Department of Building and Housing
Te Tari Kaupapa Whare

Determination 2011/115

Dispute about the refusal to issue a certificate of acceptance for the construction of a seawall at 23 and 25 Clifton Road, Haumoana

1. The matter to be determined

1.1 This is a Determination under Part 3 Subpart 1 of the Building Act 2004[1] ("the Act") made under due authorisation by me, John Gardiner, Manager Determinations, Department of Building and Housing ("the Department"), for and on behalf of the Chief Executive of that Department.

1.2 The parties to this determination are:

- the Hastings District Council, the applicant for the determination, carrying out its duties and functions as a territorial authority and a building consent authority ("the authority")
- the owners of the properties where the seawall in question principally acts as a coastal protection structure, at numbers 23 and 25 Clifton Road ("the owners"), with the owners represented by an agent ("the agent"):
  - M Lawrence and T Oliver, the owners of number 23 Clifton Road
  - A and R Simcox, the owners of number 25 Clifton Road

[1] The Building Act, Building Code, Compliance documents, past determinations and guidance documents issued by the Department are all available at www.dbh.govt.nz or by contacting the Department on 0800 242 243.

- the owners of the down drift (to the north-west) seaward bounded, adjacent properties (numbers 1, 3, 5, 7, 9, 11, 13, 15, 17, 19 and 21 Clifton Road), whom I consider to be parties as they are affected by this determination ("the adjacent property owners").

1.3 I also consider the Hawkes Bay Regional Council ("the regional council") to be a person with an interest in this determination (refer to paragraph 4.5.3).

1.4 This determination arises from a dispute about a retaining wall that acts as a coastal protection structure to 23 and 25 Clifton Road ("the seawall"). The owners applied for a certificate of acceptance for the seawall and the authority concluded that the seawall as built and designed does not, and cannot be made to comply with the Building Code. The authority also considers that the land on which the seawall and buildings are located is subject to a natural hazard being coastal erosion and inundation, and the seawall will have an adverse effect on neighbouring properties.

1.5 The matter to be determined[2] is therefore whether the authority correctly exercised its powers of decision in refusing to issue a certificate of acceptance for the seawall.

1.6 I commissioned an independent expert ("the expert") to assist and advise me in this dispute. The expert has a doctorate in coastal geology, is a technical member of the Institution of Professional Engineers and has expertise in coastal processes in New Zealand. The expert first inspected this site in 1973 and has periodically been involved in inspecting and reporting on coastal processes and storm damage between 1973 and 2005.

1.7 In making my decision, I have considered the submissions of the parties, the report of the expert (refer to paragraph 1.6) and the other evidence in this matter.

2. The building work

2.1 The seawall was described by the expert as follows:

> Built early in 2009, the 38.45m-long seawall is a new gravity structure consisting of 4 layers of 1.5m long x 0.75m wide x 0.6m deep rectangular pre-cast concrete blocks interlocked with 0.25m diameter reinforced concrete pillars. This structure has a vertical seaward face and rests on but is not attached to, a 2.7m-wide single layer of recycled 0.9m long x 0.9m wide x 0.6m deep concrete blocks. At both ends, the seawall has returns of 5.25m into No 25 Clifton Road and 7.125m into No 21 Clifton Road.
>
> In the Resource Consent Application … to [the authority] dated October 2009, the relative level (RL) of the footpath is given as RL10.65m and the finished floor level of the house at 23 Clifton Road as RL10.00m. Based on the benchmark level of HB-3 of 14.33m, a level of 14.30m (4.3m MSL NVD 62 is here assumed for the footpath, equating to a height difference of 3.65m. Therefore, to normalise the heights of the seawall to MSL NVD 62, 3.65m is here added to the RL values presented in the RCA.
>
> The base of the seawall is approximately -0.5m MSL NVD 62 and the height 2.5m MSL NVD 62. These assumed levels place the seaward face of seawall in the swash zone which is subject to scour and both onshore and alongshore sediment transport.

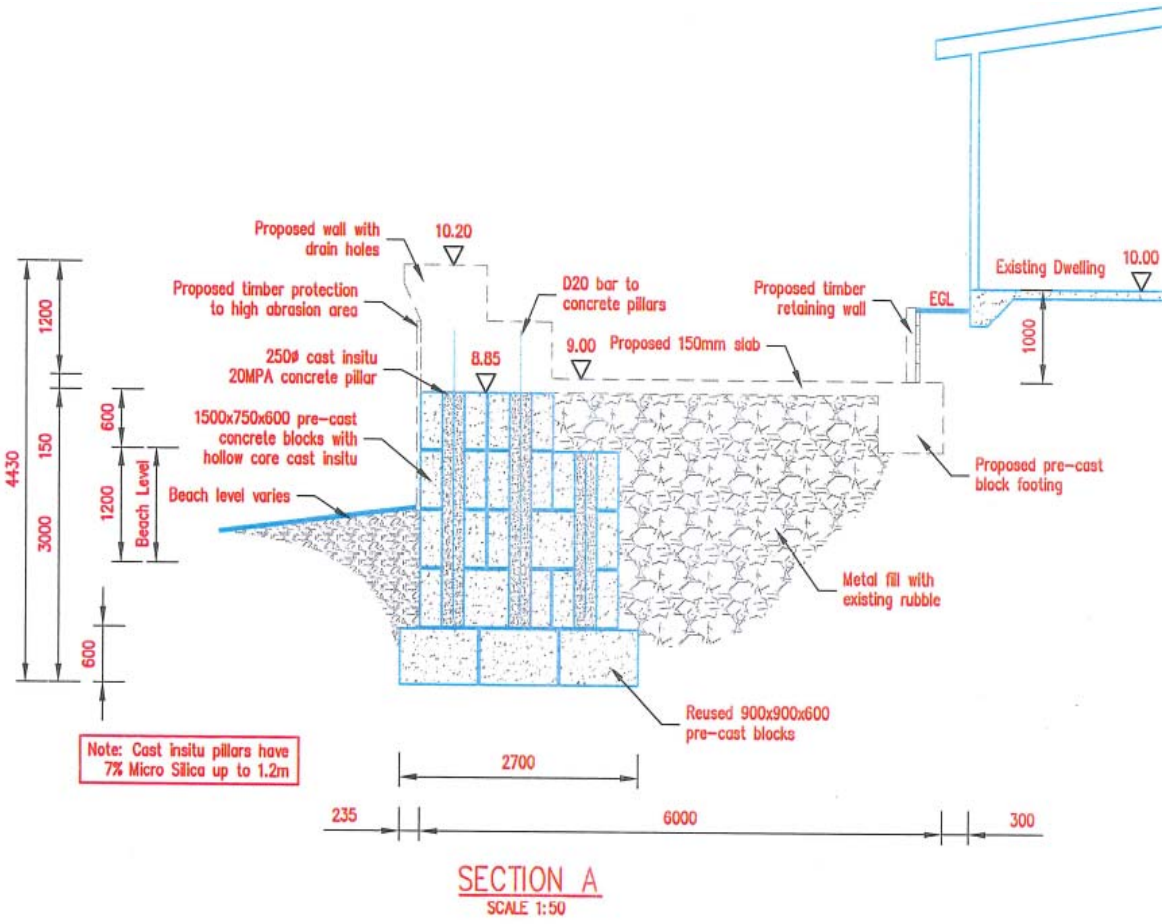
[2] Under section 177(1)(b) and 177(3)(b) of the Act. In this determination, unless otherwise stated, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

Photographic and profile evidence supports this contention. As the level of MHWS is 0.86m MSL NVD 62, about 1.4m of the seawall is below MHWS.

The seawall is located 3-4m inside the seaward property boundaries of Nos 23 & 25 Clifton Road. It rests on unconsolidated porous beach sediments of mixed greywacke sand and gravel that are easily mobilized by wave action.

Photographic evidence reveals that the seawall extends the furthest seaward onto the foreshore of all the other 14 seawalls between Nos 3 & 41 Clifton Road which are generally not contiguous and slightly offset from each other.

2.2 Section A shows a section of the seawall.



3. The background

3.1 In Determination 2007/110 I described, in depth, the coastal processes that the land at Clifton Road, is subject to. That determination considered the rate at which the coastline was eroding and the intended life of buildings constructed on an adjacent property. The determination considered the land concerned was subject to a natural hazard in terms of section 71(3) of the Act.

3.2 The background to this determination is described as follows by the expert:

> Properties 23 & 25 Clifton Road are part of a residential subdivision of 21 properties made in 1939 along the seaward side of Clifton Road …

> The 21 properties are located in the centre of 5.5km-long gently curving bay unit between the Maraetotora and Tukituki River mouths which is the southern section of the 42.5km-long gravel barrier beach that extends from Clifton around Napier to Tangoio in the north.
>
> Since first subdivision in 1939, the coast has retreated to such an extent, that the seaward part of all 21 properties now lies on the dynamically active foreshore that is fully exposed to storm wave action.
>
> All 21 properties along the Township of Haumoana …including Nos 23 & 25, are currently subject to and will continue to be subject to, increasing extreme risk from both long-term and short-term coastal erosion and inundation from the sea during episodic wave storms.

3.3 In terms of the regulatory provisions that come under the ambit of the Act, the owners have sought a certificate of acceptance for the building work that was carried out to construct the seawall in front of their property.

3.4 The authority concluded that the seawall as built and designed does not, and cannot be made to comply with the Building Code. The authority also considers that the land on which the seawall and buildings are located is subject to a natural hazard being coastal erosion and inundation, and the seawall will have an adverse effect on neighbouring properties. The authority consequently exercised its powers under the Act and refused to issue a certificate of acceptance. The authority then applied for a determination about its decision to refuse to issue a certificate of acceptance.

3.5 The owners propose further building work to the seawall as follows:

Reinforced concrete pad

- anchor any potential rotation of the wall seaward
- isolate the final top two coarse of blocks from the main structure
- create a safe serviceable area
- improve stability in the event of an earthquake

Drainage/batter blocks

- reduce the surcharge of gravel and water coming over the wall

Maintenance program

- plaster work when needed
- timber abrasion protection
- visual inspection for movement in wall
- drains and concrete pad kept clean
- notification to authority if hazards arise relating to the wall.

3.6 The application for determination was received by the Department on 17 January 2011. The owners acknowledged the application in a response dated 20 January 2011 and provided a submission that I received on 18 February 2011.

3.7 I commissioned the expert on 11 March 2011. The expert provided a report to me dated April 2011 and I provided a copy of the report to the parties for their comment on 8 April 2011. The substantive sections of the expert's report are included in Appendix B.

3.8 In a letter dated 17 May 2011, I informed the applicant and the owners that given the content of the expert's report, I was of the view that the owners of the down drift, seaward bounded, neighbouring properties were affected by the determination and therefore were parties to this determination.

3.9 I provided the adjacent property owners with a copy of the expert's report and draft determination on 16 June 2011 and advised them that they are parties to the determination and invited them to make submissions.

3.10 I also provided the regional council with the draft determination for their comment on 8 September 2011 (refer to paragraphs 1.3 and 3.9).

4. Submissions

4.1 Initial submissions

4.1.1 In a letter to the Department dated 22 December 2010 the authority noted:

- the building work carried out to construct the wall does not comply with Building Code Clauses B1 and B2 and it has considered the application for a certificate of acceptance to be an application to 'permit' the retention of the new wall
- the owners have sought a certificate of acceptance for a specified life of ten years, however, the Act is silent on whether a specified intended life can apply to a certificate of acceptance and there is no trigger point for specifying the intended life of the wall
- consideration must be given to section 71 and 72 of the Act, and adequate provision has not been made or can be made to protect the other properties
- the considerations under the Resource Management Act and the District Plan are that the seawall is located within the coastal residential zone and coastal protection structures are considered 'discretionary' activities.

4.1.2 The application for determination consisted of:

- the letter from the authority about the application for the certificate of acceptance and the decision that it had made
- the structural engineering peer review and the environmental engineering review commissioned by the authority, and the response to the peer reviews from the owners' geotechnical engineers
- the application for the certificate of acceptance and the supporting information that accompanied the application
- correspondence between the parties.

4.1.3 In a letter to the Department dated 18 February 2011, the owners noted:

- the present state of the wall is lower than a previous wall and the configuration differs to the statements made by the authority
- the engineering reports (of the structural, geotechnical, and environmental engineers (refer to paragraph 4.1.1 and 4.1.2) all refer to scouring, over-topping, under mining, end effects, downstream effects, effects on neighbours, public safety, and wider impacts to the beach. It is difficult to cross reference comments, suppositions, ascertains and potential projections of the walls impact in the above categories. Photos taken over the past four years do not show any detrimental effects at all but in fact a neutral to positive downstream effect is evident.
- the various engineering reports omit a critical point, that previous wall/debris was interacting in the same way as the current seawall, with the only difference being the improved level of protection to the property at numbers 23 and 25 Clifton Road
- the purpose of proposed further work to the wall as described in paragraph 3.5.

4.1.4 The owners' submission consisted of:

- the letter explaining the background to the dispute and their position
- the transcript from a court hearing on the matter
- a letter from a local organisation which is involved in issues relating to coastal processes and the protection of the coastal area
- photos and supporting information, including photos of the construction of the seawall, and the resource consent application for the seawall dated 5 October 2009.

4.2 Submissions in response to the expert's report

4.2.1 In response to the owners' submission and expert's report, the authority made a submission that I received on 9 May 2011. The authority noted a number of corrections to their application and submitted that:

- it has no empirical evidence to confirm the height of the wall compared to the previous wall
- its coastal engineer was of the view that the expert's report provided a reasonable assessment of the processes and risks associated with the site, although would have benefited from additional context from other reports and studies.

4.2.2 In response to the expert's report, the agent made a submission that I received on 9 May 2011. The agent submitted that:

- the scale of the seawall and the length of the fillet is minor relative to the length of beach concerned, and it is apparent that the influence of the seawall on the processes driving coastal erosion is likely to be negligible

- the continuation of erosion and lowering of the beach profile should not be mistaken as an impact of the seawall itself, as all experts agree this length of coast is subject to erosion processes
- the removal of the wall will have greater effects on property and buildings compared with the seawall remaining in situ.

4.3 The draft determination

4.3.1 I issued a draft determination to the parties on 16 June 2011.

4.3.2 In a response received on 2 August 2011, the authority did not accept the draft determination and was of the view that a number of amendments were required to the wording of the draft determination, and that it must be more limited in its scope and should consider the decision to refuse to issue a certificate of acceptance but not provide guidance on future regulatory options.

4.3.3 In a response dated 29 July 2011, the owners did not accept the draft determination, commenting that the various engineering reports, including the expert's report haven't identified the extent to which the seawall is affecting neighbouring properties, and that their property will be damaged if the authority enforces a notice to fix requiring the seawall to be removed. The owners also provided information about the resource consent and the submissions received on the notified application.

4.3.4 There were also submissions from seven adjacent property owners, six of which did not accept the draft determination. One adjacent property owner accepted the draft determination.

4.4 The hearing

4.4.1 I held a hearing in Napier on 22 August 2011 at the request of the owners and adjacent property owners. In attendance at the hearing were the owners and the agent to the owners, and three representatives of the authority including its legal advisor. A number of adjacent property owners were present or represented, and also present were representatives of the Department, including a legal advisor and a referee engaged under section 187. All the parties spoke at the hearing and the evidence presented enabled me to clarify various matters of fact and clarify the background to the dispute. I also conducted a site visit, which allowed me to observe the seawall.

4.4.2 At the hearing information was presented about:

- the range of solutions that are possible for Haumoana/Te Awanga area and the parties views of these solutions with respect to coastal erosion
- the resource consent application and process under the Resource Management Act and the response of the regional council to these issues
- the Building Code compliance, including durability, structure, and the parties views on the adverse effects if the sea wall is removed or if it remains
- possible trigger points for a specified intended life, including maintenance considerations, how long the wall will last, how this could be measured
- the proposal that a notice to fix should be issued and the parties views on this.

4.5 The post hearing submissions

4.5.1 Following the hearing, the authority made a submission dated 29 August 2011, confirming that the engineer engaged by the authority to provide advice had visited the site and the authority took into account further information provided by the owner's structural engineer. The authority also provided seven video clips of the tides and storm surges at the site from July 2011.

4.5.2 The owners made a submission that I received on 31 August 2011. The submission provided photos and information in respect of the seven video clips provided by the authority.

4.5.3 Information was presented to me about the resource consent application being processed by the regional council, and while the resource consent matters are not material to the determination, I consider the regional council to be a person with an interest in this determination. I asked the regional council for their comment on the draft determination in a letter dated 8 September 2011.

4.5.4 The regional council responded to me in a letter dated 22 September 2011, and submitted that:

- it could not comment on the resource consent issues or predetermine the outcome because the application has been publicly notified and it is likely that a hearing panel will make a decision on the application
- it could not comment on the Building Act matters as these are within the ambit of the authority (Hastings District Council)
- the expert's report identifies that the seawall is likely to contribute to adverse effects on the environment, and the effects identified are similar to those identified in the regional council's assessment of the resource consent application.

4.5.5 I took account of the comments of the parties in preparing a second draft determination.

4.6 The second draft determination

4.6.1 I issued a second draft determination to the parties on 18 October 2011.

4.6.2 The authority accepted the draft determination without comment in a response dated 14 November 2011. The owners accepted the draft determination in a response dated 28 November 2011.

4.6.3 One adjacent property owner accepted the draft determination. Three adjacent property owners did not accept the draft determination, commenting that further investigations were required into the coastal erosion, protection was needed for the seafront properties, removal of the wall would lead to damage, and that the wall complied with the Building Code with respect to likelihood of damage to other property.

4.6.4 I did not receive responses from the other parties. I took account of the comments I received in preparing the final determination.

5. Discussion

5.1 Previous determinations

5.1.1 I have discussed natural hazards such as coastal erosion and the protection of other property in a number of previous determinations, including Determination 2004/08 and Determination 2007/110. Although these determinations considered building consent requirements for building work subject to natural hazards, I have taken into account the framework established for assessing compliance with the Building Code in these situations.

5.1.2 I have considered the issuing of certificates of acceptance in a number of previous determinations, including Determination 2009/113 and Determination 2010/008. In Determination 2009/113, I made the following observations about the application of the certificate of acceptance provisions of the Act:

> Section 40 states that building work must not be carried out except in accordance with a building consent, and section 96(1)(a) provides for the issue of a certificate of acceptance where an owner has carried out building work without obtaining a building consent. In such a situation, a territorial authority may, on application, issue a certificate of acceptance but 'only if it is satisfied, to the best of its knowledge and belief and on reasonable grounds, that, insofar as it could ascertain, the building work complies with the building code.'
>
> Section 96(2) requires an authority to consider all the available evidence such as plans and specifications, producer statements, the builder's records, the owner's records, any expert reports, and the authority's own experience and knowledge of the builders and designers involved in the work in order to ascertain whether the building work complies with the Building Code.

5.2 The expert's view

5.2.1 The expert considered the seawall and concluded the following:

> The properties at Nos 23 & 25 Clifton Road are subject to and will continue to be subject to increasing extreme risk from the natural hazards of both long-term and short-term coastal erosion and episodic inundation from the sea.
>
> During a severe onshore wave storm (which could occur at any time) that scours the beach below the foundations of the seawall, the structure can be expected to suffer severe damage leading to partial or complete failure.
>
> The estimated life of the seawall is of the order of 3-10 years dating from construction in 2009 which would classify the structure as remedial or temporary during its relatively short lifetime.
>
> The seawall at Nos 23 & 25 Clifton Road along with the other 14 seawalls between Nos 3 & 41 Clifton Road are collectively adversely affecting the unprotected properties at Nos 1, 5, 9 & 11 Clifton Road plus the Clifton Road-East Road junction and Beach Road, by enhancing (i.e. accelerating) existing erosion rates.

5.2.2 The expert's view is consistent with Determination 2007/110, with respect to the information presented to me with respect to coastal erosion processes in the area.

5.3 The Building Code compliance of the seawall

5.3.1 It is not in dispute that building work was carried out without a building consent. I note that the building work was not exempt under Schedule 1 of the Act at the time of construction.

5.3.2 In considering the application for a certificate of acceptance, I have considered whether the authority could have been satisfied, to the best of its knowledge and belief, and on reasonable grounds, that the building work complied with the Building Code at the time of the application for a certificate of acceptance. The authority was required to consider:

- whether the particular elements of the building work could be inspected
- whether the information, specifications, and drawings accurately reflect what was built and whether there is any variation between the supporting documents provided with the application and what was observed on-site by the structural, geotechnical, and environmental engineers
- compliance with the Building Code.

5.3.3 In considering compliance with the Building Code, I have considered:

- the requirements of the Building Code that relate to the performance of the structure itself
- the requirements of the Building Code that relate to the protection of other property.

5.3.4 Based on the evidence provided to me, I am of the view that the seawall, in its current state, which is not complete, does not comply with Clause B1 and Clause E1 in relation to protection of other property. I note that the applicants and the applicant's engineer have put forward a proposal for further work (refer to paragraph 3.5).

5.3.5 Given my findings in paragraph 5.3.4 that the seawall does not comply with the Building Code, I consider that the authority could not have been satisfied, to the best of its knowledge and belief, and on reasonable grounds, that the building work complied with the Building Code at the time of the application for a certificate of acceptance. Therefore the authority was correct to refuse to issue a certificate of acceptance for the seawall.

6. Guidance on future options

6.1 The proposed further work

6.1.1 I note that there is a proposal for further building work to be undertaken, that includes the construction of a reinforced concrete pad and the introduction of drainage and batter blocks.

The structure

6.1.2 The authority has stated that although the seawall structure does not comply with the Building Code currently, it 'understands and accepts that the structural elements and deficiencies relating to the wall are not insurmountable and can be designed and constructed in to a wall to comply with the Building Code' (refer to paragraph 3.4).

6.1.3 In considering whether to issue a building consent for the further work, the authority would need to consider whether the proposed further work i.e. the construction of a reinforced concrete pad and the introduction of drainage and batter blocks would comply with the Building Code. With respect to the Building Code clauses relating to the structure of the wall itself, I note that there are varying views about the extent of the potential scour and the likely fluctuations that may affect the foundations and stability of the wall.

6.1.4 In respect of this proposed further work, it is up to the applicant to demonstrate, to the satisfaction of the authority, how this work will achieve Building Code compliance, in particular how compliance will be achieved with Clauses B1.3.1, B1.3.2, B1.3.1, B1.3.4 (refer to Appendix A1).

The protection of other property

6.1.5 It appears the question most at issue relates to the protection of other property, and the effect of the seawall on erosion rates.

6.1.6 I note the expert's view that the wall is part of the system of 14 seawalls that collectively accelerate existing erosion rates. There are varying views about the adequacy of the proposed further work to address the discharge of flows adequately through the drainage holes, in the case of overtopping.

6.1.7 My understanding of the design as proposed is that the drainage and batter blocks are critical to ensuring that water drains back towards the sea, rather than along the rear of the wall and thereby possibly flowing onto adjacent property.

6.1.8 The effects of seawall removal are also relevant. The authority engaged a review of the reports provided with the application for a certificate of acceptance by a firm of environmental engineers. The review noted that:

> A relevant issue in this instance is the effect of seawall removal. This would result in a rapid readjustment of the shoreline in a landward direction and have the consequence of moving the swash line some 7-9 metres landward and increasing the frequency of inundation to the subject property. It is highly likely that there would be greater damage to the dwelling as a result. Due to the presence of seawalls on the adjacent

properties there is unlikely to be significant adverse effects to others at this stage, but should erosion continue, the removal of the wall may exacerbate and localise erosion of the adjacent properties.

6.1.9 While I accept the view of the expert about the erosion rates (refer to paragraph 6.1.6), I have considered this in the context of Building Code compliance. It is my view that it is clear that the concentration effect of the seawall creates potential for damage and nuisance to other property. However, the nature and extent of the adverse effects on the erosion rates is not capable of precise measurement and so it is not clear to what extent the adverse effects are contrary to Clause E1, or simply due to the ongoing coastal erosion affecting this part of the coast. I am also mindful of the fact that the seawall is part of a bigger, existing system, and is at the same time providing protection to adjacent properties.

6.1.10 On balance, given the difficulties of determining precisely the nature and extent of any non-compliance with Clause E1 and taking account of the fact that if the seawall did not exist, the likelihood of damage or nuisance to other property could be increased; I consider the wall, once the further building work has been undertaken, will comply with Clause E1, based on the proposal for further building work to be undertaken, that includes the construction of a reinforced concrete pad and the introduction of drainage and batter blocks.

6.2 The other regulatory considerations

6.2.1 I have considered the proposed further work (that includes the construction of a reinforced concrete pad and the introduction of drainage and batter blocks).

Section 112

6.2.2 The authority would also need to consider the application of section 112 of the Act and therefore whether the seawall, after the proposed further work, would comply with the provisions of the Building Code to the same extent as before the work is carried out. I also note that the authority has identified a number of factors that the owners have not taken into account in their design of the wall and these should be addressed to inform the further work required.

Sections 71 to 74

6.2.3 The authority is of the view that sections 71 to 74 would apply in this instance, as the technical review has concluded that the seawall will create an adverse affect on adjacent properties.

6.2.4 It is clear that the properties are subject to a natural hazard as defined in section 71(3). In terms of a future building consent application for the proposed further work to the seawall, in my view, the further work is likely to meet the test of building work that will not accelerate, worsen, or result in a natural hazard on the land on which the building work is carried out or any other property, and therefore it is likely that the authority can grant a building consent for this work under section 72 of the Act. This is based on the assumption that the scope of the further work is as currently proposed i.e. the construction of a reinforced concrete pad and the introduction of drainage and batter blocks. A notice will be required on the title in terms of sections 73 of the Act.

Section 113

6.2.5 I note that the application for a certificate of acceptance related to a specified intended life for the wall of up to ten years. I also note that the prescribed form for an application for a certificate of acceptance (Form 8 in the Building (Forms) Regulations 2004) specifically contemplates the applicant advising whether the building work that is to be the subject of the certificate of acceptance is to have an intended life of less than 50 years. If the wall is to remain, a specified intended life will be required to be applied and the building consent for the proposed further work issued with any conditions the authority considers necessary.

6.2.6 I also note that the expert was of the view that depending on the frequency, magnitude and duration of severe onshore wave storms, the seawall may last in the order of 3-10 years from the time of construction, as differential undermining of the structure by wave scour will cause differential failure.

6.2.7 Because the rate of future erosion is not accurately known, this makes the calculation of a particular date based specified intended life somewhat problematic. It could well be that the specified intended life be identified by the achievement of some physical characteristics, which provide a proxy for the life of the wall.

7. What is to be done now?

7.1 In this determination, I have only considered building matters relating to the Act and its regulations. The implications of other enactments to this seawall have not been taken into account, as I have no jurisdiction under those other enactments, although they may have an impact on the final outcome of what happens to the seawall.

7.2 The following paragraphs (7.2 to 7.4) are intended only to provide a way forward in terms of remedying the contraventions of the Act and its regulations. The authority should issue a notice to fix for the seawall requiring the contraventions of the Building Code to be remedied. The notice to fix should require the owners to bring the seawall into compliance with the Building Code. The notice to fix should note, in accordance with paragraph 5.3.4, the elements of the building work that do not comply with the Building Code.

7.3 The notice to fix provisions of the Act have the scope to deal with a wide range of situations, including that the notice must state a ‘reasonable timeframe within which it must be complied with’. Although it would be normal practice for resolving most contraventions of the Act or its regulations in the relative short term, I note that there is no requirement for any particular timeframe, only that the timeframe is reasonable. It is my view that any notice to fix should have a timeframe that takes account of the Resource Management Act processes that are underway and are to be resolved by the parties. The notice could include an option of removal or demolition.

7.4 If the seawall is to remain, work is required to bring the seawall into compliance with the Building Code. I have described the current proposal for the work in paragraph 6.1.1. An application for a building consent for this work would need to show how the seawall will be brought into compliance with the Building Code and this may require further investigation and analysis by a suitably qualified person. The authority could also consider the existing structure in terms of a certificate of acceptance. Any building consent and certificate of acceptance issued will need to incorporate a specified intended life for the seawall and may include a condition that the seawall be altered, removed, or demolished on or before the end of the specified life.

8. Decision

8.1 In accordance with section 188 I hereby determine the authority correctly exercised its powers and accordingly I confirm its refusal to issue a certificate of acceptance.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 22 December 2011.

John Gardiner
Manager Determinations

Appendix A

A1 The relevant key clauses of the Building Code as discussed in this determination are:

Clause B1

B1.3.1 Buildings, building elements and sitework shall have a low probability of rupturing, becoming unstable, losing equilibrium, or collapsing during construction or alteration and throughout their lives.

B1.3.2 Buildings, building elements and sitework shall have a low probability of causing loss of amenity through undue deformation, vibratory response, degradation, or other physical characteristics throughout their lives, or during construction or alteration when the building is in use.

B1.3.3 Account shall be taken of all physical conditions likely to affect the stability of building, building elements and sitework, including:

(e) Water and liquids.

B1.3.4 Due allowances shall be made for:

(a) The consequences of failure,

(b) The intended use of the building,

(c) Effects of uncertainties resulting from construction activities, or the sequence in which construction occur,

(d) Variation in the properties of materials and the characteristics of the site; and

(e) Accuracy in limitations inherent in the methods used to predict the stability of buildings.

B1.3.6 Sitework, where necessary, shall be carried out to (b) avoid the likelihood of damage to other property.

B1.3.7 Any sitework and associated supports shall take account of the effects of:

(a) Changes in ground level

(b) Water, weather and vegetation

(c) Ground loss and slumping.

B2.3.1 Building elements must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the specified intended life of the building, if stated, or:

(a) The life of the *building*, being not less than 50 years, if:

  (i) Those *building elements* (including floors, walls, and fixings) provide structural stability to the *building* . . .

(b) 15 years if:

  (i) Those building elements . . . are moderately difficult to access or replace, or

  (ii) Failure of those building elements to comply with the building code would go undetected during normal use of the building, but would be easily detected during normal maintenance.

(c) 5 years if:

  (i) The building elements . . . are easy to access and replace, and

  (ii) Failure of those building elements to comply with the building code would be easily detected during normal use of the building.

Clause E1

Clause E1.3.1 Except as otherwise required under the Resource Management Act 1991 for the protection of other property, surface water, resulting from an event having a 10 percent probability of occurring annually and which is collected or concentrated by buildings or sitework, shall be shall be disposed of in a way that avoids the likelihood of damage or nuisance to other property.

Appendix B

B1 The expert provided the following information about the site, the coastal processes and the natural coastal hazards:

> Properties 23 & 25 Clifton Road are part of a residential subdivision of 21 properties made in 1939 along the seaward side of Clifton Road as recorded by Survey Office Plan SO1889.
>
> The 21 properties are described as “Township of Haumoana (Extension No 2)” and extend SE from the junction of East Road and Clifton Road over a horizontal distance of about 382m.
>
> The 21 properties are all the same area with a seaward boundary of 18.2m sub-parallel to the shore and a 40.2m-long boundary extending back to Clifton Road.
>
> Although the line of [mean high water springs] was not defined at the time of the survey in 1939, the distance to the sea was generally defined, tapering northwest from about 70m from the seaward boundary of No 41 Clifton Road to about 24m adjacent to No1 Clifton Road.
>
> All 21 properties were originally located on unconsolidated mixed greywacke sand and gravel beach ridges laid down during the Holocene Epoch and are now in part located on the active dynamic beach of the same sediments and partly on the beach ridges.
>
> Oblique aerial photographs taken on 19 January 2011 reveal that of the 21 beachfront properties, 2 have no buildings and are now part of the active beach, 16 have their own seawalls which are mostly discontinuous in position from property to property, and 3 are unprotected from the sea.
>
> At [Hawkes Bay Regional Council (HBRC)] beach profile site HB-3, located along the boundary between Nos 33 & 35 Clifton Road (Figure 1) the height of the benchmark on the footpath is 4.33m [Mean Sea Level Napier Vertical Datum (MSL NVD)] 62.

Figure 1: Vertical aerial photograph showing the location of Nos 23 & 25 Clifton Road and HBRC Beach Profile HB-3. The red line marks the erosion scarp or landward limit of the beach, seaward of which lies active dynamic beach subject to wave action.

The Application for Certificate of Acceptance (COA) includes no heights or contours for Nos 23 & 25 Clifton Road, with respect to MSL NVD 62. The only heights given are relative levels described as “indicative” and “are to be checked on site”. The height on the adjacent footpath is given as [relative level (RL)] 10.65m and the height of the floor level of the house at 23 Clifton Road as RL 10.00m.

As the land along Clifton Road is relatively flat and in the absence of survey data, I have assumed the relative height of the landward part of all 21 sections (including Nos 23 & 25) to be about 4.3m MSL NVD 62.

The 21 properties are located in the centre of 5.5km-long gently curving bay unit between the Maraetotora and Tukituki River mouths which is the southern section of the 42.5km-long gravel barrier beach that extends from Clifton around Napier to Tangoio in the north.

Sediment is supplied to the entire barrier by a well established net N longshore drift set-up by oblique wave attack along the shore from refracted deepwater waves originating from the SE-S quadrant.

Based on accretion rates of a gravel fillet approximately 1.3km-long against the groyne constructed on the true right bank of the Tukituki River mouth in February 1999, from surveys made between 18 November 2003 and 21 January 2008 at HB-4A and between 15 December 1998 and 5 June 2008 at HB-4, a net northerly transport rate of sand and gravel of about 10,000-20,000m^3/year through the 5.5km-long bay unit is here estimated.

Similar long accretion fillets were surveyed against 2 groynes constructed at East Clive between the Tukituki and Ngaruroro River mouths in 1988 and 1993 indicating net N transport rates of approximately 20,000-25,000m3/year, the somewhat higher rates being due to added material being supplied by the Tukituki River.

In order of importance, the primary sources of the sediment accumulating against the Tukituki groyne are the eroding 4.2km of beach ridge to the SE including the site, the

eroding seacliffs between Clifton Motor Camp and Black Reef, the Maraetotora River catchment and the nearshore seabed.

The fact that about 75% of the 5.5km-long bay unit has a long-term trend of erosion simply indicates that more sediment is being removed by wave action than is being supplied from updrift sediment sources and that this imbalance occurred sometime in the 1930s, most probably from the effects of the M7.8 3 February 1931 Hawke's Bay Earthquake which caused vertical deformation of the coast.

HBRC beach profile HB-3, which is located about 73m SE of No 25 Clifton Road, has been monitored once to 11 times per year (2004) since November 1974 by firstly, Hawke's Bay Catchment Board and secondly, HBRC.

The frequency of surveys at HB-3 is limited when trying to estimate the magnitude of short-term erosion-accretion phases on the beach profile but excellent for quantifying the long-term trend since 1974.

Since 1974, the entire beach profile at HB-3 has retreated 20-21.5m landward at a net rate of -0.55 to -0.60m/year (linear regression), representing a permanent loss of some 73.5m^3 of gravel and sand per metre run of beach at -2.04m^3/m/year.

Between 1936 and 1974, a comparison of early aerial surveys indicates about -17m retreat of the erosion scarp at -0.44m/year, indicating that the current trend of coastal erosion was established before subdivision in 1939.

Since 1974, the rate of erosion has progressively accelerated with time (2nd Order polynomial) at HB-3 with the rate likely to accelerate further in response to rising global sea-levels and an inadequate supply of sediment to the site.

Surveys of the seabed at HB-3 indicate a trend of downcutting from erosion processes at 7.4±3.7mm/year between November 1974 and April 2002, further exposing the beach profile to increasing wave forces. In contrast, between March 1981 and February 2008, the beach profile was subject to net downcutting at 75±20mm/year, an order of magnitude greater in response to increased erosion forces.

Maximum short-term erosion-accretion of the beach profile of ±7 to10m (horizontal) was recorded at HB-3 during moderate wave storm events in 2004-2005 and 1984-1985 but these amounts should be regarded as minimums as it is not known whether the surveys recorded actual maximum cut and fill profiles at the time.

Based on the depth below beach levels of relatively old concrete debris from an old smashed seawall in Test Pit 4 adjacent to the NW boundary of No 23 Clifton Road, maximum vertical short-term profile fluctuations of the order of 0.8-2.1m may have occurred over the last decade or so in front of the seawall. Fluctuations up to 1.2, have already been observed against the seawall but these have not as yet exposed the foundations.

Photographs of beach gravels that have been washed across Clifton Road adjacent to the undeveloped section at No 5 Clifton Road indicate a storm wave runup elevation (SWRU) of about 4.5m a.MSL NVD 62 that may have occurred between April and June 2009.

Since first subdivision in 1939, the coast has retreated to such an extent, that the seaward part of all 21 properties now lies on the dynamically active foreshore that is fully exposed to storm wave action (see Figure 1).

All 21 properties along the Township of Haumoana (Extn. No 2), including Nos 23 & 25, are currently subject to and will continue to be subject to, increasing extreme risk from both long-term and short-term coastal erosion and inundation from the sea during episodic wave storms.

B2 The expert provided the following information about the adverse effects of the seawall:

> It is a well established fact that seawalls constructed on retreating coastlines truncate the beach profile with time and that whilst protecting property, have the potential to adversely affect the beach profile adjacent to the wall and unprotected shores at the ends of the structure.
>
> A significant adverse effect of profile truncation by the seawall is that sediment on the beach profile above the structure is locked-off from contributing to the beach to offset short-term erosion cycles, thus placing an added strain on adjacent, protected or unprotected shores to make up the shortfall.
>
> It therefore follows, that the seawall at the site along with the other 14 seawalls located on the foreshore along Clifton Road, will collectively increase erosion rates along the downdrift (NW) unprotected properties at Nos 1, 5, 9 & 11 Clifton Road and provide an increasing threat from erosion to the unprotected Clifton Road-East Road junction area and Beach Road to the NW.
>
> The structure is also acting as a partial groyne, trapping gravels on the upper foreshore on the updrift (SE) side. Although the 3-4m fillet of gravel berm is providing minor temporary protection to Nos 27-31 Clifton Road, this gravel is now no longer available to offset erosion rates along the downdrift properties from No 21 to No1 Clifton Road.
>
> The vertical face of the new seawall receives the full impact of storm wave runup which will provide shock waves through the concrete structure typically every 8-16 seconds at high tide during a wave storm, many of which on the East Coast typically last 3 days.
>
> Wave uprush hits the seawall and is reflected seawards as backwash entraining beach sediments which are then moved either offshore or alongshore depending on the angle of incidence of waves to the shore. Thus, sediment transport is enhanced and any natural deposition of sediment on the foreshore adjacent to the seawall severely inhibited.
>
> On mixed sand and gravel beaches the sand is first entrained in the swash-backwash and the gravels rolled in a sawtooth path across the foreshore, undergoing considerable abrasion.
>
> On a natural foreshore, storm wave runup is mostly absorbed into the foreshore through percolation up to the seaward edge of vegetation … . The profile yields to the storm moving slightly offshore along the gravel barrier so that waves break further offshore reducing incident wave energy on the beach.
>
> As the wave storm passes the gravel returns to the beach first followed by the sand. At the site, temporary gravel build-up against the seawall after a storm event is evidence of this process.
>
> There is evidence that beach levels in front of the seawall have fluctuated 1.2-2.1m. Depending on pre-storm beach levels there is a relatively high probability that during a significant short-term erosion-accretion cycle, beach levels will be cut down below the unconnected concrete block foundations causing differential undermining of the structure.
>
> When this occurs, enhanced swash-backwash will drive under the wall and remove some of the foundation blocks, leaving the interlocked vertical structure above unsupported. The hydraulic action of breaking waves at high tide acting on the increasing cavity will put enormous stress every 8-16 seconds on the unsupported structure above, causing stress fractures and eventual failure. This is how sea caves in solid rock eventually undergo catastrophic collapse.
>
> As the rate of long-term retreat of the beach profile is clearly increasing with time, it follows that the probability of significant failure of the seawall is also increasing. It is

very difficult to estimate when such a failure will occur as it is dependent on the frequency, magnitude and duration of significant wave storms striking the site of which little is known.

What is known is that associated with Global Climate Change, there has been an increase in the magnitude and duration of extreme climatic events and that such an increase is expected to continue. Compounding the effects of such events on the coast is the fact that global sea-level is rising presently at 3mm/year and could exceed 1.5±0.5m toward the end of this century.

Recent SWRU elevations along Clifton Road have reached and exceeded 4m a.MSL NVD 62. As the height of the structure is about 2.5m a.MSL, it will be frequently overtopped by moderate to large wave storms both from the front and sides of the seawall, inundating the property and damaging the buildings.

An estimated life of 7-10 years has been suggested for the seawall in March 2010 by the Applicants advisors. Based on this study, a useful life of say, 3-10 years, extending from construction in 2009, is suggested. Because of the many uncertainties it would be misleading to provide a finite year.