated on a comprehensive reach approach that the following have been addressed:

- The need and purpose of the proposed works have been clearly defined;

- The shoreline works have been designed to the Lake Ontario flood hazard limit and according to accepted scientific and coastal *engineering principles*;
- The works have been designed to the satisfaction of CLOCA and approved by a professional engineer with experience and qualifications in coastal engineering;
- Slope stability has been assessed to the satisfaction of CLOCA by a professional engineer with experience and qualifications in geotechnical engineering;
- The ownership of land, where the protection works are proposed, has been clearly established, to the satisfaction of CLOCA by the applicant;
- The design and installation of protection works allows for safe access to the satisfaction of CLOCA, along the protection works for appropriate equipment and machinery for regular maintenance purposes and repair should failure occur;
- The protection works should follow accepted sustainable management practices;
- The protection works will not create new hazards or aggravate existing hazards on the subject or other properties;
- The works do not result in a measurable and unacceptable impact or cumulative effect on the control of flooding, erosion, dynamic beaches, pollution or the *conservation of land*;
- The works are not proposed within a dynamic beach hazard unless to protect existing habitable *development* at risk of damage identified to the satisfaction of CLOCA;
- In areas of existing adjacent *development*, protection works should be coordinated with adjacent properties; and
- The protection works must address the considerations outlined in the *"Technical Guide For Great Lakes – St. Lawrence River Shorelines Appendix A7.1 Recommended Approach For Designing Shoreline Protection Works* as updated from time-to-time by the Province of Ontario.

4.6.1 Long Term Risk Prevention for Existing Development within Shoreline Hazard Areas

To effectively deal with the protection of human health and property for existing *development* within shoreline hazard areas, a comprehensive approach to the reduction in the hazard risk must be considered long term risk prevention and should be addressed through a shoreline management plan which can examine in detail matters such as:

- Public education and awareness;
- Formal monitoring of shoreline hazards;
- Protection works; and,
- Public acquisition.

A *Lake Ontario Shoreline Management Plan* was prepared in 2020 for the shoreline area of Central Lake Ontario, Ganaraska Region and Lower Trent Region Conservation Authorities which provided information the three coastal natural hazards on and generic shore protection methods and

management strategies for the various shoreline reaches. Any application of structural protection works to assist in addressing the erosion hazards must also consider the impacts to adjacent properties as well as to the terrestrial and aquatic environment.

CHAPTER 5 - RIVER OR STREAM VALLEYS

5.1 Statutory Requirements

The *Conservation Authorities* Act and *Ontario Regulation 41/24* contain the following provisions which establish regulatory boundaries and prohibit *development* in or on river or stream valleys unless permission is granted by CLOCA after it has been determined that specific legislated tests have been met:

Prohibited Activities (subsection **28**(1) of the *Conservation Authorities Act*)

28(1) "... **no person shall carry on the following activities**, or permit another person to carry on the following activities...

3. **Development activities** in areas that are...

iii. ... **river or stream valleys**..."

Permits (subsection **28.1**(1) of the *Conservation Authorities Act*)

28.1(1) "**[CLOCA] may issue a permit** to a person to engage in [a development] activity specified in the permit that would otherwise be prohibited by section 28, **if, in the opinion of [CLOCA]**

(a) the [development] activity is **not likely to affect the control of flooding, erosion, dynamic beaches** ...;

(b) the [development] 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**..."

5.2 Guidance for River or Stream Valley Processes and Functions

Natural Hazards along river or stream valleys are shaped and re-shaped by erosion, slope stability and flooding. These "riverine hazards" are identified in policy as erosion hazards and flooding hazards, which are often overlapping on the landscape.

Riverine hazards are described further in *Ontario Regulation 41/24* and in the following provincial guidance documents *Understanding Natural Hazards* (at section 7) and in the *Technical Guide River and Stream Systems: Flooding Hazard Limit (2001)* and the *Technical Guide River and Stream Systems: Erosion Hazard Limit (2002)* prepared and updated from time-to-time by the Ministry of Natural Resources and Forestry.

Erosion Hazard

5.3.1 Policies for Erosion Hazards – River and Stream Valleys

The following outlines the specific policies for implementing the *Conservation Authorities Act* and *Ontario Regulation 41/24* with respect to erosion hazards associated with a river and stream valleys.

1) *Development* is prohibited within the erosion hazard of a river or stream valley except where the requirements under policies 5.3.1.2) – 5.3.1.10) and the General Policies have been addressed to the satisfaction of CLOCA;

2) With the exception of necessary outfall and emergency flow route structures, stormwater management facilities shall be located outside of the erosion hazard and the appropriate access allowance;

3) Public infrastructure (e.g. roads, sewers, flood and erosion control works) and various utilities (e.g. pipelines) may be permitted it has been demonstrated to the satisfaction of CLOCA that there is the demonstrated need to locate in the hazard. Detailed geotechnical study will be required to determine precise erosion hazard limits(s) and demonstrate how impacts to the erosion hazard will be mitigated to ensure that there is no impact on existing and future slope stability;

4) Public parks and passive outdoor recreational uses (e.g. passive or low intensity outdoor recreation and education, trail systems) may be permitted if it has been demonstrated to the satisfaction of CLOCA that:

   - there is no feasible alternative location outside of the erosion hazard
   - buildings, structures and parking facilities are located outside of the erosion hazard;
   - a geotechnical study demonstrates that there is no impact on existing and future slope stability; and
   - the *development* is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize he health safety of persons or result in the damage or destruction of property;

5) Stream bank, slope and valley stabilization may be permitted subject to policies contained in Chapters 6 and 7 dealing with interference to watercourses and natural hazards;

6) Construction of a driveway or access way over an erosion hazard of a river or stream valley in order to provide access to lands outside of the river or stream valley, may be permitted subject to policies contained in Chapter 6 dealing with interference to watercourses;

7) *Minor addition* to an existing building/structure and the *reconstruction* of an existing building/structure may be permitted if it has been demonstrated to the satisfaction of CLOCA that:

   a. All *Planning Act* permissions are in effect prior to April 1, 2024

b. the *development* 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 is no feasible alternative site outside erosion hazard. In the event that there is no feasible alternative site, that the proposed *development* is located in an area of least (and acceptable) risk and the addition does not result in an increase in risk;

d.

e. there is no impact on existing and future slope stability;

f. any required bank stabilization or erosion protection works complies with the policies in Chapter 6 dealing with interference to watercourses;

g. there will be no negative impacts on natural stream meandering/fluvial processes;

h. the potential of increased loading forces on the top of the slope is addressed;

i. access into and through the valley system will be maintained wherever feasible;

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

k. any related wetlands and/or hydrologic features are protected and flooding hazards have been adequately addressed;

l. the proposed *reconstruction* is not for a dwelling/structure that was destroyed by erosion/slope movements and provided the *reconstruction* does not exceed the original *habitable* floor area and/or the original footprint of the previous structure and contains the same or fewer number of *dwelling units*.

8) Non-*habitable accessory* buildings/structures, pools, small-scale (i.e. under 0.5 m in height) landscaping retaining walls, grading, decks, etc., associated with *existing uses* may be permitted provided:

- the *development* will not prevent access into and through the erosion hazard in order to undertake preventative actions/maintenance or during an emergency;
- there is no feasible alternative site outside of the erosion hazard;
- the proposed development is located in an area of least (and acceptable) risk;
- no development is located within the meander belt of an unconfined system
- there is no impact on existing and future slope stability and bank stabilization; and,
- there is no ability for conversion into habitable space in the future.

9) The repair or replacement of a malfunctioned sewage disposal system may be permitted. The replacement system should be relocated outside of the erosion hazard wherever possible.

10) Exterior repairs and interior alterations may be permitted provided it does not result in additional *dwelling units*.

5.3.2 Policies for Development within the Regulated Area Adjacent - Erosion Hazard of a River or Stream Valleys

Development may be permitted within the allowance adjacent to the erosion hazard of a river or stream valley if it has been demonstrated to the satisfaction of CLOCA that all applicable General Policies have been satisfied and:

a. the development 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;
b. there is no new or aggravated erosion hazard;
c. safe access, to the satisfaction of CLOCA is provided;
d. there is a setback of sufficient distance from the stable top of bank to avoid increases in loading forces on the top of the slope; and
e. there is no change in drainage or vegetation patterns that would compromise slope stability or exacerbate erosion of the slope face;
f. the potential for surficial erosion has been addressed through proper drainage, erosion and sediment control and site stabilization/restoration plans;
g. wetland features and/or hydrological functions are protected and flooding hazards have been adequately addressed; and,
h. no development is proposed within required access allowances for flooding and/or erosion.

5.4 Flooding Hazard

5.4.1 Policies for One-zone Floodplain - River or Stream Valleys

The following outlines the specific policies for implementing the *Conservation Authorities Act* and *Ontario Regulation 41/24* with respect to flooding hazards associated with a river and stream valleys.

1) *Development* is prohibited within the regulatory floodplain except where the requirements under policies 5.4.1.2) – 5.4.1.16) and the General Policies have been addressed to the satisfaction of CLOCA;

2) A new building/structure on an *existing vacant lot of record* may be permitted provided it can be demonstrated that:

   a. all *Planning Act* permissions are in effect prior to April 1, 2024;

   b. safe access, to the satisfaction of CLOCA, to and from a public road is provided;

   c. No feasible alternative site outside of the flood hazard;

   d. the *development* 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;
   e. The proposed *development* is located in an area of least risk;

f. flood storage and flood hydraulics are not negatively affected;
g. The *development* can be floodproofed , including demonstration that the proposed development can withstand hydrostatic pressure to the satisfaction of CLOCA;

3) Stormwater management facilities shall be located outside of the flood hazard.

4) Public infrastructure (e.g. roads, sewers, flood and erosion control works) and various utilities (e.g. pipelines) may be permitted if it has been demonstrated to the satisfaction of CLOCA that there is a demonstrated need to locate in the flood hazard and there is no reasonable alternative;

5) Public parks (e.g. passive or low intensity outdoor recreation and education, trail systems) may be permitted if it has been demonstrated to the satisfaction of CLOCA that there is no alternative location outside of the flood hazard;

6) Stream, bank, slope, and valley stabilization to protect existing *development* and conservation or restoration projects may be permitted.

7) *Minor addition* to an existing building/structure and *reconstruction* of existing building/structure may be permitted if it has been demonstrated to the satisfaction of CLOCA that:

a. the *development* 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;
b. there is safe access, as determined to the satisfaction of CLOCA, to the lot;
c. there is no feasible alternative site outside of the Regulatory floodplain for the proposed *development* or in the event that there is no feasible alternative site, that the proposed *development* is located in an area of least, and acceptable, risk, as determined by CLOCA;
d. flood storage and flood hydraulics are not negatively affected. There must also be no potential for debris (ice) to be trapped or jammed creating a flood hazard;
e. the *development* is protected, to the extent feasible, from the flood hazard in accordance with established floodproofing and protection techniques;
f. the proposed *development* will not prevent access for emergency works, maintenance, and evacuation;
g. the potential for surficial erosion has been addressed through the submission of proper drainage, erosion and sediment control and site stabilization/restoration plans;
h. wetlands and/or hydrological functions are protected, and erosion hazards have been adequately addressed;
i. the number of *dwelling units* is the same or fewer and there is no opportunity for conversion of non-*habitable* additions into additional *dwelling units*;
j. no basement is proposed; and
k. the past structure subject to the *reconstruction* was not previously damaged or destroyed by flooding or erosion and the *reconstruction* shall not exceed the original footprint and *dwelling units*.

8) Non-*habitable accessory* structures, pools, small-scale (i.e. under 0.5 m in height) landscaping retaining walls, grading, decks, etc. may be permitted if it has been demonstrated that:

a. it is anchored;
b. there is no feasible alternative site outside of the flood hazard;
c. it does not result in an increase of flooding risk (i.e. floodproofing measures applied) and is located in an area of least risk (i.e. located furthest possible distance from the lake);
d. flood storage and flood hydraulics are not negatively affected;
e. there is no ability for conversion into habitable space in the future;
f. it will not prevent access for emergency works, maintenance and evacuation; and,
g. it will be flood proofed to the satisfaction of CLOCA.

9) Construction of a driveway or access way through the regulatory floodplain in order to provide access to an existing lot of record outside of the regulatory floodplain may be permitted provided safe access can be achieved to the extent possible and the applicable policies addressing interference with a watercourse have been satisfied;

10) The repair or replacement of a malfunctioned sewage disposal system may be permitted. The replacement system should be located outside of the floodplain where possible, and only permitted within the floodplain subject to being located in the area of lowest risk.

11) Parking lots associated with existing non-residential uses may be permitted if it has been demonstrated that:

a) there is no feasible alternative site outside the riverine flooding hazard;
b) safe pedestrian and vehicular access is achieved; and,
c) floodproofing is undertaken to the extent practical.

12) In general, underground parking within the regulatory floodplain shall not be permitted.

Parking lots associated with new land uses must be floodproofed 0.3 metres above the regulatory floodplain unless it can be demonstrated to the satisfaction of CLOCA that floodproofing is not technically feasible or would result in a compromise of other policy objectives in the PPD and that the flood elevation will not exceed a depth of 0.22 metres.

13) Golf courses, golf course expansion or driving ranges may be permitted if it has been demonstrated to the satisfaction of CLOCA that:

a. all associated structures are located outside of the riverine flooding hazard;
b. there is no loss of flood storage; and,
c. watercourse crossings are minimized through site and facility design and flood emergency plans.

14) A new *dug-out or isolated pond* (not connected to watercourse by way of inlet) may be permitted if it has been demonstrated to the satisfaction of CLOCA that:

a. the pond is not located within an erosion hazard; and
b. all dredged material is removed from the riverine flooding hazard and the riverine erosion hazard.

15) Dredging of an existing *dug-out* or isolated pond may be permitted where it has been demonstrated to the satisfaction of CLOCA that:

a. all dredged material is removed from the riverine flooding hazard and the riverine

erosion hazard;
b. hydrologic functions are restored and enhanced to the extent possible; and,
c. the risk of pollution and sedimentation during dredging operations is minimized.

16) Exterior building repairs and maintenance and interior alterations may be permitted provided it does not result in additional *dwelling units*.

5.4.2 Policies for Development within the Regulated Area Adjacent to the Regulatory Floodplain- River or Stream Valleys

Development may be permitted within the allowance of a regulatory floodplain if it has been demonstrated to the satisfaction of CLOCA that the General Policies have been satisfied and:

a. it will not aggravate the flood hazard or create a new one;
b. safe access, to the satisfaction of CLOCA, is provided;
c. the potential for surficial erosion has been addressed through proper drainage, erosion and sediment control and site stabilization/restoration plans;
d. wetlands and/or hydrologic functions and erosion hazards have been adequately addressed; and,
e. no development is proposed within required access allowances for flooding and/or erosion.

5.5 Floodproofing

All *development* proposed within the flood hazard limit must be floodproofed**.**

Floodproofing means structural changes and/or adjustments incorporated into the basic design and/or construction or alteration of individual buildings, structures or properties to protect them from flood damage. In many situations, floodproofing involves non- conventional design of the structural, drainage and electrical/mechanical systems of the building. Accordingly, for certain applications, the services of a licensed professional engineer will be a requirement, such as to ensure proposed development can withstand the hydrostatic pressures that would be caused in the event of a regional storm flooding event.

Where buildings can be approved, but the services of a licensed professional engineer are required by this policy, the designer shall produce a summary or "owner's manual" for the owner (and for subsequent owners) such that measures to be taken prior to, during and following a flood event are defined to ensure the building's suitability for ongoing human habitation and to outline ongoing maintenance responsibilities and requirements.

Floodproofing Methods

The following describes the basic options available for floodproofing typical structures and the

policies of the Authority in circumstances where *development* may be permitted. It should be recognized that for some situations one or more of the following options may prove to be technically or economically impractical. Recognizing the required floodproofing measures are the minimum standard, where feasible, CLOCA will require the most effective floodproofing measures in an effort to reach the maximum protection possible.

The following describes types and standards for floodproofing. For additional information, reference should be made to the *Technical Guide River and Stream Systems: Flood Hazard Limit*, MNR 2002.

a. wet floodproofing

- Wet floodproofing involves designing a building or structure using materials, methods and design measures that maintain structural integrity by avoiding external unbalanced forces from acting on buildings or structures during and after a flood, to reduce flood damage to contents, and to reduce the cost of post flood clean up.
- Wet floodproofing is not permitted for habitable structures.
- Drawings must clearly indicate the means by which hydrostatic pressure is to be equalized on either side of the foundation walls and slab;
- At least two openable windows shall be provided on opposite sides of building;
- Top of window sills to be not less than 150 mm below finished exterior grade (to allow flood waters into the structure relieving hydrostatic pressure as soon as flooding of the surrounding land commences);
- Construction material must withstand alternate wetting and drying such as concrete, pressure treated wood etc.
- Be securely anchored.
- Sump pump may be required (to facilitate clean-up);
- The vertical height within the enclosed space under the building between the underside of the floor assembly and the ground cover directly below shall be no greater than 1800 mm.

b. dry floodproofing (active and passive)

- Active dry floodproofing includes techniques such as installing water tight doors, seals or floodwalls to prevent water from entering openings below the level of the flood hazard.
- Passive dry floodproofing is the use of fill or design modifications to elevate structure or openings in the building at, or above, the level of the flood hazard.
- Underside of main floor shall be at least 0.3 m above the regulatory flood level;
- All openings (windows, vents, doors) and electrical must be located at least 0.3m above the regulatory flood level.
- Structural details of foundation elements and specifications for fill *materials* and

compaction procedures must be prepared or approved by a qualified professional engineer at the applicant's expense;

- The responsible professional 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*; and,
- The professional engineer's certificate must 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 design storm plus (minimum) 0.3 metres of freeboard;
- The responsible professional engineer must also identify all operation and maintenance requirements to be met in order to ensure the effective performance of the floodproofing measures over the design life of the structure.

5.6 Safe Access (and Egress)

The ability for the public and emergency operations personnel (police, firefighters, ambulance, etc.) to safely access the floodplain during regulatory flood events is a paramount consideration in any application for *development* within the riverine floodplain.

Ingress and egress must be "safe" pursuant to provincial floodproofing guidelines (MNR, 2002a). Depths and velocities should be such that pedestrian and vehicular emergency evacuations are possible on a municipal roadway or private right of way.

Access/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.

Safe Access for New Development

Safe access to and from a site may only be achieved where the following depth and velocity criteria for pedestrians and automobiles are met:

a. For depths up to and including 0.2 metres, the velocity must be less than or equal to 4.5 metre/second (based on the flood hazard); and,
b. For depths greater than 0.2 metres and less than or equal to 0.3 metres, the velocity must be less than 3.0 metres/second and for depths between 0.3 and 0.4 metres, the velocity must be less than or equal to 0.6 metres/second (based on the flood hazard).

For existing *development*, safety risks are a function of the occupancy of the structure, the flood susceptibility of the structure and the access routes to the structure. For *minor additions* or *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 access or construct a new safe access;
- the ability to find and use the access during an emergency; and
- the ability and willingness of emergency vehicles to use the access.

5.7 Large Fill Policy

CLOCA has an Authority Board approved policy for the large fill applications. Applications to place fill volumes in excess of 500m3 should refer to the large Fill Policy for application requirements. Applications for permission to place minor or small fill quantities (less than 500 cubic metres) in regulated areas shall include a plan of the subject property, drawn at an appropriate scale, clearly showing the boundaries of the area upon which fill is to be placed (with dimensions) and both the existing grade and proposed grades of the fill site. Placement of fill for the purpose of floodproofing shall include geodetic datums. Existing grades may be derived from up-to-date topographic mapping of suitable quality and scale; the source of such topographic information shall be identified in the application.

5.8 Cut and Fill

Cut and fill is a technique that is used to balance flood storage losses resulting from the placement of fill within a floodplain. Any proposal for a cut and fill within the flooding hazard must be in accordance with the following and any associated technical guidelines issued by CLOCA:

a) The loss of flood plain storage volume within the regulatory flood plain which will result from the placement of fill shall be fully compensated for by an incrementally stage storage balanced cut (or excavation) to be carried out in close proximity to and concurrently with the placement of the fill on the same property or with the consent of adjacent property owner;
b) All fill removed shall be required to be moved to an area that is outside of the floodplain;
c) Demonstrate that there will not be an adverse impact on wetlands, valleylands or hydrologic functions;
d) The volume of available flood plain storage capacity within the affected river or stream reach shall not be reduced
e) The proposed site grading (cut and fill) must be designed to result in no increase in upstream water surface elevations and no increase in flow velocities in the affected river cross-sections, under a full range of potential flood discharge conditions (1:2 year to 1:100 year return periods and Regional storm); compliance with this requirement shall be demonstrated by means of hydraulic computations completed to the satisfaction of CLOCA.

Increases to flood elevation levels resulting from proposed development may be considered provided they are contained entirely within the property subject to the proposed development provided no existing or proposed development is subject to a natural hazard.

Should flooding increases occur in offsite areas as a result of proposed development, they may be acceptable to CLOCA provided the risk to existing structures and public health and safety are not increased and written acknowledgement and acceptance of the increases is obtained from the affected offsite owners.

Compliance with the cut and fill requirements shall be demonstrated by means of detailed plans prepared by a professional engineer which clearly show the existing and proposed grading in plan view and in cross section, accompanied by the designer's computations of the volume of flood plain storage to be displaced by proposed fill and

the volume of the compensating flood plain storage to be created by means of the proposed excavation, completed to the satisfaction of CLOCA.

Where minor site alterations are permitted the proponent shall submit a final as built grading plan immediately upon completion of the approved works prepared by a professional engineer indicating that grades achieved on the site conform to those indicated on the approved plan, maintenance of stage storage and that the quality of fill is appropriate for the subject site.

5.9 Separate Policy Management Areas

Notwithstanding the above policies, the Authority Board have approved two separate floodplain management policies for specific areas within CLOCA watershed that remain in effect. The first is the floodplain management policy for the West Corbett Creek and the second is the two-zone flood plain management policy for a reach of the Goodman Creek.

5.9.1 Floodplain Management Policy for the West Corbett Creek

In 1977, the Authority Board adopted a floodplain management policy for the West Corbett Creek. The policy identifies two areas within the West Corbett Creek watershed and contains special policies guiding *development* that may be permitted and recommendations for a management approach for the subject lands. A copy of the West Corbett Creek policy is available at the CLOCA office.

5.9.2 Two-zone Flood Plain Management Policy for a Reach of the Goodman Creek

In 1998, the Authority Board adopted a two zone floodplain management policy for a reach of the Goodman Creek. A two-zone concept identifies a floodway and the flood fringe area. The floodway is defined as the inner portion of the flood plain representing the area required for the safe passage of flood flow and/or that area where flood depths and/or velocities are considered to be such that they pose a potential threat to life and/or property. The flood fringe is the outer portion of the flood plain where flood depths and velocities are less severe and where *development* may be permitted subject to certain established standards and procedures.

The two-zone policy provides direction on the type and form of *development* that may be permitted within this area. A copy of the two-zone policy is available at the CLOCA office.

In April 2013, the Authority Board adopted Phase 2 of the two-zone floodplain management policy for a reach of the Oshawa and Goodman Creeks immediately upstream of the CP Railway embankment considered to be a flood damage centre (Chapter 5 & Appendix C). Based on two technical reports prepared by Greck and Associates Ltd. dated July 2005, and Rand Engineering, dated 1997, a flood fringe area was identified where, due to minimum flood depths and velocities, *development* may be permitted. The policies outline certain standards and procedures that must be addressed in these flood fringe areas.

CHAPTER 6 - WATERCOURSES AND WETLANDS

6.1 Statutory Requirements

The *Conservation Authorities Act* and *Ontario Regulation 41/24* contain the following provisions which establish regulatory boundaries and prohibit *development* and interference in any way in and around wetlands as well as the straightening, changing, diverting or interference with watercourses unless permission is granted by CLOCA after it has been determined that specific legislated tests have been met:

Prohibited Activities (subsection **28**(1) of the *Conservation Authorities Act*)

28(1) "... **no person shall carry on the following activities**, or permit another person to carry on the following activities...

4. **Activities to straighten, change, divert or interfere in any way with the existing channel of a...watercourse or to change or interfere in any way with a wetland.**
5. **Development activities** in areas that are...

   ii. ...**wetlands**...

   v. **[areas within 30 metres of a wetland]**"

Permits (subsection **28.1**(1) of the *Conservation Authorities Act*)

28.1(1) "**[CLOCA] may issue a permit** to a person to engage in [a development] activity specified in the permit that would otherwise be prohibited by section 28, **if, in the opinion of [CLOCA]**

(a) the [development] activity is **not likely to affect the control of flooding, erosion,** ...;

(b) the [development] 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**..."

6.2 Watercourse Processes and Functions

Watercourses transport both water and sediment from areas of high elevation to areas of low elevation. Watercourses are dynamic, living systems with complex processes that are constantly undergoing change. The structure and function of watercourses are influenced by channel morphology, sediment characteristics (soil type, bedrock, and substrate characteristics) and the nature of the *riparian vegetation* both on the overbank and rooted

in the bed of the watercourse. Any changes to one of these influences can have significant impacts upon other parts of the system. One of the key influences on the structure and function of a watercourse is related to the hydrology of the stream and its normal hydrograph. Changes in the volume, peaks and timing of flows can significantly impact stream morphology, sediment transport and even riparian vegetation impacting water quality and flooding downstream reaches.

6.3 Interference with a Watercourse

Watercourses are defined pursuant to subsection 1(1) of Ontario Regulation 41/24 as "a defined channel, having bed and banks or sides, in which a flow of water regularly or continuously occurs." Watercourses include intermittent or ephemeral creeks. Watercourses may need to be confirmed by CLOCA through field investigation by considering maters such as flow assessment and channel form.

The *Conservation Authorities Act* uses the phrase "in any way" when describing change or interference with a watercourse. Activities proposed within the watercourse boundary that could interfere in any way with the watercourse, including both those activities that meet the definition of *development* and those that do not necessarily meet the definition of *development* are regulated as described in paragraph 1 of subsection 28(1) of the *Conservation Authorities Act*. An example of an activity that could represent interference is vegetation removal. " Interference in any way" is interpreted by CLOCA as any *anthropogenic* act or instance which hinders, disrupts, degrades or impedes in any way the natural features or hydrologic and ecological functions of a watercourse.

6.3.1 Policies for Interference with a Watercourse

The following outlines the specific policies for implementing the *Conservation Authorities Act* and *Ontario Regulation 41/24* with respect to interference with watercourses. The term "interference" below includes all alterations (straighten, change, divert or interfere in any way).

1) Interference with a watercourse is prohibited except where the requirements in policies 6.3.1.2) – 6.3.1.7) and the General Policies have been addressed to the satisfaction of CLOCA;

2) Interference associated with public infrastructure (e.g. sewers, flood and erosion control works) and various utilities (e.g. pipelines) may be permitted if the interference on the natural features and hydrologic and ecological functions of the watercourse has been deemed to be acceptable by CLOCA;

3) Stream, bank, and channel realignment, stabilization, lowering, channelization or straightening to improve hydraulic and fluvial processes or aquatic habitat may be

permitted if the interference on the natural features and hydrologic and ecological functions of the watercourse has been deemed to be acceptable by CLOCA, and the following matters are addressed to the satisfaction of CLOCA:

a. the interference to a watercourse should be designed in accordance with natural channel design principles;
b. the works do not increase off site upstream or downstream floodplain elevations, flood frequency, erosion rates or erosion frequency along either side of the watercourse;
c. the works are designed to ensure that the storage capacity of the floodplain is maintained or improved;
d. the works will not adversely affect the ecological function of the watercourse or riparian area;
e. erosion protection is enhanced; and
f. adequate sediment and erosion control measures are incorporated during the construction phase;

4) Dredging of a watercourse may be permitted to improve hydraulic characteristics and fluvial processes or to improve aquatic habitat provided that the following is demonstrated:

a. stream bank stability is maintained or enhanced;
b. the works will not adversely affect the ecological function of the watercourse or riparian area; and
c. immediately following any required drying time, the dredge material is removed from the riverine flooding and erosion hazard.

5) Watercourse crossings may be permitted if it has been demonstrated that the interference on the natural features and hydrologic and ecological functions of the watercourse has been deemed to be acceptable by CLOCA. At a minimum, the submitted reports/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. maintenance of ecological and hydrological functions of the valley or stream corridor;
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 no evidence of erosion 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;
e. risks associated with erosion and flood hazards on the crossing structure are avoided or mitigated as verified by a qualified person;
f. there is no obstruction of fish and wildlife passage;
g. where unavoidable, intrusions on 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; and

h. any works that are to be located below the bed of the river within a watercourse shall be located below the long term scour depth to the satisfaction of CLOCA.

6) *Enclosures* of watercourses are not permitted, whereas daylighting of buried watercourses is encouraged.

7) Alterations, maintenance or decommissioning of existing water control structures may be permitted where it can be demonstrated that:

a. Impacts on watercourse functionality are avoided;
b. There are no adverse impacts on the capacity of the structure to pass flows; and
c. The integrity of the original structure is maintained.

6.4 Wetlands Processes and Functions

Wetlands provide functions that have both ecosystem and human values. From an ecosystem perspective these include primary production, sustaining biodiversity, wildlife habitat, habitat for species at risk, maintenance of natural cycles (carbon, water) and food chains. From a human perspective, wetlands provide social and economic values such as flood attenuation, recreation opportunities, production of valuable products, improvement of water quality and educational benefits.

Wetlands retain waters during periods of high water levels or peak flows (i.e. spring freshet and storm events) allowing the water to be slowly released into the watercourse, infiltrate into the ground, and evaporate. As well, wetlands within the floodplain of a watercourse provide an area for the storage of flood waters and reduce the energy associated with the flood waters.

Wetlands retain and modify nutrients, chemicals and silt in surface and groundwater thereby improving water quality. This occurs temporarily in the plants of the wetland but long term in the organic soils.

In addition, wetlands provide a variety of hydrologic functions. Over 60 potential hydrological functions were identified for wetlands when the province was developing the Southern Ontario Wetland Evaluation System. Confirmation of many of these functions requires hydrological experts and field studies by qualified hydrologists.

A wetland is defined in subsections 1(1) and (2) of *Ontario Regulation 41/24* as an area 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 a 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).

Hydrologic function means 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, 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. The Southern Ontario Wetland Evaluation System (OWES) states "it must be recognized that many non-hydrological functions of a wetland depend, in part on the wetland's hydrological setting and that changes in the basin beyond the boundaries of the wetland could have an effect on the ecological value of the wetland".

Development and Interference

As part of the review of an application, CLOCA may request an 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 CLOCA

6.4.1 Policies for Development within Wetlands and Interference with Wetlands

The following outlines the specific policies for implementing the *Conservation Authorities Act* and *Ontario Regulation 41/24* with respect to *development* within wetlands and interference with wetlands.

1) *development* and interference is prohibited within wetlands except where the requirements under policies 6.4.1.2) – 6.4.1.9) and the General Policies have been addressed to the satisfaction of CLOCA;
2) Dredging of existing ponds within a wetland may be permitted subject to the appropriate floodplain hazard policies and provided the dredging does not have an adverse impact on the wetland feature and function and provided all dredging material is placed at a suitable distance from the wetland;
3) A single dwelling may be permitted on an *existing vacant lot of record* within a wetland provided:
    a. All *Planning Act* permissions are in place;
    b. There is no alternative location for the dwelling on the subject lot outside of the wetland;
    c. Hazards related to organic soils can be addressed; and
    d. The applicant demonstrates, to the extent possible, that the *development* will not adversely affect the wetland feature and functions. An EIS will be required to assess

the ecology of the wetland and identify mitigation/ecological compensation measures and best efforts to minimize impacts. If best efforts are not demonstrated to the satisfaction of CLOCA, a permit will not be issued.

4) Public infrastructure (e.g. roads, sewers, flood and erosion control works) and various utilities (e.g. pipelines) may be permitted if it has been demonstrated to the satisfaction of CLOCA through plan review that:

   - the proposed infrastructure minimizes wetland loss or interference to the greatest extent possible; and
   - the control of flooding and erosion, will not be affected and the interference on the hydrologic and ecological functions of the wetland has been deemed to be acceptable;
   - there is a demonstrated need and no reasonable alternative that would avoid the wetland.

5) Conservation or restoration projects may be permitted if it has been demonstrated to the satisfaction of CLOCA that the interference on the natural features and hydrologic and ecological functions of the wetland has been deemed to be acceptable;

6) Trails may be permitted if it has been demonstrated to the satisfaction of CLOCA that there is not a feasible alternative location outside of the wetland and the interference on the natural features and hydrologic and ecological functions of the wetland has been deemed to be acceptable by CLOCA.

7) Stream, bank, and channel realignment, stabilization, lowering, channelization or straightening to improve hydraulic and fluvial processes or aquatic habitat may be permitted within riparian wetlands if the interference on the wetland has been deemed to be acceptable by CLOCA and the policy matters outlined in the section dealing with interference to watercourses are addressed.

8) Interference to a wetland by selective tree harvesting employing good forestry practices may be permitted provided it can be demonstrated through an EIS or equivalent, such as a forest management plan, that there will be no negative impact on the hydrologic and ecological functions of the wetland.

9) *Reconstruction* of existing structures may be permitted provided:

   - The replacement structure is restored to its original footprint or smaller;
   - There is no feasible alternative location on the subject lot outside of the wetland; and,
   - No additional dwelling units are proposed.

6.4.2 Policies for Development within 30 metres of a wetland ("other areas")

1) *Development* is prohibited within other areas of a wetland except where the requirements under policies 6.4.2.2)- 6.4.2.8) and the General Policies have been addressed to the satisfaction of CLOCA:

2) Public infrastructure (e.g. roads, sewers, flood and erosion control works) and various utilities (e.g. pipelines) may be permitted if it has been demonstrated to the satisfaction of CLOCA that there is a demonstrated need and no reasonable alternative location outside of a 30 m

buffer.

3) Conservation or restoration projects may be permitted.
4) *Development* associated with public lands (e.g. passive or low intensity outdoor recreation and education, trail system) may be permitted;
5) Land uses with existing *Planning Act* approvals may be permitted provided the previous approval was granted with CLOCA's support following an environmental review and the proposed *development* is modified in accordance with the General Policies, wherever possible.
6) A single dwelling on an *existing vacant lot of record*, *minor additions* to existing *buildings/structures*, *accessory building/structures* (less than 500 m^2), and *reconstruction* of existing buildings may be permitted provided it has been demonstrated to the satisfaction of CLOCA that:

    a. All *Planning Act* permissions are in effect prior to April 1, 2024
    b. A minimum buffer of 15 metres is established;
    c. all *development* (including grading) is located outside the wetland and maintains as much buffer as feasible;
    d. disturbances to natural vegetation communities contributing to the hydrologic function of the wetland are avoided;
    e. the overall existing drainage patterns will be maintained;
    f. disturbed area and soil compaction is minimized;
    g. where appropriate, *development* is located above the high water table;
    h. all septic systems are located a minimum of 15 metres from the wetland and a minimum of 0.9 metres above the water table;
    i. impervious areas are minimized;
    j. the area between the proposed *development* and the wetland is or will be comprised of dense vegetation; and
    k. *best management practices* are used to:
        - Maintain water balance
        - Control sediment and erosion
        - Buffer wetlands
        - Limit impact of *development* on wildlife species

CHAPTER 7 - HAZARDOUS LANDS – UNSTABLE SOIL OR BEDROCK

7.1 Statutory Requirements

The *Conservation Authorities Act* and *Ontario Regulation 41/24* contain the following provisions which prohibits *development* in hazard lands unless permission is granted by CLOCA after it has been determined that specific legislated tests have been met:

Prohibited Activities (subsection **28**(1) of the *Conservation Authorities Act*)

28(1) "... **no person shall carry on the following activities**, or permit another person to carry on the following activities...

2. Development activities in areas that are...

i. ...**hazardous lands**..."

Permits (subsection **28.1**(1) of the *Conservation Authorities Act*)

28.1(1) "**[CLOCA] may issue a permit** to a person to engage in [a development] activity specified in the permit that would otherwise be prohibited by section 28, **if, in the opinion of [CLOCA]**

(a) the [development] activity is **not likely to affect ... unstable soil or bedrock**...;

(b) the [development] 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**..."

7.2 Hazardous Land Processes and Functions

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. If an activity is proposed within unstable soil and unstable bedrock *hazardous lands*, then this section applies, otherwise refer to the river or stream valleys and great lakes and large inland lakes shorelines chapters for other hazards such as flooding, erosion, and dynamic beaches.

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 CLOCA.

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 & co, 2005). Leda clays are not found within CLOCA's watershed.

Organic Soils

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 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 and co, 2005). No karst formations have been identified in CLOCA's watershed.

7.3 Policies for Development within Unstable Soil and Unstable Bedrock Hazardous Lands

The following outlines the specific policies for implementing the *Conservation Authorities Act* and *Ontario Regulation 41/24* with respect to unstable soil and bedrock.

1) *Development* is prohibited within *hazardous lands* associated with unstable soils or unstable bedrock except where the requirements in policy 7.3.2 and 7.3.3 and the General Policies have been addressed to the satisfaction of CLOCA;
2) Where *development* is proposed in *hazardous lands* associated with unstable soil or unstable bedrock, the applicant will be required to provide a technical report identifying a more

precise boundary or limit of the hazardous land, to the satisfaction of CLOCA.

3) *Development* may be permitted within *hazardous lands* due to organic soils where a site specific technical study and/or environmental impact study establishes a more precise hazardous land boundary and where it can be demonstrated that:
   a) there is no feasible alternative location outside the hazard land; and
   b) the risk of instability which would result in structural failure or property damage is eliminated o r minimized. CLOCA may require a peer review of any technical report. The cost of the peer review will be at the applicant's expense.