



Building (Dam Safety) Regulations 2022

Cindy Kiro, Governor-General

Order in Council

At Wellington this 9th day of May 2022

Present:

The Right Hon Jacinda Ardern presiding in Council

These regulations are made under section 402 of the Building Act 2004—

- (a) on the advice and with the consent of the Executive Council; and
- (b) on the recommendation of the Minister for Building and Construction.

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Regulations

- 1 Title**
These regulations are the Building (Dam Safety) Regulations 2022.
- 2 Commencement**
These regulations come into force on 13 May 2024.

3 Interpretation

- (1) In these regulations, unless the context otherwise requires,—

Act means the Building Act 2004

commercial or industrial facility—

- (a) means a building, other than a farm building, that is used for commercial, business, industrial, or professional purposes; but
- (b) does not include any critical or major infrastructure

community facility means any of the following:

- (a) an early childhood education and care centre or registered school within the meaning of section 10 of the Education and Training Act 2020:
- (b) the premises of an institution within the meaning of section 10 of the Education and Training Act 2020:
- (c) a rest home or a residential disability care institution (within the meaning of section 58(4) of the Health and Disability Services (Safety) Act 2001):
- (d) a building that is used to provide health or disability services as defined in section 5 of the Health and Disability Services (Safety) Act 2001 (other than a hospital building referred to in paragraph (b) of the definition of critical or major infrastructure):
- (e) a marae, a community hall, or an event centre

confirmed dam safety deficiency has the meaning set out in subclause (2)(c)

critical or major infrastructure means any of the following:

- (a) a building or other infrastructure operated or used by a lifeline utility within the meaning of section 4 of the Civil Defence Emergency Management Act 2002:

Examples

Electricity, water, sewage, gas, telecommunications, and rail infrastructure.

- (b) a hospital building that is likely to be needed in an emergency (within the meaning of section 4 of the Civil Defence Emergency Management Act 2002) to provide—
 - (i) emergency medical services; or
 - (ii) ancillary services that are essential for the provision of emergency medical services:
- (c) a building that is used to provide emergency response services (for example, policing, fire, ambulance, or rescue services):
- (d) buildings or infrastructure that are essential to the containment of a hazardous substance (as defined by section 2 of the Hazardous Substances and New Organisms Act 1996):

- (e) the dam, another dam, or flood protection works if the service that the dam, other dam, or flood protection works provide is critical to the community and that service cannot be reasonably provided by alternative means

dam safety issue has the meaning set out in subclause (2)

historical or cultural site—

- (a) means any of the following that forms a part of the historical and cultural heritage of New Zealand:
 - (i) land, including an archaeological site, a cemetery, or urupā (or part of an archaeological site, cemetery, or urupā):
 - (ii) a building or structure (or part of a building or structure):
 - (iii) any combination of land, buildings, structures, or associated buildings or structures (or parts of buildings, structures, or associated buildings or structures); and
- (b) includes any thing that is in or fixed to land described in paragraph (a)

IPENZ means the Institution of Professional Engineers New Zealand Incorporated

population at risk means the number of people likely to be affected by an uncontrolled release of all or part of the stored water or other fluid due to a failure of the dam (assuming that no person takes any action to evacuate)

potential dam safety deficiency has the meaning set out in subclause (2)(b)

potential failure mode means a mechanism or set of circumstances that could result in the uncontrolled release of all or part of the stored water or other fluid

potential loss of life means the number of people expected to lose their life as a result of an uncontrolled release of all or part of the stored water or other fluid due to a failure of the dam

specified categories are community, cultural, critical or major infrastructure, and natural environment (*see* table 1 of Schedule 2).

- (2) In these regulations, a **dam safety issue** means any of the following:
 - (a) a physical infrastructure issue where dam performance cannot be adequately verified because of any problems with any of the following:
 - (i) any equipment used to verify dam performance:
 - (ii) obtaining access to or around the dam for visual inspection and instrument reading:
 - (iii) any instruments for measuring dam performance and reservoir water or fluid level:
 - (iv) any communications systems for instrument readings:
 - (v) how the dam has been, or is being, maintained:

- (b) an issue where the owner or a person acting on their behalf knows, or ought reasonably to know, that the performance requirements of the dam under design loading conditions may not be met (a **potential dam safety deficiency**):
- (c) an issue where the owner or a person acting on their behalf has already observed adverse performance of the dam or where the owner or that person knows, or ought reasonably to know, that adverse performance of the dam is reasonably likely to occur under design loading conditions (a **confirmed dam safety deficiency**):
- (d) a procedure or requirement of the dam safety assurance programme has not been complied with.

4 **Transitional, savings, and related provisions**

The transitional, savings, and related provisions (if any) set out in Schedule 1 have effect according to their terms.

Meaning of classifiable dam

5 **Meaning of classifiable dam**

- (1) For the purposes of the Act, **classifiable dam** means a dam that—
 - (a) has a height of 4 or more metres and stores 20,000 or more cubic metres volume of water or other fluid; or
 - (b) has a height of 1 or more metres and stores 40,000 or more cubic metres volume of water or other fluid.
- (2) Regulations 6 and 7 apply for the purposes of assessing whether a dam is a classifiable dam.

6 **Height of dam**

A dam's height must be measured for the purposes of regulation 5 in accordance with section 133B of the Act.

7 **Stored volume of dam**

- (1) In measuring a dam's stored volume for the purposes of regulation 5, the stored volume of water or other fluid does not include,—
 - (a) in the case of a dam across a stream, water or fluid that is lower than the natural ground level at the lowest downstream outside limit of the dam:
 - (b) in the case of a dam not across a stream, water or fluid that is lower than the natural ground level at the lowest elevation at the outside limit of the dam:
 - (c) in the case of a canal where the canal invert is below the natural ground level, water or fluid that is lower than the natural ground level at the lowest elevation at the outside limit of the canal structure.

- (2) In this regulation, **canal invert** means the lowest point of the inside of the canal structure that stores water or fluid.

Method of classification according to potential impact of dam failure

8 Regulation 9 applies for purpose of classifying dam

Regulation 9 applies for the purposes of section 134B of the Act, which requires a dam owner to give the dam one of the following classifications:

- (a) low potential impact:
- (b) medium potential impact:
- (c) high potential impact.

9 Method of classification

- (1) The owner of a dam must, in classifying the dam,—
- (a) identify the likely effect that an uncontrolled release of all of the contents of the reservoir due to a failure of the dam when full would have on each of the specified categories; and
 - (b) use table 1 of Schedule 2 to determine the assessed damage level by assessing whether the damage level in each of the specified categories is likely to be catastrophic, major, moderate, or minimal, then selecting the highest damage level; and
 - (c) select the highest damage level of the damage levels for the specified categories; and
 - (d) estimate the population at risk and the potential loss of life; and
 - (e) use table 2 of Schedule 2 to determine the dam’s potential impact classification by correlating the damage level selected under paragraph (c) with the estimated population at risk and the estimated potential loss of life.

Example

An owner of a dam assesses the likely effect of an uncontrolled release of all of the contents of the reservoir due to a failure of the dam.

The community and cultural specified categories are assessed as being at the moderate level of damage. No critical or major infrastructure facilities are likely to be damaged. The natural environment category is assessed as being at the major level of damage.

Under subclause (1)(c), the selected damage level is major because of the assessed damage to the natural environment. This applies despite the moderate level of the other damage.

The estimate of the population at risk is 10 with no potential loss of life.

Correlating the population at risk and potential loss of life with the major damage level results in a dam classification of medium potential impact.

- (2) If the damage level in a specified category (or a column referred to in sub-clause (3)(a) or (b)) is assessed as meeting more than 1 level, the owner must select the highest damage level.
- (3) The owner of a dam must, in assessing the damage level in the critical or major infrastructure specified category,—
 - (a) assess the damage level for the column headed “*Damage*”; and
 - (b) assess the damage level for the column headed “*Time to restore critical or major infrastructure to normal pre-dam failure operation*”; and
 - (c) select for that specified category the highest damage level that is assessed under paragraph (a) or (b).

Example

An owner of a dam assesses that an uncontrolled release of the reservoir due to a failure of the dam is likely to render a hospital inoperable. There is only minor damage to other critical or major infrastructure. The highest damage level in that column is therefore major.

The time to restore the hospital to normal pre-dam failure operation is less than 3 months. The damage level is moderate.

The highest damage level for the critical or major infrastructure specified category is therefore major.

Dam safety assurance programme

10 Criteria and standards for dam safety

Regulations 11 to 18 set out the criteria and standards for dam safety that a dam safety assurance programme must meet for the purposes of section 141 of the Act.

11 General requirements for dam safety assurance programme

- (1) A dam safety assurance programme must be appropriate to—
 - (a) the nature of the dam, including—
 - (i) the design and construction type of the dam; and
 - (ii) potential failure modes of the dam; and
 - (iii) potential dam safety deficiencies; and
 - (iv) confirmed dam safety deficiencies; and
 - (b) the dam’s classification under regulation 9.
- (2) A dam safety assurance programme must, when setting out effective procedures for activities specified in regulations 12 to 18, provide for—
 - (a) who may or must carry out the activity; and
 - (b) when, where, and how the activity must or may be done.

12 Dam and reservoir operation and maintenance

A dam safety assurance programme must contain effective procedures for—

- (a) operating the dam and reservoir; and
- (b) ensuring that persons who will operate the dam and reservoir have adequate experience and training; and
- (c) maintaining accurate records of reservoir water or other fluid levels under all loading conditions; and
- (d) maintaining the functionality of the dam and reservoir.

13 Surveillance procedures

A dam safety assurance programme must contain effective procedures for surveillance of the dam, including procedures for—

- (a) collecting dam surveillance data, evaluating dam performance, and carrying out associated quality assurance processes; and
- (b) carrying out visual inspections of the dam (including specifying the required frequency of the inspections); and
- (c) reading dam performance monitoring instruments (including specifying the required frequency of the readings); and
- (d) monitoring dam surveillance data management systems; and
- (e) reporting surveillance and dam performance issues to the dam owner.

14 Inspection and maintenance of appurtenant structures and inspection, maintenance, and testing of gate and valve systems with dam safety functions

A dam safety assurance programme must contain effective procedures for—

- (a) identifying and documenting appurtenant structures; and
- (b) identifying and documenting the gate and valve systems that have dam or reservoir safety functions; and
- (c) inspecting and maintaining appurtenant structures; and
- (d) inspecting, maintaining, and testing—
 - (i) the gate and valve systems referred to in paragraph (b); and
 - (ii) other equipment or systems that have dam or reservoir safety functions.

15 Intermediate dam safety reviews

(1) A dam safety assurance programme must provide—

- (a) for an intermediate dam safety review to be carried out as soon as practicable after the expiry of each 12-month period since the last intermediate dam safety review was completed; and

- (b) that the interval between the dates of the reports under subclause (3) for the intermediate dam safety reviews does not exceed 15 months.
- (2) For the purpose of intermediate dam safety reviews, a dam safety assurance programme must contain effective procedures for—
 - (a) carrying out on-site inspections of the dam and appurtenant structures; and
 - (b) reviewing dam and reservoir operation records, surveillance records, and maintenance records; and
 - (c) reviewing records of planned and actual maintenance and testing of the gate and valve systems that have dam or reservoir safety functions; and
 - (d) evaluating the performance of the dam during the relevant period based on the on-site inspections and reviews referred to in paragraphs (a) to (c).
- (3) In addition, a dam safety assurance programme must require the person who carries out the intermediate dam safety review to prepare a report on the review, which includes information on—
 - (a) the activities carried out under subclause (2)(a) to (d); and
 - (b) the dam safety issues (if any) that have been identified when carrying out those activities; and
 - (c) the performance of the dam in the loading conditions experienced during the relevant period.
- (4) In this regulation,—
 - (a) an intermediate dam safety review is **completed** on the date of the report under subclause (3):
 - (b) **relevant period** means,—
 - (i) in relation to the first intermediate dam safety review of a dam as referred to in subclause (5), the period starting when this regulation first applies to the dam and ending on the date of the report under subclause (3); and
 - (ii) in any other case, the period since the date of the previous report under subclause (3).
- (5) A dam safety assurance programme must provide for the first intermediate dam safety review to be completed under this regulation within 15 months after the programme is first approved under section 143 of the Act after the commencement of this regulation.

16 Comprehensive dam safety reviews

- (1) A dam safety assurance programme must provide—

- (a) for a comprehensive dam safety review to be carried out as soon as practicable after the expiry of each 5-year period since the last comprehensive dam safety review was completed; and
 - (b) that the interval between the dates of the reports under subclause (3) for the completed comprehensive dam safety reviews does not exceed 66 months.
- (2) For the purpose of comprehensive dam safety reviews, a dam safety assurance programme must contain effective procedures for—
- (a) reviewing known and potential hazards and threats to dam performance; and
 - (b) considering and commenting on the appropriateness of—
 - (i) the dam’s potential failure modes; and
 - (ii) the description of the corresponding loading conditions that have been identified for those potential failure modes; and
 - (iii) any visual and instrument performance indicators that have been identified for those potential failure modes; and
 - (c) carrying out an on-site inspection of the dam and appurtenant structures; and
 - (d) carrying out an on-site inspection and testing of gates, valves, and other equipment or systems that perform dam or reservoir safety functions; and
 - (e) assessing the performance of the dam and its appurtenant structures in all design loading conditions; and
 - (f) reviewing the dam owner’s safety management resources, systems, and procedures (including the contents of the dam safety assurance programme).
- (3) In addition, a dam safety assurance programme must require the person who carries out the comprehensive dam safety review to prepare a report on the review, which includes information on—
- (a) the activities carried out under subclause (2)(a) to (f); and
 - (b) the dam safety issues (if any) that have been identified when carrying out those activities; and
 - (c) the dam safety issues (if any) that have been previously identified in reviews under regulation 15 or this regulation (including information on the adequacy of the resolution of those issues or whether there are impediments that prevent their resolution).
- (4) A dam safety assurance programme must provide for the first comprehensive dam safety review to be completed under this regulation within 66 months after the programme is first approved under section 143 of the Act after the commencement of this regulation.

- (5) In this regulation, a comprehensive dam safety review is **completed** on the date of the report under subclause (3).

17 Emergency planning and response

- (1) A dam safety assurance programme must contain effective procedures for—
- (a) maintaining and reviewing an emergency action plan; and
 - (b) consulting the following persons or bodies on the content of the plan (to the extent that those persons or bodies may be affected by a failure of the dam):
 - (i) local authorities (within the meaning of section 5 of the Local Government Act 2002);
 - (ii) a Civil Defence Emergency Management Group (within the meaning of section 4 of the Civil Defence Emergency Management Act 2002);
 - (iii) emergency services (within the meaning of section 4 of the Civil Defence Emergency Management Act 2002); and
 - (c) providing the persons or bodies referred to in paragraph (b) with a copy of the plan.
- (2) The emergency action plan must contain the following:
- (a) the purpose of the plan;
 - (b) the roles and responsibilities for implementing the plan;
 - (c) an emergency contact list;
 - (d) procedures for identifying, assessing, and responding to a potential or imminent dam failure;
 - (e) procedures for notifying those with roles and responsibilities under the plan of an actual or potential emergency involving the dam;
 - (f) information about preventive and emergency actions that must or may be taken, and resources, equipment, and materials that may be used, to avoid a failure of the dam or to mitigate the consequences of a failure;
 - (g) information about access to the site of the dam, including site location maps and main and alternative access routes;
 - (h) procedures for maintaining the plan;
 - (i) procedures for training and exercises for those with roles and responsibilities under the plan;
 - (j) dam break inundation maps and tables.

18 Identifying and managing dam safety issues

A dam safety assurance programme must contain effective procedures for—

- (a) recording, prioritising, and tracking dam safety issues; and

- (b) investigating, assessing, and resolving dam safety issues.

Dangerous dams, earthquake-prone dams, and flood-prone dams

19 Certain terms defined in relation to dangerous dams, earthquake-prone dams, and flood-prone dams

- (1) For the purpose of section 153 of the Act (meaning of dangerous dam),—

moderate earthquake,—

- (a) in relation to a high potential impact dam, means an earthquake that would result in ground shaking, at the site of the dam, at an intensity with an AEP of 1 in 100 (determined by normal measures of acceleration, velocity, and displacement) but not less than the 1 in 100 AEP shaking determined using a seismic hazard factor (Z factor) of 0.10; and
- (b) in relation to a medium potential impact dam, means an earthquake that would result in ground shaking, at the site of the dam, at an intensity with an AEP of 1 in 50 (determined by normal measures of acceleration, velocity, and displacement) but not less than the 1 in 50 AEP shaking determined using a seismic hazard factor (Z factor) of 0.10

moderate flood,—

- (a) in relation to a high potential impact dam, means a flood that would result in water or other fluid flowing into the reservoir formed by the dam at a flow rate with an AEP of 1 in 100; and
- (b) in relation to a medium potential impact dam, means a flood that would result in water or other fluid flowing into the reservoir formed by the dam at a flow rate with an AEP of 1 in 50.
- (2) For the purpose of section 153A of the Act (meaning of earthquake-prone dam and flood-prone dam),—

earthquake threshold event means,—

- (a) in relation to a high potential impact dam, an earthquake that would result in ground shaking, at the site of the dam, at an intensity with an AEP of 1 in 500 (determined by normal measures of acceleration, velocity, and displacement) but not less than the 1 in 500 AEP shaking determined using a seismic hazard factor (Z factor) of 0.10; and
- (b) in relation to a medium potential impact dam, an earthquake that would result in ground shaking, at the site of the dam, at an intensity with an AEP of 1 in 250 (determined by normal measures of acceleration, velocity, and displacement) but not less than the 1 in 250 AEP shaking determined using a seismic hazard factor (Z factor) of 0.10

flood threshold event means,—

- (a) in relation to a high potential impact dam, a flood that would result in water or other fluid flowing, into the reservoir formed by the dam, at a flow rate with an AEP of 1 in 500; and
 - (b) in relation to a medium potential impact dam, a flood that would result in water or other fluid flowing, into the reservoir formed by the dam, at a flow rate with an AEP of 1 in 250.
- (3) In this regulation, **AEP** (which stands for annual exceedance probability), in relation to an earthquake or a flood of a particular intensity or flow rate, means the probability that an earthquake or a flood of that intensity or flow rate or a greater intensity or flow rate will occur in any year.

Example

If a flood with a particular flow rate has an AEP of 1 in 50, the probability of a flood of at least that intensity occurring in any year is calculated as follows: $1 \div 50 = 2\%$.

20 Seismic hazard factor (Z factor)

In these regulations, the **seismic hazard factor (Z factor)** must be calculated in accordance with New Zealand Standard NZS 1170.5:2004 (Structural design actions—Part 5: Earthquake actions—New Zealand), whether or not that standard would otherwise apply.

Qualification and competency requirements for recognised engineers

21 Prescribed qualifications and competencies for recognised engineers

Regulations 22 and 23 prescribe qualifications and competencies for the purposes of section 149(1)(c) of the Act (which relates to prescribed qualifications and competencies of recognised engineers).

22 Qualification and competency for certifying and auditing potential impact classifications

- (1) This regulation applies in relation to sections 134B, 135, 136, 138, and 139 of the Act (which provide for a recognised engineer to audit and certify the classification of a dam).
- (2) The prescribed qualification is a qualification given by IPENZ that meets the following requirements:
 - (a) IPENZ must have given the qualification only if it is satisfied that the engineer—
 - (i) is able to practise competently in the area of practice referred to in sections 134B, 135, 136, 138, and 139 of the Act (the **area**) to the reasonable standard of a professional engineer practising in the area; and

- (ii) has at least 4 years' experience in the field of dam safety engineering within the previous 10 years; and
 - (iii) has relevant experience in and knowledge of dam safety engineering, including relevant experience in and knowledge of 1 or more of the fields referred to in subclause (3); and
 - (b) IPENZ must have given the qualification to the engineer within the 6 year period before the engineer acts in the area.
- (3) For the purposes of subclause (2)(a)(iii), the fields are as follows:
 - (a) water and natural resources engineering;
 - (b) civil engineering;
 - (c) hydrological and hydraulic engineering;
 - (d) any other field of engineering that IPENZ considers is relevant to 1 or more of the following:
 - (i) identifying dam potential failure modes;
 - (ii) analysing dam breaks;
 - (iii) assessing dam hazards;
 - (iv) applying other principles of dam safety engineering.
- (4) The prescribed competency is that the engineer has demonstrated to IPENZ that the engineer has the experience in and knowledge of the following things that would be reasonably expected of a professional engineer practising in the area:
 - (a) the classification of dams under section 134B of the Act (including regulation 9);
 - (b) the identification of appurtenant structures;
 - (c) the assessment of the hazard of potential dam-break floods to downstream people and property and the environment (for example, assessing the extent of inundation, depth of inundation, velocity, flow, time to peak flow, and duration of inundation).

23 Qualification and competency for certifying and auditing dam safety assurance programmes

- (1) This regulation applies in relation to sections 140 to 148B and 150 of the Act (which provide for a recognised engineer to audit, certify, and review dam safety assurance programmes).
- (2) The prescribed qualification is a qualification given by IPENZ that meets the following requirements:
 - (a) IPENZ must have given the qualification only if it is satisfied that the engineer—

- (i) is able to practise competently in the area of practice referred to in sections 140 to 148B and 150 of the Act (the **area**) to the reasonable standard of a professional engineer practising in the area; and
 - (ii) has at least 4 years' experience in the field of dam safety engineering within the previous 10 years; and
 - (iii) has relevant experience in and knowledge of 1 or more of the fields referred to in subclause (3); and
 - (b) IPENZ must have given the qualification to the engineer within the 6 year period before the engineer acts in the area.
- (3) For the purposes of subclause (2)(a)(iii), the fields are as follows:
- (a) dam safety assurance programmes and management systems engineering;
 - (b) water and natural resources engineering;
 - (c) civil engineering;
 - (d) gate and valve systems and other dam and reservoir safety systems engineering;
 - (e) any other field of engineering that IPENZ considers is relevant to 1 or more of the following:
 - (i) designing and operating dam systems;
 - (ii) managing dam safety risk;
 - (iii) applying other principles of dam safety engineering.
- (4) The prescribed competency is that the engineer has demonstrated to IPENZ that the engineer has the experience in and knowledge of the following things that would be reasonably expected of a professional engineer practising in those areas:
- (a) the general requirements for dam safety assurance programmes (*see* regulation 11);
 - (b) procedures for the operation and maintenance of dams and reservoirs (*see* regulation 12);
 - (c) surveillance procedures (*see* regulation 13);
 - (d) procedures for the identification, inspection, and maintenance of appurtenant structures (*see* regulation 14);
 - (e) procedures for the inspection, maintenance, and testing of gate and valve systems with dam or reservoir safety functions (*see* regulation 14);
 - (f) procedures for intermediate dam safety reviews (*see* regulation 15);
 - (g) procedures for comprehensive dam safety reviews (*see* regulation 16);
 - (h) procedures for emergency planning and response (*see* regulation 17);

- (i) procedures for identifying and managing dam safety issues (*see* regulation 18).

Forms

24 Dam classification certificate

A dam classification certificate must—

- (a) be in form 1 of Schedule 3; and
- (b) contain the information requested in the form.

25 Dam safety assurance programme

A dam safety assurance programme must—

- (a) be in form 2 of Schedule 3; and
- (b) contain the information requested in the form and include any documentation required to be attached.

26 Annual dam compliance certificate

An annual dam compliance certificate must—

- (a) be in form 3 of Schedule 3; and
- (b) contain the information requested in the form.

Schedule 1
Transitional, savings, and related provisions

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Part 1
Provisions relating to these regulations as made

There are no transitional, savings, or related provisions in these regulations as made.

Schedule 2 Dam classification

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Table 1—Determination of assessed damage level

Damage level	Specified categories				
	Community	Cultural	Critical or major infrastructure	Natural environment	
Catastrophic	<p>One or more of the following apply:</p> <ul style="list-style-type: none"> • 50 or more household units rendered uninhabitable: • 20 or more commercial or industrial facilities rendered inoperable: • 2 or more community facilities rendered inoperable or uninhabitable 	Irreparable loss to 2 or more historical or cultural sites	<p><i>Damage</i></p> <p>Two or more critical or major infrastructure facilities rendered inoperable</p>	<p><i>Time to restore critical or major infrastructure to normal pre-dam failure operation¹</i></p> <p>One year or more</p>	Extensive and widespread damage, with permanent, irreparable effects on the natural environment
Major	One or more of the following apply:	One or both of the following apply:	One critical or major infrastructure facility is rendered inoperable	Three months or more but less than 1 year	Extensive and widespread damage where it is possible,

Damage level	Specified categories			Natural environment
	Community	Cultural	Critical or major infrastructure	
Moderate	<ul style="list-style-type: none"> 4 or more but less than 50 household units rendered uninhabitable; 5 or more but less than 20 commercial or industrial facilities rendered inoperable; 1 community facility rendered inoperable or uninhabitable 	<ul style="list-style-type: none"> irreparable loss to 1 historical or cultural site; loss to 1 or more historical or cultural sites where it is possible, but impracticable, to fully restore the site 	<p><i>Damage</i></p> <p><i>Time to restore critical or major infrastructure to normal pre-dam failure operation¹</i></p>	<p>but impracticable, to fully restore or repair the damage</p>
	<p>One or more of the following apply:</p> <ul style="list-style-type: none"> 1 or more but less than 4 household units rendered uninhabitable; 1 or more but less than 5 commercial or industrial facilities rendered inoperable; 	<p>Significant loss to 1 or more historical or cultural sites where it is practicable to restore the site</p>	<p>One or more critical or major infrastructure facilities are affected by the loss of some functionality</p>	<p>Significant damage that is practicable to restore or repair</p>

Damage level	Specified categories			Natural environment
	Community	Cultural	Critical or major infrastructure	
	<ul style="list-style-type: none"> loss of some functionality of 1 or more community facilities 		<p><i>Time to restore critical or major infrastructure to normal pre-dam failure operation¹</i></p> <p><i>Damage</i></p>	
Minimal	Minor damage that does not materially affect the functionality of any household unit, commercial or industrial facility, or community facility (or no damage)	Loss to 1 or more historical or cultural sites that will require minor restoration only (or no loss to any historical or cultural site)	Minor damage to 1 or more critical or major infrastructure facilities (or no damage)	Only minor rehabilitation or restoration may be required or recovery is possible without intervention (or no damage)

Note

- 1 The estimated time required to repair the damage sufficiently to return the critical or major infrastructure to the normal operation that the infrastructure had immediately before the failure of the dam.

Table 2—Determination of dam’s potential impact classification

Assessed damage level (from table 1)	Population at risk				Potential loss of life
	0	1–10	11–100	more than 100	
Catastrophic	High potential impact	High potential impact	High potential impact	High potential impact	No persons
	N/A (see note 1)	High potential impact	High potential impact	High potential impact	One person
Major	N/A (see note 1)	High potential impact	High potential impact	High potential impact	Two or more persons
	Medium potential impact	Medium potential impact	High potential impact	High potential impact	No persons
Moderate	N/A (see note 1)	Medium potential impact	High potential impact	High potential impact	One person
	N/A (see note 1)	High potential impact	High potential impact	High potential impact	Two or more persons
Minimal	Low potential impact	Low potential impact	Medium potential impact	Medium potential impact	No persons
	N/A (see note 1)	Medium potential impact	Medium potential impact	Medium potential impact	One person
	N/A (see note 1)	High potential impact	High potential impact	High potential impact	Two or more persons
	Low potential impact	Low potential impact	Low potential impact	Low potential impact	No persons
	N/A (see note 1)	Medium potential impact	Medium potential impact	Medium potential impact	One person
	N/A (see note 1)	High potential impact	High potential impact	High potential impact	Two or more persons

Note

1 Not applicable. The population at risk is zero, therefore there is no potential loss of life.

Schedule 3

Forms

rr 24–26

Form 1

Dam classification certificate

Sections 135, 138, and 139, Building Act 2004

Dam

Dam name:

Location of dam:

Date of construction:

Building consent number or identification (if applicable):

Purpose of dam:

Type of dam:

Height of dam* (in metres):

*Regulation 6 applies for the purpose of measuring a dam's height.

Dam's stored volume* (in cubic metres):

*Regulation 7 applies for the purpose of measuring a dam's stored volume.

Flood performance (in terms of annual exceedance probability):

Earthquake performance (in terms of annual exceedance probability):

Relevant regional authority:

Potential impact classification

Potential impact classification (determined under section 134B of the Building Act 2004 and regulation 9 of the Building (Dam Safety) Regulations 2022):

Owner

Name of owner:

Chief executive of owner or equivalent (if owner is a body corporate)*:

*If there is no chief executive, specify a person with an equivalent position in the body corporate.

Contact details (phone number, business address, and postal address (if different from business address)):

Certificate of recognised engineer

I certify that the classification of the above dam as a [*specify low, medium, or high*] potential impact dam accords with the criteria and standards for dam safety prescribed under regulation 9 of the Building (Dam Safety) Regulations 2022.

I am a recognised engineer in accordance with section 149 of the Building Act 2004 because I—

- meet the requirements of section 149(1)(a) and (b) of that Act; and
- have the qualification and competency prescribed under regulation 22 of the Building (Dam Safety) Regulations 2022.

I have attached evidence that I am a recognised engineer.

Date:

Signature of recognised engineer:

Full name of recognised engineer:

Chartered professional engineer registration number:

Form 2

Dam safety assurance programme

Sections 141 and 142, Building Act 2004

Dam safety assurance programme

The dam safety assurance programme consists of this form, the attached documents, and any other referenced documents.

Dam

Dam name*:

*If 2 or more dams are owned by the same owner and form a single reservoir, state the names of all of those dams to which the dam safety assurance programme applies and add a statement to the effect that those dams are owned by the same owner and form a single reservoir. In the case of a canal, if the whole canal is not owned by a single owner, specify the dams to which the dam safety assurance programme applies. *See* sections 148A and 148B of the Act.

Relevant regional authority:

Potential impact classification

Potential impact classification(s):

Dam classification certificate(s): [*date and regional authority number (if any)*]

Owner

Name of owner:

Chief executive of owner or equivalent (if owner is a body corporate)*:

*If there is no chief executive, specify a person with an equivalent position in the body corporate.

Contact details (phone number, business address, and postal address (if different from business address)):

Summary of compliance with criteria and standards

Attach a brief summary of how each of the criteria and standards set out in regulations 10 to 18 of the Building (Dam Safety) Regulations 2022 have been addressed and indicate where these are addressed in the dam safety assurance programme. This should include brief descriptions of the following:

- how the general requirements for dam safety assurance programmes have been met (*see* regulation 11):
- the procedures for the operation and maintenance of dams and reservoirs (*see* regulation 12):
- the surveillance procedures (*see* regulation 13):
- the procedures for the inspection and maintenance of appurtenant structures (*see* regulation 14):
- the procedures for the inspection, maintenance, and testing of gate and valve systems with dam or reservoir safety functions (*see* regulation 14):

- the procedures for intermediate dam safety reviews (*see* regulation 15):
- the procedures for comprehensive dam safety reviews (*see* regulation 16):
- the procedures for emergency planning and response (*see* regulation 17):
- the procedures for identifying and managing dam safety issues (*see* regulation 18).

Documentation of dam safety assurance programme

- 1 List the location of all documentation, manuals, and publications referred to in the dam safety assurance programme if applicable: [*list*]
- 2 State the location(s) of the dam safety assurance programme: [*Specify location(s). See section 148(a) of the Act for where the programme must be kept.*]

The documents (other than those listed in item 1 above) that form the dam safety assurance programme are attached as follows: [*List documents.*]

Appurtenant structures

Full list of the dam's appurtenant structures as determined by the recognised engineer:

Certificate of recognised engineer

I certify that the dam safety assurance programme prepared for the above dam—

- meets the criteria and standards for dam safety prescribed by regulations 10 to 18 of the Building (Dam Safety) Regulations 2022; and
- contains a full list of the dam's appurtenant structures that I have determined.

I am a recognised engineer in accordance with section 149 of the Building Act 2004 because I—

- meet the requirements of section 149(1)(a) and (b) of that Act; and
- have the qualification and competency prescribed under regulation 23 of the Building (Dam Safety) Regulations 2022.

I have attached evidence that I am a recognised engineer.

Date:

Signature of recognised engineer:

Full name of recognised engineer:

Chartered professional engineer registration number:

Form 3
Annual dam compliance certificate
Section 150, Building Act 2004

Dam

Dam name:

Relevant regional authority:

Potential impact classification

Potential impact classification:

Dam classification certificate [*date and regional authority number (if any)*]:

Approval of dam safety assurance programme

Date of approval of the dam safety assurance programme:

Date by which the dam safety assurance programme must next be reviewed under section 146 of the Act:

Owner

Name of owner:

Chief executive of owner or equivalent (if owner is a body corporate)*:

*If there is no chief executive, specify a person with an equivalent position in the body corporate.

Contact details (phone number, business address, and postal address (if different from business address)):

Compliance

All the procedures in the dam safety assurance programme have been fully complied with during the previous 12 months (except for the minor items of non-compliance identified below)*.

*Omit “(except for the minor items of non-compliance identified below)” if inapplicable.

Date:

Signature of, or on behalf of, dam owner*:

*The certificate must be signed by,—

- if the owner is an individual, that individual; or
- if the owner is a body corporate, the chief executive of that body corporate or, if there is no chief executive, a person with an equivalent position in the body corporate.

Full name of dam owner:

Certificate of recognised engineer

I have reviewed the owner's reports and other documents relating to the procedures in the dam safety assurance programme that the owner has followed in the previous 12 months.

*The following is a summary of the minor items of non-compliance with the procedures of the dam safety assurance programme in the previous 12 months:

*Omit if inapplicable.

All procedures in the dam safety assurance programme have been complied with during the previous 12 months (except for the minor items of non-compliance identified above)*.

*Omit "(except for the minor items of non-compliance identified above)" if inapplicable.

I am a recognised engineer in accordance with section 149 of the Building Act 2004 because I—

- meet the requirements of section 149(1)(a) and (b) of that Act; and
- have the qualification and competency prescribed under regulation 23 of the Building (Dam Safety) Regulations 2022.

I have attached evidence that I am a recognised engineer.

Date:

Signature of recognised engineer:

Full name of recognised engineer:

Chartered professional engineer registration number:

Michael Webster,
Clerk of the Executive Council.

Explanatory note

This note is not part of the regulations, but is intended to indicate their general effect.

These regulations, which come into force on 13 May 2024, provide for a number of matters relating to dam safety for the purposes of the Building Act 2004. These include—

- defining a classifiable dam for the purposes of the Act. The owner of a classifiable dam must, under section 134B of the Act, classify the dam according to the potential impact of a failure of the dam on persons, property, and the environment:

- prescribing criteria and standards for dam safety that the dam owner must apply when classifying the dam. A dam may be classified as low, medium, or high potential impact. The owner must submit the classification of the dam to a recognised engineer for audit. The owner of a medium or high potential impact dam must also prepare, or arrange for the preparation of, a dam safety assurance programme for the dam and submit the programme to a recognised engineer for audit (*see* section 140 of the Act):
- prescribing criteria and standards for dam safety that a dam safety assurance programme must meet:
- prescribing qualification and competency requirements for recognised engineers who certify and audit—
 - potential impact classifications:
 - dam safety assurance programmes:
- prescribing forms for a dam classification certificate, a dam safety assurance programme, and an annual dam compliance certificate:
- defining moderate earthquake, moderate flood, earthquake threshold event, and flood threshold event for the purposes of the Act. These definitions are used for determining whether a dam is dangerous under section 153 of the Act and whether the dam is earthquake-prone or flood-prone under section 153A of the Act. Sections 153B to 162 of the Act set out various duties and powers relating to those dams.

Regulatory impact statement

The Ministry of Business, Innovation, and Employment produced a regulatory impact statement on 14 July 2020 to help inform the decisions taken by the Government relating to the contents of this instrument.

A copy of this regulatory impact statement can be found at—

- <https://www.mbie.govt.nz/dmsdocument/13916-impact-summary-regulatory-framework-for-dam-safety-proactiverelease-pdf>
- <https://treasury.govt.nz/publications/informationreleases/ris>

Issued under the authority of the Legislation Act 2019.

Date of notification in *Gazette*: 12 May 2022.

These regulations are administered by the Ministry of Business, Innovation, and Employment.