

# **APPENDIX E**

## **LRIA Information**

# Lakes and Rivers Improvement Act

## Administrative Guide

Ontario Ministry of Natural Resources

August 2011

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[Ontario.ca/dams](http://Ontario.ca/dams)

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The Lakes and Rivers Improvement Act (LRIA) provides the Minister of Natural Resources with the legislative authority to govern the design, construction, operation, maintenance and safety of dams in Ontario. The Lakes and Rivers Improvement Act Administrative Guide and supporting technical bulletins have been prepared to provide direction to Ministry of Natural Resources staff responsible for application review and approval and guidance to applicants who are seeking approval under Section 14, 16 and 17.2 of the LRIA. All technical bulletins in this series must be read in conjunction with the overarching Lakes and Rivers Improvement Act Administrative Guide (2011).

# Lakes and Rivers Improvement Act Administrative Guide

## Table of Contents

### **1.0 Introduction**

- 1.1 The Purpose of this Guide
- 1.2 The Lakes and Rivers Improvement Act
- 1.3 Roles and Responsibilities
  - 1.3.1 The Ministry of Natural Resources
  - 1.3.2 Other Provincial Ministries and Agencies and Other Levels of Government
  - 1.3.3 Owners of Infrastructure Subject to the Lakes and Rivers Improvement Act
  - 1.3.4 The Applicant
  - 1.3.5 The Applicant's Engineer(s)
- 1.4 Protection of Existing Rights
  - 1.4.1 Aboriginal and Treaty Rights – Duty to Consult
  - 1.4.2 Riparian Interests and Public Rights
  - 1.4.3 Public Rights and Interests
  - 1.4.4 Crown Land Ownership
  - 1.4.5 Disposition of Rights to a Crown Resource
  - 1.4.6 Where Rights to Crown Land Have Been Previously Granted
  - 1.4.7 Private Land Ownership
- 1.5 Other Key Documents
- 1.6 Application of the Lakes and Rivers Improvement Act to the Crown

### **2.0 Where the Lakes and Rivers Improvement Act Applies and Does Not Apply**

- 2.1 Types of Works Requiring Approval under Section 14 or Section 16 of the Lakes and Rivers Improvement Act
  - 2.1.1 Dams
  - 2.1.2 Water Crossings, Bridges, Culverts and Causeways
  - 2.1.3 Channelization in River Channels
  - 2.1.4 Enclosures
  - 2.1.5 Installation of Pipelines, Cables and Heat Loops
  - 2.1.6 Municipal and Other Drains
- 2.2 Other Types of Works Not Requiring Lakes and Rivers Improvement Act Approval
  - 2.2.1 Temporary Partial Diversion Not Involving a Dam
  - 2.2.2 Fill in a Flood Plain (Flooding Hazard Limit)

### **3.0 Lakes and Rivers Improvement Act Review and Approval Process**

- 3.1 General
- 3.2 Factors to Consider in Application Development and Review
- 3.3 Approval for New Works – Section 14 (Location Approval and Plans and Specifications Approval)
- 3.4 Approvals for Existing Works – Section 16 (Plans and Specifications Approval)
- 3.5 The Application and Approvals Process
  - 3.5.1 Step 1: Application
  - 3.5.2 Step 2: Scoping Meeting

- 3.5.3 Step 3: Review for Location Approval
- 3.5.4 Step 4: Plans and Specifications Approval
- 3.6 Appeal Process
  - 3.6.1 Inquiry
  - 3.6.2 Minister's Decision

### List of Tables

Table 1	Dams: Types of Works Requiring LRIA Approval
Table 2	Dams: Types of Works Not Requiring LRIA Approval
Table 3	Water Crossings: Types of Works Requiring LRIA Approval
Table 4	Water Crossings: Types of Works Not Requiring LRIA Approval
Table 5	Channelization: Types of Works Requiring LRIA Approval
Table 6	Channelization: Types of Works Not Requiring LRIA Approval
Table 7	Enclosures: Types of Works Requiring LRIA Approval
Table 8	Pipelines, Cables or Heat Loops: Types of Works Requiring LRIA Approval
Table 9	Pipelines, Cables or Heat Loops: Types of Works Not Requiring LRIA Approval
Table 10	Municipal Drains: Types of Works Requiring LRIA Approval
Table 11	Municipal Drains: Types of Works Not Requiring LRIA Approval
Table 12	Temporary Partial Diversion Not Involving a Dam: Types of Works Not Requiring LRIA Approval
Table 13	Fill in a Flood Plain: Types of Works Not Requiring LRIA Approval

### List of Figures

Figure 1	Application Review and Approval Process
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### Glossary of Terms

### List of Acronyms

## 1.0 Introduction

### 1.1 The Purpose of this Guide

The purpose of this guide is to provide an overview of the Lakes and Rivers Improvement Act (LRIA), its application and the process for seeking Ministry of Natural Resources (MNR) approval to construct, alter, improve or repair water control infrastructure in Ontario.

In addition to this guide, the MNR also produces a companion series of technical bulletins and best management practices designed to provide detailed technical guidance on the design, operation and management of dams.

These documents are not intended to provide a list of mandatory requirements to be rigidly applied in all circumstances but serve to provide guidance to both MNR Regional Operations staff responsible for application review and approval and to applicants who are seeking approval under the LRIA. The guidance provided within these documents is not intended to replace the judgment of the design engineer. The primary responsibility for proper infrastructure design lies with the design engineer for the project.

### 1.2 The Lakes and Rivers Improvement Act

The LRIA is administered by the MNR. The Act can be downloaded in [English](#) or [French](#), and/or obtained in hard copy from any Service Ontario location.

The purposes of the LRIA are to provide for:

- a. the management, protection, preservation and use of the waters of the lakes and rivers of Ontario and the land under them;
- b. the protection and equitable exercise of public rights in or over the waters of the lakes and rivers of Ontario;
- c. the protection of the interests of riparian owners;
- d. the management, perpetuation and use of the fish, wildlife, and other natural resources dependent on the lakes and rivers;
- e. the protection of the natural amenities of the lakes and rivers and their shores and banks; and
- f. the protection of persons and of property by ensuring that dams are suitably located, constructed, operated and maintained and are of an appropriate nature with regard to the purposes of clauses (a) to (e).

Ontario Regulation 454/96 defines the types of structures or works requiring approval under Section 14 and Section 16 to include channelizations, water crossings, enclosures, pipeline installations (except for the installation of heat loops, water intakes and services cables for private residences) and dams. The terms channelize and water crossing are defined in Ontario Regulation 454/96. In addition, a 'dam' is more narrowly referred to in Ontario Regulation 454/96 as a structure that holds back water in a river,

lake, pond or stream to raise the water level, create a reservoir to control flooding or divert the flow of water.

### **1.3 Roles and Responsibilities**

#### **1.3.1 The Ministry of Natural Resources**

##### **Overall Legislative Responsibility: Lakes and Rivers Improvement Act**

MNR is responsible for administering the LRIA and its associated regulations. In carrying out its legislative and regulatory responsibilities, the Ministry is responsible for:

1. Processing in a consistent manner, applications submitted under Section 14 or 16 of the Act;
2. Issuing approvals under Section 14, 16, 17.2 or 23.1 of the Act;
3. Undertaking educational initiatives to explain the purpose of the Act and its associated regulations; and
4. Conducting periodic compliance monitoring (inspections, selective reviews and investigations) and enforcement (including Minister's Orders) to ensure the intent of the LRIA is being met.

##### **Other Legislative Responsibilities**

MNR also administers a number of other statutes that may be impacted by or invoked as a result of works proposed for approval under the LRIA. For example, approval under the Public Lands Act is required for works proposed on Crown lands. For works that are proposed within the Niagara Escarpment Planning Area, a development permit may be required from the Niagara Escarpment Commission. In keeping with the provisions of the Niagara Escarpment Planning and Development Act, Section 24 (3) requires that development permits be issued first, before any other permit is issued and further that other permits must be consistent with the permit issued by the Niagara Escarpment Commission.

##### **Statement of Environmental Values**

Under Section 11 of the Environmental Bill of Rights, MNR is obliged to take every reasonable step to ensure that its Statement of Environmental Values is considered whenever decisions that might significantly affect the environment are made by the Ministry.

#### **1.3.2 Other Provincial Ministries and Agencies and Other Levels of Government**

There are a number of provincial ministries, federal departments and agencies which administer statute laws, regulations, and policy that have a bearing on the management of water resources, including, but not limited to:

1. **Ministry of Agriculture, Food and Rural Affairs** is responsible for preserving prime agricultural land, ensuring sustainable water supplies for agricultural

- purposes and administering the Drainage Act. This includes the installation or maintenance of a municipal drain under the Drainage Act.
2. **Ministry of Culture, Tourism and Recreation** has a legislated mandate to protect Ontario's heritage.
  3. **Ministry of Energy** is responsible for development of sustainable renewable energy supplies including hydro-electric power.
  4. **Ministry of the Environment** is responsible for administering a number of Acts related to managing or protecting water resources including the Environmental Assessment Act, Environmental Protection Act and the Ontario Water Resources Act (OWRA). The OWRA specifies responsibilities and requirements related to the Taking of Water (i.e., Permits to Take Water such as, temporary or partial diversions and low flow), and water quality for discharge from tailings dams.
  5. **Ministry of Municipal Affairs and Housing** sets the broad policy, legislative and regulatory framework for the land use planning system in Ontario. The Ministry is responsible for administering the Planning Act, the Provincial Policy Statement, 2005 (PPS, 2005) and provincial plans for specific geographic areas of the province (e.g. the Greenbelt Plan). The decisions of municipalities, and others, when exercising any authority that affects a planning matter, must be consistent with the PPS, 2005 and shall conform or not conflict with provincial plans. This ensures that provincial interests are reflected in local land use planning decisions. It is worth noting that Municipal Official Plans and Zoning By-laws may be affected by proposed works under the LRIA. The Ministry also has responsibility under the Emergency Management and Civil Protection Act Order-in-Council 1157/2009 for the coordination of extraordinary provincial expenditures in an emergency. It administers the province's only disaster relief program, the Ontario Disaster Relief Assistance Program, as well as ad hoc relief programs for non-natural disasters. It also participates in federal/provincial/territorial efforts to establish a national disaster mitigation strategy.
  6. **Ministry of Northern Development, Mines and Forestry (MNDMF)** has responsibility to administer the Mining Act. In keeping with a signed MNR and MNDMF Memorandum of Understanding, MNDMF is responsible for addressing mine tailings dams under closure plans prepared under the Mining Act. The Ministry also has responsibility under the Emergency Management and Civil Protection Act Order-in-Council 1157/2009 for any emergency that requires the support of provincial emergency management in northern Ontario.
  7. **Ministry of Transportation (MTO)** has a mandate relating to provincial highways (Kings or secondary highways). MTO review applications from the perspective of water levels and flows as they affect roadway crossings, bridges and culverts on provincial highways.

#### **Other Agencies:**

**Conservation Authorities (CAs)** are authorized under Section 28 of the Conservation Authorities Act to regulate certain activities within their areas of jurisdiction. Permission of the local CA is required for straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or watercourse, or for changing or interfering in any way with a wetland.



Permission of the local CA is also required for development activities if in the opinion of the CA, the control of flooding, erosion, dynamic beaches, pollution or the conservation of land may be affected.

**Other Levels of Government:**

1. **Canadian Heritage, Parks Canada** has a legislated mandate to protect representative areas of national natural and cultural significance; Parks Canada approval may be required where works will take place on or will affect non-federally owned national historic sites (NHS).
2. **Environment Canada** has responsibilities related to the Canadian Environmental Assessment Act and the Canada Water Act.
3. **Fisheries and Oceans Canada (DFO)** have specific responsibilities in relation to the management and protection of fish habitat and to ensure that fisheries habitat is not adversely affected. DFO or their delegate will review all applications under the Fisheries Act. DFO's review could also trigger Species At Risk Act and/or Canadian Environmental Assessment Act.
4. **Transport Canada** through the Navigable Waters Protection Act is responsible for safeguarding the navigability of all waters including coastal and inland waterways, ensuring the safety of marine navigation and protection of the marine environment.

**Others:**

There are also a number of other agencies and departments at various levels of government whose mandates require the issuance of approvals and permits. It is the applicant's responsibility to be aware of these requirements and to secure the necessary authorization to proceed.

**1.3.3 Owners of Infrastructure Subject to the Lakes and Rivers Improvement Act**

Owners of infrastructure are responsible for the safe management of their structures and for ensuring their structures remain in compliance with the LRIA, its associated Regulations, and approvals issued there under. The absence of specific regulatory requirements does not negate the owner's responsibility for the safe management of dams.

**1.3.4 The Applicant**

Applicants are required to comply with the requirements of the LRIA. Applicants are responsible for ensuring that information requested by MNR is provided in a timely manner (i.e. well in advance of any construction season). Applicants are advised to contact the respective District Office to discuss timing and the process for application review. Applicants are responsible for ensuring that their application is complete and that all supporting documentation has been provided.

The LRIA application, review and approval process needs to operate harmoniously and be integrated with other regulatory agency requirements. Applicants who are seeking approval must be aware of their obligations, as well as the mandate and responsibilities

of the regulatory agencies involved. All efforts should be made to coordinate information requirements so that the process is as efficient and as effective as possible.

It is the applicant's responsibility to consult with and obtain any approvals that may be required from other Government Ministries or Agencies.

### **Available Sources of Information**

Applicants who are seeking approval under the LRIA can obtain additional information on wildlife habitat from the local MNR District Office, municipalities, planning authorities and CAs.

Municipal planning authorities should be consulted to determine the location of significant wetlands and significant wildlife habitat. The local MNR office may be contacted for information related to the use, management and perpetuation of fish (e.g. Fisheries Management Plans), as well as the potential for impacts to threatened or endangered species. A number of documents and guidelines have been generated in association with MNR's wetlands management program and planning policies, such as the Ontario Provincial Policy Statement, 2005. An important source of technical information can be found in the "Temperate Wetlands Restoration Guideline," March 1998. These documents are a source of information and they provide guidance on approaches that may be applied to approvals under the LRIA.

### **1.3.5 The Applicant's Engineer(s)**

The majority of works submitted for approval under the LRIA require supporting calculations and drawings to be completed by a Professional Engineer licensed to practice in Ontario.

In certain situations, the construction phase must also be inspected by the Engineer or the Engineer's representative as frequently as may be required to ensure compliance with the approved plans and specifications. Approval issued by the Ministry should specify this as a condition.

The design and construction and supervision of works associated with dams, water crossings and channelization projects fall under the practice of Professional Engineering as defined in the Professional Engineers Act. Accordingly, all final drawings, specifications, plans and reports are required to be signed, sealed and dated by a Professional Engineer licensed to practice in Ontario.

### **Works that require a Professional Engineer to design include but are not limited to:**

1. dams with a 3.0 meter height or more;
2. dams with a 2.0 meter height or more and a reservoir surface area of 2.0 hectares or more;
3. dams with a watershed area of 5.0 square kilometres or more;
4. dams, water crossings and channelization works, the failure of which could cause loss of life or property damage in excess of \$100,000;

5. a dam, water crossing or channelization to be located on a lake or stream, the failure of which could release into a lake or stream any pollutant likely to impair the quality of the water (e.g. sediment release or structural debris);
6. channelizations that may harmfully alter fish habitat or impede the movement of fish in a stream or lake or which will significantly alter the main channel of a stream; and
7. mine tailings dams.

In addition to the works listed above, any works that affect the safety of the public may also need to be designed by a Professional Engineer.

## **1.4 Protection of Existing Rights**

### **1.4.1 Aboriginal and Treaty Rights – Duty to Consult**

Section 35 of the Canadian Charter of Rights and Freedoms has affirmed the treaty and aboriginal rights of Aboriginal peoples. Decisions issued by the Supreme Court of Canada have affirmed the Government's Duty to Consult with Aboriginal peoples where actions undertaken by government may adversely affect an established or an asserted Aboriginal or treaty right. To ensure that the Duty to Consult is adhered to, MNR will work with applicants to coordinate Aboriginal consultation.

To the extent that the traditions of First Nations and Aboriginal communities offer ways of understanding the environment, this is to be respected and considered in the review of applications.

### **1.4.2 Riparian Interests and Public Rights**

A riparian owner is defined as an owner of land that fronts on to a waterbody, where the property boundary is the waters edge. Established in Common Law, riparian owners enjoy a bundle of rights associated with their property. These rights include:

1. right of access to the water;
2. right of drainage;
3. rights relating to the quantity (flow and level) of water;
4. rights relating to the quality of water;
5. rights relating to the use of water; and
6. right of accretion.

Applicants who are applying for approval under the LRIA need to be aware of the rights of riparian owners. Further, they need to take into account the effect that the proposed work will have on the rights of riparian owners.

The cumulative impacts of a number of works can cause serious damage to aquatic environments and waterfront property owner's interests. Therefore, consideration of the cumulative impact of other similar development activities should be assessed and

determined through consultation with other agencies having an interest in the waterfront property (River and Stream Systems – Erosion Hazard Limit, 2001).

It should be noted that not all property owners adjacent to water bodies are riparian owners. For example, a property that has a surveyed boundary fronting on the water has a fixed property line that does not move with the water's movement. If the water rises, the property boundary remains fixed even though the property may be covered with water. If on the other hand, the water level recedes, there will be a strip of dry Crown land between the private land and the water's edge.

Regardless of the legal status of the land ownership, riparian and non-riparian owners of property adjacent to water bodies require consideration when a proposed work will impact their property in the following ways:

1. increased flooding;
2. reduced or increased water levels;
3. impacts on ecological integrity;
4. reduced ability to drain;
5. erosion and slumping of stream beds and banks;
6. reduction or increase in normal sediment supply;
7. loss of flow through:
  - a. diversions;
  - b. withdrawals;
  - c. increased evaporation;
8. fluctuating water levels; and
9. loss of tree cover due to inundation.

Applicants must make every effort to protect the interests of land owners who will be impacted by the proposed works. For instance, where temporary or permanent flooding of land will occur, or riparian rights will be negatively impacted, a formal land tenure document, consent or release from the affected owners must be obtained. Applicants are advised to seek legal advice in this regard.

Formal land tenure documents that are acceptable for registration by a Land Registry Office, may include a flooding easement or sale of land and generally apply where the impacts are expected to be significant. These documents are transferable to new land owners.

In situations where the impact of a proposed work is expected to be minimal, applications may be approved under the LRIA if the applicant obtains the consent of the affected property owner(s). For LRIA purposes, this consent could take the form of a letter signed by the applicant and the landowner(s) that stipulates the following:

1. the landowner has been informed of the nature of the proposal and its impacts;
2. the landowner understands how the current conditions affect their property (specify);

3. the landowner understands that the proposed works will result in a change to current conditions (specify); and
4. the landowner has no objection(s) to the proposed work and hereby provides their consent to the application.

In addition, many Ducks Unlimited Canada (DUC) projects have landowner agreements in place authorizing DUC to flood the land of private land owners in order to create or maintain a wetland.

#### **1.4.3 Public Rights and Interests**

There are additional rights afforded to the public in general related to waterbodies and waterways. These include the right of navigation, the right of access, and the right to fish.

Navigation is protected by the Navigable Waters Protection Act. Navigation includes all those rights necessary for the convenient passage of vessels along the waterway, including reasonable anchorage or moorage.

Other rights or interests may be tied to land tenure documents. For instance, most patents include a right to access the shore from the waterbody. The patent may also contain a 66 foot reserve around the shore.

#### **1.4.4 Crown Land Ownership**

The ownership or exclusive right to use water is not vested in the Crown in right of Ontario. Water in Ontario is considered a right in common and cannot be privately owned. Approval to work in water is not in and of itself considered to constitute a crown resource disposition. However, because the beds of most navigable waters in Ontario are considered to be Crown land (pursuant to the Beds and Navigable Waters Act), any ongoing occupation of the bed requires authorization under the Public Lands Act. Authorization is required for occupation of or over Crown land or where either permanent or periodic flooding of Crown land is being contemplated.

Applications that involve the use of Crown land must also satisfy MNR's Application Review and Land Disposition Policy and Procedure. If a Crown land disposition is involved, it is subject to the Environmental Assessment Act.

Projects that are subject to the Environmental Assessment Act require the MNR to comply with the requirements specified under the Class Environmental Assessment for Resource Stewardship and Facility Development (RSFD) (or other instrument under the Act such as the Ontario Waterpower Class Environmental Assessment) or evidence received from the applicant that the RSFD requirements have been met.

#### **1.4.5 Disposition of Rights to a Crown Resource**

The disposition of rights to a Crown resource occurs when MNR issues a form of permit or license to carry out work on Crown land or MNR issues a tenure document to occupy or flood Crown land in some manner. In these cases, the MNR is required to ensure that

its Environmental Assessment Act requirements under the MNR Class EA for RSFD are met before the disposition document is issued.

#### **1.4.6 Where Rights to Crown Land Have Been Previously Granted**

In some instances, proposed works will affect Crown land and/or resources where some or all of the rights have already been granted. Dispositions can take the effect of a flooding easement, license of occupation, lease, land use permit or mining lease.

Where rights to Crown land have been previously granted, MNR must advise the applicant that this is the case. Applicants who wish to pursue their application are required to contact the rights holder prior to location approval being granted. Consent or authorization must be obtained from the rights holder regarding the proposed work before approval can be granted.

#### **1.4.7 Private Land Ownership**

For applications that involve LRIA approval on private land (i.e. both the banks and the bed of the waterbody are private land), there is no disposition of Crown resources and therefore, the Class EA for RSFD does not apply.

### **1.5 Other Key Documents**

This Administrative Guide and associated technical bulletins makes reference to a number of other Guidelines, Directives and Standards. While this Guide explains the application, submission, review and approval process under Section 14 and Section 16 of the Act, these references are provided for information purposes, and may be useful to applicants.

A number of documents and guidelines have been developed in association with the MNR water resource management responsibilities. Some of these documents have been developed by MNR directly and by MNR in conjunction with its partners. Other documents have been developed by industry associations and organizations. These documents provide additional guidance and information on acceptable design, construction and operating requirements for dams and will be used where appropriate in the review of works for approval under the LRIA. Some of these additional reference documents include the following:

1. Adaptive Management of Stream Corridors in Ontario (MNR, 2001)
2. Natural Hazards Technical Guideline (MNR, 2001)
3. Flood Damage Estimation Guide - Draft (MNR, 2007)
4. Temperate Wetlands Restoration Guideline (MNR, 1998)
5. Ontario Provincial Policy Statement (MMAH, 2005)
6. Ontario Drainage Management Manual (MTO, 1997)

7. Ontario MNR Technical Guidelines – Flood Plain Management in Ontario (MNR, 1982)
8. Fish Habitat Referral Protocol for Ontario (DFO/MNR/CO, 2009)
9. Ontario Significant Wildlife Habitat: Technical Guide (MNR, 2000)
10. Recovery Strategies prepared under the Endangered Species Act, 2007

Over time, MNR may develop additional guidance that can help to inform design, construction and operating requirements for dams to be used as appropriate in the review of works requiring approval under the LRIA.

Procedural directives have been prepared specifically for MNR District and Regional staff which provides additional information relating to the processing of applications under the LRIA.

## **1.6 Application of the Lakes and Rivers Improvement Act to the Crown**

The LRIA does not bind the Crown. Dams and other works subject to the LRIA, but constructed by Provincial and/or Federal Ministries, Agencies and Departments, may not require LRIA approval. As a matter of policy however, MNR has elected to apply the criteria and standards contained in this Guide and its associated technical bulletins and administrative directives for location approval and for plans and specifications approvals to dams and other in-water works to be constructed and maintained by the MNR.

Applying the provisions of the LRIA and its associated regulations to federally regulated corporations (e.g. TransCanada Pipelines) and to federal lands (including Reserve lands) can be complex. Each situation needs to be assessed individually. For this reason, consultation with MNR Legal Services Branch is necessary to determine whether or not the LRIA applies in these situations.

## **2.0 Where The Lakes and Rivers Improvement Act Applies and Does Not Apply**

### **2.1 Types of Works Requiring Approval under Sections 14 or 16 of the Lakes and Rivers Improvement Act**

Under the LRIA, approval must be obtained from the MNR for:

1. Dams;
2. Water Crossings – Bridges, Culverts and Causeways;
3. River Channels – Channelization of rivers, including dredging, diverting or enclosing a channel except for the installation or maintenance of a drain subject to the Drainage Act;
4. Enclosures;
5. Buried Pipelines and Cables – installing cables and pipelines where they will hold back, forward or divert water; or,

6. Municipal and Other Drains.

**2.1.1 Dams**

Under Ontario Regulation 454/96, approval must be obtained from the MNR to construct, decommission, alter, improve or repair a dam that holds back water in a river, lake, pond or stream to:

1. raise the water level,
2. create a reservoir to control flooding; or
3. divert the flow of water.

The construction of a new dam under Section 14, or an alteration, repair or improvement to a dam, or the decommissioning or change to the operations of a dam under Section 16 may require approval under the LRIA where the dam is located on or is proposed to be located on the bed of a river or lake, or is to be or is connected to a river or lake. Table 1 lists the types of works to dams requiring LRIA approval and Table 2 lists the types of works that do not require approval.

The purposes of the LRIA, as contained in Section 2 of the Act and outlined above, will be a relevant factor in determining whether proposed works require approval under Section 16 of the Act. Works subject to approval include those works that may affect the dam's safety or structural integrity, the waters, or natural resources. Further information on Section 16 approvals can be obtained from Directive WR.4.03.05.05: Administration of Section 16 – Lakes and Rivers Improvement Act.

If dam owners and/or applicants have any doubt about whether approval under the LRIA is required, they should complete and submit a Work Permit application form to the local District Office. The District Office will review the proposed work and in consultation with the Ministry Engineer, provide a written response indicating whether or not the work is subject to approval under the LRIA.

**Table 1 – Dams: Types of Works Requiring LRIA Approval**

Type of Dam	Types of Works	Special Considerations	Applicable Types of Watercourses
Permanent Dams	1. Construction of a Dam 2. Alteration, Improvement or Repair to a dam which may affect the dam's safety or structural	Includes locks or weirs	In Permanent Flowing Watercourses 1. all heights of dams  In Intermittent Flowing Watercourses where: 1. the dam is 3 meters or more above the
Seasonal Dams		Where a dam is maintained during a portion of the year only (usually the summer season)	



Type of Dam	Types of Works	Special Considerations	Applicable Types of Watercourses
Mine Tailings Dams	integrity, the waters or natural resources 3. Change in a dam operation plan from that contemplated in approved plans and specifications 4. Decommission of a dam	Approval may include one or more phases of construction of a mine tailings dam over a number of years	original stream bed; or 2. the dam is 2 meters or more above the original stream bed with 2 hectares of reservoir surface area; or 3. the watershed area above the proposed site is 1.5 sq. kilometres or more; or
Temporary Dams	Construction of, or removal of the dam	Including coffer dams	4. fisheries or other natural resources dependent on the river will be adversely affected; or 5. failure of the dam could release into the lake or river any pollutant (likely to impair the quality of the water)
Emergency Dams	Construction of a dam immediately necessary to prevent injury to persons, loss of life, or loss of property.	Immediately give notice to the MNR District Office of emergency works and comply with any directions.	

**Table 2 – Dams: Types of Works *Not* Requiring LRIA Approval**

Type of Dam	Types of Works	Special Considerations
All Types of Dams	Dam Construction - not located on or connected to a lake or river.	No approval required where a dam is creating an off-stream dug-out or run-off pond supplied by exposure to the groundwater table, or fed by intermittent surface run-off, with no connection to a stream by a pipe or channel.
	Works that may not affect the dam's structural integrity or safety or may not affect the waters or natural resources	See Directive WR.4.03.05.05 for interpretation.
Conservation Authority Dams	Works that have been approved under Section 24 of the Conservation Authorities Act	MNR Section 24 approval under the Conservation Authorities Act must be based on the review of detailed engineering design documents.
Community Fisheries and Wildlife Involvement Program (CFWIP)	Dams	Works carried out under the Community Fisheries and Wildlife Involvement Program (CFWIP) are considered to be Crown projects and are therefore not required to obtain LRIA approval. It is MNR policy however, that MNR field offices will ensure the design for these projects adhere to LRIA policies and standards through consultation with the Ministry Engineer prior to construction.

### 2.1.2 Water Crossings, Bridges, Culverts and Causeways

A water crossing is defined as a bridge, culvert, or causeway that is constructed to provide access between two places separated by water. For the Act to apply, a water crossing must either hold back, forward or divert water.

A bridge, culvert or causeway may be classed as a dam if it forwards, holds back or diverts water by:

1. altering flows and/or water levels in a lake or river, either intentionally or unintentionally;
2. forwarding water causing increased velocity resulting in increased erosion and sediment downstream;
3. holding back water causing flooding and/or erosion on lands owned by others upstream.

**Note:** Most bridges, culverts, and causeways with fill approaches, abutments, or piers located in the river channel or its flood plain will cause some temporary hold back of water during flood periods which may cause upstream flooding. The amount of flooding depends on the degree of restriction to flow created by the structure.

Ontario Regulation 454/96 requires LRIA approval for water crossings that drain an area greater than five square kilometres unless construction is being undertaken by a Provincial Ministry or municipality, or contractors employed by a Provincial Ministry or municipality on lands owned by the Crown or the municipality undertaking the construction.

Types of water crossing works requiring LRIA approval are listed in Table 3 and types of works that do not require LRIA approval are located in Table 4.

**Table 3 – Water Crossings: Types of Works *Requiring* LRIA Approval**

Types of Works	Special Considerations	Applicable Types of Watercourses
Construction of a Bridge, Culvert or Causeway	Where the drainage area above the proposed site is greater than 5.0 sq. km and the water crossing is not built by the ministry or municipality on lands owned by them, approval is required for all water crossings, including clear span bridges.	In permanent and intermittent flowing watercourses where: <ol style="list-style-type: none"> <li>1. the watershed area above the proposed site is greater than 5.0 sq. kilometres;</li> </ol> or <ol style="list-style-type: none"> <li>2. it may harmfully alter fish habitat or impede the movement of fish;</li> </ol> or <ol style="list-style-type: none"> <li>3. other natural resources dependent on the lake or river will be adversely affected,</li> </ol> or <ol style="list-style-type: none"> <li>4. the failure of the works could release into the lake or river any pollutant likely to impair the quality of the water.</li> </ol>

**Table 4 – Water Crossings: Types of Works *Not* Requiring LRIA Approval**

Types of Works	Special Considerations
Construction of Bridges, Culverts, Causeways	No LRIA approval required where: <ol style="list-style-type: none"> <li>1. The Public Lands Act applies. This includes a private water crossing, spanning from one piece of private land to another over Crown-owned river bed. This may include an MOU to address occupation of or over Crown land. If the span is greater than 3 metres, this will require the crossing structure to be designed by a Professional Engineer.</li> </ol>

Types of Works	Special Considerations
	<ol style="list-style-type: none"> <li>2. Construction is part of a forest operation to which the Forest Operation and Silviculture Manual under the Crown Forest Sustainability Act applies.</li> <li>3. The water crossing is draining an area greater than 5 sq km and where construction is being undertaken by a Ministry or municipality, or a contractor employed by a Ministry or municipality, on lands owned by the Crown or the municipality.</li> <li>4. Clear span bridges that meet the required design flow capacity, as determined by MNR.</li> <li>5. Works done under the Public Transportation and Highway Improvement Act</li> </ol>

### 2.1.3 Channelization in River Channels

Channelization means an alteration to the alignment, width, depth, sinuosity, conveyance, or bed or bank material of a river or stream channel which includes one or more of the following - straightening, widening, or deepening of the river channel.

Note: The river or stream channel is defined as that portion of the channel which conveys the mean annual flood and/or which lies between the high water mark on both banks but does not include the overbank flood plain.

LRIA approval is required for a number of different types of works commonly referred to under the general heading of channelization:

1. Diversions:
  - a) River Diversions
  - b) Watershed Diversions;
2. Dredging in a river including an inlet into and an outlet from a lake;
3. Revetments, Embankments and Retaining Walls in rivers; and
4. Interconnecting Channels of the Great Lakes.

Diversion works may consist of channels, pipes, and conduits to convey part or all of the stream flow. Diversion works can include a diversion dam to regulate or block the flow of water in the river and/or a control dam on the diversion channel. In these instances, it is appropriate for the diversion or control dam to be dealt with separately as a dam.

Types of channelization works that require approval under the LRIA are outlined in Table 5. Works that do not require approval under the LRIA are outlined in Table 6.

**Table 5 – Channelization: Types of Works Requiring LRIA Approval**

<b>Types of Channelization Works</b>	<b>Special Considerations</b>	<b>Applicable Types of Watercourses</b>
Construction of and alteration to: 1. Total River Diversions and Partial River Diversions (permanent and temporary)	Approval is required: 1. where stream flow is returned to the same river from which it was diverted; 2. for both permanent total and temporary total diversions and for permanent partial diversions; 3. for temporary partial diversions only if a control dam on the river is involved.	In all permanent flowing watercourses.  In intermittent flowing watercourses where: 1. the watershed area above the proposed site is 1.5 sq. kilometres or more, or 2. it may adversely affect other natural resources dependent on the river
Dredging	Approval is required for the dredging of river channels including the inlet to a lake and the outlet from a lake except for maintenance dredging.	or  3. failure of the works could release into the lake or river any pollutant (likely to impair the quality of the water)
Revetments, Embankments and Retaining Walls	Approval is required where revetments, embankments or retaining walls are to be located within, or will encroach on, a river channel including into and out of a lake.	
Construction of and Alteration to Watershed Diversions	Approval is required where water is being diverted from one watershed to another of any size or between watersheds of two tributary streams within the same watershed.	In all watercourses
Interconnecting Channels of the Great Lakes	Approval is required for all types of channelization works on the interconnecting channels of the Great Lakes except for maintenance dredging.	In all connecting watercourses

**Table 6 – Channelization: Types of Works Not Requiring LRIA Approval**

Types of Channelization Works	Special Considerations
Maintenance Dredging	No approval required for: a) maintenance dredging of river beds or lakes of any size, for periodic or annual removal of accumulated sediment to restore navigational channels or boat slips. Applications for dredging in this category may be subject to the Public Lands Act.
Channelization in the Great Lakes Water Bodies including Lake St. Clair	No approval required where channelization works, including revetments, retaining walls, and embankments are located on the Great Lakes ( <u>not including the interconnecting channels</u> ). These projects may be subject to the Public Lands Act.
Community Fisheries and Wildlife Improvement Program (CFWIP)	Works carried out under the Community Fisheries and Wildlife Improvement Program (CFWIP) are considered to be Crown projects and are therefore not required to obtain LRIA approval. It is MNR policy however, that MNR field offices will ensure the design for these projects adhere to provincial standards and requirements through consultation with the Ministry Engineer prior to construction.

For interpretation purposes, approval is required for channelization of a river or stream that may harmfully alter fish habitat, or impede the movement of fish in a river, stream or lake.

Where the potential impact of channelization work on fish habitat and/or fish movement is unknown, such impacts must be confirmed with DFO or their delegate in consultation with MNR. Where it is determined that proposed work will adversely affect fish habitat and/or impede the movement of fish and LRIA approval is required, the process for obtaining approval under the LRIA must be followed.

#### **2.1.4 Enclosures**

Works are not considered to be enclosures unless they impact the natural functions of the stream or lake by partially blocking one or more of its natural functions.

Table 7 below identifies the type of enclosure work for which LRIA approval is required.

**Table 7 – Enclosures: Types of Works Requiring LRIA Approval**

Types of Works	Special Considerations	Applicable Types of Watercourses
River or Stream Enclosures or Covers	Pipe Enclosures or Covers > 20m  Enclosures which cover or enclose: <ol style="list-style-type: none"> <li>1. a length of river or stream greater than twenty metres in length; and</li> <li>2. may harmfully alter fish habitat in the river or lake, or impede the movement of fish;</li> </ol>	In Permanent Flowing Watercourses: <ol style="list-style-type: none"> <li>1. all watercourses.</li> </ol> In Intermittent Flowing Watercourses where: <ol style="list-style-type: none"> <li>1. the watershed area above the proposed site is 1.5 sq. kilometres or more,</li> </ol> or <ol style="list-style-type: none"> <li>2. other natural resources dependent on the river will be adversely affected,</li> </ol> or <ol style="list-style-type: none"> <li>3. failure of the works could release into the lake or river any pollutant likely to impair the quality of the water</li> </ol>

### 2.1.5 Installation of Pipelines, Cables and Heat Loops

Table 8 identifies where LRIA approval is required for the installation of pipelines, cables or heat loops. Details concerning works that do not require LRIA approval follow in Table 9.

**Table 8 – Pipelines, Cables or Heat Loops: Types of Works Requiring LRIA Approval**

Types of Works	Special Considerations	Applicable Types of Watercourses
Installation of Pipelines, Cables, Heat Loops	Where installation of a cable or pipeline into or on the bed of a river, stream or lake may result in damming, forwarding or diverting water: and <ol style="list-style-type: none"> <li>1. may harmfully alter fish habitat in the river or lake, or impede the movement of fish;</li> <li>2. may cause or increase erosion;</li> </ol>	In Permanent Flowing Watercourses: <ol style="list-style-type: none"> <li>1. all watercourses.</li> </ol> In Intermittent Flowing Watercourses where: <ol style="list-style-type: none"> <li>1. the watershed area above the proposed site is 1.5 sq. kilometres or more,</li> </ol> or <ol style="list-style-type: none"> <li>2. other natural resources dependent on the river will be adversely affected,</li> </ol> or <ol style="list-style-type: none"> <li>3. failure of the works could release into the lake or river any pollutant likely to impair the quality of the water</li> </ol>

**Table 9 – Pipelines, Cables or Heat Loops: Types of Works *Not* Requiring LRIA Approval**

Type of Works	Special Considerations
Installation of Pipelines, Cables, Heat Loops	<p>No approval required where installation of heat loops, water intakes and services cables are for private residences.</p> <p>No approval required where cable or pipeline is being installed without disturbing the bed or banks of river channel (i.e. directional drilling).</p>

**2.1.6 Municipal and Other Drains**

Whether LRIA approval is required for municipal drains is based on whether or not the work relates to the installation or maintenance of a drain subject to or created under the Drainage Act.

Note: Municipal drains are created under the authority of the Drainage Act. Private drains are essentially ditches that land owners have constructed on their own properties in order to drain their land. Mutual agreement drains are private drains that have been constructed through agreement between two or more private landowners. Award drains are ditches that were constructed under legislation entitled the Ditches and Watercourses Act which has become part of the Drainage Act

Table 10 identifies where LRIA approval may be required for municipal and other types of drains. Table 11 outlines where LRIA approval is not required.



**Table 10 – Municipal Drains: Types of Works *Requiring* LRIA Approval**

Types of Works	Special Considerations	Applicable Types of Watercourses
Municipal and Other Drains	<p>Works other than installation or maintenance (see Table 1-12) that are proposed on municipal drains created under the Drainage Act, or proposed on other types of drains, should be referred to the MNR to determine if LRIA approval is required.</p> <p>Note: Where LRIA approval is required, the application should be circulated to the Ministry of Agriculture, Food and Rural Affairs and the Municipality and to adjacent property owners for comment and recommendations.</p>	<p>In Permanent Flowing Watercourses:</p> <ol style="list-style-type: none"> <li>1. all watercourses.</li> </ol> <p>In Intermittent Flowing Watercourses where:</p> <ol style="list-style-type: none"> <li>1. the watershed area above the proposed site is 1.5 sq. kilometres or more,</li> </ol> <p>or</p> <ol style="list-style-type: none"> <li>2. fish habitat may be harmfully altered, or fish movement impeded,</li> </ol> <p>or</p> <ol style="list-style-type: none"> <li>3. other natural resources dependent on the river will be adversely affected,</li> </ol> <p>or</p> <ol style="list-style-type: none"> <li>4. failure of the works could release into the lake or river any pollutant likely to impair the quality of the water</li> </ol>

**Table 11 – Municipal Drains: Types of Works *Not* Requiring LRIA Approval**

Types of Works	Special Considerations
Municipal Drains	Where no dams are included, approval is not required for the installation or maintenance of a municipal drain subject to or created under the Drainage Act.

## 2.2 Other Types of Works Not Requiring Lakes and Rivers Improvement Act Approval

There are some works that **do not** require approval under the LRIA, but that may require approval under other legislation. The following section addresses these types of works:

1. Temporary Partial Diversions Not Involving a Dam; and
2. Fill in a Flood Plain (Flood Hazard Limit).

### 2.2.1 Temporary Partial Diversion Not Involving a Dam

**Table 12 – Temporary Partial Diversion Not Involving a Dam: Types of Works Not Requiring LRIA Approval**

Type of Work	Special Considerations
Temporary Partial Diversion Not Involving a Dam	<p>No approval required for:</p> <ol style="list-style-type: none"> <li>1. A temporary or seasonal partial diversion where no dam of any type is proposed on the lake or river channel (e.g. partial diversion by pumping from a stream for irrigation use with a pump and piping which is removed from the site after use).</li> </ol> <p>Note: This type of diversion may require a Permit to Take Water approval under the Ontario Water Resources Act. MNR staff are advised to refer the applicant to the local Ministry of the Environment office.</p>

### 2.2.2 Fill in a Flood Plain (Flooding Hazard Limit)

Many CAs have enacted a Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation. Where an application involves the placement of fill in a flood plain, MNR staff and applicants are advised that the proposal should be forwarded to the local CA for review as the placing of fill in a flood plain could cause increased flood levels on the river.

In areas that are outside the jurisdiction of a CA, but within municipal boundaries or on Crown land, consideration must be given to the Natural Hazards Technical Guidelines, Rivers and Streams and the Provincial Policy Statement (2005) (PPS). Applicants are advised to contact the local MNR District Office.

**Table 13 – Fill in a Flood Plain: Types of Works Not Requiring LRIA Approval**

Types of Works	Special Considerations
Fill In A Flood Plain	<p>No approval required if:</p> <ol style="list-style-type: none"> <li>1. Fill is to be placed in the flood plain of a lake or river, provided:               <ol style="list-style-type: none"> <li>a. Fill will be located outside of and will not encroach on a river channel as part of a channelization works; and</li> <li>b. Fill will not be part of a water crossing or dam across a lake or river.</li> </ol> </li> </ol>

## **3.0 Lakes and Rivers Improvement Act Review and Approval Process**

### **3.1 General**

Applicants who are seeking approval under Section 14 or Section 16 of the LRIA are required to complete and submit a Work Permit application form to the MNR District Office. A separate application form must be completed for each type of approval required. Copies of the application form are available at Service Ontario centres.

The process for reviewing and approving applications submitted under the LRIA is different for alterations, improvements or repairs to existing works, and for new works. The legislation provides for two types of approvals to be issued:

1. Location Approval Letter; and
2. Plans and Specifications Approval Letter.

Existing works require only plans and specifications approval. Both location approval and plans and specifications approval are required for new works.

### **3.2 Factors to Consider in Application Development and Review**

Applicants who are submitting applications for approval under the LRIA as well as MNR staff who are approving applications under the Act should be guided by the following:

1. Applicable federal and provincial statutes and regulations;
2. Applicable federal and provincial policy;
3. Maintaining the integrity of the riverine ecosystem (biodiversity and ecosystem sustainability);
4. Utilizing the best available information;
5. Address and manage impacts premised on the following order of importance – avoidance, prevention, mitigation;
6. Adopt the principles of adaptive management;
7. Principles for effective public consultation; and
8. Timely action.

### **3.3 Approval for New Works – Section 14 (Location Approval and Plans and Specifications Approval)**

New works require both location approval and plans and specifications approval under Section 14 of the Act.

Applicants who are seeking approval for new works must complete two separate application forms – one for location approval and one for plans and specifications approval. The completed application forms must be forwarded to the MNR District Office

for review. The MNR District Office is responsible for issuing both approvals. Location approval and plans and specifications approval are issued as two (2) separate letters of approval.

As noted above, applicants who are seeking approval for new works must complete a Work Permit application form and submit it to the MNR District Office for review. The District Office will confirm if approval under the Act is required and if so, will confirm the information that must be submitted.

### **3.4 Approval for Existing Works – Section 16 (Plans and Specifications Approval)**

An application for alterations, repairs or improvements to an existing dam, water crossing or channelization require only plans and specifications approval under Section 16 of the LRIA. Approval under Section 16 is also required before a person operates a dam in a manner different from that contemplated by plans and specifications approved by the Minister under Section 14 or Section 16 of the Act.

Applicants should be aware that in some instances where applications for alterations, repairs and/or improvements to existing works are submitted for approval under Section 16 of the Act, the applicant may be requested to provide documentation that would support specific requirements generally considered during the location review for approval for new works. These instances may include the following:

1. Location approval was not granted at the time of the original construction; or
2. If site conditions have changed or are proposed to be changed.

In reviewing the application for Section 16 approval, the Ministry will advise the applicant if additional information is required as early in the application review process as reasonably possible.

As outlined in Section 3.5, it is the responsibility of the dam owner/applicant to submit a complete application with supporting documentation for approval. Upon receipt of a complete application, approximately 60 days will be required by the Ministry to conduct a detailed review, for most proposed improvement works. Should the application be incomplete, the Ministry will identify any further information required within 30 to 60 days.

Dam owners/applicants should be cautioned when deviations from the LRIA approval are being considered during construction. MNR should be notified without delay to assess the need for approval of any proposed changes.

### **3.5 The Application and Approvals Process**

It is the responsibility of the applicant to submit a completed application form with the required supporting documentation. The MNR may waive approval for simple projects as there is an established process in place for minor alterations and repairs to existing structures (see Directive WR.4.03.05.05). Certain projects (generally larger scale projects) may require an environmental assessment. Where an environmental

assessment is required, applicants must comply with the requirements of the Environmental Assessment Act.

**Supporting Documentation:**

Supporting documentation should be submitted to the MNR District Office for review with the following key considerations in mind:

1. Applications for approval must contain complete key plans, topographical maps and general arrangement drawings provided both in plan view and in cross-section view, with dimensional data appropriately labelled (e.g. length, width, horizontal and vertical dimensions, etc.);
2. Any site constraints (i.e. legal, physical, socio-economic and environmental) need to be noted and the appropriate connection to the proposed work noted; and
3. Any and all constraints associated with all phases of the work up to and including construction and commissioning of the works should be identified.

All analyses and investigations (including input parameters and assumptions) should be presented in report format with associated computer model inputs and outputs included as appendices.

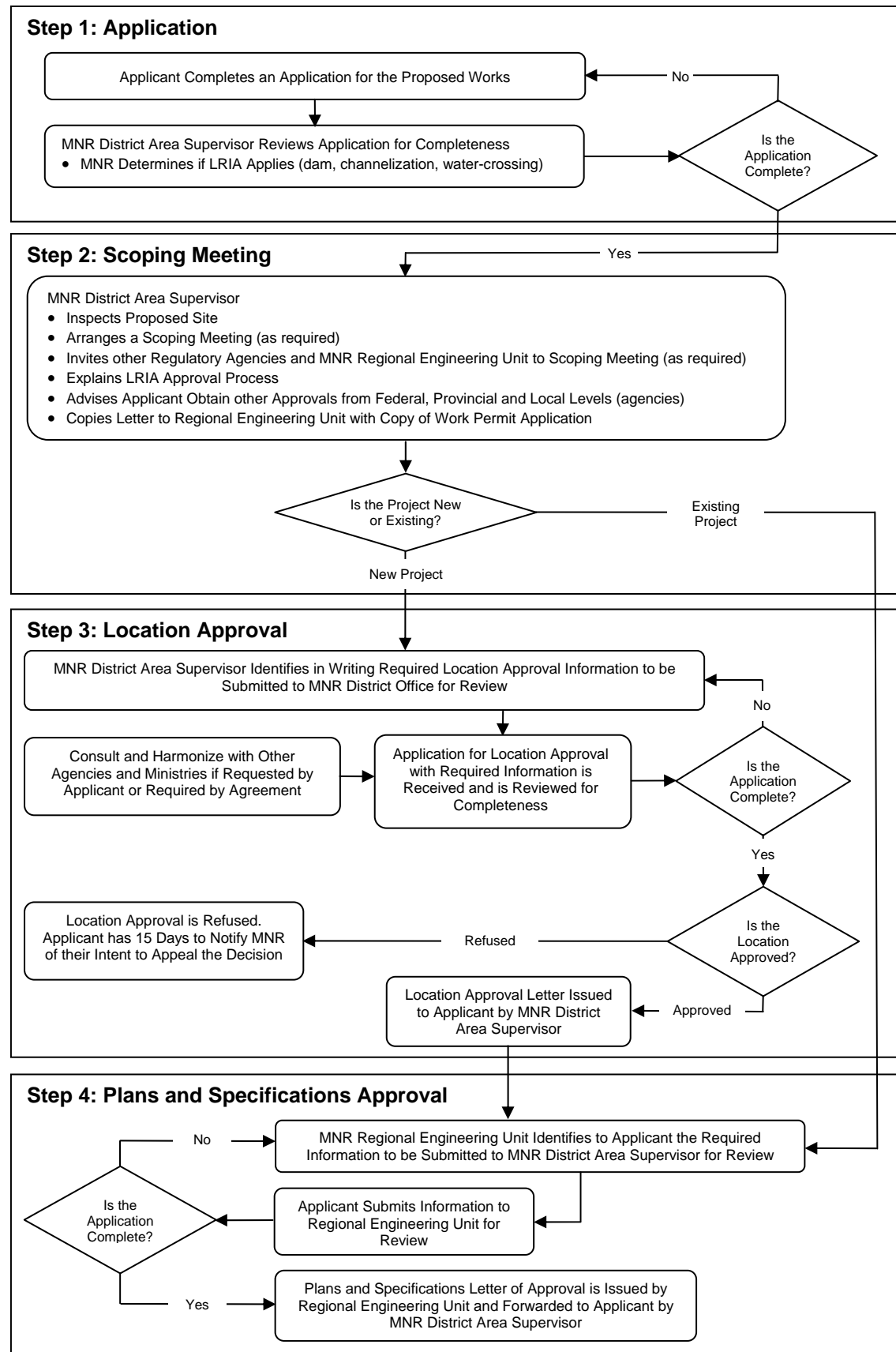
**The Application, Review and Approval Process:**

The application, review and approval process under the LRIA involves the following steps:

- Step 1: Application**
- Step 2: Scoping Meeting**
- Step 3: Location approval (new works only)**
- Step 4: Plans and specifications Approval**

The process for application review and approval is depicted in Figure 1.

**Figure 1 – Application Review and Approval Process**



### 3.5.1 Step 1: Application

The application review process under the LRIA commences when an application is submitted for approval under Section 14 or Section 16 of the Act. Applicants seeking approval under the LRIA for both new and existing works are required to complete an appropriate Work Permit application form and submit the application form to the appropriate MNR District Office. Determination on the applicability of the LRIA should be made in conjunction with Regional Engineering.

Applicants are required to ***complete, sign and date each application form in triplicate***. One copy should be retained by the applicant. Two copies are then submitted to the MNR District Office where one copy is retained in the District Office and one is forwarded to the Regional Engineering Unit.

Note: The application process for new works involves a two-stage application process. The first step involves submitting an application form for location approval. Once MNR has completed its review and has issued location approval, then the applicant will be advised to submit an application for plans and specifications approval.

#### **Documentation Requirements:**

Applicants are required to submit the application form with the requisite documentation to support the request for location approval and/or plans and specifications approval. The complexity of the proposal and its potential impacts will largely dictate the need for calculations and assessments. These requirements are discussed in detail below.

### 3.5.2 Step 2: Scoping Meeting

Where required, within 30 to 60 days of receipt of the initial application form, Ministry staff will arrange a scoping meeting with the applicant to discuss the application review and approval process as well as any requirements for additional information beyond that contained in the application form, and for potential opportunities for harmonization of approvals.

The scoping meeting will be organized by the MNR District Office and invitations to attend will be distributed to the applicant, other Ministries and agencies who have related approval requirements (e.g. MTO, MNDMF, DFO, and Transport Canada). The purpose of the scoping meeting will be to review the documentation requirements, ensure the application is complete and discuss any related approvals that are required. The inability of another ministry or agency to participate should not unduly delay the scoping meeting where their requirements can be provided in advance of the meeting. The applicant should recognize the potential requirement for subsequent participation and confirmation of additional information.

The scoping meeting will promote a coordinated approach to application review. It will allow information requirements to be discussed and integrated so that the application can be processed efficiently and effectively. The scoping meeting offers approval agencies an opportunity to learn more about the project and project timeframe and at the same time offers applicants an opportunity to better understand the approval process and timing associated with review and approval.

The applicant should come to the scoping meeting with copies of the application and any supplementary information describing the works proposed. Copies should be available for all participants. In determining who should participate, MNR must recognize that there are formal signed agreements or MOUs with Fisheries and Oceans Canada (or their delegate) and with Transport Canada.

Upon completion of the scoping meeting, the MNR will identify in writing the required information to be submitted by the applicant to the MNR District Office. The submission will then be reviewed under the location approval application review process.

### **3.5.3 Step 3: Review for Location Approval**

In carrying out the review for location approval for new works, Ministry staff must review the application in accordance with the information requirements specified. Ministry staff in carrying out their review for location approval should also consider the feasibility or practicality of implementing the location approval requirements in the subsequent plans and specifications approval. It is unacceptable to provide location approval for something that is unable to be achieved in the plans and specifications.

The Area Supervisor in the MNR District Office is responsible for the review of applications submitted for location approval. Consultation with the Regional Engineering Unit and the Ministry Engineer will occur on an as-required basis.

If the submission is considered to be complete and meets the requirements for submission, the Area Supervisor will issue a location approval letter informing the applicant they must now submit an application for plans and specifications approval. ***The letter will indicate that the location approval does not authorize construction. The applicant will be advised that construction cannot begin until the plans and specifications approval has been granted by the MNR.***

The location approval issued by the Area Supervisor will contain appropriate requirements and conditions, including a sunset or expiry provision per subsection 14(8) of the LRIA. The conditions that are part of the location approval will need to be addressed and incorporated into the plans and specifications approval.

Should the application be refused at any time during the application for location approval, the applicant then has fifteen (15) days within which to appeal the decision to the Ontario Mining and Lands Commissioner. At this time the applicant must notify their intent to appeal.

### **3.5.4 Step 4: Plans and Specifications Approval**

Upon receipt of an application for plans and specifications approval the Area Supervisor will forward a copy to the Ministry Engineer for their review and approval. The Ministry Engineer should consult with the Area Supervisor during the review, prior to providing the approval.

Decisions on applications for plans and specifications approval are rendered by the Ministry Engineer. If the submission is considered to be complete and meets the requirements for approval, the Ministry Engineer will issue plans and specifications



approval in the form of a letter of approval indicating that the application is approved in keeping with the Act.

The MNR District Area Supervisor will forward the letter of approval to the applicant. The District Office issues the location approval and the Ministry Engineer issues the plans and specifications approval. Both of the letter(s) of approval will be forwarded directly to the applicant by the MNR District Area Supervisor.

### **3.6 Appeal Process**

If a Notice of Refusal has been provided to the applicant, there is an opportunity to appeal the decision to the Mining and Lands Commissioner.

#### **3.6.1 Inquiry**

##### **Request of Inquiry**

If an application for approval under LRIA is refused, the applicant may request that an inquiry be held.

##### **Person Appointed To Carry Out the Inquiry**

If an inquiry is requested by the applicant, the Minister will refer the matter to the Ontario Mining and Lands Commissioner for hearing. The Minister may specify the particulars of the inquiry (e.g. mandate, scope). The Office of the Mining and Lands Commissioner is an independent adjudicative body with expertise in hearing matters relating to natural resource and environmental concerns. The Mining and Lands Commissioner reports to Cabinet through the MNR, but operates at arms length from the Ministry.

##### **Procedures for the Inquiry**

All logistical details concerning the inquiry will be handled by the Office of the Mining and Lands Commissioner, including identifying the time, place, location and procedural directions for the inquiry. At least 20 days prior to the inquiry, each party will participate by fully disclosing to other parties, a statement indicating the grounds and documents on which it intends to rely. Any relevant material or documents will be made available for inspection by the parties. The Office of the Mining and Lands Commissioner may require additional circulation of documentation between the parties and may conduct mediation where appropriate. Notice of the inquiry is issued by the Office of the Mining and Lands Commissioner.

##### **Inquiry**

In conducting the inquiry hearing, the Mining and Lands Commissioner, or appointed delegate, will consider whether the refusal was fair, sound and reasonably necessary to achieve the purposes of the LRIA.

## **Report of Inquiry**

Once the hearing concludes, the Office of the Mining and Lands Commissioner issues a report to the Minister. The Report summarizes the evidence presented at the inquiry and makes a recommendation to approve or refuse the application. Copies of the final Report are provided to all parties attending the hearing.

### **3.6.2 Minister's Decision**

Upon receipt of the Mining and Lands Commissioner's Report, the Minister considers the Report and issues a decision with reasons. The Minister may grant the approval requested, a modified version of it, or refuse to grant the approval. Notice of the Minister's decision is provided to all parties.

## Glossary of Terms

**Abutment:** The end of a dam, or other structure, consisting of a wall or natural formation. An abutment wall is similar to a wing wall.

**Adaptive Management:** Long term decision making process for improving resource management through effectiveness monitoring, study to reduce areas of uncertainty and adjusting to limit failures.

**Causeway:** A road or railway elevated by a bank over a body of water.

**Channelization:** Altering the alignment, width, depth, sinuosity, conveyance, or bed or bank material of a river or stream channel. Channelization does not include penstocks, raceways, canals and other works normally associated with hydroelectric development.

**Clear Span Bridges:** Clear Span Bridges do not have piers or abutments located in any portion of the full bank flow natural channel section or stream banks channel section. The stream banks channel section is defined as the full bank flow boundaries, not the flood boundaries, of a stream channel. The channel section does not include the flood plain located in the over bank areas.

**Culvert:** A conduit for carrying water through an embankment as related to a type of water crossing or discharge facility at a dam.

**Dam:** For the purpose of the administration of the LRIA, a dam is defined as a structure that is constructed which holds back water in a river, lake, pond, or stream to raise the water level, create a reservoir to control flooding or divert the flow of water.

**Dam Owner:** The owner of a dam, structure or work and includes the person constructing, maintaining, or operating the dam, structure or work.

**Decommissioning:** To retire, abandon, dismantle, or remove from active service, working order, or operation.

**Dredging:** Removal or displacement of any material from the bottom of a lake or stream.

**Environmental Assessment:** Process to predict the environmental effects of proposed initiatives before they are carried out. It identifies possible environmental effects, proposes measures to mitigate adverse effects, and predicts whether there will be significant adverse environmental effects, even after the mitigation is implemented.

**Fish Habitat:** Spawning grounds and nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly in order to carry out their life processes.

**Fish:** Includes parts of fish, shellfish, crustaceans, marine animals, and any parts of shellfish, crustaceans or marine animals and the eggs, sperm, spawn, spat, larvae, and juvenile life stages of fish, shellfish, crustaceans, and marine mammals.

**Groundwater:** Sub-surface water or water stored in the pores, cracks, and crevices in the ground below the water table.

**Heat Loop:** A loop of pipe extending from a building into a body of water for the purpose of transferring heat from the water to the building.

**Height:** The height of a dam is the vertical distance between the downstream toe of the dam in the streambed and the upper most point of the top of the dam.

**High Water Mark:** A visible demarcation mark made by the action of water under natural conditions on the shore or bank of a body of water which action has been so common

and usual and so long continued or that it has created a difference between the character of the vegetation or soil on one side of the mark and the character of the vegetation or soil on the other side of the mark.

**Lake:** Includes a pond and similar body of water (e.g. swamp, marsh, bog) if located on a river.

**Lock:** A chamber separating two reaches of a river or canal at different elevations. Locks are intended for the passage of boats.

**Retaining Wall:** A wall built to hold back earth along a river.

**Revetments:** A wall or facing of stone, or concrete, or other materials placed on a stream bank to prevent erosion.

**Riparian:** Adjacent to a river or lake.

**Riparian Owner:** A landowner whose property has boundaries defined on one or more sides by a waterbody or a waterbody runs through the property. In any case, the boundary between the waterbody and the property must be the water's edge where it is from day to day.

**River:** Includes a creek, stream, brook or similar watercourse with defined bed and banks of a permanent nature.

**River Channel:** The river or stream channel is defined as that portion of the channel which conveys the mean annual flood and/or which lies between the high water mark on both banks but does not include the overbank flood plain.

**Sinuosity:** The meandering pattern of a stream or river (wavy form).

**Total Diversion:** Refers to those situations where all stream flow is diverted from one point to another in the same river; the river channel is relocated, usually involving the construction of a new channel (or pipe); a section of the natural channel is blocked off from further flow by either temporary or permanent works (e.g. channel relocation).

**Watercourse:** Means a river.

**Water Crossing:** A bridge, culvert or causeway that is constructed to provide access between two places separated by water but that also holds back, forwards, or diverts water.

**Weir:** Means a structure in a watercourse intended to raise the water level to partially or totally divert its flow.

**Wetlands:** Lands that are seasonally or permanently flooded by shallow water as well as lands where the water table is close to 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 or water tolerant plants.

## List of Acronyms

CA	Conservation Authority
DFO	Department of Fisheries and Oceans Canada (federal)
DUC	Ducks Unlimited Canada
EA	Environmental Assessment
LRIA	Lakes and Rivers Improvement Act
MNDMF	Ministry of Northern Development Mines and Forestry (provincial)
MNR	Ministry of Natural Resources (provincial)
MTO	Ministry of Transportation (provincial)
NHS	National Historic Sites
PPS	Provincial Policy Statement

# Technical Bulletin

## ALTERATIONS, IMPROVEMENTS AND REPAIRS TO EXISTING DAMS



**Ministry of Natural Resources and Forestry  
2016**

The Lakes and Rivers Improvement Act (LRIA) provides the Minister of Natural Resources and Forestry with the legislative authority to govern the design, construction, operation, maintenance and safety of dams in Ontario. The Lakes and Rivers Improvement Act Administrative Guide and supporting technical bulletins have been prepared to provide direction to Ministry of Natural Resources and Forestry staff responsible for application review and approval and guidance to applicants who are seeking approval under Section 14, 16 and 17.2 of the LRIA. All technical bulletins in this series must be read in conjunction with the overarching Lakes and Rivers Improvement Act Administrative Guide (2011).

Cette publication hautement spécialisée Lakes and Rivers Improvement Act Alterations, Improvements and Repairs to Existing Dams Technical Bulletin n'est disponible qu'en anglais conformément au Règlement 671/92, selon lequel il n'est pas obligatoire de la traduire en vertu de la Loi sur les services en français. Pour obtenir des renseignements en français, veuillez communiquer avec le ministère des Richesses naturelles et des Forêts au 1-800-667-1940.

## Table of Contents

### 1.0 Introduction

- 1.1 Purpose
- 1.2 LRIA Section 16 – Alterations, Improvements and Repairs
- 1.3 Aboriginal and Treaty Rights

### 2.0 Works Requiring Approval

- 2.1 Works Subject to Section 16 Approval
- 2.2 Emergency Repairs

### 3.0 Application Requirements and Review Process

- 3.1 Applicable Standards
- 3.2 Submission Requirements
  - 3.2.1 Additional Information
  - 3.2.2 Consultation
- 3.3 Scheduling of Works
- 3.4 Application Review
  - 3.4.1 Scoping Meeting
  - 3.4.2 Application for Section 16 Approval
  - 3.4.3 Review for Application Completeness
  - 3.4.4 Review of the Section 16 Application
  - 3.4.5 Issuance of Decision
- 3.5 Expiration of Approval
- 3.6 Memorandum of Understanding

### 4.0 Common Works Not Requiring LRIA Approval

- 4.1 Concrete Structures
- 4.2 Decks
- 4.3 Instrumentation
- 4.4 Earth Fill Structures
- 4.5 Timber Crib Structures
- 4.6 Penstocks and Turbines, Flash Boards, Stop Logs
- 4.7 Log Handling Equipment
- 4.8 Cofferdams
- 4.9 Others

### Glossary of Terms

### List of Figures

Figure 1: Lakes and Rivers Improvement Act Application Review Process



## **1.0 Introduction**

### **1.1 Purpose**

This Technical Bulletin provides direction on the administration of Section 16 of the Lakes and Rivers Improvement Act (LRIA) for existing dams, including the control structure and other structures and equipment on the dam site, and any temporary dams for the purpose of controlling water during construction. This Technical Bulletin also provides examples of common alteration, improvement and repair work which do not require LRIA Section 16 approval.

This Technical Bulletin does not apply to other works subject to LRIA approval such as: water crossings; channelizations; enclosures; pipelines; and cables.

### **1.2 LRIA Section 16 – Alterations, Improvements and Repairs**

The Ministry of Natural Resources and Forestry has responsibility for the administration of the LRIA. LRIA Section 16 states that no person shall alter, improve or repair any part of a dam in the circumstances prescribed by the regulations, unless the plans and specifications for whatever is to be done have been approved.

Under Section 2(1)(b) of Ontario Regulation 454/96, Ministry approval is required to make alterations, improvements or repairs to a dam that holds back water in a river, lake, pond or stream to raise the water level, create a reservoir to control flooding or divert the flow of water, if the alterations, improvements or repairs may affect the dam's safety, structural integrity, the waters or natural resources. In addition, Section 2(2) of Ontario Regulation 454/96 specifies that LRIA Section 16 approval is required before a person operates a dam in a manner different from that contemplated by previously approved plans and specifications.

The LRIA Administrative Guide (MNR 2011) provides an overview of the LRIA, its application and the process for seeking approval. This Bulletin must be read in conjunction with the LRIA Administrative Guide. Where there is an overlap in policy requirements between the LRIA Administrative Guide and this Bulletin, the provisions of this Bulletin shall prevail.

### **1.3 Aboriginal and Treaty Rights**

The Ministry respects the existing Aboriginal and treaty rights recognized and affirmed by Section 35 of the Constitution Act, 1982 and is committed to meeting its constitutional and other legal obligations in respect of these rights, including the Crown's duty to consult and, where appropriate, accommodate. The duty to consult is triggered when the Crown has knowledge, real or constructive, of the

existence or potential existence of an Aboriginal or treaty right and contemplates conduct that might adversely affect that right.

Approvals under the LRIA may trigger the Crown's duty to consult, and in some situations, the Crown may delegate procedural aspects of its duty to consult to LRIA applicants. Proponents are encouraged to work closely with the Ministry when seeking LRIA approvals.

## 2.0 Works Requiring Approval

### 2.1 Works Subject to Section 16 Approval

The purposes of the LRIA will be a relevant factor in determining whether a proposed work is subject to LRIA Section 16 approval. Works subject to Section 16 approval include alterations, improvements or repairs that may affect the structural integrity or safety of the dam, or that may affect the waters or natural resources.

Proponents are responsible for complying with the requirements of the LRIA and obtaining any necessary legal authority required to alter, improve or repair a dam.

Examples of works that may require approval include, but are not limited to:

- a) changes to the size of a dam;
- b) changes to the size of spillways or other appurtenant discharge facilities to the dam;
- c) changes in the hydraulic capacity of the dam;
- d) reconstruction or partial reconstruction of a dam, spillway or other appurtenant discharge facility to the dam, which may include retrofitting an existing dam to produce waterpower;
- e) installation of a cofferdam, if the installation is not within existing service or emergency repair gains (i.e. upstream of operational stoplog gains);
- f) operation of a dam in a manner different from that contemplated by plans and specifications previously approved under LRIA Sections 14 or 16, including a permanent or temporary deviation from an approved Dam Operating Plan or from a previously approved dam operating requirement, and a revision to the rule curve (note: changes to dam operations approved through LRIA Section 23.1 will continue to be approved through LRIA Section 23.1); and
- g) decommissioning a dam. For information regarding decommissioning, refer to the LRIA Dam Decommissioning and Removal Technical Bulletin (2011).

A list of common works at dams that do not require LRIA Section 16 approval is detailed in Section 4 of this Bulletin.

If proponents are uncertain if LRIA approval is required, proponents should contact the Ministry to seek clarification as required. This clarification should be sought well in advance of proposed construction, to avoid unnecessary delays. The Ministry shall determine if proposed works require LRIA consideration and will provide written clarification to the proponent.

LRIA Section 16 approval does not relieve the proponent from compliance with the provisions of any other applicable federal, provincial, municipal, conservation authority or other agency's regulatory requirements and does not provide proponents with any guarantee that other required permits and approvals will be obtained in order to proceed with the proposed project. Proponents should not assume that undertaking works in accordance with conditions established by the Ministry through LRIA Section 16 approvals will address the regulatory interests of other agencies.

## **2.2 Emergency Repairs**

Emergency repairs to a dam may sometimes be required to address an imminent threat to life and property or to prevent significant environmental impacts. The Ministry recognizes that emergency situations are a priority and will respond to the dam owner's request accordingly.

## 3.0 Application Requirements and Review Process

### 3.1 Applicable Standards

The majority of works submitted for LRIA approval require supporting calculations and drawings to be completed by a Professional Engineer licensed to practice in Ontario. Accordingly, all final drawings, specifications, plans and reports are required to be signed, sealed and dated by a Professional Engineer licensed to practice in Ontario. Section 1.3.5 of the LRIA Administrative Guide (MNR, 2011) provides additional information regarding this requirement.

Ministry standards for dam safety in Ontario are outlined in the LRIA Administrative Guide (MNR 2011) and associated technical bulletins (hereafter referred to as Ministry Standards).

LRIA approval may be issued if the proposed alteration, improvement or repair to a dam meets the standards established in LRIA technical bulletins. Proposed works that vary from Ministry standards may be approved by the Ministry, if the variance does not represent a marked departure from Ministry standards, or it can be demonstrated that the proposed work does not adversely affect the purposes of the LRIA.

Insofar as Ministry standards may not represent current engineering practice or address all design requirements, the proponent's design engineer may comply with the most applicable standards or codes. In these circumstances, the design engineer should document the rationale for applying the relevant or alternative standards or codes.

The proponent should contact the Ministry in advance of submitting an application, to assess the need to include additional information to support the application, where the use of alternative standards is being proposed that vary from Ministry standards.

### 3.2 Submission Requirements

The proponent's design engineer must provide complete information to the Ministry such that the application for the proposed works can be reviewed in detail. Information submitted for Ministry review should be well organized and clearly presented. The following is a general list of submission requirements:

- report describing:
  - proposed work and rationale, existing site conditions, and supporting analyses, calculations, assumptions, interpretations and

- dam operation requirements used in determining the design of the proposed works;
- documentation and rationale of any deviation or departure from Ministry standards;
- design details of the components of the dam that are physically attached or logically connected to the proposed works as applicable;
- plans (design drawings) showing the design and construction details of the proposed works;
- material and technical specifications;
- sediment control and water handling/de-watering plan;
- construction schedule indicating start and completion dates for all proposed work, including any construction timing restrictions; and
- detailed analysis with supporting information of risks where phasing of work is proposed.

The above is not a complete list of all possible information that may be required to support an application. Additional or alternative application requirements may be identified through discussions with the Ministry.

Where the proposed work has the potential to cause either permanent or temporary flooding or erosion of land beyond existing conditions or to cause additional potential impacts that would conflict with the purposes of the LRIA, the Ministry will likely request additional information to support the Section 16 review. Proponents are responsible for determining where and what measures should be adopted to mitigate potential impacts related to the proposed work. Proponents should include an assessment of potential impacts and measures to mitigate identified impacts, as part of their application. Where the proposed work is subject to the Environmental Assessment Act, documentation prepared during the environmental assessment will be the Ministry's primary tool for identifying potential impacts associated with proposed work and measures to address those impacts.

The final plans and technical specifications shall be submitted and stamped "For Construction", signed and sealed by the design engineer. Should the proponent determine prior to or during the construction work that modifications to the approved design that may impact the dam's safety and/or structural integrity, the waters or natural resources are necessary, the design engineer shall identify those aspects of the work which were modified and meet the aforementioned conditions, and submit the design changes to the Ministry for approval.

### **3.2.1 Additional Information**

Where alterations, improvements or repairs to a dam may affect the safe operation of components that are physically attached or logically connected to

the proposed works, additional information may be required to support the Ministry's Section 16 review, specific to those components of the dam that are physically attached or logically connected. To facilitate timely Ministry review of applications, proponents are encouraged to proactively address any impacts of the proposed works on the safe operation of physically attached or logically connected components as part of the application.

In exceptional circumstances, the Ministry may give consideration to requesting work or studies (e.g. dam safety review) considered necessary to further the purposes of the Act, where there are significant concerns or uncertainty regarding the condition of the dam. In these situations, the Ministry will give due consideration to whether these matters should be considered as part of the Section 16 application, or whether the Ministry should exercise its authority through an order under LRIA Section 17.

In some instances where the Section 16 application for proposed work is for an existing dam, but LRIA Section 14 location approval has not been previously issued by the Ministry, additional information may be requested to ensure that the purposes of the Act are considered.

### **3.2.2 Consultation**

Depending on the scope and scale of the proposed work, the Ministry may require proponents to consult with individuals or communities who may be potentially affected by the proposed work prior, to the Ministry making a decision on the application.

Where proposed work is subject to the Environmental Assessment Act (EAA), the Ministry will rely on the EA process as the primary tool for the proponent to undertake consultation with potentially affected individuals or communities. The Ministry retains the right to direct or undertake additional consultation where necessary.

Where proposed work is not subject to the EAA, the Ministry will determine potential consultation requirements on a project specific basis. Consultation requirements will be determined in discussion with project proponents and will consider the scope of work and the potential level of public interest in the proposed works.

### **3.3 Scheduling of Works**

In certain circumstances, proposed works may be phased over a longer timeframe, where it is demonstrated that phasing is necessary. To support an application to phase the work over a longer timeframe, the proponent must provide documentation on the rationale and timing to complete all of the

proposed work. The documentation shall include a detailed description, drawings and schedules of the proposed work to be completed in each phase. Proponents must identify risks (e.g., winterization, flood events, scour and erosion) to undertaking proposed work over a longer term for each phase of the work, along with complete details of how the proponent will mitigate those risks until the proposed work is complete.

Where approval has been issued for works which will be phased over time, and if circumstances arise leading to changes in either the phasing or the scheduling, or if changes to project risks are identified, the Ministry may provide flexibility to revise the phasing or scheduling through an additional approval. The proponent shall provide the Ministry with written documentation requesting a revision to the phasing and/or schedule, clearly defining the proposed changes, supporting rationale, and any impacts to mitigation measures which may have, or have to be implemented. Changes to the schedule or phasing shall not be implemented by the proponent, until additional Section 16 approval has been issued by the Ministry.

### **3.4 Application Review**

The following subsections describe the LRIA Section 16 application review and approval process (Figure 1).

#### **3.4.1 Scoping Meeting**

Prior to application submission, proponents should contact the Ministry to discuss the need or benefit of a scoping meeting with Ministry staff well in advance of any planned construction period. The purpose of the scoping meeting is to: determine LRIA approval requirements; discuss the application review and approval process; identify application information requirements; and discuss potential use of alternative standards or codes contemplated by the proponent.

The scoping meeting will facilitate a more efficient and effective application process by offering the Ministry an opportunity to learn more about the proposed work and project timelines, and offering proponents an opportunity to better understand the approval process and timelines associated with review and approval.

Proponents are also advised to engage other relevant agencies who may have regulatory requirements related to the proposed work. During the scoping meeting, the Ministry may identify to the proponent, other regulatory requirements that may apply.

#### **3.4.2 Application for Section 16 Approval**



The application review process commences with the submission of an application for LRIA Section 16 Plans and Specifications approval. It is the responsibility of the proponent to submit a complete application.

### **3.4.3 Review for Application Completeness**

The Ministry will acknowledge receipt of an application, review the application and advise the proponent within 30-60 days if the application is complete. If the application is incomplete, proponents will be notified in writing of additional information required. Depending on the scope of additional information required and the time frame to provide it, the Ministry may place the application on hold, or return the application to the proponent. This determination will be made by the Ministry through discussions with the proponent. Where an application is returned to the proponent, the 30-60 day review period for completeness will restart upon submission of the additional information requested.

### **3.4.4 Review of the Section 16 Application**

Once an application is deemed complete, the Ministry will complete a detailed review of the proposed work to determine whether it meets Ministry standards and provides for the purposes of the LRIA, and will advise the proponent in writing of its decision within 60 days. Where additional information is required to support the detailed review, the Ministry will identify in writing additional required information and the rationale. In such circumstances, the 60 day review timeline will be put on hold until the Ministry receives the requested information.

### **3.4.5 Issuance of Decision**

In issuing a decision under LRIA Section 16, the Ministry may:

- approve the application;
- approve the application subject to such conditions or with such changes considered advisable to further the purposes of the LRIA; or
- refuse the application.

Where the Ministry intends to approve the Section 16 application subject to conditions or changes, a Letter of Approval will be issued to the proponent outlining the conditions or changes which must be met by the proponent. Conditions or changes shall be within the scope of LRIA Section 16 and must relate to the proposed works being applied for, those components of the dam that are physically attached or logically connected to the proposed works that may be affected, or to potential negative impacts resulting from the proposed work that would conflict with the purposes of the LRIA (where applicable).

Where the Ministry refuses a LRIA Section 16 application, a Letter of Intent to Refuse Plans and Specifications Approval will be issued to the proponent identifying the supporting rationale and any additional measures the proponent can take to address any outstanding concerns. The Letter of Intent to Refuse Plans and Specifications Approval will notify the proponent that unless the Ministry receives a request within 15 business days from the proponent for an inquiry, the application will be refused.

Requests for an inquiry under the LRIA are referred by the Ministry to the Office of the Mining and Lands Commissioner. Additional information on appeals to the Office of the Mining and Lands Commissioner is referenced in the LRIA Administrative Guide (MNR, 2011).

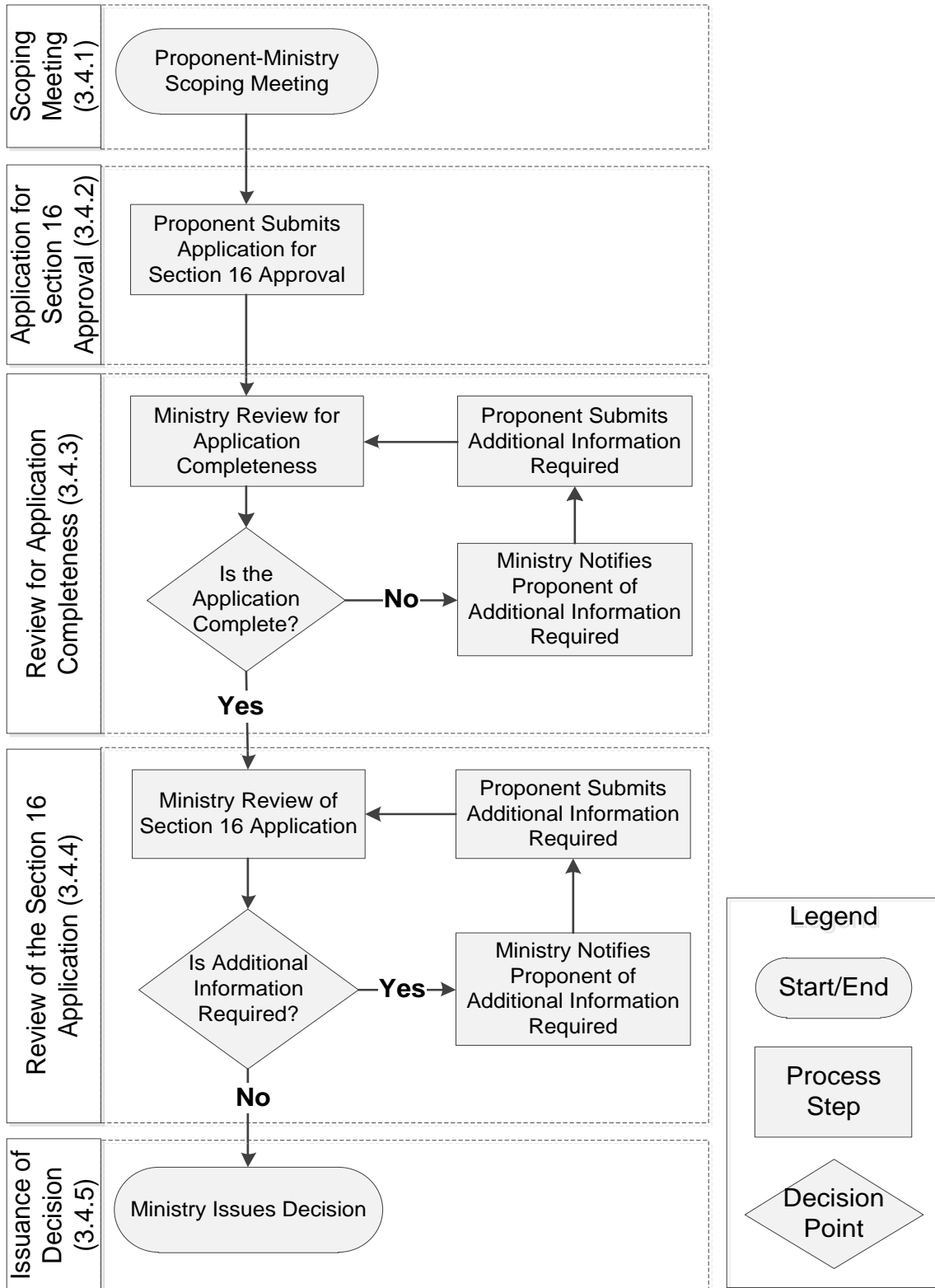


Figure 2: Lakes and Rivers Improvement Act Application Review Process

### **3.5 Expiration of Approval**

If construction completion dates stated in the Section 16 approval are expected to be exceeded, proponents should contact the Ministry as soon as it is apparent that completion dates may not be met. Section 16 approval is no longer valid where construction completion dates are exceeded.

### **3.6 Memorandum of Understanding**

The Ministry will give due consideration to the development of a memorandum of understanding (MOU) with dam owners who have:

- a portfolio of dams;
- extensive experience in the operation and maintenance of dams; and
- demonstrated successful design and implementation of similar proposed alteration, improvement or repair works at dams.

MOU's will be consistent with the purposes LRIA, and may establish specific commitments or procedures including, but not limited to, risk assessments, reporting and third party independent reviews.

## 4.0 Common Works Not Requiring LRIA Approval

This Section provides a list of alteration, improvement and repair works that do not require LRIA approval. The list must be read in conjunction with this Technical Bulletin to provide proper context in determining whether proposed works require LRIA approval. Even though the works may not require LRIA approval, proponents are responsible for complying with other statutes, regulations, standards, guidelines, codes, by-laws and the rules of other regulatory agencies associated with altering, improving or repairing an existing dam.

The list of works in Sections 4.1 to 4.9 have been predetermined to have minimal or no effect on the dam's structural integrity or safety, hydraulic capacity, public safety, the waters or natural resources. Proponents are responsible for ensuring that all work undertaken meets applicable Ministry standards and other professional guidelines and codes for the same type of work.

Proponents shall thoroughly document the rationale for proposed work that they assess does not require LRIA approval, as outlined in this Technical Bulletin and to keep this documentation on file.

The works identified herein are not intended to be a comprehensive list of all works that do not require LRIA approval. There may be additional proposed works that may not require approval.

If site conditions, methods of construction, or the extent and nature of the proposed work differ from the list below, the proponent shall contact the Ministry to determine if the proposed works require approval.

The Ministry will work with representatives of Ontario dam owners and their associations to monitor the effectiveness of this Technical Bulletin and in particular, the list of work that does not require LRIA Section 16 approval.

### 4.1 Concrete Structures

1. Minor concrete repair for gravity structures that meet Ministry standards involving a total weight reduction during the works not to exceed 2% of the mass of the component (including any voids that are to be filled) of the gravity dam structure under consideration or which will not affect the structural integrity of any element of the gravity dam or related discharge facility.
2. Minor Concrete Repair/ Spalling for non-gravity structures that meet Ministry standards - isolated repair area(s) less than 15m<sup>2</sup>, have a penetration depth not exceeding 75 mm, and involve exposure or

- replacement of reinforcing steel, and have a total area(s) not to be comprised of more than 15% of the total concrete surface area of the dam.
3. Maintenance of Steel Gains - including minor concrete repair as defined in Section 4.1(2) above.
  4. Replacement of Steel Gains in a like for like manner that will not affect the permanent discharge capacity of the spillway. Work may also include such items as associated concrete and doweling supporting the steel gains. Approval may still be required for any cofferdam (except as described in Section 4.8) or lowering of the head pond to replace the steel gains.
  5. Foundation Drain Cleaning where cleaning equipment or method will not damage the drain.
  6. Grouting of Joints/Cracks- isolated repair to be discontinuous and less than 25% of the component (e.g. pier nose, deck slab), and without chipping beyond that permitted for minor concrete repair as described in Sections 4.1(1) and 4.1(2) above. Approval may still be required for any cofferdam (except as described in Section 4.8) or lowering of the head pond.
  7. Replacement of Expansion Joints- replacement of sealants at original expansion and contraction joints, without chipping beyond that permitted for minor concrete repairs for Non Gravity Structures (Section 4.1(2)).

## **4.2 Decks**

1. Repair of Deck (concrete, steel or wood) - repair of concrete decks not to exceed that specified for concrete repair, repair of steel or wood decks and to be limited to repair of less than 15% of the members or area.
2. Removal or Replacement (like for like) of Deck that meets Ministry standards (concrete, steel or wood) - either temporary or permanent and does not:
  - a. impact on the stability of the structure; or
  - b. compromise the existing discharge capacity of a structure in a way which cannot be readily rectified when required or in an emergency condition
3. Repair, Replace, Upgrade or Install New - Handrail / Fall Arrestor Travel Restrict Systems.
4. Roadway Barrier – repair, replace or install new roadway barriers to dams that were originally designed for vehicle travel on deck surface.

### **4.3 Instrumentation**

1. Repair or Upgrade dam safety and water level Instrumentation.

### **4.4 Earth Fill Structures**

1. Foundation Drain Cleaning where cleaning equipment or method will not damage the drain.
2. Vegetation Removal and Control - work is associated with maintenance and the removal will not damage critical components of the dam.
3. Re-establishment of the crest surface, above the impervious core, to the most recent approved design grade and configuration and undertaken in accordance with the original design specifications.

### **4.5 Timber Crib Structures**

1. Repair or Replacement of up-stream or sluiceway sheathing.

### **4.6 Penstocks and Turbines, Flash Boards, Stop Logs**

1. Replacing wood stop logs with concrete or steel stop logs, but do not result in permanent or temporary changes to flows and levels and/or does not include or require the use of a cofferdam (except as described in Section 4.8).
2. Repair of Flashboards - repair or replacement of previously approved (like for like dimensions and elevation).
3. Repair or Replacement of Spillway Gates (like for like dimensions, elevations and type) provided all flow and level obligations continue to be met and no cofferdam (except as described in Section 4.8) and/or concrete repair work is required.
4. Localized Repairs of Penstock - (wood stave, steel, concrete) repair or replacement of saddle or support, but does not include work on or around thimble (minor repairs and only localized exposure of rebar).
5. Like for like replacement of turbine runner that does not serve to affect the ability to provide for low flow augmentation or discharge capacity.

#### **4.7 Log Handling Equipment**

1. Repair, modifications or replacement of in-kind Log Handling Equipment, as long as there remains an alternate capability to remove stoplogs or the dam has excess spill capacity to handle flows at all times and the work is not undertaken during expected high water periods.

#### **4.8 Cofferdams**

1. Installation of cofferdam, if installation is within existing service or emergency repair gains (i.e. upstream of operational stoplog gains).

#### **4.9 Others**

1. Installation of trash removal system, cleaning or repair of trash racks and trash removal equipment, including spillway cleaning and removal of debris from or in front of spillway.
2. Booms, Buoys, Signage - install, repair or replace booms, buoys or signage
3. Buildings – maintenance, repair or like for like replacement (footprint and loading) of shelter housings located on a dam (i.e. sheds for instrumentation or water level gauging, flow control equipment housing), that do not:
  - a. involve the use of heavy equipment on the dam that would exceed the load bearing capacity of the dam; and
  - b. impact the structural integrity of any component of the dam (e.g. deck).
4. Buildings - installation of new shelter housings located on a dam (i.e. sheds for instrumentation or water level gauging, flow control equipment housing) that does not:
  - a. involve the use of heavy equipment on the dam that would exceed the load bearing capacity of the dam;
  - b. impact the structural integrity of any component of the dam (e.g. deck); and
  - c. interfere with water management operations under normal or emergency conditions.
5. Maintenance of existing shoreline protection works within the same footprint which will not impact the structural integrity and hydraulic capacity of any component of a dam, and does not include work on the dam itself. Other approvals (e.g. Public Lands Act) may still be required.



6. Maintenance of existing riprap to return it to the original configuration by adding appropriate supplemental material, but not including the removal and replacement of material. Other approvals (e.g. Public Lands Act) may still be required.

## Glossary of Terms

**Appurtenant facilities:** means structures and equipment on a dam site including, but not limited to: intake and outlet structures; powerhouse structures; tunnels; canals; penstocks; surge tanks and towers; gate hoist mechanisms and their supporting structures; spillways; mechanical and electrical equipment; water control and release facilities.

**Dam:** a structure that is constructed which holds back water in a river, lake, pond, or stream to raise the water level, create a reservoir to control flooding, or divert the flow of water.

**Logically connected:** means those components of a dam that are not physically attached to the proposed alteration, improvement or repair, but are required to resist loads and forces in order to safely forward, hold back or divert water (e.g. control dams and block dams, fish-ways, water power generating facilities on the same reservoir, mechanical gates and remotely operated control systems).

**Physically attached:** means those components of a dam that are structurally connected to the proposed alteration, improvement or repair and work together to resist loads and forces to safely forward, hold back or divert water.

**Ministry standards:** dam safety standards as detailed in the Lakes and Rivers Improvement Act Administrative Guide and Technical Bulletins including:

1. Classification and Inflow Design Flood Criteria
2. Dam Decommissioning and Removal
3. Seismic Hazard Criteria, Assessment and Consideration
4. Structural Design and Factors of Safety
5. Spillways and Flood Control Structures
6. Geotechnical Design and Factors of Safety