

Technical Bulletin – Draft

PLANS AND SPECIFICATIONS APPROVAL FOR NEW DAMS



Ministry of Natural Resources

2026

The *Lakes and Rivers Improvement Act* (LRIA) provides a legislative framework for the regulation of construction, operation and alteration of dams in Ontario. The Lakes and Rivers Improvement Act Administrative Guide (2017) (the “LRIA 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, 17.2, and 23.1 of the LRIA. All technical bulletins in this series must be read in conjunction with the LRIA Administrative Guide.

Cette publication hautement spécialisée intitulée Plans et devis pour les nouveaux barrages en vertu de la Loi sur l’amélioration des lacs et des rivières – Bulletin technique 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 au 1-800-667-1940 .

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1 Introduction

This bulletin must be considered in conjunction with the LRIA Administrative Guide (2017) and [other relevant technical bulletins](#). Where this bulletin conflicts with the LRIA Administrative Guide or another Ministry of Natural Resources (“the Ministry”) technical bulletin in relation to Plans and Specifications approval for new dams, the provisions of this bulletin shall prevail to the extent of the conflict. Where there is an inconsistency between this bulletin and the LRIA or its regulations, the Act and its regulations prevail. Nothing in this bulletin limits or replaces the Minister’s discretion under the LRIA.

1.1 Purpose of this Guidance

This technical bulletin provides guidance regarding Plans and Specifications approval for new dams under the *Lakes and Rivers Improvement Act* (“LRIA”). The primary focus of the LRIA is to ensure that dams are designed, constructed, operated, and maintained in a safe and responsible manner.

Section 14 of the LRIA states that no person shall construct a dam in any lake or river in circumstances set out in the regulations without the written approval of the Minister of Natural Resources for the location of the dam and its Plans and Specifications. In accordance with subsection 14(5) of the LRIA, the Minister of Natural Resources may approve the Plans and Specifications of a dam subject to such conditions or with such changes as the Minister considers advisable to further the purposes of the LRIA.

Location approval and Plans and Specifications approval are separate but sequential approvals under section 14. Location approval establishes where a dam may be constructed and under what conditions. Plans and Specifications approval is the final LRIA approval stage before construction of a new dam may proceed. It focuses on ensuring the detailed engineering design of the dam and associated works is consistent with the approved location, applicable conditions and previous regulatory commitments, and Ministry guidance, engineering standards, and accepted engineering practice, where applicable.

1.2 Application to New Dams

This technical bulletin applies to new dams requiring Plans and Specifications approval under Section 14 of the LRIA. It applies to the dam structure itself and to associated works that are physically attached to or functionally connected with the dam, including spillways, intake structures, outlet works, control gates, and other associated infrastructure.

This bulletin does not apply to other works subject to approval under the LRIA, such as water crossings, channelizations, enclosures, pipelines, cables or standalone temporary dams that are not associated with the construction of a new dam.

Temporary works associated with the construction of a new dam, including cofferdams and temporary diversion works, are considered part of the overall undertaking and must be addressed in the Plans and Specifications submission where applicable.

1.3 Application to Existing Dams

While this bulletin addresses Plans and Specifications approval for new dams under section 14 of the LRIA, the Alterations, Improvements and Repairs to Existing Dams Technical Bulletin (2016) provides direction on the administration of LRIA section 16 to applicants seeking approval to alter, improve or repair existing dams.

1.4 Objective of Plans and Specifications Approval

The objective of Section 14 Plans and Specifications approvals process is to confirm that the detailed engineering design of a proposed dam and its associated works is suitable to proceed to construction in accordance with applicable LRIA requirements and Ministry technical guidance.

Plans and Specifications approval is not intended to revisit or revise decisions made through earlier planning processes (e.g., environmental assessment), location approval, or other applicable legislative requirements. Rather, the submission must demonstrate, through detailed engineering design and supporting analyses, that the proposed works:

- are consistent with the parameters, conditions, and operating assumptions established through location approval,
- meet the applicable standards and criteria set out in relevant Ministry guidelines and technical bulletins,
- are technically sound and reflect accepted engineering practices, and
- address the relevant purposes of the Act; in particular, the protection of persons and property, and the management of flooding and erosion.

Plans and Specifications approval authorizes the construction of the dam, however, it does not confer any right to occupy, use, or flood lands owned by others, whether public or private, and does not represent a disposition of public land or Crown resources. Proponents remain responsible for obtaining any necessary legal authority required to construct and operate the dam, including authority to occupy, flood, or otherwise affect the beds and banks of a lake or river, where required.

Plans and Specifications approval does not relieve the proponent from the obligation to comply with any other applicable legislative or regulatory requirements, including those administered by federal, provincial, or municipal authorities, conservation authorities, or other agencies. Such approval does not guarantee that any other required permits, approvals, authorizations, or public land dispositions (e.g., tenure documents) under the *Public Lands Act* (PLA) will be obtained.

1.5 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 credibly asserted or established Aboriginal or treaty rights and there is a proposed Crown action or decision that may adversely affect those rights.

Approvals under the LRIA, including Plans and Specifications approval, may trigger the Crown's duty to consult. Where the duty is triggered, the Ministry may delegate procedural aspects of the duty to consult to proponents while maintaining appropriate oversight of the consultation process. Where procedural aspects of consultation are delegated, proponents should engage potentially affected Aboriginal communities in a meaningful way. This may include providing clear and timely project information, seeking input on potential effects to asserted or established Aboriginal or treaty rights, traditional uses, lands, resources, or other rights-related interests, and being responsive to those potential effects and interests.

Where consultation and engagement will be completed as part of an associated environmental assessment or planning process, the Ministry will rely on that process, as well as the location approval process, to inform its Plans and Specifications approval decision under the LRIA. The Ministry encourages early and regular engagement with Indigenous communities.

Prior to issuing any approvals under the LRIA that trigger the duty to consult, the Ministry will assess the adequacy and sufficiency of consultation and accommodations. If the Ministry considers that there are outstanding concerns upon review of the proponent's consultation with Indigenous communities, the Ministry may provide additional direction as appropriate. Proponents are encouraged to work closely with the Ministry when seeking LRIA approvals to ensure that any consultation obligations owed to Indigenous communities are fulfilled.

2 Approval Sequence for New Dams

The construction of a new dam under the LRIA follows a defined sequence of approvals, engagement and consultation. To support an efficient review process, proponents should complete, or make substantial progress on, any applicable planning processes before applying for Plans and Specifications approval under subsection 14(3) of the LRIA. This may include planning processes required under the *Environmental Assessment Act* (e.g., Class Environmental Assessment for Waterpower Projects or an Individual Environmental Assessment), the federal *Impact Assessment Act*, or other associated planning processes that may apply to the proposed project.

Before applying for Plans and Specifications approval, proponents must obtain Location Approval under the LRIA. Location approval confirms that the proposed site, general design concept, flooding extents, and associated operating assumptions are acceptable. Refer to the Location Approval for Dams Technical Bulletin (2015) for more information.

After location approval has been obtained, the proponent may submit the detailed engineering design and supporting information required for Plans and Specifications approval. All engineering documents shall be stamped and signed by a professional engineer licensed in the Province of Ontario. Construction of the dam may only proceed once Plans and Specifications approval has been granted by the Ministry under subsection 14(5) of the LRIA and any applicable conditions relevant to commencement of construction have been satisfied.

3 Roles and Responsibilities

The project proponent, Professional Engineer responsible for the design of the dam, and Ministry engineers each have distinct responsibilities at the Plans and Specifications stage as outlined below.

3.1 The Proponent

The proponent is responsible for the following:

- To support a timely and efficient review, submit a complete application that includes all required technical documentation and clearly demonstrates alignment with the parameters and conditions established through any applicable planning process, location approval, and this technical bulletin, as well as any other applicable Ministry technical guidance. Section 4 provides Information regarding the requirements for a complete application.
- Obtain Plans and Specifications approval prior to commencing construction of a new dam.
- Retain a Professional Engineer licensed to practice in Ontario to be responsible for the engineering design and supporting technical documentation submitted in support of the application.
- Ensure that all required documentation is provided to the Ministry to support approval.
- Adhere to any conditions of the Plans and Specifications approval.
- Ensure that sufficient measures are incorporated into the project design to address environmental or social considerations associated with the construction and operation of the dam.

3.2 The Professional Engineer

For the purposes of this bulletin, the “Professional Engineer” refers to the Professional Engineer or Professional Engineers retained by the proponent (i.e. applicant) to prepare, review, and certify the engineering design and supporting technical documentation for the dam and associated works. Where more than one Professional Engineer is involved, each must be licensed to practice in Ontario and is responsible for the aspects of the design within their area of professional competence. For ease of reference, the term “Professional Engineer” is used throughout this bulletin to include one or more Professional Engineers, as applicable.

The Professional Engineer must:

- Prepare, review, and seal the detailed design of the dam and associated works, in accordance with Ontario’s *Professional Engineers Act* and applicable standards of practice.
- Ensure that the design is technically sound, consistent with accepted engineering principles, addresses all applicable LRIA standards and criteria, and is appropriate to the hazard potential classification of the dam.
- Confirm that the hydrologic, hydraulic, structural, geotechnical, and related analyses supporting the design are adequate and that the design is consistent with the overall design basis of the dam and associated works, including the parameters and conditions established through the location approval stage.
- Clearly identify and provide technical justification for any proposed deviations from Ministry-established standards or accepted design criteria within the submission.

Under the *Professional Engineers Act* and O. Reg. 941, practitioners who assume professional responsibility for engineering work are required to sign, date, and affix their professional engineer's seal to final engineering documents. Documents requiring a seal include those containing engineering calculations, engineering analysis, professional opinions, designs, specifications, or instructions based on engineering judgment. Section 53 of Regulation 941 requires a seal to be applied to drawings, specifications, plans, reports, designs, models, and other documents containing engineering content, regardless of whether they are issued in paper, electronic, or other formats, unless a specific exemption applies. Affixing a seal signifies that the practitioner assumes professional responsibility for the engineering content and that the document is final for its intended purpose.

3.3 Ministry of Natural Resources

The Ministry's review of the Plans and Specifications submission is primarily a Regulatory Review undertaken to determine whether the proposed detailed engineering design:

- Satisfies the requirements of the LRIA, this technical bulletin, and applicable Ministry standards and criteria.
- Is consistent with the applicable location approval, including relevant approved parameters, conditions, and operating assumptions.

In conducting this review, the Ministry may:

- Examine relevant technical aspects of the submission in further detail where concerns, inconsistencies, uncertainties, departures from applicable standards or accepted engineering practices, or site-specific risks or potential consequences warrant further consideration.

The Ministry's review does not constitute an independent verification of all aspects of the engineering design and does not relieve the proponent or the Professional Engineer responsible for the submission of responsibility for the adequacy, accuracy, completeness, and professional quality of the design and supporting analyses.

Additional guidance on regulatory reviews and technical reviews is provided in Professional Engineers Ontario's guideline, [Professional Engineers Reviewing Work Prepared by Another Professional Engineer \(2011\)](#).

4 Information Requirements for Plans and Specifications Submissions

A complete Plans and Specifications submission should provide sufficient technical information to enable the Ministry to determine whether the proposed detailed engineering design is consistent with location approval, meets Ministry standards, and satisfies the requirements of the LRIA and this technical bulletin.

The information requirements outlined in this section establish the minimum components of a complete Plans and Specifications submission. Proponents must address all submission components that are applicable to the proposed undertaking. The level of technical detail provided should be proportionate to the scale and complexity of the proposed undertaking, the hazard potential classification of the dam, and site-specific conditions. Technical analyses and design

requirements referenced in this section must be prepared in accordance with applicable [Ministry technical bulletins](#), where relevant.

4.1 Applicable Standards and Criteria

Ministry standards or criteria for dam safety in Ontario are outlined in the LRIA Administrative Guide (2017) and technical bulletins including:

1. [Classification and Inflow Design Flood Criteria](#)
2. [Seismic Hazard Criteria, Assessment and Considerations](#)
3. [Structural Design and Factors of Safety](#)
4. [Spillways and Flood Control Structures](#)
5. [Geotechnical Design and Factors of Safety](#)

Where Ministry standards or criteria apply to the design and construction of the proposed works, the submission must demonstrate how those standards or criteria have been addressed in the final design. Ministry standards are generally prescriptive; however, they may be supplemented by other design approaches where appropriate.

While this technical bulletin identifies key information expectations, it is recognized that Ministry standards may not fully address all site-specific conditions or reflect all current engineering practices. Proponents and their engineers must first base the design on applicable Ministry standards or criteria. Where those standards or criteria do not fully address site-specific conditions, the nature of the proposed undertaking, or are not available for a particular design element, proponents may propose to rely on other recognized standards, codes, or engineering guidance, subject to the Ministry determining that the proposed approach is acceptable.

Where deviations from Ministry standards or criteria for dam safety, recognized engineering standards, or previously identified design criteria are proposed, the submission must clearly identify those deviations and provide sufficient engineering rationale to demonstrate that the proposed design remains technically sound and consistent with accepted engineering practice. Alternative engineering approaches may be proposed where they demonstrate an equivalent or greater level of safety. The proponent is responsible for ensuring that any alternative standards, codes, engineering guidance, or approaches are applied by qualified professionals and appropriately supported within the submission. The Ministry will evaluate proposed deviations based on the adequacy of the supporting technical justification and whether the proposed approach provides an equivalent or greater level of safety while achieving the intent of the applicable Ministry standards and criteria.

4.2 Submission Requirements

4.2.1 General Submission Requirements

The submission for Plans and Specifications approval should include information identified in the following table:

Table 1: General Submission Requirements for Plans and Specifications Approval

General Submission Component	Information to be Included
Proponent and key contact information	Names and contact information, roles, and relevant qualifications for the proponent, their engineer(s), and any other key contacts involved in preparing or supporting the submission (e.g. other consultants).
Valid location approval	Confirmation that location approval under Section 14 has been obtained and remains valid.
Applicable location approval and conditions	Identification of the applicable location approval and reference to any conditions imposed that affect design, construction, flooding limits, operational parameters, or any other matter relevant to the Plans and Specifications submission.
Changes from location approval	Identification and description of any changes from the parameters, conditions, or operating assumptions established at the location approval stage, including an assessment of whether those changes may affect the validity of the location approval or require further Ministry review.
Detailed design refinements	Explanation of any refinements that have occurred through detailed design.
Technical analysis supporting changes	Sufficient technical analysis to support the Ministry's Regulatory Review, where changes may affect flooding extents, hazard classification, or other approved parameters.
Professional Engineer confirmation	Confirmation that the engineering design has been prepared and sealed by appropriately qualified Professional Engineer(s) licensed to practice in Ontario, with each Professional Engineer responsible for the aspects of the design within their area of professional competence.
Site assessments	Where applicable, documentation of site assessments undertaken to inform the design, including relevant observations of existing site conditions, constraints, and features that may influence the design and construction of the dam and associated works.
Property mapping	Mapping or plans identifying the extent of the proposed legal property boundaries associated with the dam and reservoir, including lands that may be directly or indirectly affected by the construction and operation of the dam, such as areas subject to flooding or erosion.
Digital application documentation	Application documentation submitted in digital format.
Physical copies	Where physical "hard copy" documents are submitted as part of the application, include one copy of each document.

4.2.2 Final Design Report

The Plans and Specifications submission must include a Final Design Report describing the detailed engineering design of the proposed works. The report must provide sufficient technical information to enable the Ministry to determine whether the design is consistent with the Location Approval. It must also demonstrate that the proposed works are suitably designed to address the key considerations relevant to Plans and Specifications approval under the LRIA, including the

safety and stability of the dam, the management of water levels and flows, and the prevention of adverse flooding or erosion impacts, in accordance with this technical bulletin.

At a minimum, the final design report must include the information identified in the following table:

Table 2: Final Design Report Requirements

Final Design Report Component	Information to be Included
Design basis	Description of the design basis for the dam and associated works, including the engineering standards, analytical methods, intended design life, and assumptions used in developing the final design.
Technical analyses	Summary of the technical analyses supporting the design, with detailed supporting information provided in the relevant sections of the Plans and Specifications submission at an adequate level to support a Regulatory Review as defined in PEO guideline “Professional Engineers Reviewing Work Prepared by Another Professional Engineer”.
Watershed characteristics	Description of the watershed characteristics relevant to the hydrologic analyses used to support the design of the dam, including drainage area, physiographic conditions, upstream storage features, and available hydrometric information.
Location and configuration	Identification and description of the location and configuration of the dam and associated works, such as the reservoir, spillways, outlet works, and other appurtenant infrastructure.
Hazard potential classification	Identification of the hazard potential classification of the dam and confirmation that the design criteria applied are appropriate for the applicable classification. The dam’s hazard potential classification must be determined in accordance with the Ministry’s Classification and Inflow Design Flood Criteria Technical Bulletin.
Hydrologic and hydraulic analyses	Summary of the hydrologic and hydraulic analyses undertaken to support the design of the dam and associated structures, including the methods, models or simulations used, key assumptions, input parameters, and results, where applicable, and consideration of site-specific hydraulic and hydrologic conditions that may affect water levels, flows, and structure performance.
Inflow design flood	Identification of the inflow design flood used in the design of the dam, including the inflow design flood hydrograph and the resulting reservoir water level, and a description of the analytical methods used to estimate the design event, consistent with the Ministry’s Classification and Inflow Design Flood Criteria Technical Bulletin.
Geotechnical investigations and structural analyses	Summary of the geotechnical investigations and structural analyses undertaken to characterize site conditions and support the design of the dam and its foundation, including the design load combinations, structural analyses, stability assessments, and factors of safety, sufficient to demonstrate compliance with the Ministry’s Technical Bulletins on Geotechnical Design and Factors of Safety and Structural Design and Factors of Safety, and, where applicable, the Seismic Hazard Criteria, Assessment and Considerations Technical Bulletin.

Final engineering design	Final engineering design of the dam and associated works, and the principal design features and structural elements incorporated into the design, in accordance with applicable Ministry technical bulletins, including the Technical Bulletin on Structural Design and Factors of Safety and, where relevant, the Technical Bulletin on Geotechnical Design and Factors of Safety.
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4.2.3 Hydrological Information

The Plans and Specifications submission must include hydrologic analyses sufficient to support the design of the dam and associated works and to demonstrate that the facility can safely manage flows consistent with the applicable hazard potential classification. Hydrologic analyses, including determination of the inflow design flood, must be carried out in accordance with the Ministry's Classification and Inflow Design Flood Criteria Technical Bulletin. Additional hydrotechnical guidance is provided in the document, Technical Guide River & Stream Systems: Flooding Hazard Limit (2002).

At a minimum, the submission must include the information identified in the following table:

Table 3: Hydrological Information Requirements

Hydrological Information Component	Information to be Included
Inflow design flood	Determination of the inflow design flood, including the estimated peak flow and resulting flood hydrograph used in the design of the dam. The analysis should consider relevant flood-generating mechanisms and seasonal variations, including, where applicable, spring rain-on-snow events and summer, and autumn rainfall events.
Hydrologic methods and inputs	Documentation of hydrologic methods, future hydrology assumptions, models, input parameters, data sources, and analytical or modelling approaches used to estimate inflows and characterize watershed response.
Model calibration or verification	Where modelling approaches are used, documentation describing the calibration or verification of hydrologic model input parameters and assumptions using available hydrometric data, watershed information, or other relevant sources.
Comparison and validation of hydrologic analyses	Selection of the hydrologic characteristics used for design should, where appropriate, be supported by comparison with and validation against other analytical methods or approaches.

4.2.4 Hydraulic Information

The Plans and Specifications submission must include hydraulic analyses sufficient to demonstrate that the dam and associated discharge facilities can safely convey flows associated with the inflow design flood, consistent with the design basis established at the location approval stage, without the resulting reservoir water level infringing on the required freeboard.

Where applicable, the hydraulic design must consider reservoir routing effects and the interaction between the reservoir, spillways, outlet works, and downstream channel. Hydraulic design of spillways, outlet works, and other discharge facilities must be carried out in accordance with the

Ministry's technical bulletin on Spillways and Flood Control Structures and must be designed to safely manage anticipated hydraulic conditions, such as ice, debris, and high flow velocities.

The submission must include the information identified in the following table:

Table 4: Hydraulic Information Requirements

Hydraulic Information Component	Information to be Included
Discharge capacities	Identification of the maximum discharge capacities of spillways, outlet works, and other discharge facilities associated with the dam.
Stage–discharge relationships	Stage–storage–discharge relationships used to characterize the hydraulic performance of each discharge facility and the immediate downstream channel.
Operating assumptions for hydraulic analyses	Identification of the assumptions used in the hydraulic analyses regarding the availability and operation of gates, spillways, outlet works, and other discharge facilities that affect the assessment of hydraulic capacity and resulting water levels.
Discharge capacity and flow conditions	Analysis of discharge capacity and flow conditions through spillways, outlet works, and other control structures, including factors affecting conveyance such as tailwater conditions, or flow control features.
Emergency drawdown capacity	Where applicable, analysis demonstrating the capacity of the dam and associated outlet works or other discharge facilities to lower the reservoir under emergency conditions, including the achievable rate and duration of drawdown and the hydraulic conditions or constraints that may affect emergency drawdown.
Energy dissipation and downstream protection	Where applicable, description of downstream energy dissipation measures and details of downstream channel or shoreline protection required to manage anticipated hydraulic conditions.
Immediate downstream hydraulic conditions	Analyses describing hydraulic conditions in the immediate downstream channel associated with discharge from the dam.
Dam break analyses and inundation mapping	Where required by the Ministry, considering the hazard potential classification of the dam, provide dam break analyses, including inundation mapping showing downstream land use and the predicted extent of inundation resulting from dam failure. Inundation mapping should be based on the applicable inflow design flood and dam breach parameters, consistent with the hazard potential classification of the dam.
Ice and debris conditions	Assessment of ice and debris conditions relevant to the site, including consideration of potential blockage, accumulation, and impacts on discharge capacity, together with a description of design features or operational measures incorporated to safely manage these conditions.

4.2.5 Reservoir and Flooding Information

The Plans and Specifications submission must include information describing the reservoir configuration and flooding characteristics associated with the final design of the dam.

The submission must include the information identified in the following table, in the format of drawings and supporting technical documentation, as appropriate:

Table 5: Reservoir and Flooding Information Requirements

Reservoir and Flooding Information Component	Information to be Included
Site and physical conditions	Description of terrain, vegetation, soils, groundwater, geological features (faults, shear zone) and anomalies.
Reservoir water levels	Reservoir water levels used in the design, including the normal operating level, maximum operating level, reservoir water level associated with the applicable design flood, and, where applicable, transient water levels resulting from load rejection surge.
Maximum reservoir water level and freeboard	Maximum reservoir water level and freeboard, including the reservoir level resulting from the inflow design flood and other applicable transient conditions, and the freeboard provided between the applicable maximum reservoir water level and the crest elevation of the dam or, for an embankment dam, the elevation of the impervious core, as applicable.
Headpond elevations and flooding limits	Headpond elevations and flooding limits used to define the extent of flooding associated with the final design of the dam.
Flood extent mapping or analyses	Flood extent mapping or analyses, where applicable that identify the limits of upstream inundation associated with reservoir impoundment under the final design.
Infrastructure affected by flooding	Identification of buildings, roads, docks and other infrastructure that may be affected by flooding within the reservoir area.
Consistency with location approval	Confirmation of consistency with location approval, including demonstration that reservoir levels and flooding limits remain consistent with those considered at the location approval stage. Where the detailed engineering design results in changes to flooding extents, headpond elevations, or reservoir levels, the submission must clearly identify those changes and provide supporting technical analysis.
Reservoir sedimentation	Assessment of sedimentation within the reservoir and the potential for long-term changes in storage capacity, where relevant to the design and operation of the dam.
Reservoir rim stability	Where relevant, assessment of reservoir rim stability, including identification of areas susceptible to slope instability, erosion, or slope failure associated with reservoir impoundment, assessment of potential impacts on reservoir operation, water levels, and surrounding lands, and description of any measures incorporated into the design to address these conditions.

4.2.6 Geotechnical and Foundation Information

Geotechnical and foundation information must be provided to characterize subsurface conditions, construction materials, and relevant geotechnical conditions, and support the design of the dam

and associated works. This information is typically obtained through site investigations that defines the nature and variability of subsurface conditions around the dam foundation and adjacent areas that may influence the performance of the structure.

All geotechnical investigations, analyses, and reporting must be conducted under the direction and review of a Professional Engineer licensed to practice in Ontario. Geotechnical design and analysis must be carried out in accordance with the Ministry's Geotechnical Design and Factors of Safety and Seismic Hazard Criteria, Assessment and Considerations Technical Bulletins, where applicable.

The submission must include the information identified in the following table:

Table 6: Geotechnical and Foundation Information Requirements

Geotechnical and Foundation Information Component	Information to be Included
Site investigation program and supporting documentation	Site investigation program and supporting documentation, which describes the field investigations undertaken to characterize subsurface conditions, including the location and extent of investigations carried out within the dam foundation and surrounding areas.
Subsurface conditions	Subsurface conditions, including descriptions of soil, rock, and groundwater conditions encountered at the site.
Geotechnical properties	Geotechnical properties, including the engineering properties of foundation materials used to establish design parameters for the dam and associated structures.
Foundation behaviour considerations	Foundation behaviour considerations, including identification of geologic discontinuities or anomalies such as joints, fissures, weak seams, or other features that may influence foundation performance, and assessment of soil behaviour, including potential for liquefaction or other conditions that may affect stability and performance.
Stability and seepage considerations	Stability and seepage considerations, including information relevant to the assessment of embankment stability, bearing capacity, seepage pathways, internal and external drainage collection, sliding potential, erosion susceptibility (including the potential for hydraulic erosion or scour of downstream soils or rock), impervious barrier to flow, and other factors affecting the stability of the dam and foundation.
Geotechnical design parameters	Geotechnical design parameters, including the parameters derived from field investigations and laboratory testing used to support the design of the dam.
Site-specific seismic hazard assessment	Where required, a site-specific seismic hazard assessment, including the seismic hazard parameters used to support the geotechnical and structural design of the dam and associated works, prepared in accordance with the Ministry's Seismic Hazard Criteria, Assessment and Considerations Technical Bulletin.
Embankment materials and borrow sources	For embankment dams, identification of proposed borrow sources and characterization of the materials to be used in construction,

	including relevant geotechnical properties and suitability for their intended use.
Geotechnical instrumentation and monitoring	Details of instrumentation incorporated into the design to monitor the geotechnical performance of the dam and foundation, where applicable, including the type, location, purpose, and parameters to be monitored.

4.2.7 Design Drawings and Technical Specifications

The Plans and Specifications submission must include Issued for Construction engineering drawings and associated construction specifications describing the final design of the dam and associated works. Design drawings must clearly illustrate the configuration, dimensions, elevations, and structural details necessary to understand the design and operation of the facility. Elevations shown on design drawings must use a uniform datum for the entire application. The Ministry suggests the [Canadian Geodetic Vertical Datum of 2013 \(CGVD 2013\)](#).

The design drawings and supporting documentation must meet the following requirements:

- All drawings must be prepared and sealed by a Professional Engineer licensed to practice in Ontario.
- The structural design of the dam and associated works must be carried out in accordance with applicable Ministry technical bulletins, including the technical bulletins on Structural Design and Factors of Safety, Geotechnical Design and Factors of Safety, and Seismic Hazard Criteria, where applicable.
- Where applicable, design drawings should be supported by appropriate topographic survey information sufficient to define site conditions, elevations, and spatial relationships relevant to the design of the dam and associated works.

The submission must also include the information identified in the following table:

Table 7: Design Drawings and Technical Specifications Requirements

Design Drawings and Technical Specifications Component	Information to be Included
General arrangement drawings	General arrangement drawings that show the layout of the reservoir, dam, spillways, outlet works, and other associated infrastructure.
Plan, profile, and cross-section drawings	Plan, profile, and cross-section drawings that illustrate the principal dimensions and elevations of the dam and associated structures.
Water levels	Identification of water levels, including natural water levels, operating water levels, maximum operating level, and the reservoir water level associated with the inflow design flood used in the design.
Associated infrastructure	Identification of associated infrastructure, including discharge facilities, waterpower components where applicable, saddle dams, or other appurtenant works.
Design details	Design details, including structural sections and construction details necessary to describe the configuration of the works.
Construction specifications and	Construction specifications describing the materials, equipment, construction requirements, and quality control provisions applicable

supporting product information	to the works, together with supporting technical information, where necessary, to demonstrate how specified materials or equipment have been incorporated into the final design.
Public safety features	Identification of public safety features incorporated into the design, where applicable, including fencing, warning signs, booms, barriers, restricted access, lighting, and other measures appropriate to the site and associated hazards.

4.2.8 Construction Planning Information

The Plans and Specifications submission must include information describing how the dam and associated infrastructure will be constructed and how construction activities will be managed where they may materially affect dam safety during construction, public safety, upstream or downstream water levels, hydraulic performance, structural integrity of the permanent works, or compliance with the LRIA, including the proposed construction sequence, temporary works, and other construction measures necessary to safely complete the project. Construction methods and temporary works should generally be described at a performance level sufficient to support the Ministry's review.

The submission must include the information identified in the following table:

Table 8: Construction Planning Information Requirements

Construction Planning Information Component	Information to be Included
Construction schedule	A construction schedule showing the anticipated timing and sequence of major construction activities.
Construction phases	Identification of construction phases where the works will be completed over more than one construction season.
Temporary structures for water management	Description of cofferdams, diversion channels, or other temporary structures required to manage water during construction, including applicable performance objectives and design criteria (e.g., design flood or return period, freeboard, stability, and flow conveyance requirements) necessary to demonstrate that the temporary works can safely support construction and water management.
Water management during construction	Water management during construction, including proposed approaches to diversion, dewatering, or other water control measures required to safely construct the dam and associated works.
Sediment and erosion control	Identification of proposed measures for sediment and erosion control during construction.
Construction-related risks and mitigation measures	Identification of construction-related risks that may materially affect the safety or stability of the dam or associated works during construction, and the measures proposed to address those risks.
Construction timing constraints	Identification of timing constraints relevant to construction, including expected timing windows for in-water works and any seasonal or

	environmental constraints that may affect the safe execution of the project.
Contractor-designed works and controls	Identification of applicable performance objectives, design criteria, and standards applicable to temporary works, water management measures, or construction-related environmental controls where the detailed design will be completed by the contractor.
Commissioning and initial filling	Where applicable, a description of the proposed commissioning and initial filling process, including monitoring, inspections, performance verification, and any criteria or procedures for confirming that the dam and associated works are performing as intended before transitioning to normal operation.

Where material changes to construction sequencing, phasing, or associated risks are identified following submission or approval, that may affect the safety, stability, or performance of the dam or associated works, the proponent must notify the Ministry in advance and provide updated information, including any implications for construction methods, temporary works, and risk mitigation measures. Where the change affects the approved plans and specifications, Ministry approval must be obtained before the change is implemented.

4.2.9 Environmental Information

Environmental considerations related to the location and general environmental effects of the proposed undertaking are primarily addressed during any applicable planning process (e.g. environmental assessment) and the location approval stage. The Plans and Specifications submission is not intended to repeat or revisit those earlier assessments. Instead, the submission should outline environmental information relevant to the detailed design and construction of the dam and associated works, including environmental considerations that may arise during construction or operation.

Where construction-related environmental commitments, mitigation measures, or monitoring requirements were established during the location approval stage or through other planning processes, the submission should demonstrate how those commitments have been incorporated into the final design and construction planning.

Environmental considerations should include, but are not limited to, the information identified in the following table:

Table 9: Environmental Information Requirements

Environmental Information Component	Information to be Included
Water flow conditions and water levels	Water flow conditions and water levels relevant to the construction and operation of the dam.
Water temperature	Where relevant to the final design or operating regime, potential changes in water temperature associated with reservoir creation or changes in flow patterns, including confirmation that any applicable commitments or mitigation measures established through location approval or another planning process have been incorporated.

Sediment transport, deposition, and erosion	Potential changes to sediment transport, deposition, or erosion associated with the final design, including effects on spillway performance, reservoir conditions, and downstream channel stability, where applicable.
Fisheries and wildlife impacts	Potential impacts associated with the construction or operation of the dam on fisheries and wildlife.
Fish passage considerations	Fish passage considerations, where applicable.

Where construction-related environmental assessments or ecological studies have been undertaken, the submission should include a report describing the methods, assumptions, supporting information, and any monitoring requirements associated with the assessment.

For LRIA applications involving dams, the Ministry will provide for the management, perpetuation, and use of fish through the *Federal Fisheries Act*, as administered by Fisheries and Oceans Canada (DFO). Plans and Specifications approval for the proposed dam will not be issued by the Ministry until DFO has provided advice on impacts to fish and fish habitat under the *Fisheries Act*, including the death of fish by means other than fishing or the harmful alteration, disruption, or destruction of fish habitat.

The Ministry will, where available, provide fisheries management objectives, fish and habitat information, and identify fish passage interests for consideration by DFO when they are reviewing development proposals and recommending measures to avoid, mitigate or offset impacts to fish and fish habitat.

Plans and Specifications submissions must demonstrate how fish passage features, offsetting measures, or other required fisheries-related measures including DFO Standards and Codes of Practice, where required through consultation with DFO have been incorporated into the final design, where applicable.

4.2.10 Flooding and Erosion of Land

Ensuring that dams do not cause unauthorized flooding or erosion of lands owned by others, including any direct or indirect flooding or erosion beyond what is expected under existing conditions, is an important consideration in providing for the interests of riparian owners (LRIA Section 2(c)) and the protection of persons and property (LRIA Section 2(f)).

The application for Plans and Specifications approval must include the information identified in the following table, as applicable:

Table 10: Flooding and Erosion of Land Requirements

Flooding and Erosion of Land Component	Information to be Included
Consistency with approved	Confirm that the extent of flooding and erosion associated with the final design is consistent with that approved at the location approval stage; or, where changes are proposed, clearly identify those changes, the additional

flooding and erosion extents	lands affected other than the proponent, and provide supporting technical analyses prepared by a Professional Engineer licensed to practice in Ontario.
Legal authority for privately owned lands	Where the proposed works involve the flooding or erosion of privately owned lands, the submission must include documentation demonstrating that the proponent has obtained the necessary legal authority to do so.

4.2.11 Dam Operations Information

The *Location Approval for dams Technical Bulletin* (2016) and the *Operating Plans for dams Technical Bulletin* (2026) [draft] contain operating requirements to satisfy location approval (preliminary Operating Plan) and Operating Plans ordered under LRIA Section 23.1. Some of this information will be consistent with the dam operations information required for Plans and Specifications approval.

To satisfy Plans and Specifications approval, the Ministry requires detailed information on the operations of the dam including, but not limited to, the following:

- Identification of operating objectives and constraints (e.g., minimum flows, discharge limits, etc.).
- Seasonal operations and operating curves (e.g., operating regime).
- Communications protocols relevant to dam operations, including emergency contact information.
- Description of operating procedures under normal and emergency conditions, including flood and drought conditions and events exceeding the Inflow Design Flood.
- Dam, flow, and water level monitoring relevant to dam operations, where applicable.
- Description of how debris and ice will be managed.
- Details regarding the operation of fishway gates, where applicable.
- Identification of roles and responsibilities for dam operations.
- For High and Very High Hazard Potential dams, demonstration of emergency preparedness and management arrangements appropriate to the hazard classification.

The information required under this section generally corresponds to the description of the operational content that may be included in an Operations, Maintenance and Surveillance (OMS) Manual). An OMS Manual is a lifecycle document that describes the procedures for operating, maintaining, inspecting, monitoring, and managing a dam under normal and emergency conditions. A complete OMS Manual is not required for Plans and Specifications approval. The required dam-operations information may be submitted as a standalone document or as part of an OMS Manual, where one has been prepared.

4.2.12 Temporary Dams

Temporary works are generally required to support the construction of a new dam to separate the watercourse from the construction activities. The design criteria and level of engineering assessment for temporary works should be appropriate to the nature and complexity of the works, anticipated site conditions, and the risks and consequences associated with their failure. Where the detailed design of cofferdams or other temporary works is available at the time of application, it should be included with the Plans and Specifications submission. Where the detailed design will be completed by the contractor or another retained engineer following approval, the submission must identify the applicable performance objectives, design criteria, standards,

anticipated site conditions, and professional engineering requirements for those works. In these instances, the submission of the detailed design of the cofferdam or other temporary works may be included as a condition of approval.

The design criteria for temporary works, including cofferdams, should be based on an appropriate design event (e.g., return period storm or flow) and reflect the level of risk associated with the works, including the consequences of failure, the duration of use, and the anticipated site conditions such as seasonal flow variations. Sources for guidance for temporary works include the Professional Engineers of Ontario Temporary Works for Construction Projects guideline (2022), the Ontario Waterpower Association Best Management Practice Guide for the Mitigation of Impacts of Waterpower Facility Construction (2012), the River and Stream Systems Flooding Hazard Limit Technical Guide (2002) and the Ministry of Transportations Highway Drainage Design Standards (November 2023) - TW-1 Temporary Flow Passage Systems and Temporary Drainage Facilities.

5 Application Review Process

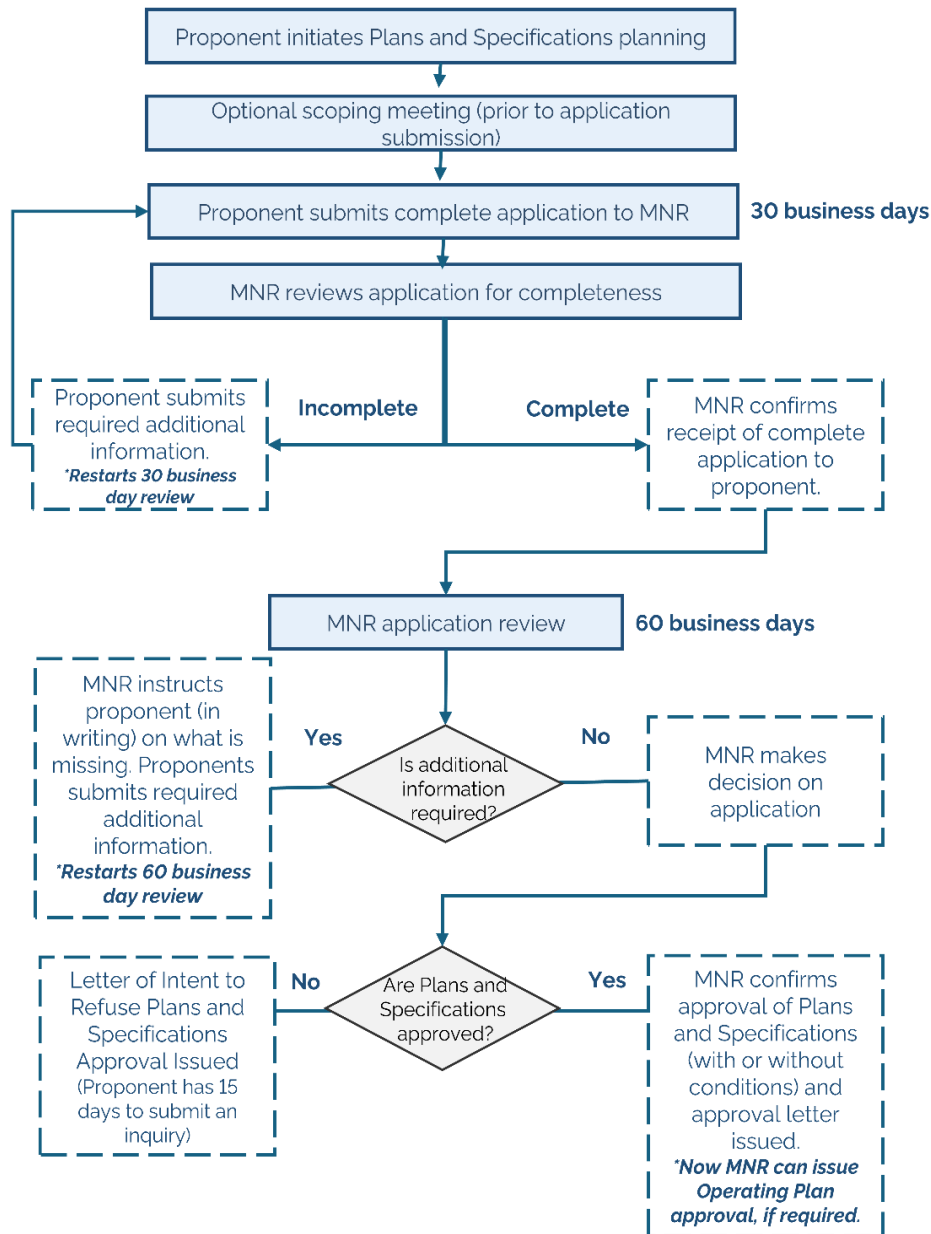
5.1 Scoping Meeting

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 application submission and any planned construction period. The purpose of the meeting may include the following:

- Ensure the Ministry understands the project.
- Affirm roles and responsibilities of Proponent, Proponent's Engineer, and the Ministry.
- Review Plans and Specifications approval requirements, discuss the application review and approval process, and answer questions the proponent has.
- If applicable, discuss any proposed departures from Ministry technical bulletins, design criteria, standards, or the use of alternative engineering approaches, together with the information that may be required to support the Ministry's review.
- Identify any changes from the Location Approval stage, including changes to flooding extents, operating assumptions, construction methods, or potential effects, that may require further assessment of consultation requirements, including the Crown's duty to consult.

The scoping meeting can facilitate a more efficient and effective application process by offering the Ministry an opportunity to learn more about the proposed work and project timelines as they relate to the Plans and Specifications of the dam, and by providing proponents an opportunity to better understand the approval requirements, process and timelines associated with review and approval.

Plans and Specifications Approval



Legend

Process Step

MNR Decision Step

Decision Point

Figure 1 - Plans and Specifications Approval Process

5.2 Application Submission

The application review process commences with the submission of an application for Plans and Specifications approval under subsection 14(3) of the LRIA. It is the responsibility of the proponent to submit a complete application. Applications will not be reviewed for completeness by the Ministry until Location Approval has been granted.

5.3 Review for Application Completeness

The Ministry will acknowledge receipt of an application, review the application and advise the proponent within 30 business days whether the application is complete.

The Ministry Engineer is responsible for the review of applications submitted for Plans and Specifications approval. A Plans and Specifications submission must contain the required information, as outlined in section 4 of this bulletin, to allow the Ministry to determine whether the proposed design can proceed to the next review step. The review for completeness does not constitute a detailed review of the design and does not assess the adequacy of the proposed engineering solutions. The review for completeness is intended to verify whether the required submission components have been provided.

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 placed on hold, the applicable review timeline will be suspended until the requested information has been received. Where an application is returned to the proponent, the 30-day review period is paused and will restart upon submission of the additional information requested by the Ministry.

Where a submission is determined to be complete, the Ministry will proceed to the next step in the review process.

5.4 Review for Plans and Specifications Approval

Once an application is deemed complete, the Ministry will undertake a regulatory review of the submission 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 business days.

5.5 Scope of MNR Review

The Ministry's review of the submission package will:

- a) Validate that the engineering design has been prepared and sealed by a Professional Engineer licensed to practice in Ontario and drawings are stamped "For Construction".
- b) Ensure the dam design is generally consistent with documentation prepared during the EA process and the preliminary drawings prepared during location approval.
- c) Confirm the dam design meets Ministry standards as outlined in the LRIA technical bulletins and that any deviations from Ministry applicable standards or criteria are clearly identified, appropriately justified, and supported by sound engineering rationale.

- d) Ensure relevant conditions associated with location approval have been satisfied where information was requested to support Plans and Specifications approval.
- e) Confirm that the application for Plans and Specifications approval was submitted within the period specified in the location approval, including any extension granted by the Ministry.
- f) Identify as applicable to the project scope, any outstanding concerns that must be addressed (and the timeframe for addressing them) and any conditions which must be met by the proponent to construct a new dam at the proposed location.
- g) Confirm that the proponent has obtained the necessary legal authority to flood or erode private owned lands, where applicable.
- h) Verify whether authorization under the PLA is required to occupy, flood, or erode public lands and, where applicable, identify any outstanding authorization that must be obtained as a condition of Plans and Specifications approval.
- i) Where an Operating Plan has been ordered under LRIA section 23.1 confirm that the dam operations information submitted to support Plans and Specifications approval is consistent with the information contained in the Operating Plan and confirm that the Ministry is prepared to approve the Operating Plan. where an.
- j) Confirm the proponent has received advice from DFO on serious harm to fish.

5.6 Requests for Additional Information

During the review of the proponent's submission package, the Ministry may require additional information necessary to complete its review.

Where additional information is required, the Ministry will identify in writing the information required, the rationale for the request, and the timeframe within which it must be provided. The 60-day review timeline will be placed on hold (paused) until the Ministry receives the required information.

Upon receiving a request for additional information from the Ministry, the proponent may:

- Agree to provide the additional information by the specified time.
- Request a change to the specified time for submitting the information.
- Request a review of the need for the requested information by the Divisional Delivery Branch Director, Ministry of Natural Resources.
- Refuse to provide the additional information.

Where the proponent agrees to provide additional information, the Ministry may keep the application on hold or return the application to the proponent, depending on the scope of the request and the timeframe for providing it. The Ministry will communicate this determination to the proponent in writing, where necessary. Where an application is returned to the proponent, the 60-day review period will restart upon submission of the additional information required.

Where the proponent requests a review of the need for the required information by the Divisional Delivery Branch Director, the request must be made in writing within 15 business days of receiving the information request and must identify the information being disputed, the basis for the objection, and any supporting rationale or documentation. The 60-day review timeline will remain on hold during the Director's review.

Following the review, the Ministry will confirm in writing whether the Minister or their delegate, still requires some or all of the required information and, where applicable, the timeframe for providing

it and the rationale for the decision. The proponent must respond within 15 business days of receiving the Ministry's written decision.

If the proponent refuses to provide the required information or fails to respond within 15 business days, the Ministry will issue a Notice of Intent to Refuse Plans and Specifications approval. In accordance with subsection 11(3) of the LRIA, the notice will advise the proponent that they are entitled to an inquiry if a written request is delivered to the Minister within 15 calendar days after receiving the notice.

5.7 Issuance of Decision

In issuing a decision on Plans and Specifications approval under LRIA subsection 14 (5), 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.
- Refuse the application.

Where the Ministry intends to approve the Plans and Specifications under subsection 14(5) of the LRIA, subject to conditions or changes, a Letter of Approval will be issued to the proponent outlining the conditions which must be met by the proponent. Conditions or changes shall relate to the proposed works being applied for or to potential negative impacts resulting from the proposed work that would conflict with the purposes of the LRIA, where applicable. Plans and Specifications approval is based on the proposed engineering design and supporting information submitted to the Ministry and does not guarantee the integrity or performance of the completed works, which remain dependent on construction, inspection, operation, and maintenance in accordance with the approved Plans and Specifications.

Where the Ministry intends to refuse an application for Plans and Specifications approval, it will issue a Notice of Intent to Refuse in accordance with subsection 11(1) of the LRIA. The Notice of Intent to Refuse will identify the supporting rationale for the proposed refusal and any additional measures the proponent may take to address the Ministry's outstanding concerns. In accordance with subsection 11(3) of the LRIA, the Notice will advise the proponent that they are entitled to an inquiry if a written request is delivered to the Minister within 15 calendar days after receiving the Notice. If the proponent requests an inquiry, the matter will be referred to an inquiry officer in accordance with subsection 11(4) of the LRIA.

Plans and Specifications approval does not relieve the project proponent from compliance with the provisions of any other applicable provincial, federal, or municipal statutes, regulations or bylaws, nor does it confer any right to occupy or flood lands owned by others.

5.8 Expiration of Approval

Plans and Specifications Approval is no longer valid where construction completion dates are exceeded, unless otherwise extended or re-issued.

If a construction completion date specified in the Plans and Specifications approval is expected to be exceeded, the proponent must provide written notice to the Ministry as soon as reasonably

feasible and before the applicable completion date. The notice must explain the reasons for the delay and propose a revised completion date. Where appropriate, the Ministry may extend or re-issue the Plans and Specifications approval with revised construction completion dates, subject to any updated information or conditions considered necessary.

6 Approval Conditions, Documentation, and Records

Plans and Specifications approvals may be subject to conditions established by the Ministry to ensure that the dam and associated works are constructed and operated in accordance with the approved design and applicable requirements of the LRIA. These conditions may address a range of matters, including but not limited to construction sequencing, implementation of mitigation measures, monitoring requirements, and other constraints necessary to manage risks associated with the undertaking.

Plans and Specifications approval may include conditions requiring specified documents, certifications, plans, or other information to be prepared and submitted at various stages of the project, including before construction, during construction, before first filling, or prior to operation of the dam.

The following are examples of the types of standard conditions that may be included with the letter of approval:

- Describing the approved Plans and Specifications, including reference to the specific approved engineering drawings and technical documents.
- In-water construction timing restrictions (including removal of coffer dams).
- Erosion and sediment control requirements to prevent sediment or debris from entering the watercourse during construction, including slope stabilization.
- Site inspections carried out by the design engineer of record, or their representative, as required to confirm compliance with Plans and Specifications approval.
- Limiting disturbance to natural vegetation.
- Where occupation, flooding or erosion of public lands is proposed, obtaining necessary approvals under the PLA.
- Notification to the Ministry of any major construction modification to determine if amendment to the Plans and Specifications approval is required.
- Submission of a letter from the design engineer upon completion of the dam and diversion works certifying that the works have been completed in accordance with the approved Plans and Specifications.

The proponent is responsible for maintaining records that document the final design and construction of the dam and associated works. This includes maintaining a complete record of the Plans and Specifications approval, including the approval letter and all approved drawings, specifications, and supporting technical documentation.