

Presented to Regulatory Committee 17/11/10
Decision: That the report be noted.

REPORT

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Prepared For: Regulatory Committee
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Subject: Unauthorised and Non-Compliant dams

1. Précis

In the past year council has received several complaints on new unauthorised dams. In the majority of the cases contractors, owners and professional engineers have been involved in the unauthorised construction or alteration of the dams. These dams have been small to medium in terms of capacity and they either breached the Building Act or Resource Management Act or both Acts. This report provides a brief overview of the issue. The Building Act specifies building control and safety management requirements for dams. This paper addresses the former matter only, as the latter are being reviewed by the government.

2. Building and Resource Management Acts

2.1. Building Act and dams

Under Section 8 of the Building Act 2004, all dams are “buildings”. Dams are expressly referred to in the building code (Building Regulations 1992) as one of the types of building that form the classified use of “ancillary”.

Under Section 40 of the Act the construction, alteration and demolition of dams that hold water or any other fluid of 3 or more metres depth and 20,000 or more cubic metres require building consent. Under Section 17 of the Act all building work must comply with the building code regardless of whether building consent is needed. That is, all dams must comply with the building code regardless of their size. This requirement has existed since 1 July 1992.

Several clauses within the building code are particularly relevant to dams. Clause B1 – Structure has objectives that include “*safeguard people from injury caused by structural failure*” and “*protect other people from physical damage caused by structural failure*”. Practice has evolved whereby code compliance is typically demonstrated by showing compliance with the New Zealand Dam Safety Guidelines published by the New Zealand Society on Large Dams (NZSOLD), a technical group of the Institution of Professional Engineers New Zealand (IPENZ).

A dam includes its appurtenant structures and the Act defines appurtenant structure as “*a structure that is integral to the proper functioning of the dam*”. Building work includes “sitework”, and sitework means “*work on a building site, including*

earthworks, preparatory to, or associated with, the construction, alteration, demolition, or removal of a building". The building code requires that "*sitework, where necessary, shall be carried out to ...avoid the likelihood of damage to other property*". Foundation preparation, cofferdams etc are all subject to the provisions of the Act and the building code and, depending on the circumstances, so too are irrigation system intakes and offtakes.

A building consent cannot be granted retrospectively. This has serious implications whenever building work such as sitework commences ahead of building consent being granted. The owner can apply for a certificate of acceptance under Section 96 of the Act, however there is no certainty that a certificate can or will be issued and an offence has been committed under Section 40 regardless of whether a certificate is issued. For dams, verifying compliance with the building code is problematic especially for foundations and conduits, and inevitably has higher cost for the owner than if they had followed the correct process. There are also risks to the owner that the dam may need to be removed if it cannot be certified.

2.2 Resource Management Act (RMA) and dams

From the RMA perspective Sections 13, 14 and 15 are relevant to dams. Section 13 of the RMA requires various consents to disturb the bed of the river or to place structures on the bed of the river, including temporary structures such as cofferdams. Section 14 of the RMA requires damming of any water needing resource consents unless permitted by a regional plan rule. If an in-stream dam is constructed there may be water impounded or water taken for irrigation. Section 14 of the RMA requires consents for taking and using water unless permitted in a regional plan or water used for domestic or stock watering or fire fighting purposes. Section 14 of the RMA will also require a diversion consent if the water is diverted temporarily for the building of the dam.

Because of in-stream earthworks sediment discharges are expected during construction hence sediment deposition (on the bed) and discharge consents may be required under Sections 13 and 15 of the RMA respectively. If there is water discharged over a spillway, which is usually the case, a discharge consent may be required under Section 15. In short the following consents may be required under the RMA to construct an in-stream dam:

- Disturbance of the bed and placement of structure under Section 13 of the RMA;
- Deposition of sediments or placement of a structure on the bed under Section 13 of the RMA;
- Damming under Section 14 of the RMA;
- Take and use of water under Section 14 of the RMA (if the catchment water is used for purpose other than fire fighting, domestic and stock watering);
- Diversion (temporary) of the water under Section 14 of the RMA;
- Discharge of sediment into water and discharge of water over the spillway to water under Section 15 of the RMA.

Permitted activities provided for in the Regional Plan: Water could allow some of the above activities without any consents. The examples for the permitted activities are as follows:

- Damming (<3 metre deep and <20,000 cubic metres) and diverting in a catchment <50 ha which does not cause any flooding, erosion, sedimentation, property damage or adversely affect any lawful take of water;
- Placement of any structure for damming is permitted if the damming and diversion is permitted and that council is notified of the location and the nature of the dam at least 7 working days prior to commencing the erection or placement of the structure.

Any dam or water reservoir constructed outside the bed of the river will not require any consents under the RMA (from the ORC) provided there is no catchment water or rain runoff water is captured. However, as noted above, all dams regardless of being in-stream or off-stream have to comply with the Building Act and the building code.

RMA consents may also be required from the territorial authority, for example for earthworks.

3. Unauthorised dams

There have been at least seven sites where unauthorised dams have been constructed in the past year. In all cases either Building Act consents were not obtained or the Building Act requirements regarding compliance with the building code have not been met. In six cases RMA consents have not been obtained. In one case multiple dams were constructed. The following issues have been identified under the Building Act:

- No consents have been secured prior to work commencing;
- Dams have been constructed without a professional engineer's advice or input;
- Where dams have been constructed with professional engineering input no supervision was provided during the construction of the dam;
- Poor or erroneous technical and legal advice from the professional engineer;
- Dams have been designed and constructed by contractors who did not have any dam construction experience under the Building Act;
- Dams have been constructed with unsuitable materials or in an unsafe manner;
- Upstream catchment areas have been underestimated and hence the spillway is undersized;
- Lack of regard given to the way in which water races intercept runoff during rainstorms and can add to the flood flows from the "natural" catchment;
- Poorly designed and constructed dams including defective spillways and absence of filters and lack of proper foundations.

Where such dams have been brought to Council's notice any actions required to be taken under the Building Act needed lengthy involvement by Council staff. As noted above, verifying compliance with the building code is very difficult after a dam has been constructed.

The following issues have been identified under the RMA:

- No consents have been secured for the work hence breaches of Sections 13, 14 and 15 of the RMA;
- No consultation or approvals from the downstream property owners;
- No regard was given to taking and using water in fully allocated catchments.

4. Council's response to unauthorised and non-compliant dams

4.1 Under the Building Act

In cases where building work commenced without building consent a Notice to Fix was issued requiring building work to cease and requiring the owner to apply for a certificate of acceptance for the work that had been undertaken. In cases where compliance with the building code was not certain a Notice to Fix was issued requiring the owner to engage a suitably qualified and experienced professional engineer to assess the dam. In several cases that led to the identification of deficiencies with the dam and the requirement for it to be modified or removed. The owners only became aware of these deficiencies through the involvement of the ORC.

4.2 Under the RMA

In all reported cases investigations were conducted, usually in parallel with the Building Act investigations. Offenders were required to apply for any RMA consents retrospectively where applicable. In some cases abatement notices (under the RMA) were served to either stop work or drain dam water to minimise any risks.

5 Advocacy, education, monitoring and enforcement

In 2005 Cr Butcher chaired a seminar in Cromwell that was run in conjunction with NZSOLD covering the dam safety scheme requirements of the Building Act (as they were at that time). The presentation material and other information are available to the public on ORC's website. The requirements of the Building Act have been publicised through technical papers presented by ORC staff at NZSOLD symposia in 2008 and 2009. The ORC maintains links with NZSOLD, IPENZ and the Department of Building and Housing on these matters and has briefed them on the state of non-compliance in relation to dams.

Council had a media release emphasising the need to comply with both the Building Act and the RMA in October 2010. Compliance response has been taken under both Acts. Council has been promoting water harvest in the region and is aware of high water user interest in building, modifying or raising dams. The above situation coupled with the increasing level of noncompliance means it is timely to provide more targeted publicity on the regulatory requirements for dams.

At the moment Council does not monitor illegal or defective dams actively and the Building Act and RMA do not require owners to register their dams. There is an apparent need to maintain a register of all dams, regardless of their size. Such a register requires a survey of the region for identifying and maintaining a database of all dams in the region. Any illegal or defective dams could be identified during this process and actions could be taken to rectify the issue. Whilst the initial survey could

be costly it is believed that it will provide vital information to council and reduce any risks to the community from the failures of illegal or defective dams.

At the time of the completion of this report there is one unauthorised dam case being prosecuted by Council under the Building Act. Three cases had been resolved through ongoing liaison with the responsible parties and no legal actions had been taken. Three cases are under investigation and legal action may be considered. Any future unauthorised dam cases will be considered seriously.

6. Recommendation

That this report be noted.

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