Environmental Planning Policies

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Foreword

Cataraqui Conservation is committed to communicating its program and policy interests, and to working collaboratively with its partners and the public. Our environmental planning policies reflect current provincial legislation and policy, the accepted technical practice of many professional disciplines, as well as the characteristics of the Cataraqui Region. We believe that they contribute to sound and responsible development and the promotion of safe, resilient, and sustainable communities.

Conservation is a shared responsibility. Residents, landowners, developers, all three levels of government, not-for-profit organizations, and the members and staff of this Conservation Authority are stakeholders in the planning process. We will work with others to find practical solutions to conservation challenges. We encourage others to consult with Cataraqui Conservation staff early in the consideration of a planning document or a proposal for development or site alteration.

These Environmental Planning Policies were adopted by the Full Authority Board of Cataraqui Conservation, through Resolution #032-21, dated March 24, 2021. It updates and replaces the April 2015 CRCA Planning Policy Update.

Purpose and Layout of the Document

Purpose of the Document

Cataraqui Conservation provides planning and technical advice to assist municipalities and other approval authorities in fulfilling their responsibilities associated with natural hazards, natural heritage, and water resources. The Conservation Authority provides reliable information and professional opinions to approval authorities, as they make decisions on planning documents and applications. Cataraqui Conservation also works to coordinate the land use planning process with other regulatory requirements.

The Environmental Planning Policies provide municipalities, proponents of development, private landowners, and community groups with a clear understanding of Cataraqui Conservation's role, mandate, and responsibilities regarding the review of planning documents and site-specific applications made under the Planning Act and other legislation.

The Conservation Authority's roles are outlined in various documents including a Memorandum of Understanding between Conservation Ontario, the Ontario Ministry of Municipal Affairs and Housing and the Ontario Ministry of Natural Resources (2010), planning service agreements with municipalities, and Cataraqui Conservation service delivery procedures (2013, as amended). Our roles, which are described in more detail in Section 2.5, include:

- Regulatory authority (under the Conservation Authorities Act)
- Delegated 'provincial interest' in plan review (natural hazards)
- Watershed based resource management agency
- Public commenting body
- Planning advisor to municipalities
- Landowner.

Conservation Authority staff are the primary users of the document. It provides guidance to staff on Cataraqui Conservation's position on environmental planning matters and is used in the review of municipal planning documents, such as official plans, zoning by-laws and development permit by-laws, as well as site-specific applications submitted to Cataraqui Conservation under the Planning Act and other legislation. These Policies, in conjunction with the Board-approved Service Delivery Procedures for Plan Review, provide for a level of consistency in the review of these matters, and the recommendations provided to municipalities, proponents of development, landowners and community groups.

The document will be used in conjunction with Guidelines for Implementing Ontario Regulation 148/06: Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses (2020, as amended) where appropriate. Both of these

reference documents also provide staff with guidance for assessing other proposals for *development* and *site alteration*, such as submissions for approvals under the Ontario Water Resources Act, Environmental Protection Act (Renewable Energy Approvals), and the Canada and Ontario Environmental Assessment Acts.

This document was updated in 2021 to replace an earlier (2015) policy document. The policy framework, which was influenced in 2015 by several new provincial statues, policies, and technical documents (e.g. Cataraqui Source Protection Plan, 2014 Provincial Policy Statement, Natural Heritage Reference Manual), remains applicable in 2021. The policies have been refined based on experiences working with the policies, landowners and municipalities, as well as the science and best practices that support the policies (e.g. Waterfront Development Guidance for Eastern Ontario and Upper St. Lawrence River (Aqua Solutions 5 Inc. and Coldwater Consulting Ltd., June 2019)).

Having environmental planning policies that reflect current legislation and best practice is important because it allows everyone to understand what is expected and/or what is required when development applications are being considered for approval by municipalities.

Planning is a dynamic process, and therefore the areas of specific interest and associated policies are expected to change over time. Future revisions to these policies will reflect information and knowledge gained from the preparation of *watershed* management plans, climate change adaptation strategies, and drinking water source protection plans, from *watershed* monitoring networks, and from the implementation of these policies.

These policies will normally be subject to a comprehensive review, in conjunction with the Guidelines for Implementing Ontario Regulation 148/06, every five years.

Applicability and How to Read this Document

This document applies to all formal development applications, matters or proceedings submitted to Cataraqui Conservation on or after its adoption by the Full Authority Board on March 24, 2021.

The content of this document has been divided into the following sections.

Section 1 Approach to Watershed Management

Provides context for local resource management programs and services and outlines the vision and mandate of Cataraqui Conservation and the key principles that guide its *watershed* planning and management activities. It also specifies policy objectives related to our areas of interest.

Section 2 Legislative and Policy Framework

Provides an overview of the legislative framework that determines Cataraqui Conservation's planning and regulatory roles and responsibilities. It summarizes the various roles of the Conservation Authority relating to land use planning.

Sections 3 to 7 Environmental Planning Policies

Outlines the policies, in addition to provincial and municipal policies, that Cataraqui Conservation refers to when providing planning recommendations and advice to municipalities and other approval authorities.

The policies are organized by topic but are intended to be considered concurrently. Thus, for example, consideration for the avoidance of *natural hazards* must also include an assessment of potential impacts on natural features and *ecological functions*, the quality and quantity of *surface water*, and other policy topics. By adopting a holistic, ecological approach, this Conservation Authority will make and encourage decisions that recognize the connectivity of issues relating to the natural environment of the Cataraqui Region.

Section 8 Glossary

Provides definitions for terms that have been italicized in the document.

Section 9 References

Includes sources used in the development of the document, and that are referenced throughout.

Appendices

Include guidelines for specific technical matters, such as the preparation of environmental impact assessments and stormwater management reports.

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Section 1: Approach to Watershed Management

The Cataraqui Region Conservation Authority (Cataraqui Conservation) is a local *watershed* management agency that provides services and programs to further the conservation, restoration, and responsible management of natural resources in partnership with residents, businesses, visitors, governments, and not-for-profit organizations. The Conservation Authority implements an integrated systems approach to *watershed* management, balancing human, environmental and economic needs and recognizing the relationship between ecosystem functions and human activities.

1.1 Watershed Features

The Cataraqui Region is located at the eastern end of Lake Ontario and the upper part of the St. Lawrence River. With over 200 inland lakes, hundreds of kilometres of streams and a variety of wetlands and wildlife habitats, the Cataraqui Region has an abundance of natural resources. It includes a portion of the Bay of Quinte, the southern portion of the Rideau Canal, and the Thousand Islands. It has jurisdiction over 3,500 square kilometres of land, from Greater Napanee in the west to Brockville in the east. The jurisdiction covers all or part of 11 municipalities. There are eleven watersheds and subwatersheds within the jurisdiction:

1. Bay of Quinte (includes Little, Spring and Wilton Creeks and other tributaries around Hay Bay)
2. Lake Ontario (includes Bath and Parrott Creeks and other small tributaries west of the Cataraqui River)
3. Amherst Island
4. Millhaven Creek
5. Collins Bay (includes Collins and Highgate Creeks)
6. Little Cataraqui Creek
7. Cataraqui River
8. St. Lawrence River (includes the remainder of the Thousand Islands, and other tributaries east of the Great Cataraqui River)
9. Gananoque River
10. Lyn, Golden and Jones Creeks
11. Buell's and Butler's Creeks.

The landscape varies from Precambrian Shield and numerous lakes in the central area (Frontenac Arch) to the agricultural landscape of the limestone and clay plains of the south and west. The east contains significant amounts of glacial till.

An important characteristic of the region is that the soil is either very shallow in depth or completely absent in most locations, and the underlying bedrock has numerous gaps called fractures. Regional areas of sensitive groundwater (i.e., highly vulnerable aquifers and significant groundwater recharge areas) cover more than 90 per cent of the landscape. This is important because most of our residents in the rural part of our

jurisdiction rely on individual wells that use groundwater. Contamination at or near the surface can easily move through the fractures and pollute the water supply.

1.2 Vision and Goals

It is the intent of this Conservation Authority that the implementation of the policies listed in this document will help to realize the vision and goals identified in its strategic plan, Cataraqui to 2020 (2001).

Cataraqui to 2020 presents the following vision:

Our vision is that the natural environment of the Cataraqui Region Conservation Authority watersheds will be conserved, that degraded natural resources will be restored, that our regional diversity will be valued by the watershed residents, and that the public will understand the role that everyone needs to play in resource management and resource enjoyment.

It also establishes six goals for the activities of the Conservation Authority:

Goal A: To conserve CRCA's water resources, including the safeguarding, management and restoration of rivers, lakes, and streams, and to work cooperatively with our partners to protect the water cycle.

Goal B: To implement policies that will protect life and property from natural hazards such as flooding and erosion.

Goal C: To conserve woodlands, wetlands, and natural habitat.

Goal D: To facilitate protection of natural resources in order to conserve, restore, develop or manage them.

Goal E: To provide opportunities for the public to learn from the public open spaces within the jurisdiction, and to respect the local natural environment.

Goal F: To operate an efficient and financially sound organization that provides excellent service to the community; promotes best environmental practices; and that offers a healthy, positive, and nurturing workplace environment for staff, members, and volunteers.

1.3 Principles of Conservation

The following general principles, which underlie Cataraqui to 2020, also guide our planning work:

1. An ecological approach explains the interdependence within our natural world and deals with the connectivity of issues relating to the use of land and water. This approach is fundamental to healthy watersheds and forms the foundation for planning within our watersheds.
2. Sustainable development is a use or development that can be sustained by the environment without significantly impairing its natural values. Sustainable development is development that "meets the needs of the present without

compromising the ability of future generations to meet their own needs" (The World Commission on Environment and Development, 1987).
3. We need to educate our watershed residents about the importance of stewardship of land and water resources, and how they contribute to our quality of life.
4. Stewardship of land, where individuals, partners and corporations understand and protect the natural resources on the lands under their control, should be encouraged and promoted.
5. In our important role as an advocate for the environment, we will partner with others to attain our vision for the watershed.

1.4 Watershed Management

A surface watershed is an area of land drained by a river or stream. It may extend into more than one municipality. Within this system of streams, rivers and lakes, everything is connected to everything else. In other words, actions which take place at the top of the system can and do affect those downstream. Everyone is downstream.

A healthy watershed is one in which the diversity and connectivity of natural features and areas is maintained, restored, or, where possible, improved. There is also recognition for the linkages between ecological functions, hydrological functions, and biodiversity of natural systems.

The Conservation Authority implements an integrated, systems approach to watershed management, balancing human, environmental and economic needs and recognizing the relationship between ecosystem functions and human activities.

Development can put a lot of stress on the natural environment. If the construction and maintenance of buildings, structures and roads is not carefully planned and managed, it can result in impacts such as degraded aquatic communities, the loss of well water supply, the contamination of aquifers, deteriorating water quality, and flooding and erosion (MOE and MNR, 1993). This stress can be minimized through watershed planning.

Watershed planning involves studying the condition of the natural environment within a watershed, developing measures and actions to maintain and improve the natural resources, and working cooperatively with municipalities, landowners, and other interested parties to implement the plan. A watershed approach to planning can result in economic savings by avoiding the need for costly and difficult remedial actions.

Section 2.2.1(a) of the Provincial Policy Statement 2020 states that "planning authorities shall protect, improve or restore the quality and quantity of water by using the watershed as the ecologically meaningful scale for integrated and long-term planning, which can be a foundation for considering cumulative impacts of development". By adopting an integrated watershed approach, this Conservation Authority will make and encourage decisions that recognize the connectivity of issues relating to the natural environment of the Cataraqui Region.

1.5 Policy Objectives

The three main areas of interest of Cataraqui Conservation are natural hazards, natural heritage features, and water quality and quantity matters. These topics are an integral part of watershed management.

The following policy objectives support Cataraqui Conservation's vision and goals for the natural environment, our designated responsibility on natural hazards as per Section 3.1 of the PPS, and our service agreements with municipalities to address natural hazards, natural heritage features, and water quality and quantity matters.

1. To promote an integrated, systems approach to watershed management, balancing human, environmental and economic needs and recognizing the relationship between ecosystem functions and human activities.
2. To prevent, eliminate or minimize the risks to life and property caused by flood hazards, erosion hazards, dynamic beach hazards, unstable soils, and unstable bedrock.
3. To protect, restore and enhance the biodiversity, connectivity, ecological functions and hydrologic functions of natural heritage features, areas, and systems throughout the Cataraqui Region.
4. To promote water management and infrastructure planning activities that protect, restore, and enhance the natural hydrologic cycle and minimize or eliminate risks to human life and property damage due to flood hazards, erosion hazards and pollution.
5. To assist the Cataraqui Region to adapt to the anticipated impacts of a changing climate (potentially warmer, wetter, and more variable) by fostering resilient communities and natural systems.

Section 2: Legislative and Policy Framework

The Environmental Planning Policies were developed with consideration for the legislation, policies, and standards that relate to the mandate of the Cataraqui Conservation, and provide a framework upon which to consider the approach taken by Cataraqui Conservation.

2.1 Planning Act, the Provincial Policy Statement and Municipal Planning Documents

The Planning Act is the primary enabling legislation dealing with land use planning in the Province of Ontario. The Planning Act and its regulations indicate when an approval authority must confer with a Conservation Authority, as well as which matters must be considered in the review and approval of applications submitted under the Act. Approval authorities under the Act include the Ontario Ministry of Municipal Affairs and Housing, upper-tier municipalities (counties) and local municipalities (cities, towns, and townships). These bodies are responsible for making decisions on land use planning matters.

The Provincial Policy Statement 2020 (PPS), which addresses planning matters that are of provincial interest, is issued under Section 3 of the Planning Act by the Minister of Municipal Affairs and Housing. The Act requires that planning authorities “shall be consistent with” provincial policy when providing recommendations and when making decisions on planning matters.

The policies in the PPS represent minimum standards. Cataraqui Conservation is a watershed-based resource management agency that develops watershed plans and natural resource management plans for its jurisdiction. These plans reflect local resource management needs and can include specific recommendations that go beyond the minimum standards required by the PPS. These local resource management recommendations should be incorporated into municipal planning documents and considered when reviewing development applications (e.g., encouraging the protection of wetlands and other natural heritage features and areas that are not classified as provincially significant for their local importance). Some municipalities in the Cataraqui Region also have policies that go beyond the minimum standards required by the PPS.

Cataraqui Conservation staff review and provide recommendations (“plan input”) on municipal planning documents, such as official plans, zoning by-laws and development permit by-laws, which are made pursuant to the Planning Act. We also review and provide recommendations (“plan review”) on site-specific applications submitted to Cataraqui Conservation under the Planning Act. Recommendations on official plans are provided as part of the Provincial One-Window Review which is coordinated by the Ministry of Municipal Affairs and Housing.

The Conservation Authority is responsible for providing input and recommendations on natural hazard topics in matters under the Planning Act in the Cataraqui Region, but we also offer a local perspective on natural heritage, water, and other conservation-related

topics in accordance with Planning Service Agreements with member municipalities. The local perspective provided by Cataraqui Conservation complements and builds on the input and recommendations of the Provincial ministries that are responsible for these other topics. For example, the Ontario Ministry of Natural Resources and Forestry provides lead input and recommendations on natural heritage matters and the Ontario Ministry of the Environment, Conservation and Parks is the lead on water quality and quantity matters.

The Conservation Authority also provides recommendations to municipalities about policies and by-laws enacted under other legislation, for example a municipal land acquisition policy, or a site alteration by-law passed under the Ontario Municipal Act.

2.2 Conservation Authorities Act

The role of Cataraqui Conservation in the conservation of natural resources is established by Section 20(1) of the Ontario Conservation Authorities Act, which states that

The objects of an authority are to establish and undertake, in the area over which it has jurisdiction, a program designed to further the conservation, restoration, development and management of natural resources other than gas, oil, coal and minerals.

Cataraqui Conservation has a regulation made pursuant to Section 28 of this legislation regarding development, interference with wetlands, and alteration to shorelines and watercourses (Ontario Regulation 148/06).

Whereas a principle of development is often established under the Planning Act, the regulation identifies site-specific requirements prior to activities taking place on a property, similar to a building permit.

The Conservation Authority maintains guidelines for the implementation of Ontario Regulation 148/06, which are amended from time to time. Every effort has been made to ensure consistency between the environmental planning policies and the regulation guidelines where appropriate.

In participating in the review of applications under the Planning Act and proposals under other legislation such as the Environmental Assessment Act, Cataraqui Conservation ensures the applicant and approval authority are aware of the applicability and requirements of Ontario Regulation 148/06, and assists in the coordination of these applications to avoid ambiguity, conflict and unnecessary delay or duplication in these processes.

Although permission under the regulation may not be issued for many years after a Planning Act application, in order to support the Planning Act application, Cataraqui Conservation needs to ensure that the requirements under the regulation process can likely be fulfilled at the time a permit application is received. Where recommendations or conditions provided by Cataraqui Conservation on a planning matter have not been duly addressed or applied by the approval authority, such planning decisions do not bind Cataraqui Conservation’s permitting process.

It is also recognized that current technical information related to natural hazards or natural features such as wetlands, may preclude development that had been approved via land use planning decisions in the past. The Conservation Authorities Act does not provide for the “grandfathering” of historical planning decisions. Where it is technically feasible and appropriate, efforts will be made to consider innovative design approaches to address site constraints and accommodate the development while still meeting current regulatory requirements.

2.3 Clean Water Act and Source Protection Plan

The Clean Water Act, 2006 provides the mandate for a provincial drinking water source protection program in Ontario. Its focus is on the sources of water for municipal residential drinking water systems that serve local communities, with some additional attention on surface water and groundwater sources on the broader landscape (e.g., water budgets and stress calculations).

Cataraqui Conservation has assisted with the local delivery of this program since 2004, under the auspices of the Cataraqui Source Protection Authority. The Source Protection Authority consists of the Cataraqui Conservation Full Authority Board as well as a representative of the Township of Frontenac Islands, since its mandate extends to cover that municipality.

An Assessment Report (2011) was prepared to identify areas where drinking water sources are vulnerable to contamination or overuse and to prioritize drinking water issues and drinking water threats within those vulnerable areas. It was prepared in accordance with detailed technical rules set out by the Ontario Ministry of the Environment and Climate Change (now Ministry of Environment, Conservation and Parks, MECP).

The content of the report was used to support the development of the Cataraqui Source Protection Plan (2014). The purpose of the Plan is to avoid or manage existing and future risks (i.e., from activities) to the drinking water sources. The Plan was approved by the Ontario Minister of the Environment and Climate Change (MECP) and has the legal effect of a provincial plan. Both the Assessment Report and the Source Protection Plan can be viewed at www.cleanwatercataraqui.ca.

The Plan contains:

- mandatory, binding policies for certain activities
- other policies for planners and decision-makers to have regard to, and
- additional policies that serve as recommendations

Land use planning is one of the tools used in the Source Protection Plan to manage and/or prohibit specific activities within designated vulnerable areas around the municipal systems.

Cataraqui Conservation’s efforts to help implement the source protection plan will be integrated with its other watershed planning and management activities. Planning policies pertaining to drinking water source protection are included in this document.

2.4 Other Legislation

Cataraqui Conservation reviews proposals under other legislation from time to time, including:

- proposals under the Condominium Act, such as vacant land condominiums;
- Class and Individual Environmental Assessments under the Canada and Ontario Environmental Assessment Acts;
- renewable energy projects proposed under the Environmental Protection Act;
- proposals under the Aggregate Resources Act; and
- permits to take water under the Ontario Water Resources Act.

We bring local environmental and watershed knowledge into the review process, using the same procedures that we use in our review of Planning Act applications.

2.5 Roles of Cataraqui Conservation in Planning

As indicated in Section 1, consideration for the natural environment is an important part of land use planning. Cataraqui Conservation provides planning and technical advice to assist municipalities and other approval authorities in fulfilling their responsibilities associated with natural hazards, natural heritage, and water resources. The Conservation Authority provides reliable information and professional opinions to approval authorities, as they make decisions on planning documents and applications. Cataraqui Conservation also works to coordinate the land use planning process with other regulatory requirements.

Cataraqui Conservation provides recommendations on planning documents and site-specific applications based on its various roles:

1. **As a regulator.** Conservation Authority staff review of applications made under the Planning Act takes into consideration requirements under Ontario Regulation 148/06 to eliminate unnecessary delay or duplication in these processes. Staff also raise awareness of requirements of other pieces of legislation for which the Conservation Authority is delegated or assigned regulatory/approval responsibilities.
2. **Through delegated 'Provincial interest'**. The Conservation Authority is responsible for representing Provincial interest on natural hazards (excluding wildland fire hazards) through the review of and providing comments on municipal policy documents and applications submitted pursuant to the Planning Act as part of the Provincial One-Window Plan Review Service, as well as in planning exercises where the Province is not involved (e.g. lower-tier municipal official plan amendments, site-specific applications). This responsibility is outlined in a 2001 Memorandum of Understanding between the Ministry of Municipal Affairs and Housing, the Ministry of Natural Resources and Forestry and Conservation Ontario.
3. **As a watershed-based resource management agency**. With cooperation and resources, the Conservation Authority develops business strategic plans,

watershed plans and natural resource management plans for its jurisdiction. These plans may recommend specific approaches to land use and resource planning and management that should be implemented through incorporation into municipal planning documents and related development applications.

4. **As a public commenting body**. The Conservation Authority is a public body under the Planning Act and is to be notified of proposals to amend municipal policy documents and development applications. The Conservation Authority may elect to comment on these documents and development applications. Cataraqui Conservation has screening guidelines and maps for its municipalities. We are generally involved in the review of applications that involve properties on or near lakes, rivers, and wetlands, as well as large-scale developments such as subdivisions and those requiring site plan control.
5. **Through planning advisory services to municipalities**. The Conservation Authority provides planning advisory services to each municipality through service agreements. These agreements outline the areas of technical expertise on which it will advise the municipalities. When providing comments and recommendations on planning documents and applications submitted for review, staff address natural hazards, natural heritage, and water quality and quantity matters.
6. **As a landowner**. The Conservation Authority is a landowner, and as such, may become involved in the planning process either as an adjacent landowner or as a proponent. The Conservation Authority ensures that any comments provided as a landowner are separate from comments and recommendations provided under a technical, advisory, and/or regulatory role. Where the Conservation Authority is the proponent, it recommends the approval authority request that an adjacent conservation authority address its commenting responsibilities.

These roles are pursued in accordance with a Memorandum of Understanding between Conservation Ontario, the Ontario Ministry of Municipal Affairs and Housing and the Ontario Ministry of Natural Resources and Forestry (MNR and Conservation Ontario, 2010) as well as Cataraqui Conservation service delivery procedures.

2.5.1 Relationship to Other Agencies

There are many agencies at the federal, provincial, and municipal level that have an interest in, and a responsibility for, the review and approval of development applications. Depending on the scope and location of a proposal, the review process can be complex, involving a number of federal and provincial agencies, in addition to the local approval authority. Cataraqui Conservation collaborates with some of these agencies to provide a consistent and coordinated approach on matters of mutual interest, as appropriate.

Parks Canada – Rideau Canal

The Rideau Canal is a National Historic Site of Canada, a Canadian Heritage River, and a UNESCO World Heritage Site. The Canal is administered by Parks Canada to

preserve the natural, cultural, and scenic values of this significant asset. Parks Canada manages water levels to provide adequate depth for safe navigation of vessels, as well as for environmental protection and to minimize flooding. It also has an interest in development-related impacts on scenic views and the overall heritage values associated with the waterway.

Parks Canada has permitting authority on Federal Crown lands and waters that comprise the Rideau Canal, and which generally extends to the Upper Controlled Water Elevation. Cataraqui Conservation applies its regulatory jurisdiction on private or municipal lands, which is typically above the Upper Controlled Water Elevation. Cataraqui Conservation works collaboratively with Parks Canada and the Rideau Valley Conservation Authority as part of the Rideau Waterfront Development Review Team to provide a consistent and coordinated approach to the review of municipal planning documents and Planning Act applications, and to the approval of development activities along the Rideau Canal.

Adjacent Conservation Authorities

Several municipalities in the Cataraqui Region are located within more than one watershed (i.e., within the jurisdiction of more than one Conservation Authority). Where a planning document (e.g., official plan or zoning by-law) is circulated for review and comment that also involves the jurisdiction of other conservation authorities, Cataraqui Conservation normally collaborates with the other organizations to provide a coordinated response. For site-specific applications where the property is located within the jurisdiction of more than one Conservation Authority, typically one Conservation Authority will lead the review upon mutual agreement between the organizations.

Section 3: General Policies

3.1 General Plan Input and Plan Review

This section specifies the policies of Cataraqui Conservation that are generally applicable to all environmental planning matters being considered by the Conservation Authority. These policies must be read in conjunction with the other policies in this document that are relevant to the circumstances of a given proposal and site.

3.1.1 An integrated and comprehensive watershed approach to planning will be followed, in order to recognize the connectivity of issues relating to the natural environment of the Cataraqui Region, and others will be encouraged to do the same.

3.1.2 Recommendations will be consistent with the vision, goals, and objectives of its strategic plan when reviewing proposals for development and site alteration.

3.1.3 Comments and recommendations to planning authorities or agencies on Planning Act or similar development-related applications (e.g., Condominium Act, Environmental Assessment Act) will be consistent with relevant legislation and the Provincial Policy Statement and will reference applicable municipal policies.

3.1.4 Cataraqui Conservation will promote the preparation of watershed and subwatershed plans.

3.1.5 Cataraqui Conservation encourages the preparation of a shoreline management plan (SMP) that identifies reach-wide shoreline processes and prescribes hazard management strategies as part of shoreline land use planning, natural hazards, and environmental protection. SMPs should be completed on a proactive basis to inform municipal planning documents (e.g. official plans, zoning by-laws, secondary plans, master plans, development guidelines, etc.) and planning decisions or in support of large-scale development proposals. SMPs can be done on a multi-jurisdictional scale involving multiple municipalities along a body of water. Municipalities will be encouraged to incorporate findings from SMPs into their planning documents and decision-making processes with assistance from Cataraqui Conservation.

3.1.6 Comments and recommendations will take into consideration planning and technical studies that have been prepared on relevant topics for all or part of the Cataraqui Region.

3.1.7 Comments and recommendations related to a specific policy in the Environmental Planning Policies will take into consideration the implications of, and not unduly compromise the intent of, other policies within this document.

3.1.8 Federal, provincial, and municipal governments will be provided with sound technical advice on conservation matters, for their use in formulating legislation, policies, and by-laws.

3.1.9 In consideration of natural heritage protection and concerns related to risks to life and property, components of the natural system, including lands subject to natural hazards, hazardous sites, natural heritage features and areas, linkages, water resources, and associated buffers, should be:

a) recognized and protected through appropriate official plan and zoning designations, policies and regulations;
b) where appropriate, be identified as areas to be maintained in a natural condition, or enhanced, through appropriate means such as warning clauses registered on title, site plan agreements or subdivision agreements; and
c) where appropriate, dedicated to an appropriate land trust or public agency for conservation and risk management purposes.

3.1.10 Municipalities are encouraged to place vacant islands and existing lots, which are impacted by natural hazards, and/or for which the surface water quality, aesthetic, and fish and wildlife habitat impacts of development cannot be mitigated to a sufficient degree in a designation and zone that does not facilitate development.

3.1.11 This Conservation Authority will consider both the site-specific and cumulative impacts of development and site alteration proposals.

3.1.12 Development applications will be evaluated on the basis of the following general considerations and any others that are relevant to the particular application:

a) policy conformity;
b) potential impacts of natural hazards;
c) potential impacts on natural heritage features and areas, including their ecological functions and hydrologic functions;
d) potential impacts to surface water features (including shoreline areas) and groundwater features;
e) potential impacts to designated vulnerable areas for municipal drinking water supplies;
f) site servicing, infrastructure and grading;
g) stormwater management;
h) erosion and sediment control;
i) vegetation preservation and proposed landscaping; and

j) consistency with requirements of the Guidelines for Implementing Ontario Regulation 148/06.

3.1.13 Cataraqui Conservation will recommend to the approval authority that technical reports should be submitted by the proponent of development applications, as necessary. Such reports are to be prepared by qualified professionals with specific expertise in the subject matter under review. Depending upon the circumstances of a given proposal and site, reports may be scoped through consultation with Cataraqui Conservation and the approval authority. Depending upon the circumstances of a given proposal and site, reports may include:

a) natural hazard assessment;
b) geotechnical analysis (soils, bedrock, and/or slope stability, erosion hazard analysis);
c) Floodplain study/floodline delineation (hydrologic and hydraulic analyses with detailed topographic mapping and modelling, wave uprush analysis);
d) master drainage plan;
e) stormwater management report and plan;
f) environmental impact assessment;
g) woodland, tree or vegetation preservation plan;
h) landscaping plan;
i) ecological buffer plan;
j) hydrogeological study;
k) erosion and sediment control plan;
l) flood plain study/ floodline delineation (hydrologic and hydraulic analyses with detailed topographic mapping and modelling, wave uprush analysis);
m) lakeshore capacity assessment;
n) recreational carrying capacity study;
o) headwater drainage feature assessment; and/or
p) any additional report or study required to provide additional information relating to a specific concern.

3.1.14 Cataraqui Conservation will encourage the maintenance and/or creation of buffers of undisturbed topography and vegetation between proposed developments and waterbodies, natural heritage features and areas and/or land subject to natural hazards.

3.1.15 The preservation of the ecological integrity of areas subject to development applications should be encouraged by following a natural approach to landscaping, restoration, or enhancement efforts by using native, non-invasive and locally appropriate species. In addition, genetic diversity, vegetated linkages, and the incorporation of a variety of native, locally appropriate plant species to support biodiversity and connectivity should be promoted. Refer to Appendix A for more details.

3.1.16 Modifications to components of the natural system, including lands subject to natural hazards, and natural heritage features and areas, to create additional

useable area or to accommodate or facilitate development and site alteration will be discouraged.

3.1.17 An adjustment to the boundary of a feature to recognize the unauthorized alteration, damage or destruction of any component of the natural system, including lands subject to natural hazards and natural heritage features and areas, should not be supported, and the replacement or rehabilitation of the feature(s) and its functions should be pursued.

3.1.18 Cataraqui Conservation will take a precautionary and adaptive approach to watershed management that considers the compounding effect of climate change on current stresses and will aim to protect and restore natural heritage and water resources. In addition, Cataraqui Conservation will consider climate change as an exacerbating factor in the implementation of natural hazards avoidance policies and the impacts of low water and drought conditions in the implementation of water resources and natural heritage policies. This approach is intended to ensure the Cataraqui Region is as resilient as possible to climate change.

3.2 General Policies on Lot Creation

This section specifies the policies of Cataraqui Conservation that are generally applicable to all lot adjustment and creation matters being reviewed by the Conservation Authority, where the principle of development has been established (for example, there is no overall constraint to land division around a given lake). These policies should be read in conjunction with the other policies in this document that are relevant to the circumstances of a given proposal and site.

3.2.1 The creation of new lots and proposals for lot-line adjustments for existing lots that extend into, or fragment ownership of natural heritage features and areas and, where appropriate, lands subject to natural hazards, should be discouraged in consideration of the long term management concerns related to risks to life and property and natural heritage protection.

3.2.2 A minimum water frontage of 90 metres is encouraged for each lot to be created or adjusted adjacent to an inland lake. However, a minimum water frontage for each lot to be created adjacent to a waterbody could be established based on the requirements of the municipal planning documents, or as recommended by a watershed plan, comprehensive environmental impact assessment or site-specific technical report completed to the satisfaction of Cataraqui Conservation and the approval authority.

3.2.3 The area of the lots to be created or adjusted should be of a size that would accommodate:

a) a building envelope that is located outside of any natural heritage features and areas and/or hazardous areas (i.e., lands subject to flooding, steep and/or unstable slopes or other physical hazard which renders the site unsuitable for development) including a setback based on the most restrictive requirement for the feature and/or natural hazard, and that achieves an appropriate waterbody setback, consistent with relevant Conservation Authority and municipal requirements throughout the watershed, as well as UNESCO buffer requirements along the Rideau Canal;
b) a building envelope that meets maximum lot coverage and minimum setback requirements, consistent with relevant Conservation Authority and municipal requirements;
c) the proper siting of wells and septic systems, per the Ontario Building Code or the findings of a hydrogeological study that has been prepared for the area and accepted by Cataraqui Conservation and the approval authority; and
d) sufficient space outside of, and set back from, any natural heritage features and areas and/or hazardous areas, for necessary infrastructure including driveways, parking areas, septic systems, amenity space, and for the potential for future expansions, and accessory buildings and structures.

3.2.4 The creation of new lots, and lot-line adjustments for existing lots, that would necessitate a new crossing of the natural system, such as waterbodies and wetlands, to access a suitable building envelope should be discouraged. Lot creation that necessitates watercourse crossing(s) may be supported if it has been demonstrated, to the satisfaction of Cataraqui Conservation, that there will be no negative impacts on the features to be protected or their ecological functions and hydrologic functions, and that safe access can be achieved in accordance with the applicable requirements of the Guidelines for Implementing Ontario Regulation 148/06.

3.2.5 The creation of new lots, and lot-line adjustments for existing lots, may be supported where it is demonstrated that safe access can be achieved in accordance with the applicable requirements of the Guidelines for Implementing Ontario Regulation 148/06.

3.2.6 The creation of new lots, and lot-line adjustments for existing lots, with frontage on a waterbody may be supported if each lot has at least one location that provides reasonable water access (for motorized boats) and (where appropriate) the construction of reasonably sized marine facilities compliant with the Guidelines for Implementing Ontario regulation 148/06 and applicable municipal policies, without the need for dredging or removal of emergent or submergent vegetation. Communal water access locations may be encouraged in order to minimize the extent of disturbance.

3.3 General Policies for Development of Lots of Record

This section specifies the policies of the Cataraqui Conservation that are generally applicable to the Conservation Authority's review of proposed development on lots of record. The numerous existing parcels of land across the Cataraqui Region are often smaller than current standards, and they are sometimes constrained by natural hazards and other challenges. Cataraqui Conservation staff work with municipalities and landowners to determine if and how development on such lots could be accommodated, recognizing the need to maintain the intent of environmental and other policies. These policies should be read in conjunction with the other policies in this document that are relevant to the circumstances of a given proposal and site.

3.3.1 Cataraqui Conservation will make comments and recommendations on development applications for lots of record and islands that take into consideration the applicable municipal requirements, relevant policies in this document, and the Guidelines for Implementing Ontario Regulation 148/06, based on the circumstances of a given proposal and site. Focus will be placed on:

a) avoiding and managing risk associated with natural hazards;
b) protecting natural heritage features and areas and their ecological functions from negative impacts; and
c) incorporating suitable methods to minimize negative impacts on groundwater, surface water and riparian lands into the development (e.g., consideration for the use of a sewage system with enhanced nutrient removal, maintenance of existing natural vegetation, stormwater management techniques, building design and setback).

3.3.2 There may be situations where Cataraqui Conservation cannot support development of an existing lot of record. This may include situations where the severity and risk associated with natural hazards is too great (e.g. extensive flooding or erosion hazards) or where development would result in unavoidable negative impacts to natural heritage features (e.g. impacts to a Provincially Significant Wetland). Also, Cataraqui Conservation may not support development on an existing lot of record where the proposal is inconsistent with the Provincial Policy Statement, municipal Official Plan, or Guidelines for Implementing Ontario Regulation 148/06.

Section 4: Natural Hazards

As indicated in Section 2, the Conservation Authority is responsible for providing input and recommendations on natural hazard topics (excluding wildland fire hazards) in matters under the Planning Act in the Cataraqui Region. We also prohibit, regulate, and require permissions for development and site alteration in areas that might be subject to these natural hazards under Ontario Regulation 148/06, pursuant to Section 28 of the Conservation Authorities Act.

Section 3.0 of the Provincial Policy Statement 2020 (PPS) addresses natural hazards by directing development away from areas of natural hazards where there is an unacceptable risk to public health or safety or of property damage, and by not allowing development that would create new or aggravate existing hazards. The PPS specifies the situations in which development and site alteration are not to be permitted, and provides flexibility in other situations.

The Ministry of Natural Resources Technical Guides on Natural Hazards (1996, 2001, 2002a and 2002b) provide detailed information on defining the extent of natural hazards and on natural hazards management in support of the PPS. These technical guides were referenced in the preparation of this section.

This section addresses:

- hazardous lands adjacent to river, stream, and small inland lake systems which are impacted by flooding hazards and/or erosion hazards
- hazardous lands adjacent to the shoreline of Lake Ontario and the St. Lawrence River which are impacted by flooding hazards, erosion hazards, and/or dynamic beach hazards
- artificial shorelands along Lake Ontario and the St. Lawrence River
- hazardous sites.

It is important to consider flooding hazards, erosion hazards, and dynamic beach hazards together and using a watershed approach, taking into account cumulative impacts, rather than on a piecemeal basis, since these natural hazards often occur together, and they extend across geographic areas. It is also important to note that any recommended setbacks from a natural hazard are generally minimum standards, that should be exceeded wherever possible to account for variations over time. For example, with respect to flooding, setbacks are applied to the regulatory flood plain (1:100 year flood level plus wave uprush) which should not be considered the maximum possible extent for the flooding hazard as climate change and other unforeseen factors may result in flooding beyond the regulatory elevation***.***

A changing climate has brought warmer water temperatures, diminished winter ice cover, and variable, unpredictable weather conditions to the Cataraqui Region. The frequency and severity of extreme weather is anticipated to increase in the future. Extreme weather events, including record precipitation and resulting inflows into Lake Ontario and the St. Lawrence River system in 2017 and 2019 have highlighted regional vulnerabilities. The Cataraqui Region is particularly susceptible due to its extensive

shoreline, low-lying waterfront properties, and islands. There are also potential impacts to inland areas such as riverine flooding of urban and rural areas along systems such as Buells and Butlers Creeks, Little Cataraqui Creek, and the Gananoque River system, among others.

As a commenting agency with delegated authority for natural hazards, it is necessary for Cataraqui Conservation to seek to better understand the local impacts of climate change and operate based on the best possible information. It is also necessary to take a precautionary and adaptive approach to natural hazard avoidance in Cataraqui Conservation's role as a commenting agency.

The following policies should be read in conjunction with the other policies in this document that are relevant to the circumstances of a given proposal and site, as well as with the Guidelines for Implementing Ontario Regulation 148/06: Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses.

4.1 Flooding Hazards

The extent of the flooding hazard is commonly referred to as the flood plain. However, depending on the type of waterbody, the flooding hazard may also consist of different components, such as wave uprush, flooding caused by ice jamming, or a maximum recorded water level. Cataraqui Conservation uses the term regulatory flood plain to define the total extent of the flooding hazard to account for these variations.

Lake Ontario and the St. Lawrence River

Along the shoreline of Lake Ontario and the St. Lawrence River, the regulatory flood plain is the area affected by the 1:100 year water elevation plus an allowance for wave uprush and other water-related hazards. Wave uprush is caused by waves breaking onto a shoreline and water spreading inland over areas that are not normally inundated. Wave uprush values are available for the mainland shoreline of Lake Ontario and the St. Lawrence River in Anthony (1993) as updated by Cataraqui Conservation (2014). These values are described in Appendix B. A generic 15 metre allowance for wave uprush from the 1:100 year water elevation is applied to Amherst Island and the islands in the St. Lawrence River, where the values of wave uprush have not yet been determined, in accordance with provincial guidelines (MNR, 2001).

River, Stream, and Inland Lake Systems

The one-zone concept for flood plains, as described in the Technical Guide – River and Stream Systems: Flooding Hazard Limit (MNR, 2002b), is the method used in the Cataraqui Region for river, stream, and inland lake systems. It is the preferred method for flood plain management in Ontario since it prevents unacceptable risks to life, property damage, social disruption, and adverse environmental impacts by prohibiting or restricting development within the entire flood plain. On these systems, the regulatory flood plain consists of the area below the 1:100 year water elevation or the maximum recorded water level, depending on the specific waterbody. It can also include an allowance for water-related hazards such as ice. Millhaven Creek is an example of where the regulatory flood plain accounts for areas subject to ice jam flooding.

4.2 Erosion Hazards

The key areas of concern for erosion hazards within the Cataraqui Region has primarily been along the Lake Ontario and the St. Lawrence River shorelines, due to the high erosive potential associated with these waterbodies. Erosion hazards are also a concern in some river, stream, and inland lake systems. Public safety, access, and the public cost of related damages are the main concerns with erosion hazards. Also, of concern are potential environmental impacts from development occurring on lands that may be subject to natural hazards, or from methods implemented to control the condition. Attention must be given to areas to be developed that are situated both above and below slopes.

The purpose of directing development to areas outside of the furthest landward limit of erosion hazards is to help ensure that buildings and structures that are built today will be located outside of the anticipated extent of erosion over the following 100 years.

Erosion and slope instability are two different processes which are often associated together. Erosion is the loss of earth material (e.g., soil, sediment, rock) over time as a result of the influence of water or wind, or other factors. It commonly occurs through wave action, rainfall or snowmelt and surface runoff, internal seepage and piping, and surface water flow (MNR, 2001). Slope stability, usually described in terms of the potential for slope failure, refers to a sudden mass movement or sliding of earth material. According to MNR (2001, 2002a), slope failure is generally a result of:

- changes in slope configurations, such as steepness or inclination;
- increases in loading on a slope, such as structures or filling near the crest;
- changes in groundwater conditions or drainage of the soil such as heavy rainfall or spring melt, blocked drainage, or broken watermains;
- loss of vegetation cover and root systems; and
- erosion of the slope toe.

It is common for toe erosion to trigger slope instability, due to steepening or undercutting of the slope. Water seepage or groundwater levels can also affect slope stability since they affect the slope strength. Piping on a slope face can be related to springs or seepage, where soil erosion occurs in water bearing sands and slopes.

Similar to the regulatory flood plain, the extent of potential hazards is defined differently depending on the type of waterbody.

Lake Ontario and the St. Lawrence River

Cataraqui Conservation defines the erosion hazard along the shoreline of Lake Ontario and the St. Lawrence River, to consist of a stable slope allowance and erosion allowance that are based on a study by J. D. Paine Engineering Inc. (1995) plus a minimum erosion access allowance of 6 metres. These allowances are described in Appendix C.

River, Steam and Inland Lake Systems

For river, stream and inland lake systems that are confined within well-defined (apparent) valleys, the extent of potential erosion hazards is known as the erosion hazard limit and is defined as the sum of toe erosion, stable slope, and erosion access allowances, as follows:

- The toe erosion allowance is determined based on the characteristics of the site such as the soil structure and evidence of active erosion. The Technical Guide – River and Stream Systems: Erosion Hazard Limit (MNR, 2002a) includes information to be used to determine the toe erosion allowance. Please refer to the Guidelines for Implementing Ontario Regulation 148/06 for more information.
- The stable slope allowance is normally defined as being no steeper than 1(h):1(v) for bedrock shorelines, where there is no evidence of shoreline erosion.
- The stable slope allowance is normally defined as being no steeper than 3(h):1(v) for till. In some situations (e.g., unconsolidated fill), the minimum stable slope allowance may be gentler than 3(h):1(v), as determined by site-specific assessment.
- A minimum erosion access allowance of 6 metres from the top of the stable slope allowance. The access allowance is required to ensure that regular maintenance or repair of buildings and structures, or that bank stabilization and shoreline protection works can occur, and that emergency personnel have the ability to access shoreline areas.

For river and stream systems that flow through landscapes that are relatively flat and are not confined to valleys (not well defined, non-apparent), the erosion hazard consists of the predicted meander belt allowance plus a minimum erosion access allowance of 6 metres.

4.3 Dynamic Beach Hazards

Dynamic beaches are areas of inherently unstable accumulations of shoreline sediments, which can change without warning. These areas are not suitable for development.

For the purpose of the Provincial Policy Statement, dynamic beaches are defined as those that have greater than 0.3 metre depth of material, are greater than 10 metres in width, are greater than 100 metres in length, and have greater than 5 kilometre of offshore fetch (MNR, 2001). In reality, a dynamic beach does not have to meet these criteria to be unstable and pose a hazard to life and property.

The dynamic beach hazard limit consists of the regulatory flood plain plus a 30 metre dynamic beach allowance. This is intended to provide a conservative account for the ongoing movement of the beach during wave action. The preferred approach is to allow the beach to move according to natural processes, without affecting human development, thereby avoiding the need for the eventual relocation of such development, or expensive work such as the installation of groynes or sand replenishment programs (McRae and Watt, 2006).

The Province has identified six dynamic beaches on the south shore of Amherst Island in Loyalist Township that meet the criteria listed above. However, much of the south shore of the Island is characterized by a cobble berm that is between one and two metres high and that has the potential to move under wave action but does not meet the listed criteria. Although it is evident that the berm has not moved significantly in recent years (mature trees have been observed growing on it, though local knowledge reflects it has moved in the past), the siting of adjacent development should account for this potential (McRae and Watt, 2006). The policies in section 4.5 will be applied to all dynamic beaches in the Cataraqui Region.

4.4 Artificial Shorelands

Certain sites along the Lake Ontario and St. Lawrence River shoreline present unique challenges in terms of the application of natural hazard policies since they do not share the physiographic characteristics of most shoreline types due to human alteration. For the purposes of this document, these sites are termed artificial shorelands. They include a limited number of heavily modified shoreline sites mainly along the urban waterfront. These sites are a legacy of the region's industrial past (especially Kingston's) and include wharves, piers, and other structural components that extend into Lake Ontario and the St. Lawrence River.

Because of the unique nature of these sites, there is limited provincial guidance for artificial shorelands. A study (Waterfront Development Guidance Study, Aqua Solutions 5 Inc., and Coldwater Consulting Ltd., 2019) was undertaken by coastal engineering professionals on behalf of Cataraqui Conservation, in part, to examine the challenges and considerations associated with these sites.

In reviewing planning applications on these sites, it is important to ensure that hazards are neither created nor aggravated, as intended by the Provincial Policy Statement. In general, development is to be directed outside of the stable slope, erosion, and access allowances. However, the typical way of determining the erosion hazard in accordance with the Great Lakes – St. Lawrence River Technical Guide does not readily apply to artificial shorelands. For example, these sites, which consist of human-made structural components such as wharves and piers, generally do not experience costal processes such as toe erosion and slope failure in a way that a natural or semi-natural shoreline does. This is not to say such sites are not at risk from natural hazards. Instead, these sites experience natural hazards differently and as such, it is necessary to focus natural hazards avoidance efforts accordingly. For example, instead of applying standard toe erosion and slope stability allowances these sites must be assessed for erosion processes leading to downcutting of the lake or riverbed and for impacts of littoral movement, wave action, and ice force. Greater focus must also be applied to the structural stability of existing and proposed structural components of the artificial shoreline.

It is important to note, in accordance with the definition in Section 8.0, that artificial shorelands do not include filled lands and differ from other sites where protection works

(e.g. shorewalls) or other structures (e.g. docks) have been added to an otherwise natural shoreline.

4.5 Natural Hazard Policies

4.5.1 Development and site alteration should generally be directed to areas outside of:

a) hazardous lands adjacent to the Lake Ontario and St. Lawrence River shoreline which are impacted by flooding hazards, erosion hazards, and/or dynamic beach hazards; and
b) hazardous lands adjacent to river, stream, and inland lake systems which are impacted by flooding hazards and/or erosion hazards.

4.5.2 The following uses will not be supported on hazardous lands which are impacted by flooding hazards, erosion hazards and/or dynamic beach hazards:

a) institutional uses including hospitals, long term care homes, retirement homes, pre-schools, school nurseries, day cares, and schools;
b) essential emergency services such as that provided by fire, police, and ambulance stations and electrical substations; or
c) uses associated with the disposal, manufacture, treatment, or storage of hazardous substances.

4.5.3 Development and site alteration should not be supported within defined portions of the flooding hazard along the St. Lawrence River, where development and site alteration will create flooding hazards, cause upstream and/or downstream impacts, and/or cause adverse environmental impacts.

4.5.4 New development and site alterations should not be supported in areas that are impacted by dynamic beach hazards.

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

4.5.6 Development that by its nature must necessarily be located within the regulatory floodplain, such as flood and/or erosion control work, marine facilities, or passive non-structural uses which do not affect flood flows, may be supported.

4.5.7 Except where prohibited by the Provincial Policy Statement, and where specified elsewhere in this document, development and site alteration may be supported in those portions of hazardous lands where the effects and risk to public safety are minor, could be mitigated in accordance with provincial standards, and where all the following are demonstrated and achieved:

a) development and site alteration is carried out in accordance with flood proofing standards, protection works standards, and access standards;
b) vehicles and people have a way of safely entering and exiting the area during times of flooding, erosion and other emergences;
c) new hazards are not created, and existing hazards are not aggravated;
d) no adverse environmental impacts will result; and
e) it meets all of the applicable requirements of the Guidelines for Implementing Ontario Regulation 148/06.

4.5.8 Where protection works are an integral part of a proposed development, municipalities will be encouraged to require long-term maintenance and ownership responsibilities be addressed through an appropriate legal mechanism.

4.5.9 Where new development is supported in areas outside of lands impacted by flooding hazards, erosion hazards, and/or dynamic beach hazards, the minimum setback should be based on the most restrictive requirement for these natural hazards, or for those associated with natural heritage or surface water quality. Setbacks from natural hazards are to be maximized to account for variation in the regulatory floodplain elevation within a given reach of a waterbody, changes over time in the anticipated extent of the regulatory floodplain, and situations such as debris jams that may affect flood levels.

4.5.10 A 10 metre setback from the stable toe of the slope should be required for unstable slopes and embankments that exist above/inland of a proposed site for development. A reduction to this allowance bay be considered if it can be demonstrated that the hazard will not be aggravated, and the development will not be negatively affected by the hazard. Generally, a technical study completed by a qualified professional will be required for a reduction to be considered.

4.5.11 In areas where new development is proposed within, or close in proximity to, lands having susceptibility to flooding and the elevation of the regulatory floodplain is unknown, a minimum setback of 30 metres from the average high water mark or top of bank should be applied provided that, in the opinion of Cataraqui Conservation staff, there is sufficient difference in elevation (to be determined on a case-by-case basis). Where there is insufficient difference in elevation, a flood plain analysis may be required.

4.5.12 Cataraqui Conservation may recommend that a technical study be completed by a qualified professional to help determine whether any development would comply with provincial policy, municipal policy and provisions, and Cataraqui Conservation policies and guidelines on natural hazards. For example (1) to determine the extent of natural hazards for an area, (2) to determine whether the development and/or site alteration would create flooding hazards, cause upstream and/or downstream impacts, and/or cause adverse environmental

impacts, (3) to determine parameters for development. Such a study (or studies) would be done at the applicant's expense, using accepted scientific and engineering principles, and be completed to the satisfaction of Cataraqui Conservation staff and the approval authority. Appendix D includes guidelines for geotechnical investigations.

4.5.13 A detailed site-specific study may be completed by a qualified professional with coastal expertise using accepted scientific and engineering principles to determine if the site can be considered an artificial shoreland. Such study is necessary to understand the long-term coastal response of the shoreline and adjacent shorelines. Such study should, in accordance with 4.5.15, also consider potential impacts of climate change to coastal processes. These studies are to be done at the applicant's expense and must be completed to the satisfaction of Cataraqui Conservation staff and may be subject to peer review.

4.5.14 Where development and site alteration are proposed on a confirmed artificial shoreland site, such proposals will comply with the applicable guidelines in Cataraqui Conservation's Guidelines for Implementing Ontario Regulation 148/06.

4.5.15 Cataraqui Conservation will consider the potential impacts of climate change that may increase the risk associated with natural hazards and will apply a precautionary and adaptive approach to natural hazards avoidance. This approach will allow for consideration of increased factors of safety as greater setbacks and standards where conditions warrant and based on the best information available.

4.5.16 Not all natural hazards have been mapped and, through the review of development applications, Cataraqui Conservation may recommend or require additional studies to understand risk and/or potential impacts.

4.6 Hazardous Sites

Introduction

Hazardous sites are defined as areas of unstable soil or unstable bedrock. 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 lands.

There are two types of inherent structurally unstable soils in Ontario, sensitive marine clays (e.g., Leda clay) and organic soils. There are no known areas of sensitive marine clays in the Cataraqui Region, but organic soils can be found in isolated areas throughout the region. Organic and peat soils consist of vegetative and/or organic materials that are in the process of decomposing into humus. They are easily eroded by surface water and/or groundwater flow and are highly compressive (i.e., limited ability to

support structures) (MNR, 1996). The main concerns with construction on organic soils are the low bearing capacity of the deposits and the potential for large settlement resulting from consolidation of the material due to increase in applied load. The potential presence of methane gas from the decomposition of the organic matter in these soils is also a concern.

Karst formations are sinkholes, caves and underground tunnels that form when rock is dissolved by water. The Ontario Geological Survey (2008) has prepared a map of karst for Southern Ontario. Karst is present in the Bobcaygeon and Gull River limestone formations in the Cataraqui Region, most notably in the Town of Greater Napanee, Loyalist Township, the City of Kingston, and the Township of South Frontenac. Karst can also be present in Precambrian marble (e.g., on the Precambrian Shield). The main concerns with construction in areas of unstable bedrock are the migration of soil from beneath footings into underlying cavities, and the sudden collapse of a cavity roof or rock shear failure somewhere beneath the foundation (MNR, 1996). In addition to being a natural hazard, these formations also create a direct link from the surface to the underlying aquifer such that any contamination on the surface can quickly reach the groundwater. This groundwater quality concern related to development on and around karst formations is addressed in Section 6.2.

Policies

4.6.1 Development and site alteration should generally be directed to areas outside hazardous sites (unstable soils, unstable bedrock).

4.6.2 The following uses will not be supported in hazardous sites:

a) institutional uses including hospitals, long term care homes, retirement homes, pre-schools, school nurseries, day cares and schools;
b) essential emergency services such as that provided by fire, police and ambulance stations and electrical substations; and
c) uses associated with the disposal, manufacture, treatment or storage of hazardous substances.

4.6.3 Except where prohibited by the Provincial Policy Statement and where specified elsewhere in this document, development and site alteration may be supported in those portions of hazardous sites where the effects and risk to public safety are minor, could be mitigated in accordance with provincial standards, and where all of the following are demonstrated and achieved:

a) development and site alteration is carried out in accordance with floodproofing standards, protection works standards, and access standards;
b) vehicles and people have a way of safely entering and exiting the area during times of flooding, erosion and other emergencies;
c) new hazards are not created, and existing hazards are not aggravated;
d) no adverse environmental impacts will result; and

e) it meets all of the applicable requirements of the Guidelines for Implementing Ontario Regulation 148/06.

4.6.4 Cataraqui Conservation may recommend that a technical study be completed by a qualified professional to determine the extent of the hazardous site for a site, in order to ensure that any development would comply with provincial policy, municipal policy and provisions, and Cataraqui Conservation policies and guidelines on natural hazards. Such a study would be done at the applicant's expense, using accepted scientific and engineering principles, and be completed to the satisfaction of Cataraqui Conservation staff and the approval authority.

4.6.5 In addition to policies 4.6.3 and 4.6.4, development in the area of hazardous sites may be supported where it does not conflict with Cataraqui Conservation policies on groundwater.

Section 5: Natural Heritage

While the Ontario Ministry of Natural Resources and Forestry (MNRF) is responsible for providing input and recommendations on natural heritage topics (e.g., wetlands, wildlife habitat) in matters under the Planning Act, particularly in relation to the creation of official plan policies, the Conservation Authority offers a local perspective on natural heritage and other conservation-related topics in accordance with planning service agreements with our member municipalities.

The Province of Ontario has an interest in protecting natural heritage resources for their economic, environmental, and social benefits. Section 2.1 of the Provincial Policy Statement 2020 (PPS) requires the identification of natural heritage systems and the long-term protection of natural heritage features and areas and their ecological functions. The PPS specifies the situations in which development and site alteration are not to be permitted and provides flexibility in others where there is a demonstration of no negative impacts on the natural features or their ecological functions.

A Natural Heritage Reference Manual prepared by the Ministry (MNR, 2010) provides detailed information on the identification, classification and assessment of natural features and adjacent lands in support of the PPS and was referenced in the preparation of this section.

This section addresses the overall natural heritage system as well as the following natural heritage features and areas, and their adjacent lands:

- wetlands
- woodlands
- valleylands
- areas of natural and scientific interest
- wildlife habitat and fish habitat
- habitat of endangered species and threatened species
- local environmentally significant areas

It is important to consider the natural heritage system using an ecological approach, taking into account cumulative impacts, rather than on a piecemeal basis, since natural heritage systems, including their individual components, often extend across geographic areas. The following policies should be read in conjunction with the other policies in this document that are relevant to the circumstances of a given proposal and site. Guidelines for Implementing Ontario Regulation 148/06: Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses must also be considered in matters involving wetlands and valleylands.

5.1 Natural Heritage System

Introduction

According to MNR (2010), “a natural heritage system is an ecologically based delineation of nature and natural function - a system of connected or to be connected

green and natural areas that provide ecological functions over a longer period of time and enable movement of species. Natural heritage systems encompass or incorporate natural features, functions, and linkages (also referred to as corridors) as component parts within them and across the landscape. They also enable the linking of different landscapes." The purpose of identifying natural heritage systems is to be able to proactively maintain or restore linkages between features.

A natural heritage system consists not only of those provincially significant natural features and areas identified in the PPS, but also other features that could be considered important (or significant) for their environmental and social value at watershed, regional or local scales. For example, some of the seven environmentally significant areas identified in the former Pittsburgh Township, consisting of upland forests, wetlands, and escarpments, are important on a local scale if not provincially (Environmental Advisory Services Limited, 1996). Areas with the potential to be restored can be components of a system. A natural heritage system is also to consider surface water and groundwater features and hydrological functions, as per Section 2.2 of the PPS.

Climate change may stress the natural heritage system and its individual components (e.g, drought, pests, disease). Therefore, it is important to maintain an intact, healthy natural heritage system to support its resilience to climate change.

Natural heritage systems, or individual components of systems (e.g., wetlands, woodlands), have been identified for the majority of the Cataraqui Region. The following is a list of some of the natural heritage studies prepared to date:

- City of Kingston - Pittsburgh Township Environmentally Significant Areas Study (Environmental Advisory Services Limited, October 1996)
- United Counties of Leeds and Grenville - Woodland Valuation System Version 2.0, (Eastern Ontario Model Forest, June 2003)
- Town of Greater Napanee - Napanee Natural Heritage Study (Bay of Quinte Remedial Action Plan, December 2005)
- Loyalist Township and City of Kingston - Central Cataraqui Region Natural Heritage Study (CRCA, August 2006)
- United Counties and Leeds and Grenville - Sustaining What We Value (A2A, August 2011)
- County of Frontenac Natural Heritage Study (Dillon Consulting Limited, December 2012)

Policies

5.1.1 The Conservation Authority will advocate for the long-term protection of natural features and areas in the Cataraqui Region.

5.1.2 The Conservation Authority will advocate for the maintenance, restoration or, where possible, improvement of the diversity and connectivity of natural features in an area, and the long-term ecological function, biodiversity, and resilience of natural heritage systems.

5.1.3 The Conservation Authority will encourage the identification of natural heritage systems within the Cataraqui Region and extending beyond its boundaries.

5.1.4 The Conservation Authority will make comments and recommendations that take into consideration the recommendations of regional and municipal natural heritage studies, provided that such recommendations are consistent with the policies in this document.

5.1.5 Planning authorities will be encouraged to apply the concept of a natural heritage system through the land use planning process where a comprehensive natural heritage system has not been identified.

5.1.6 Environmental impact assessments for proposed development in or adjacent to significant natural heritage features or areas should include the natural heritage features as well as the lands adjacent to the features as its study area. Environmental impact assessments should be prepared in accordance with the Natural Heritage Reference Manual (MNR, 2010) and the Guidelines for Environmental Impact Assessment (Appendix E).

5.1.7 In accordance with the Natural Heritage Reference Manual (MNR, 2010), an adjacent lands width of 120 metres should be used except in the situations listed below.

a) The width of lands adjacent to significant earth science areas of natural and scientific interest will be 50 metres; and
b) The width of lands adjacent to fish habitat associated with at-capacity lake trout lakes on the Precambrian Shield will be 300 metres.

5.1.8 An environmental impact assessment may need to address a greater adjacent lands area depending on species or habitat sensitivity, site characteristics, and/or intensity of development or site alteration.

5.1.9 A smaller adjacent lands width may be recommended based on site-specific characteristics where negative impacts are not anticipated. For example, in an existing built-up area, or for proposals for small intrusions into adjacent lands requiring a Planning Act approval (e.g., minor variance).

5.2 Wetlands

Introduction

This Conservation Authority has had a long-standing interest in the management and protection of wetland resources for their inherent natural characteristics and features. Cataraqui Conservation staff work with MNRF District Offices, our member municipalities, other agencies and the public to further this interest.

Cataraqui Conservation considers all wetlands to be important for hydrological, biological, or other reasons within a given watershed or subwatershed, regardless of their classification.

Numerous wetlands in the Cataraqui Region have been evaluated using the provincial Wetland Evaluation System for Southern Ontario (MNR, 1993). Evaluated wetlands which have been assigned a total score of 600 points, or which have a Biological or Special Features component score of greater than 200 points are considered to be provincially significant (noted in the PPS as “significant”). It is the responsibility of the MNRF to confirm the classification of provincially significant wetlands. The PPS provides protection to significant wetlands, as well as coastal wetlands.

Although there is an understanding between the federal and provincial governments to work together to protect wetlands along the Rideau Canal, Parks Canada is mandated to protect and preserve these environmentally sensitive areas.

There are many wetlands that have not yet been evaluated. Most of these are on the Precambrian Shield. It is the responsibility of proponents of development and site alteration to have these wetlands evaluated and assess impacts in support of their applications.

Wetlands often provide fish habitat, and proponents of development and site alteration should be aware of Federal requirements under the Canada Fisheries Act.

Policies

5.2.1 Development and site alteration in significant wetlands and significant coastal wetlands should not be supported.

5.2.2 Development and site alteration in coastal wetlands that are not subject to policy 5.2.1 should not be supported unless it has been demonstrated that there will be no negative impacts on the wetlands or their ecological (including hydrologic) functions.

5.2.3 Development and site alteration on adjacent lands to the wetlands identified in policies 5.2.1 and 5.2.2 should not be supported unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the wetlands or on their ecological (including hydrologic) functions.

5.2.4 The Conservation Authority will encourage the conservation of wetlands that are not classified as significant and may recommend that development and site alteration be restricted on lands adjacent to these wetlands.

5.2.5 New development and site alteration within 30 metres of a wetland should not generally be supported. This is consistent with the wetland policies contained within the Guidelines for Implementing Ontario Regulation 148/06.

5.2.6 A reduction in the setback from a wetland may be supported on existing, constrained lots where a 30 metre setback from a wetland cannot be achieved due to site characteristics (e.g., undersized, configuration) as determined based on the circumstances of a given proposal and site, where:

a) it has been demonstrated that there will be no negative impacts on the wetland or its ecological (including hydrologic) function, and
b) the proposed development would be in accordance with the applicable requirements of the Guidelines for Implementing Ontario Regulation 148/06.

5.2.7 Development and site alteration that by its nature must be located in a wetland and for which there is no viable alternative, such as public utilities excluding stormwater management facilities, may be supported where it has been demonstrated that there will be no negative impacts on the wetlands or their ecological (including hydrologic) functions.

5.2.8 New public utilities, excluding stormwater management facilities, or public roads may be supported in a wetland if no alternative exists, and where it has been demonstrated that there will be no negative impacts on the wetlands or their ecological (including hydrologic) functions.

5.2.9 Wetlands should not be used to provide stormwater management (i.e., untreated stormwater outletting directly into a wetland will not be supported).

5.2.10 Communal docks and structures to provide shared water access and use will be encouraged in new plans of condominium or subdivision to limit negative impacts to wetlands.

5.2.11 Development on islands and water-access only lots may be supported if there is a suitable location for access to the island or lot that will not have negative impacts to wetlands.

5.2.12 Development and site alteration adjacent to wetlands should comply with maximum lot coverage provisions.

5.3 Woodlands

Introduction

Prior to settlement by Europeans, woodlands covered most of the Cataraqui Region. As the land was cleared for agriculture, for timber, and later for settlement, the woodland cover was reduced, and was fragmented into distinct woodlots, particularly south and east of the Precambrian Shield. In recent history, changing land use and natural succession has led to an increase in forest cover in some areas.

Research on flora and fauna has identified a general need to achieve and/or maintain our woodland cover to at least 30 percent of each watershed in the Cataraqui Region,

as well as maintaining interior forest habitat. There is also a need to connect woodlots by allowing succession and by planting in order to make natural linkages across the landscape. There are also ecological relationships between woodlands and other natural areas such as wetlands and alvars.

The Provincial Policy Statement intends that development and site alteration shall not be permitted in significant woodlands in Ecoregion 6E, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions. The Cataraqui Region is located entirely within Ecoregion 6E.

According to the PPS, the significance of woodlands is based on features such as species composition, age of trees and stand history; its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history.

Section 135(1) of the Ontario Municipal Act allows a municipality to pass a by-law prohibiting the destruction of trees, which can support provincial policy on significant woodlands. Loyalist Township and the City of Kingston both have tree preservation by-laws.

Policies

5.3.1 The Conservation Authority will encourage the conservation of all woodlands (whether or not such features are classified as significant) and may recommend that development and site alteration be restricted on lands in and adjacent to these woodlands.

5.3.2 Development and site alteration in significant woodlands should not be supported unless it has been demonstrated that there will be no negative impacts on the woodlands or their ecological functions.

5.3.3 Development and site alteration on adjacent lands to significant woodlands should not be supported unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the woodlands or on their ecological functions.

5.3.4 Municipalities will be encouraged to enact by-laws (e.g., site alteration and tree preservation by-laws) to ensure that woodlands in areas that are proposed for intensive development will be maintained until all of the necessary permits and approvals related to the layout and site preparation aspects of the development have been obtained by the proponent.

5.3.5 Cataraqui Conservation encourages the preservation of all native vegetation, including mature tree specimens and associated undergrowth, shrubs, and plants within woodlands, corridors, and riparian lands. Where permitted, vegetation

removal should be limited to that necessary for the immediate footprint of proposed buildings, structures, and accessways. Vegetation removal should also comply with best management practices including the use of protective fencing and avoidance of tree removal during the bird breeding season.

5.4 Valley Lands

Valleylands are natural landform depressions that have water flowing through or standing for some period of the year. Valleys are the natural drainage systems for watersheds. Some valleylands are found within a distinct valley landform that is defined by the stable top of bank or the predicted top of bank. Less well-defined valleys may be defined by consideration of riparian vegetation, the flooding hazard limit, the meander belt, or the highest general level of seasonal inundation. Headwater areas may not have a defined watercourse channel where flow is overland and originates from springs, seepage areas and surface runoff (MNR, 2010).

Valleylands perform important ecological functions, including providing connectivity within natural heritage systems, providing migration and dispersal corridors for species.

The Natural Heritage Reference Manual (MNR, 2010) recommends that the significance of valleylands be assessed within the context of the overall watershed, and relative to the overall protection of natural heritage features.

Policies

5.4.1 The Conservation Authority will encourage the conservation of all valleylands (whether or not such features are classified as significant) and may recommend that development and site alteration be restricted on lands in and adjacent to these valleylands.

5.4.2 Development and site alteration in significant valleylands should not be supported unless it has been demonstrated that there will be no negative impacts on the valleylands or their ecological functions.

5.4.3 Development and site alteration on adjacent lands to significant valleylands should not be supported unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the valleylands or on their ecological functions.

5.4.4 Reforestation of valleylands, banks and steep slopes will be promoted and encouraged to reduce flooding and excessive soil erosion and to improve suitable fish and wildlife habitat.

5.5 Areas of Natural and Scientific Interest

Introduction

Areas of natural and scientific interest (ANSIs) represent important natural features such as biological communities and natural landforms (life science and earth science).

Most of the mapped ANSIs in the Cataraqui Region are provincially significant, as determined by MNRF, but in some cases this has not yet been confirmed (these are called candidate sites). Candidate, regionally and locally significant ANSI sites may contain regionally or locally important species or features that would warrant local recognition.

The features that characterize ANSIs in the Cataraqui Region include interior wetlands, coastal wetlands, coastal shorelines, escarpments, upland forests, limestone plain alvars, riparian valleys, clay ridges, Leeds knobs and flats physiography, uncommon plant species, and uncommon geological features.

Policies

5.5.1 The Conservation Authority will encourage the conservation of ANSIs (whether or not such features are classified as significant) and may recommend that development and site alteration be restricted on lands in and adjacent to these ANSIs.

5.5.2 Development and site alteration in significant ANSIs should not be supported unless it has been demonstrated that there will be no negative impacts on the ANSIs or their ecological functions.

5.5.3 Development and site alteration on adjacent lands to significant ANSIs should not be supported unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the ANSIs or on their ecological functions.

5.6 Habitat

Introduction

The provision of habitat is one of the primary ecological functions of natural heritage features and areas such as woodlands and wetlands. Habitat is an important part of natural heritage systems. The protection and management of habitat is fundamental to the maintenance of self-sustaining populations of plants, animals, fish, and other organisms. The protection of endangered species and threatened species habitat, especially habitat used for reproduction or for survival at critical points in the life cycle, is fundamental to achieving the recovery of these species (MNR, 2010).

Healthy wildlife and fish communities support biodiversity, contribute to the economic and social interest of communities, and protects ecological processes and aesthetic and natural values that many people consider important (MNR, 2010).

Although the Conservation Authority does not have a legislated role related to significant wildlife habitat, fish habitat, or endangered and threatened species habitat, we offer a local perspective through our Planning Service Agreements to assist municipalities and proponents of development in the identification of habitat and the determination of the consistency of proposals with the Provincial Policy Statement.

Wildlife Habitat

The Significant Wildlife Habitat Technical Guide (MNR, 2000) provides detailed technical information on the identification and evaluation of significant wildlife habitat. It describes four categories of habitat:

1. habitats of seasonal concentrations of animals
2. rare vegetation communities (e.g., alvars, rock barrens) or specialized habitat for wildlife
3. habitat of species of conservation concern
4. animal movement corridors.

The Provincial Policy Statement does not permit development and site alteration in or adjacent to significant wildlife habitat unless it has been demonstrated that there will be no negative impacts on the habitat or its ecological functions.

Fish Habitat

Fish habitat can be found in lakes, ponds, rivers, and streams (including agricultural and municipal surface drains), headwaters and intermittent streams, and wetlands. The PPS does not permit development and site alteration in or adjacent to fish habitat except in accordance with provincial and federal requirements (e.g., Canada Fisheries Act). It is the responsibility of proponents to work with the Ontario Ministry of Natural Resources and Forestry and Fisheries and Oceans Canada regarding fish habitat.

Numerous lakes in the Cataraqui Region are considered “lake trout lakes” and as such require special consideration in making planning decisions.

Lake trout are highly sought after by the angling community and the species is an important biological indicator of a healthy aquatic environment. They need cold, clean water with high dissolved oxygen content, especially in late summer when water temperatures traditionally peak.

Lake trout and their habitat are considered to be a sensitive, declining resource in Southeastern Ontario due to threats such as:

- increased nutrient loading of lakes;
- increased silt loading;
- direct disturbance of spawning grounds by activities such as dredging, infilling and the removal of substrate material; and

- climate change

As a consequence, efforts have been made to provide greater protection to lake trout habitats. Lake trout lakes are assessed by the Ontario Ministries of Natural Resources and Forestry / Ontario Ministry of the Environment and Climate Change for their optimal and usable lake trout habitat and ranked according to their ability to withstand nutrient inputs.

Lake trout lakes are associated with fish habitat and water quality policy objectives (see also Cataraqui Conservation surface water policies). Cataraqui Conservation staff therefore discuss applications for lands adjacent to lake trout lakes with staff of the Ontario Ministry of the Environment, Conservation and Parks prior to providing recommendations to planning authorities.

Habitat of Endangered Species and Threatened Species

The Provincial Policy Statement does not permit development and site alteration in habitat of endangered and threatened species except in accordance with provincial and federal requirements, namely the provincial Endangered Species Act, 2007 and/or the federal Species at Risk Act. Planning authorities are supposed to account for commitments and permits that are in accordance with these Acts when determining whether a development proposal would be consistent with the PPS.

Cataraqui Conservation is not directly involved in the implementation of the Ontario Endangered Species Act or the Canada Species at Risk Act. However, staff flag observations made in the field and information in environmental impact studies that indicate the presence of a species and/or habitat as a courtesy to landowners and municipalities, so that landowners can work to fulfill their obligations under the legislation.

It is the responsibility of proponents to work with the Ontario Ministry of Environment, Conservation and Parks or Fisheries and Oceans Canada regarding the habitat of endangered and threatened species.

Policies

5.6.1 The Conservation Authority will encourage the conservation of wildlife habitat (whether or not such features are classified as significant), fish habitat, and endangered species and threatened species habitat.

5.6.2 Development and site alteration in significant wildlife habitat should not be supported unless it has been demonstrated that there will be no negative impacts on the habitat or its ecological functions.

5.6.3 Development and site alteration in fish habitat should not be supported unless it is permitted by provincial and federal requirements.

5.6.4 Development and site alteration in habitat of endangered species and threatened species should not be supported unless it is permitted by provincial and federal requirements.

5.6.5 Development and site alterations on adjacent lands to significant wildlife habitat or fish habitat, should not be supported unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the habitat or on it ecological functions.

5.7 Local Environmentally Significant Areas

Introduction

The Conservation Authority, municipalities or others may identify natural features that may not fit neatly within the definitions of the natural heritage features and areas described above, but form part of the natural heritage system. These features may be ecologically important in terms of features, functions, representation, or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system, but they may not be classified as provincially significant. For example, there are seven environmentally significant areas identified in the former Pittsburgh Township, consisting of upland forests, wetlands, and escarpments (Environmental Advisory Services Limited, 1996). The majority of these features form part of large contiguous natural systems, are classified as provincially significant wetlands or ANSIs, contain significant wildlife habitat, have important hydrologic functions, and/or are distinctive landforms.

Policies

5.7.1 The Conservation Authority will encourage the identification and conservation of local environmentally significant areas and may recommend that development and site alteration be restricted on lands adjacent to these areas.

5.7.2 New development and site alteration proposed in or within 50 metres of an environmentally significant area should generally not be supported unless the ecological function of the feature and/or adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the features or on their ecological functions.

Section 6: Water Resources

Water is a fundamental requirement for life, and it is one of our most valuable natural resources. Having reliable access to clean and plentiful water is important for drinking water systems, habitat, ecological functions, industry, tourism, recreation, and other uses.

Water resource systems consist of groundwater features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas. These features are necessary for the ecological and hydrological integrity of watersheds.

The water cycle includes flows on the surface and through the ground. Surface water can infiltrate into the ground, thereby recharging groundwater supplies. Groundwater can discharge into rivers and lakes and also emerges from the ground through springs and seeps.

There is a need to protect the quality and quantity of water resources, which are threatened by contamination, excessive withdrawals, and climate change. Instances of contamination and drought conditions have highlighted the sensitivity of our water resources and have contributed to our ongoing interest in protecting them. Recent climate change projections indicate that the Cataraqui Region will receive more precipitation per year over the coming decades, and also that there will be warmer average temperatures, a greater frequency of intense storms and generally more variable conditions (Risk Sciences International for the City of Kingston, 2013).

Development and site alteration influence the quality of surface water features and groundwater features by determining the volume of nutrients and sediment (along with associated contaminants) entering waterbodies and aquifers. This in turn influences the overall health of the waterbody. Stormwater management and naturalized buffers along shorelines and watercourses are two methods used to minimize contamination.

Development and site alteration also influence the quantity of water, both by introducing water users to a location (for personal or commercial purposes), and by increasing the area of impervious surfaces (resulting in changes to groundwater recharge, runoff volume, and the velocity of runoff). It is important to ensure that uses are located where there is an adequate and sustainable quantity of water available for their needs, the needs of other human users, and also for the needs of fish and other wildlife.

The Provincial Policy Statement (PPS) recognizes the importance of clean and plentiful water. It promotes the use of a watershed scale, systems approach to protecting, improving, and restoring the quality and quantity of water and vulnerable areas.

There are other legislation, policies, and guidelines, in addition to the PPS, that focus on protecting the quality and quantity of water, and that may influence the Conservation Authority's recommendations relating to planning documents and proposals. A few examples are listed below.

1. The Cataraqui Source Protection Plan (2014) includes policies for the protection of municipal drinking water sources and related designated vulnerable areas.

The Plan also provides recommendations for the protection of groundwater over the broader landscape.
2. The Permit to Take Water program, under the Ontario Water Resources Act, regulates most surface and groundwater withdrawals exceeding 50,000 litres per day.
3. Provincial regulations and standards enacted under the Ontario Building Code Act guide the installation of private sewage systems.
4. The Lakeshore Capacity Assessment Handbook: Protecting Water Quality in Inland Lakes on Ontario's Precambrian Shield (MOE, May 2010) provides guidance for the management of development along the shorelines of lakes on the Precambrian Shield.

This section addresses the following aspects of water resources:

- surface water features;
- groundwater features;
- stormwater management; and
- drinking water source protection.

It is important to consider these aspects together and using a watershed approach, taking into account cumulative impacts, rather than on a piecemeal basis. The following policies need to be read in conjunction with the other policies in this document that are relevant to the circumstances of a given proposal and site.

6.1 Surface Water Features

Introduction

As indicated above, the Provincial Policy Statement (2020) promotes the use of a watershed-based systems approach to protecting, improving, and restoring the quality and quantity of water and vulnerable areas. It emphasizes the need to maintain linkages and related functions within water resource systems. These systems include groundwater features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas. The PPS also requires consideration of environmental lake capacity on inland lakes on the Precambrian Shield.

Lake Ontario – St. Lawrence River

The environmental health of the Great Lakes has garnered attention in recent years owing to challenges (e.g., algal blooms on Lake Erie, low water on Lake Huron, Asian carp in the Mississippi River) and opportunities (e.g., international agreements). There has been a growing recognition that the economic, social and cultural health of Great Lakes communities depends on clean, plentiful water and habitat in the lakes and connecting channels. The need to adapt to the impacts of climate change has also been recognized.

There are many Great Lakes initiatives being pursued at all levels of government and by non-profit organizations that are relevant to the Cataraqui Region. Two examples are the proposed Phosphorus Management Strategy for the Bay of Quinte Remedial Action

Plan (Bay of Quinte Restoration Council) and the Nearshore Assessment and Management Framework (Environment Canada) under the Great Lakes Water Quality Agreement. Cataraqui Conservation expects that these initiatives will influence the advice and recommendations that it will provide on applications made under the Planning Act and other legislation.

Inland Lakes

Lake management plans and tools such as site evaluation guidelines are other valuable means to managing the long-term health and integrity of the lakes and lake communities in eastern Ontario. Lake management plans outline preferred management approaches for a lake and its watershed, and normally include content pertaining to surface water quality and development standards. In the absence of a lake management plan, site evaluation guidelines are used by Cataraqui Conservation to ensure that new development is conducted in a manner that reflects site-specific conditions. In particular, water setbacks between the shoreline and development greater than 30 metres may be recommended. The current Cataraqui Conservation site evaluation guidelines for lakes on the Precambrian Shield and a map of the subject lakes are included in Appendix G.

Lakeshore capacity assessments can be used on their own or in support of lake management plans to predict the level of development that can be sustained along the shoreline of an inland lake without resulting in adverse effects related to high phosphorus levels.

Recreational carrying capacity studies can also support lake management plans. The recreational carrying capacity of a lake is an estimate of the number of users that can be accommodated on the surface of a lake while maintaining the recreational amenity of the waterbody. It is generally considered for safety purposes, but boating traffic can have negative impacts on water quality through the generation of wakes which erode soft shorelines (Hutchinson Environmental Sciences Ltd., 2014).

Lake Trout Lakes

Numerous inland lakes across the Cataraqui Region have cool water temperatures and sufficient dissolved oxygen to support lake trout, which is an indicator species of water quality. These lakes are classified as “lake trout lakes” by the Province of Ontario because the fish are sensitive to changes in surface water quality. Those lakes that are highly sensitive are generally considered to be “at capacity” for lot creation and new development. This determination is made by the Ontario Ministry of the Environment, Conservation and Parks. The Provincial classification of these lakes can change over time.

MECP requires additional considerations and greater setbacks for development proposals near these waterbodies to ensure that water quality is maintained or restored. Lake trout lakes are associated with water quality and fish habitat policy objectives (see Section 5.6).

There are also some potential cold or cool water streams in the Region that may warrant special policies in the future.

Shoreline Areas and Riparian Lands

Shoreline areas and riparian lands, commonly referred to as the “ribbon of life”, are lands adjacent to waterbodies and wetlands. They are transitional areas between aquatic and upland habitats that can provide natural features, functions and conditions that support life processes and protect habitat (MNR, 2010).

When riparian lands are set aside from development and kept in a vegetated state, they are often called buffers. Buffers are not the same as water setbacks. Buffer areas filter contaminants from runoff, reduce phosphorus and other nutrient loads to waterbodies, help to prevent overland and wave erosion, and provide valuable habitat for fish and other wildlife. They are also an important component of green infrastructure, and climate change adaptation. Although 30 metres is the standard buffer width, the ideal width of the buffer can depend on the sensitivity and functions of the features and proposed adjacent land uses. See Appendix F: Guidelines for Ecological Buffer Areas for more information on buffers.

The Rideau Canal’s UNESCO buffer that extends over riparian lands directly coincides with the standard 30 metre buffer typically implemented as a setback from water. Discussions related to water setbacks should also occur in a UNESCO World Heritage Site context between upland regulatory authorities and Parks Canada.

Headwater Drainage Features

As part of Cataraqui Conservation’s integrated watershed management approach, the Authority seeks to protect and preserve the headwaters of the region’s watersheds and sub-watersheds. Rural and urban development and site alteration activities can alter, degrade, and eliminate headwater drainage features (HDFs) both individually and cumulatively. These activities can have broad implications for water quality and quantity, recharge/infiltration, and the overall health of the local headwaters and downstream waterbodies. Headwater drainage features provide a multitude of functions, and alterations to these features can have implications on aquatic and terrestrial integrity within the region’s watersheds. Alteration and degradation of HDFs can also result in flooding and erosion impacts downstream caused by increased peak flow during major storms or spring freshet which in turn may overwhelm existing infrastructure capacity (e.g. culverts) and damage property.

Headwater systems are considered important sources of food, sediment, water, nutrients, an organic matter for downstream reaches. However, due to their small size and because these functions are poorly understood and typically underestimated, headwater drainage features can be vulnerable to impacts resulting from agricultural, aggregate, and urban land uses, such as tile drainage, channel lowering, relocation, and enclosure (TRCA, 2014)

Evaluation and classification of headwater drainage features are important in order to develop appropriate management policies and guidelines. Cataraqui Conservation endeavors to further the understanding of HDFs in the Cataraqui Region through future evaluation and classification programs. For now, the Conservation Authority will employ a precautionary planning approach to HDF protection consistent with the Guidelines for Implementing Ontario Regulation 148/06 as it relates to watercourse alteration.

Policies

6.1.1 The Conservation Authority will promote the protection, improvement and restoration of the quality and quantity of surface water in the Cataraqui Region.

6.1.2 Development and site alteration in or near sensitive surface water features should be restricted such that these features and their related hydrologic functions will be protected, improved, or restored.

6.1.3 Development and site alteration in or near known headwater drainage features should be restricted such that these features and their related hydrologic and ecological functions will be protected, improved, and restored. Development and site alteration proposals should be designed to preserve HDFs. Proposals to alter, reroute, enclose (i.e. pipe), or eliminate HDFs will, generally, not be supported. Where development and site alteration are proposed in areas of suspected or potential headwater drainage features, Cataraqui Conservation may require a headwater drainage feature assessment.

6.1.4 In general, where enclosed or degraded HDFs are located within the boundaries of a development proposal, Cataraqui Conservation will recommend that the feature be restored and re-naturalized.

6.1.5 Lake management plans should be prepared to identify and protect the physical and environmental values of a lake or river system and identify opportunities to improve or restore water quality. Where appropriate, lake management plans should be supported by lakeshore capacity assessments that help determine the sensitivity and capacity of lakes to support additional development, and by recreational carrying capacity studies.

6.1.6 Municipalities with lakes will be encouraged to incorporate the findings of lake management plans, lakeshore capacity assessments, recreational carrying capacity studies, and other studies and tools such as site evaluation guidelines that help determine appropriate levels of development, water setbacks and buffers, into their planning documents and decision-making processes.

6.1.7 In general, proposals for development should incorporate a minimum 30 metre setback from the high water mark of a waterbody where there are no additional, more restrictive requirements regarding water quality, natural hazards or natural heritage.

6.1.8 Development proposals should incorporate appropriate setbacks from the high water mark of a waterbody that reflect variable constraints imposed by waterbody-specific conditions (e.g., at capacity lake trout lakes) and site-specific conditions (e.g., slope height, slope angle, soil depth and type as well as

vegetative cover). Where applicable, setback distances should be based on the findings of studies and tools such as lake management plans and site evaluation guidelines (see Appendix G for lakes on the Precambrian Shield).

6.1.9 Development may be supported within the water setback area on existing, constrained lots as determined based on the circumstances of a given proposal and site, where the proposed development:

a) would not be subject to additional, more restrictive requirements regarding natural hazards or natural heritage; and
b) is a new use of an existing building or structure and there will be no anticipated increase in surface water quality impacts; or
c) expands or replaces an existing building or structure, or is new development on a vacant lot, and:
    i. the new building or structure is set back as far as possible from the high water mark of a waterbody and all inland setbacks (e.g., side yard, rear yard) are minimized, and it is no closer to the waterbody than the existing building or structure, if one is present;
    ii. the footprint of the new building or structure is minimized, with consideration for a maximum floor space index of 10% and the municipal maximum lot coverage provisions; and
    iii. suitable methods to minimize negative impacts on surface water and riparian lands are incorporated into the development (e.g., consideration for the use of a sewage system with enhanced nutrient removal, maintenance of existing natural vegetation, stormwater management techniques, building design and setback).

6.1.10 Riparian lands, including existing natural vegetation and the soil mantle in the water setback area, should be retained (e.g., no site disturbance) to the greatest extent possible.

a) The buffer width may be recommended based on the recommendations of a watershed plan, subwatershed plan, lake management plan or environmental impact assessment, or through the implementation of tools such as site evaluation guidelines (see Appendix G for lakes on the Precambrian Shield) as appropriate.

b) Existing natural vegetation should be maintained as much as possible and protected during and after construction. Where clearing is required, it should be done selectively (e.g., minor trimming for the placement of buildings and for water access, the removal of dead or other vegetation where it compromises safety). Consideration should be given to the use of permeable surface materials that will allow water to continue to reach tree roots.

6.1.11 The placement of minor accessory structures (this includes unattached decks/patios and gazebos) within the water setback area may be supported where:

a) they are a reasonable size for the intended use, to a maximum area of 20 square metres;
b) the set back from the water is maximized;
c) the structure is compliant with maximum lot coverage provisions;
d) suitable methods to minimize negative impacts on surface water and riparian lands are incorporated into the design of the development; and
e) they meet all of the applicable requirements of the Guidelines for Implementing Ontario Regulation 148/06.

It is noted that such structures are not exempt from municipal Zoning By-law regulations and Ontario Building Code requirements.

6.1.12 The placement of shoreline-related structures within the water or water setback area may be supported where it is demonstrated that there will be no negative impacts on the riparian buffer and on surface water quality where it has been demonstrated that no negative impacts on the natural environment will result, up to 25 percent of the water frontage of any lot may be occupied by shoreline-related structures, up to a maximum of 15 metres, or as recommended by an environmental impact assessment, whichever is less. The area of disturbance around the shoreline-related structures should be designed so that erosion and the movement of contaminants into the waterbody are prevented.

6.1.13 Communal docks and structures to provide shared water access and use will be encouraged in new plans of condominium or subdivision to limit negative impacts to surface water and riparian lands.

6.1.14 Erosion and sediment control measures should be utilized on all sites, in accordance with Appendix H.

6.1.15 Proponents will be encouraged to implement best practices for waterfront living, such as designing swimming pools so that used water is not discharged onto or into any on-site sewage system or directly into a waterbody, and not storing hazardous materials in accessory structures located within the water setback area.

6.1.16 Proponents will be encouraged to naturalize and restore shorelines using non-structural means (such as bioengineering) where appropriate to assist in surface water quality improvements. Cataraqui Conservation has compiled a list of considerations for planting along shorelines (Appendix A) and preparing ecological buffer areas (Appendix F).

6.1.17 Cataraqui Conservation will support municipal official plan policies and zoning by-law provisions relating to the size and design of marine facilities as a mechanism to avoid shoreline overdevelopment and to protect water quality. Appropriately sized marine facilities on the shoreline that help minimize runoff into the water, avoid impacts to existing vegetation, and help maintain fish and wildlife habitat will be supported where consistent with Cataraqui Conservation's Guidelines for Implementing Ontario Regulation 148/06 (Appendix U).

6.2 Groundwater Features

Introduction

Groundwater has been the subject of numerous technical studies covering all or part of the Cataraqui Region. Regional studies were prepared for the United Counties of Leeds and Grenville (Dillon Consulting Ltd., 2001) and the western Cataraqui Region (Trow Associates Inc., 2007). A Cataraqui-wide study was undertaken in support of drinking water source protection (Dillon Consulting Ltd., 2008).

The Cataraqui Source Protection Plan (2014), specifies policies for the protection of aquifer-based drinking water sources and related designated vulnerable areas (see section 6.4 for more details).

The technical studies have consistently identified that most of the local groundwater is highly vulnerable to contamination due to the lack of soil cover and the shallow depth to the water table or the bedrock, and therefore to fractures in the bedrock. Some of the Region has karst formations, which create a direct link from the surface to the underlying aquifer (see Section 4.6).

Over ninety per cent of the region was identified as a "highly vulnerable aquifer" in the most recent study. This means that development, site alteration and other activities at or near the surface can have a direct negative impact on groundwater.

Policies

6.2.1 The Conservation Authority will promote the protection, improvement or restoration of the quality and quantity of groundwater in the Cataraqui Region.

6.2.2 Development and site alteration in or near sensitive groundwater features should be restricted such that these features and their related hydrologic functions will be protected, improved, or restored.

6.2.3 A report, prepared by a qualified Professional Geoscientist or Professional Engineer at the expense of the proponent, may be recommended for development proposals, which in the opinion of the Conservation Authority may affect groundwater. The report must demonstrate that post-development recharge/discharge quantity will not be significantly altered, and post-development recharge/discharge quality will not be subject to negative impacts.

6.2.4 Mitigative measures and/or alternative development approaches (such as low gross development densities or methods to encourage or discourage infiltration) may be recommended in order to protect, improve or restore sensitive groundwater features, and their hydrologic functions.

6.2.5 In general, proponents of development and site alteration that may include activities specified in the Cataraqui Source Protection Plan (2014) will be encouraged to incorporate measures and/or management practices to ensure that groundwater will not be subject to negative impacts. This action may be a requirement in some situations, in accordance with the Cataraqui Source Protection Plan (2014).

6.2.6 If there is any evidence of karst formations (e.g., disappearing streams, sinkholes, caves, vertical fissures) on the property, the approval authority will be encouraged to require the proponent to have a karst assessment completed by a qualified professional to determine: (1) whether or not the proposed development and site alteration is feasible from natural hazards and groundwater protection perspectives, and (2) appropriate risk management measures.

6.2.7 The Conservation Authority should encourage the use of xeriscaping. This is a form of landscaping that employs native drought-tolerant species and other elements to minimize watering requirements. Related considerations are outlined in Appendix A.

6.2.8 Proponents and municipalities should be encouraged to evaluate the cumulative impact of potential development on the groundwater resource, and to implement measures to ensure its protection.

6.3 Stormwater Management

Introduction

Development in both rural and urban areas changes existing site conditions such that the quality and quantity of stormwater runoff are altered.

Cataraqui Conservation is concerned with maintaining the hydrologic cycle, recognizing riparian water rights, and retaining and improving ecosystem health when considering stormwater management. Flood control, maintaining baseflow in watercourses, water temperature, erosion and sediment control, limiting nutrient and bacteria loading, maintaining fish habitat, and groundwater recharge and contamination are some of the related aspects that may be of concern for a particular watershed or subwatershed.

The management of stormwater affects the protection of drinking water sources that are located downstream and down-gradient, and therefore has implications for human health and well-being, local economies, and the natural environment.

The Provincial Policy Statement speaks to the need to plan for stormwater management in order to protect, improve or restore the quality and quantity of water. Sections 1.6.6.7

and 2.2.1 of the PPS 2020 specify that the following must be achieved through stormwater management:

a) minimize, or, where possible, prevent increases in contaminant loads;
b) minimize erosion and changes in water balance, and prepare for the impacts of a changing climate through the effective management of stormwater, including the use of green infrastructure;
c) mitigate risks to human health, safety, property, and the environment;
d) maximize the extent and function of vegetative and pervious surfaces; and
e) promote stormwater management best practices, including stormwater attenuation and re-use, water conservation and efficiency, and low impact development.

Stormwater management is addressed in the publications of several agencies, particularly the Ontario Ministry of the Environment, Conservation and Parks. The main guidelines for this topic are the Stormwater Management Planning and Design Manual (MOE, 2003), the Stormwater Pollution Prevention Handbook (TSH et al., 2001) and the Urban Drainage Design Guidelines (Brodie, 1987). Updated versions of these documents should be referenced when they become available. MECP is working to produce guidance material on low impact development stormwater management in an effort to facilitate and remove barriers to the uptake of innovative source control measures that reduce stormwater volumes, such as green infrastructure. A draft document (Low Impact Development Stormwater Management Guidance Manual) was produced in 2017. Once finalized, it is anticipated that this guidance material will be a useful reference for stormwater management design, in conjunction with the guidelines of other organizations, such as Credit Valley Conservation (see Low Impact Development Stormwater Management Planning and Design Guide, CVC, 2011).

Some municipalities, such as the City of Kingston, also have stormwater management guidelines. The “Bay of Quinte Remedial Action Plan Implementation Area Stormwater Management Design Guidelines” (Quinte Conservation et al., 2006) applies to proposals within the Bay of Quinte in the Town of Greater Napanee and Loyalist Township.

There are three main levels at which stormwater management can be considered. Ideally, the impacts from stormwater runoff should be considered at the highest level possible.

- The watershed plan provides overall management objectives and targets for a watershed which could be incorporated into an Official Plan.
- The master drainage plan is prepared on a subwatershed basis in support of secondary (neighbourhood) plans and/or Official Plan Amendments. It identifies the approach to meet targets, specifies methods of stormwater control, and outlines the general location and size of stormwater facilities.
- A stormwater management report is normally prepared in support of plans of subdivision, plans of condominium, and site plans. It is the basis for detailed construction plans for control facilities and best management practices.

There are three categories of methods through which stormwater is managed, in the following order of preference:

- lot level control best management practices (BMPs) such as discharging roof runoff onto grass, using cisterns, and vegetative buffers;
- conveyance control BMPs such as enhanced swales that have a flat bottom width, gentle side and longitudinal slopes, and unmown vegetation; and
- end-of-pipe facilities such as dry/retention ponds, wet/detention ponds.

Lot level and conveyance controls are appropriate for all types of development, including single lot residential development and the development of existing built-up areas. They are most effective when used as part of a treatment train approach. They are also important components of low impact development, which promotes infiltration of clean water into the ground and balances the loss of infiltration that occurs when pervious surfaces are hardened. Stormwater controls (end-of-pipe facilities) are generally required for plans of subdivision and large (e.g., 1.0 ha and greater) residential, commercial, institutional, and industrial development.

Cataraqui Conservation's Guidelines for Stormwater Management should be read in conjunction with the Environmental Planning Policies (see Appendix I). The scope of stormwater management requirements may vary depending on site-specific conditions; therefore it is recommended that proponents consult with Cataraqui Conservation and municipal staff at the preliminary design stage to determine these requirements.

Policies

6.3.1 Development proposals for which stormwater management is of interest to the Conservation Authority will be evaluated on the basis of the following general considerations and any others that are relevant to the particular application:

a) that the integrity of natural drainage patterns and processes, such as watershed boundaries, is maintained both on-site and upstream/downstream;
b) development proposals, individually or cumulatively, will not result in any increased flood elevations or velocities upstream or downstream in the receiving waterbody;
c) the post-development hydrograph of flows into a receiving watercourse will match the pre-development hydrograph as closely as possible;
d) baseflow within watercourses will be maintained;
e) development will not result in any new or increased erosion and sediment problems in receiving waterbodies during or after construction;
f) water quantity flow targets and water quality sediment, nutrient, bacterial, chemical, and temperature targets, where identified, are met;
g) flow and associated sediment loading will not adversely affect fish habitat, wetlands, or other environmental features;
h) groundwater recharge will be encouraged in a manner which will not contaminate the resource;

i) approaches that maximize the effective use of lot-level controls will normally be preferred; and
j) development proposals will be encouraged to incorporate low impact development (LID) practices, and other innovative approaches, where such approaches are supported by research and/or successful application in settings similar to the Cataraqui Region, to minimize runoff and mimic natural or predevelopment hydrology through the processes of infiltration, evapotranspiration, harvesting, filtration, and detention of stormwater.

6.3.2 Master drainage plans should be required when large tracts of land are designated for development.

6.3.3 Master drainage plans may be recommended for existing built-up areas that are undergoing significant development, and/or where there is a need to add or retrofit stormwater controls.

6.3.4 In master drainage planning areas, proponents and municipalities should be encouraged to design and construct larger conveyances, neighbourhood end-of-pipe facilities, and low impact development features early in the development process, to ensure that they are functional in advance of increases in runoff (e.g., the outlet structure of a stormwater pond could be modified to reflect the growing extent of a development), and to facilitate cost-sharing between landowners in the catchment.

6.3.5 Site-specific stormwater management reports prepared for a development that is wholly or partially within the area covered by a master drainage plan should conform to the recommendations of that plan, provided that the plan is approved by the municipality and recognized as valid by the municipality and the Conservation Authority. If a master drainage plan has been prepared but is no longer considered valid, then the preferred approach is for the master drainage plan to be updated in light of the proposed development.

6.3.6 Municipalities will be encouraged to request stormwater management retrofit plans in support of development proposals in areas where stormwater management controls are inadequate or absent.

6.3.7 Proponents, in consultation with the municipality, should be encouraged to incorporate stormwater facilities, including low impact development features, as an amenity in the design of the neighbourhood or site, such as in the public open space network, being mindful of safety in the design and operation of facilities.

6.3.8 Stormwater quantity control must be addressed to ensure that unacceptable flow or water level conditions will not result in flooding, erosion, or environmental degradation.

a) The required level of control (e.g., peak flow reductions) will be based on watershed studies, master drainage plans or master stormwater management plans, where they exist.
b) Where such plans do not exist, the peak flow of post-development runoff (normally measured at the 2 year through 100-year events) should not exceed the peak flow of pre-development runoff.

6.3.9 Stormwater quality control must be addressed to ensure ecosystem and human health, and that downstream environmental features are not subject to negative impacts.

a) The required level of protection should be based on watershed studies, master drainage plans, master stormwater management plans, or other environmental management plans, where they exist.
b) Where such plans do not exist, Normal (level 2) protection, as defined by the Ontario Ministry of the Environment, Conservation and Parks, should be achieved.
c) Enhanced (level 1) protection, as defined by the MECP, should be required where sensitive aquatic habitat has been identified in a receiving waterbody (e.g., Provincially significant wetlands, coldwater stream or lake).

6.3.10 Waterbodies should not be enclosed and replaced with pipes. Maintaining open channels is important for many reasons including natural heritage system planning (riparian lands, fish habitat), protecting water quality, flood conveyance, infiltration, and sediment transport. Where a waterbody will be used to convey stormwater runoff, the proponent will be required to demonstrate that it has sufficient capacity in the post-development condition, and that it will not be subject to increased erosion. The municipality and proponent will be encouraged to consider the waterbody as an amenity, and to incorporate it into the public open space network.

6.3.11 The use of enhanced catchbasins (e.g., oil/grit separators) may be supported as the primary method of quality treatment on small urban sites (i.e., generally less than 1.0 ha) especially as part of infill development on constrained lots. On other sites, the use of enhanced catchbasins will only be supported as part of a treatment train with other measures such as lot-level and conveyance controls (e.g. enhanced swales).

6.3.12 New stormwater management facilities shall not be permitted in the channel of a watercourse (i.e., on-line) nor on hazardous lands which are impacted by flooding hazards, erosion hazards, and/or dynamic beach hazards.

6.3.13 All facilities shall be located in areas outside of hazardous lands which may be impacted by flooding hazards, erosion hazards, and/or dynamic beach hazards, and be designed so as to exclude floodwater during flooding events equal to or greater than those resulting from the 1:100 year return event.

6.3.14 Development in the catchment area of end-of-pipe facilities, other than local roads, should be deferred until the facilities are fully constructed and ready to accept water (i.e., the facility will perform its intended control and treatment functions, and there is suitable vegetation and/or erosion protection measures in place).

6.3.15 Municipalities should be encouraged to conduct regular monitoring and maintenance of their own facilities, and to require that private landowners do the same in order to ensure that stormwater management facilities are functioning as intended and remain in good working order.

6.3.16 Municipalities may be encouraged to require monitoring of post-development stormwater quantity and quality, normally at the expense of the proponent, to assess the function of as-built facilities.

6.4 Drinking Water Source Protection

Introduction

People across the Cataraqui Region count on having reliable access to clean, plentiful sources of drinking water to serve their homes, businesses, and institutions. Drinking water is obtained from lakes, rivers, and groundwater aquifers. The careful protection of those sources supports human health and well-being, local economies, and the natural environment.

The preceding sections outline the Conservation Authority's planning policies for surface water, groundwater, and stormwater management, including aspects pertaining to drinking water source protection. This section focuses on the designated vulnerable areas that have been identified around the sources of water for twelve municipal drinking water systems that serve local communities. They are as follows (location of vulnerable areas by municipality in parentheses):

Groundwater wellhead protection areas:

- Cana, at Kingston Mills (City of Kingston)
- Lansdowne (Township of Leeds and the Thousand Islands)
- Miller Manor Apartments, at Mallorytown (Township of Front of Yonge)

Surface water intake protection zones:

- A.L. Dafoe (Town of Greater Napanee)
- Bath (Loyalist Township)
- Brockville (City of Brockville and Township of Elizabethtown-Kitley)
- Fairfield, at Amherstview (Loyalist Township)
- James W. King (Town of Gananoque and Township of Leeds and the Thousand Islands)
- Kingston Central (City of Kingston and Township of Frontenac Islands)
- Point Pleasant (City of Kingston and Loyalist Township)

- Sandhurst Shores (Town of Greater Napanee)
- Sydenham (Township of South Frontenac)

For the purpose of Section 2.2 of the PPS, the designated vulnerable areas in the Cataraqui Region are considered to be the areas and zones listed above. By implementing the specific policies in the Cataraqui Source Protection Plan (2014), municipalities will be consistent with Section 2.2.1(e) of the PPS.

The source protection plan relies in part upon Planning Act tools such as official plans, zoning by-laws and site plan control to achieve desired outcomes in designated vulnerable areas. As municipal planning documents are updated in the future, it will be important to confirm that they appropriately reflect the source protection plan.

Policies

6.4.1 Municipalities will be encouraged to carefully manage development and site alteration in order to protect municipal drinking water supplies and designated vulnerable areas.

6.4.2 In general, proponents of development and site alteration and persons undertaking activities within designated vulnerable areas will be encouraged to incorporate measures and management practices to manage the inherent risk of associated activities to drinking water sources. This action may be a requirement in some situations, in accordance with the Cataraqui Source Protection Plan (2014).

6.4.3 In the three groundwater wellhead protection areas at Cana (Kingston Mills), Lansdowne and the Miller Manor Apartments (Mallorytown) and the surface water intake protection zones at Brockville, Gananoque and Sydenham,

a) A proposal that involves a land use or activity that is specified in the Cataraqui Source Protection Plan (2014) as being prohibited within a designated vulnerable area should not be supported.
b) Persons undertaking certain activities may be required to add and/or maintain specific risk mitigation measures for an activity in accordance with a site-specific risk management plan. In reviewing proposals for development and site alteration in these locations the Conservation Authority will make reference to approved risk management plans.

Section 7: Open Space

Introduction

Open space is composed of a system of flood plains, wetlands, woodlands, and other naturalized and manicured lands, and may include pathways and other visitor facilities. Networks are created when these various elements are combined across contiguous or neighbouring parcels of land. Open space may be publicly or privately owned.

Connected systems of open space are a necessity for maintaining and restoring the biodiversity of flora and fauna. Open space also provides opportunities for outdoor recreation and nature appreciation and contributes to healthy and aesthetically welcoming communities. Key sectors of the economy of the Cataraqui Region (e.g., tourism, cottaging, retirement communities) are highly dependent on open space.

Public open space is provided by our member municipalities, by Cataraqui Conservation, as well as by both the federal and provincial governments (e.g., national parks, national historic sites, provincial parks).

Cataraqui Conservation supports the maintenance and enhancement of a regional network of public open spaces, including recreational pathways and trails. On a local scale we encourage the incorporation of natural corridor systems and locally significant features into the open space network where appropriate.

Section 1.5 of the Provincial Policy Statement suggests that healthy, active communities should be promoted by providing a full range and equitable distribution of publicly accessible built and natural settings for recreation, and opportunities for public access to shorelines. It also indicates that provincial parks, conservation reserves and other protected areas (such as the conservation areas owned by Cataraqui Conservation) are to be recognized and that impacts on these areas are to be minimized.

It is important to remember that natural heritage features and their associated buffers are to be preserved for ecological reasons and may not be appropriate for integration with all types of recreation opportunities. Section 2.1.2 of the PPS states that the diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and groundwater features.

The following policies need to be read in conjunction with the other policies in this document that are relevant to the circumstances of a given proposal and site.

Policies

7.1 The Conservation Authority will collaborate with municipal partners, private interests, community groups and the general public to realize a linked regional open space system.

7.2 Municipalities will be encouraged to negotiate for title to open space lands, over and above the parkland dedication provisions of the Planning Act, as amended. Municipalities will also be encouraged to establish a reserve fund for the acquisition and ongoing maintenance of open space lands.

7.3 Cataraqui Conservation may accept title to open space lands, through a planning process under the Planning Act, as amended, or otherwise, for inclusion into a public open space network. Any acceptance of title shall be decided by the Cataraqui Conservation Full Authority Board, based on the land acquisition and disposal policies of the Conservation Authority.

7.4 Where development and site alteration are proposed along a waterbody, Cataraqui Conservation shall encourage the provision of a publicly owned open space corridor along the shoreline.

7.5 Recreational pathways and associated amenities and infrastructure within open space should normally be placed outside of natural hazards and natural heritage features and adjacent lands. This type of development should take into consideration the vulnerability of the natural features and ensure that there will be no negative impacts on the natural features or their ecological functions.

7.6 Where stormwater management facilities are proposed for an open space area, the design of the facilities should complement the ecological functions, appearance, recreational potential, and safety of the open space.

7.7 Where development and site alteration are proposed adjacent to Conservation Authority property, municipalities will be encouraged to ensure that it will:

a) be compatible with the management and programming of the property; and
b) have no negative impacts on the natural features or ecological functions of the property.

7.8 New development and site alteration adjacent to Conservation Authority property may not be supported by Cataraqui Conservation where it affects active Conservation Authority land acquisition programs.

Section 8: Glossary

It is intended that the definition of these and other terms be consistent with the definitions listed in the Provincial Policy Statement, as amended, and/or with the definitions listed in the Guidelines for Implementing Ontario Regulation 148/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses where appropriate.

Access standards means methods or procedures to ensure safe vehicular and pedestrian movement, and access, for the maintenance and repair of protection works, during times of flooding hazards, erosion hazards, and/or other water-related hazards. (PPS 2020)

Activity means something done by a person that poses an inherent risk to a source of drinking water.

Adjacent lands means those lands contiguous to a specific natural heritage feature or area where it is likely that development or site alteration would have a negative impact on the feature or area. The extent of the adjacent lands may be recommended by the Province or based on municipal approaches which achieve the same objectives. (PPS 2020)

Alvar means a naturally open area of thin soil over essentially flat limestone, dolostone or marble rock. It supports a sparse vegetation cover of shrubs and herbs, and trees are often absent or scattered. In spring, alvars may have standing water; in summer, soils can become very hot and dry. Vegetation is adapted to these extreme variations in temperature and soil moisture. (MNR, 2000)

Areas of natural or scientific interest (ANSI) means areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study, or education. Significant ANSIs are those identified as provincially significant by the Ontario Ministry of Natural Resources and Forestry using evaluation procedures established by the Province, as amended from time to time. (PPS 2020)

Artificial shorelands means parcels of land along and extending into Lake Ontario or the St. Lawrence River where the physiographic characteristics have been significantly altered and as such, do not meet any of the recommended shoreline classification scheme criteria identified in the Provincial Technical Guide for the Great Lakes – St. Lawrence River System and Large Inland Lakes (MNR, 2001). These parcels consist of human-made structural components such as wharves and piers. These sites do not include filled lands and differ from other sites where protection works (e.g. shorewalls) or other structures (e.g. docks) have been added to an otherwise natural shoreline.

Bedrock shorelines means those shorelines where parent bedrock material is either at, or within 1.0 metre of the surface, and where it is anticipated that adjacent structures will be founded directly on the bedrock.

Coastal wetland means

a) any wetland that is located on Lake Ontario or the St. Lawrence River; or

b) any other wetland that is on a tributary to Lake Ontario or the St. Lawrence River and lies, either wholly or in part, downstream of a line located 2 km upstream of the regulatory flood plain of the large waterbody to which the tributary is connected. (after PPS 2020)

Significant coastal wetlands are identified as provincially significant by the Ontario Ministry of Natural Resources and Forestry using evaluation procedures established by the Province, as amended from time to time.

Conservation means wise use. This phrase is not intended to be restricted narrowly to preservation or to management but may include either or both. Conservation is intended to foster sustainable development, in which the needs of the present are met without compromising the ability of future generations to meet their own needs.

Cumulative impacts are long-term impacts that increase over time through successive development and site alteration.

Defined portions of the flooding hazard along the St. Lawrence River means those areas which are critical to the conveyance of the flows associated with the one hundred year flood level along the St. Lawrence River, where development or site alteration will create flooding hazards, cause upstream and/or downstream impacts and/or cause adverse environmental impacts. (after PPS 2020)

Designated vulnerable area means areas defined as vulnerable, in accordance with provincial standards, by virtue of their importance as a drinking water source that may be impacted by activities or events (after PPS 2020). For the purpose of these policies, the subject areas in the Cataraqui Region are considered to be the three groundwater wellhead protection areas and the nine surface water intake protection zones that are identified in the Cataraqui Source Protection Plan (2014).

Development means the creation of a new lot, a change in land use, or the construction of buildings and structures (including but not limited to open and enclosed decks, gazebos, swimming pools, sewage systems, and energy generation and transmission infrastructure).

Dripline means the outermost extent of the canopy of a tree. This normally corresponds to the area in which there is the greatest concentration of tree roots.

Dynamic beach means an area of inherently unstable accumulations of shoreline sediments, which can change without warning.

Dynamic beach hazard means areas of inherently unstable accumulations of shoreline sediments along the Great Lakes - St. Lawrence River System. The dynamic beach hazard limit consists of the flooding hazard limit plus a dynamic beach allowance. (after PPS 2020)

Ecological function means the natural processes, products, or services that living and non-living environments provide or perform within or between species, ecosystems, and landscapes. These may include biological, physical, and socio-economic interactions. (PPS 2020)

Endangered species means a species that is classified as “Endangered Species” on the Species at Risk in Ontario List, as updated and amended from time to time. (PPS 2020)

Erosion means the continual loss of earth material (i.e., soil or sediment) over time as a result of the influence of water or wind.

Erosion access allowance means a horizontal allowance measured from the top of the stable slope, including toe erosion allowance, to provide access to the site for emergencies, regular maintenance, or unforeseen conditions.

Erosion allowance means a horizontal allowance measured landward from the toe of shoreline cliff, bluff, or bank reflecting the possible erosion of the slope over a 100-year period.

Erosion hazard means the loss of land, due to human or natural processes, that poses a threat to life and property. The erosion hazard limit is determined using considerations that include the 100-year erosion rate (the average annual rate of recession extended over a one hundred year time span), an allowance for slope stability, and an erosion/erosion access allowance. (PPS 2020)

Essential emergency services mean services which would be impaired during an emergency as a result of flooding, the failure of floodproofing measures and/or protection works, and/or erosion (PPS 2020). For example, fire, police, and ambulance stations, electrical substations and similar uses.

Fish means fish, shellfish, crustaceans, and marine animals, at all stages of their life cycles. (PPS 2020)

Fish habitat means the spawning grounds and any other areas, including nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly in order to carry out their life processes. (PPS 2020)

Flooding means inundation by water. See also regulatory flood plain.

Flooding hazard means the inundation, under the conditions specified below, of areas adjacent to a shoreline or a river or stream system and not ordinarily covered by water:

a) Along the shorelines of Lake Ontario and the St. Lawrence River, the flooding hazard limit is based on the one-hundred-year flood level plus an allowance for wave uprush and other water-related hazards.

b) Along river, stream and small inland lake systems, the flooding hazard limit is the greater of:

    1. The flood resulting from the rainfall actually experienced during a major storm such as the Hurricane Hazel storm (1954) or the Timmins storm (1961), transposed over a specific watershed and combined with the local conditions, where evidence suggests that the storm event could have potentially occurred over watersheds in the general area;

    2. The one-hundred-year flood; and

3. A flood which is greater than 1. or 2. which was actually experienced in a particular watershed or portion thereof as a result of ice jams and which has been approved as the standard for that specific area by the Minster of Natural Resources and Forestry;

except here the use of the one hundred year flood or the actually experienced event has been approved by the Minister of Natural Resources and Forestry as the standard for a specific watershed (where the past history of flooding supports the lowering of the standard). (PPS 2020)

Flood plain means the area, usually lowlands, adjoining a waterbody, and which has been or may be subject to flooding hazards. See also regulatory flood plain.

Floodproofing standard means the combination of measures incorporated into the basic design and/or construction of buildings, structures, or properties to reduce or eliminate flooding hazards, wave uprush and other water-related hazards along the shorelines of the Great Lakes – St. Lawrence River System, and flooding hazards along river, stream and small inland lake systems. (after PPS 2020)

Floor space index means the ration of the gross floor area of a building or buildings to the gross area of the lot on which the building or buildings are located, expressed as a percentage.

Groundwater means the water contained within the ground that supplies wells and springs, and that helps to sustain surface water.

Groundwater feature means water-related features in the earth's subsurface, including recharge / discharge areas, water tables, aquifers, and unsaturated zones that can be defined by surface and subsurface hydrogeological investigations. (PPS 2020)

Groundwater wellhead protection area means an area of land and water that contributes water to a drinking water well over a distance or set period of time.

Habitat of endangered species and threatened species means habitat within the meaning of Section 2 of the Endangered Species Act, 2007. (PPS 2020)

Hazardous lands mean property or lands that could be unsafe for development due to naturally occurring processes. Along the shorelines of Lake Ontario and the St. Lawrence River, this means the land, including that covered by water, between the international boundary, where applicable, and the furthest landward limit of the flooding hazard, erosion hazard or dynamic beach hazard limits. Along river, stream, and small inland lake systems, this means the land, including that covered by water, to the furthest landward limit of the flooding hazard or erosion hazard limits. (PPS 2020)

Hazardous sites mean property or lands that could be unsafe for development and site alteration due to naturally occurring hazards. These may include unstable soils (organic soils) or unstable bedrock (karst topography). (PPS 2020)

Headwater Drainage Features means ill-defined, non-permanently flowing drainage features that may not have defined bed or banks; they are zero-order intermittent and ephemeral channels, swales, and rivulets, but do not include rills or furrows.

Institutional use means land uses where there is a threat to the safe evacuation of vulnerable populations such as older persons, persons with disabilities, and those who are sick or young, during an emergency as a result of flooding, failure of floodproofing measures or protection works, or erosion. (PPS 2020)

High water mark means the highest water level that has been maintained for a sufficient duration (on an annual basis) as to leave physical evidence upon the landscape marking the boundary between that water level and upland areas.

The boundary may be identified by:

a) an examination of the bed and bank of the waterbody, to determine where the presence and action of water has been so common and usual and long continued in all ordinary years to mark upon the bed or bank a character distinct from that of the abutting upland;

b) distinction between either open water or dominant aquatic/wetland vegetation, and dominant upland vegetation; and/or

c) the geodetic elevation for the Upper Controlled Water Elevation along the Rideau Canal.

Intermittent watercourse means a waterbody that may carry water on an irregular basis, for example, only at certain times of the year, or only in certain years.

Lake management plan means a plan developed through a land use and resource planning exercise by municipalities and/or others, to inventory and monitor the natural and human characteristics of a lake and its watershed, consult with the interested public and stakeholders, and recommend preferred approaches for the future management of the area.

Lake trout lake means a lake designated for lake trout management by the Ministry of Natural Resources and Forestry, as listed in the Inland Ontario Lakes Designated for Lake Trout Management (as amended and revised).

Low Impact Development (LID) means a stormwater management strategy that seeks to mitigate the impacts of increased runoff and stormwater pollution by managing runoff as close to its source as possible. LID comprises a set of site design approaches and small-scale stormwater management practices that promote the use of natural systems for infiltration, evapotranspiration, and reuse of rainwater.

Marine facilities mean a boathouse, boat slip, boat launch ramp, boat lift, boat port, dock or marine railway.

Natural hazards mean dynamic beach hazards, erosion hazards and flooding hazards.

Natural heritage features and areas means features and areas, including but not limited to significant wetlands, significant coastal wetlands, other coastal wetlands, fish habitat, significant woodlands and, habitat of endangered species and threatened species, significant wildlife habitat, and significant areas of natural and scientific interest, which are important for their environmental and social values as a legacy of the natural landscapes of an area. (after PPS 2020)

Natural heritage system means a system made up of natural heritage features and areas, and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations or indigenous species and ecosystems. These systems can include natural heritage features and areas, federal and provincial parks and conservation reserves, other natural heritage features, lands that have been restored or have the potential to be restored to a natural state, areas that support hydrologic functions, and working landscapes that enable ecological functions to continue. The Province has a recommended approach for identifying natural heritage systems, but municipal approaches that achieve or exceed the same objective may also be used. (PPS 2020)

Natural System means a system comprised of the following components: water resources, natural heritage features and areas, lands subject to natural hazards, hazardous sites, and associated buffers.

Negative impact means

a) degradation to the quality or quantity of water, sensitive surface water features and sensitive ground water features, and their hydrologic functions due to single, multiple, or successive development or site alteration activities;
b) and/or any permanent alteration to, or destruction of fish habitat, except where it has been authorized under the Fisheries Act;
c) and/or degradation that threatens the health and integrity of natural features and/or ecological functions, for which an area is identified due to single, multiple, or successive development or site alteration activities.

One-in-one hundred-year (1:100 year) water elevation means:

a) for river, stream, and inland lake systems, the water elevation, based on an analysis of precipitation, snow melt, or a combination thereof that has a 1 percent chance of occurring or being exceeded in any given year; or

b) for Lake Ontario, the peak instantaneous stillwater level, resulting from combinations of mean monthly lake levels and wind setups, which has a 1 percent chance of being equaled or exceeded in any given year; or

c) for the St. Lawrence River, the peak instantaneous stillwater level which has a 1 percent chance of being equaled or exceeded in any given year.

Open space means lands that are retained in an open, green state. These lands may or may not be maintained as natural areas, but could include Conservation Areas, municipal parks, or green belts along stream or river corridors.

Other water-related hazards mean water-associated phenomena other than flooding hazards and wave uprush which act on shorelines, such as ship-generated waves, ice piling and ice jamming. (PPS 2020)

Persuasive plantings mean groups of shrubs or similar vegetation that due to their density or physical characteristics tend to encourage pedestrians to move to other areas.

Pre-development means the state of the land prior to development. For stormwater management reports that are prepared in support of the development of an existing built-up site, runoff should be assessed for pre-development conditions, and also for the state of the land with existing development.

Predicted meander belt allowance means the maximum extent that a water channel migrates.

Protection works standard means the combination of non-structural or structural works and allowances for slope stability and flooding/erosion to reduce the damage caused by flooding hazards, erosion hazards, and other water-related hazards, and to allow access for their maintenance and repair. (PPS 2020)

Reach means a length of the shoreline along a waterbody, which usually has characteristics that are similar along the length.

Regulatory flood plain means:

a) for river, stream and inland lake systems (except for some waterbodies that are associated with the Great Cataraqui River watershed, as noted below), the area affected by the anticipated 1:100 year water elevation, plus an allowance for water-related hazards (for example, ice jams);

b) for those waterbodies that form a part of the Great Cataraqui River watershed for which a 1:100 year water elevation has not yet been calculated but for which specific flood event information is available, the area affected by the maximum recorded water level, as determined by the operator of the control structure (e.g. Parks Canada); and

c) for Lake Ontario and the St. Lawrence River, the area affected by the (1:100 year) water elevation plus an allowance for wave uprush and other water-related hazards.

Riparian lands mean lands adjacent to watercourses, lakes, ponds, and wetlands. They are transitional areas between aquatic and upland habitats and as such can provide natural features, functions and conditions that support life processes and protect habitat.

River, stream, and inland lake system means all watercourses, rivers, streams, and inland lakes or waterbodies that have a measurable or predictable response to a single runoff event. (after PPS 2020)

Safe access means the ability of both pedestrians and vehicles to enter and exit a property safely during times of flooding hazards, erosion hazards, and/or other water-related hazards. It also means the ability to safely perform regular or emergency maintenance and repair of protection works.

Sensitive groundwater features mean areas that are particularly susceptible to impacts from activities or events including, but not limited to, water withdrawals, and additions of pollutants. (PPS 2020)

Sensitive surface water features mean areas that are particularly susceptible to impacts from activities or events including, but not limited to, water withdrawals, and additions of pollutants. (PPS 2020)

Shoreline-related structures means boathouses, docks, marine railways, pumphouses, shorewells and similar forms of development that, due to their intended function, require a location near a waterbody.

Significant [please see the associated feature].

Site alteration means activities, such as grading, excavation, and the placement of fill that would change the landform and natural vegetative characteristics of a site. (PPS 2020)

Specimen trees means select healthy trees which demonstrate, or have the potential to demonstrate, the full and ideally representative growth of their species.

Stable slope means that slope, expressed as a ratio of run(horizontal) to rise(vertical), which is considered to be the natural angle of repose for a given material.

Stable slope allowance a horizontal allowance measured landward from the toe of the shoreline cliff, bluff, or bank reflecting a long-term stable state of the existing slope material.

Surface water means water that is on the earth's surface.

Surface water feature means water-related features on the earth's surface, including headwaters, rivers, stream channels, inland lakes, seepage areas, recharge/discharge areas, springs, wetlands, and associated riparian lands that can be defined by their soil moisture, soil type, vegetation, or topographic characteristics. (PPS 2020)

Surface water intake protection zone means an area of land and water that contributes water to a drinking water intake over a distance or set period of time.

Toe erosion allowance a horizontal allowance measured landward from the toe of the shoreline cliff, bluff, or bank reflecting the possible erosion of the toe of the slope. Also, the potential extent of inland recession of the toe (bottom) of a slope, due to erosive forces, over a period of 100 years.

Top of bank means the first significant break in slope along a waterbody, sometimes leading to a plateau of relatively level ground.

Threatened species means a species that is classified as "Threatened Species" on the Species at Risk in Ontario List, as updated and amended from time to time. (PPS 2020)

Unstable slope means the four main classes of slope movement: translational or surficial sliding, rotational failures, retrogressive failures, and flow slides or earth flows. Refer to Section 2.4.5.1 of MNR's Technical Guide – River and Stream Systems: Erosion Hazard Limit (2002) for additional information.

Valleylands means a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year. (PPS 2020)

Vulnerable groundwater means groundwater that can be easily changed or impacted by activities or events, either by virtue of their vicinity to such activities or events or by permissive pathways between such activities and the groundwater.

Vulnerable surface water means surface water that can be easily changed or impacted by activities or events, either by virtue of their vicinity to such activities or events or by permissive pathways between such activities and the surface water.

Water setback area means the area of land between the high-water mark and the recommended minimum horizontal distance, at a given location, between the high-water mark and the primary development on a property (e.g., a residential dwelling).

Waterbody means any lake, pond, wetland, surface stream or river where there is an identifiable depression in the ground in which a flow or ponding of water is regular and continuous and includes a channel for an intermittent watercourse, Lake Ontario and the St. Lawrence system, and also a municipal drain, as defined under the Ontario Drainage Act, as amended.

Watercourse means an identifiable depression in the ground in which a flow of water regularly or continuously occurs.

Watershed means an area that is drained by a river and its tributaries.

Wave uprush means the rush of water up onto a shoreline or structure following the breaking of a wave; the limit of wave uprush is the point of furthest land ward rush of water onto the shoreline. Information on wave uprush in the Cataraqui Region along Lake Ontario and the St. Lawrence River is compiled in studies by Anthony (1993) and TSH (2002).

Wetland means lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants.

The four major types of wetlands are swamps, marshes, bogs, and fens. Periodically soaked or wetlands being used for agricultural purposes which no longer exhibit wetland characteristics are not considered to be a wetland for the purposes of this definition.

Significant wetlands are identified as provincially significant by the Ontario Ministry of Natural Resources and Forestry using evaluation procedures established by the Province, as amended from time to time. (after PPS 2020)

Wildlife habitat means areas where plants, animals, and other organisms live, and find adequate amounts of food, water, shelter, and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and areas which are important to migratory or non-migratory species. Significant wildlife habitat is ecologically important in terms of features, functions, representation, or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system.

Woodlands means treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention,

hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed areas, woodlots or forested areas and vary in their level of significance at the local, regional, and provincial levels. Woodlands may be delineated according to the Forestry Act definition or the Province's Ecological Land Classification system definition for "forest". Significant woodlands may be identified by Cataraqui Conservation and/or its member municipalities using criteria established by the Ontario Ministry of Natural Resources and Forestry. (after PPS 2020)

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