

# Determination 2022/005

## **Regarding the compliance of building work at 1D Fifeshire Crescent, Stepneyville, Nelson, with Building Code clauses B1 Structure and E1 Surface Water, that provide protection of other property at 18 Poynters Crescent, Stepneyville, Nelson**

### **Summary**

This determination considers whether building work to construct an extension to an existing deck, a new retaining wall, and other structures along a boundary between two properties, comply with Building Code Clauses B1 *Structure* and E1 *Surface Water* that provide for the protection of other property.

The legislation discussed in this determination is contained in Appendix A. In this determination, unless otherwise stated, references to “sections” are to sections of the Building Act 2004 (“the Act”) and references to “clauses” are to clauses in Schedule 1 (“the Building Code”) of the Building Regulations 1992.

The Act and the Building Code are available at [www.legislation.govt.nz](http://www.legislation.govt.nz). Information about the legislation, as well as past determinations, compliance documents (e.g., acceptable solutions) and guidance issued by the Ministry, is available at [www.building.govt.nz](http://www.building.govt.nz).

## **1. The matter to be determined**

- 1.1. This is a determination made under due authorisation by me, Katie Gordon, National Manager Building Resolution, Ministry of Business, Innovation and

Employment (“the Ministry”), for and on behalf of the Chief Executive of the Ministry<sup>1</sup>.

1.2. The parties to the determination are:

1.2.1. G and B Dicker, the owners of the property at 1D Fifeshire Crescent, Stepneyville, Nelson, where the retaining wall and other structures are located (“the owners”).

1.2.2. M Miller, the owner of a neighbouring property at 18 Poynters Crescent, Stepneyville, Nelson, who has applied for this determination (“the applicant”).

1.2.3. Nelson City Council carrying out its duties as a territorial authority or building consent authority (“the authority”).

1.3. The determination concerns the following building work on the owners’ property:

1.3.1. a timber-pole retaining wall (“the retaining wall”) constructed near to the owners’ dwelling and a new deck extension

1.3.2. earthworks carried out at or near the boundary between the applicant’s and owners’ properties (“the sitework”)

1.3.3. an assortment of retaining and fencing structures (“the structures”), which have been erected along or near to the boundary.

1.4. The applicant is concerned that the structures provide inadequate support to his land at the boundary. The applicant is also concerned that the retaining wall is concentrating surface water flow from the owners’ property and directing it across the boundary to his land, causing a nuisance and damage. The applicant has also questioned the authority’s view that building consents were not required, and considers that there were contraventions of the authority’s district plan.

1.5. As the applicant does not own the property where the building work was carried out, he may only seek a determination in respect of those Building Code clauses that have the purpose of protecting ‘other property’.<sup>2</sup>

1.6. The matters to be determined are whether the owners’ building work complies with clause B1 *Structure* and clause E1 *Surface water* of the Building Code,<sup>3</sup> in as far as those clauses relate to the protection of other property.

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<sup>1</sup> The Building Act 2004, section 185(1)(a) provides the Chief Executive of the Ministry with the power to make determinations

<sup>2</sup> Refer to section 176(e)(i) of the Act. *Other property* is defined in section 7 Interpretation of the Act (see Appendix A).

<sup>3</sup> Section 177(1)(a) of the Act.

- 1.7. The requirements of clause B2 *Durability* must also be considered. Clause B2 ensures that buildings will continue to satisfy the performance requirements of the code throughout their lifetime.

### Matters outside this determination

- 1.8. The parties have included references to matters that relate to the Resource Management Act 1991, the authority's District Plan, and common law obligations between owners of adjacent properties. These are outside the scope of this determination. I have no jurisdiction under other enactments and this determination only considers matters relating to the Building Act and its regulations.

## 2. The building work

### The site



**Figure 1: Site map (not to scale)**

- 2.1. The owners' property is at 1D Fifeshire Crescent on Nelson's Port Hills (see figure 1). It is located within 100m of the harbour and in a high corrosion zone.<sup>4</sup> The site is partway down a steeply sloping hillside above Poynters Crescent.

<sup>4</sup> Identified as Corrosion zone D (areas within 500m of sea or harbours, as defined in NZS 3604:2011 *Timber-framed buildings*) on a site plan dated 10 March 2017, part of the documents approved under building consent BC170357 for a new deck at the owners' property.

- 2.2. One means of access to the owners' dwelling is via an access road along the south-western boundary of the property ("the access road"). This road is on unclaimed land leading off Fifeshire Crescent. The owner had previously done work to reduce the surface water runoff from the access road that had entered onto the properties of 1D and 1E Fifeshire. This work involved re-shaping the surface of the road, and introducing a slot drain and sump that connects into the authority's reticulated system at the northwest end of the access road. This work is not related to the building work associated with the matter for determination.
- 2.3. The owners' property can also be accessed via a steep strip of land, measuring approximately 3.08m wide by 14.28m long (the "access leg"). This provides access from Poynters Crescent to the main part of the property where the owners' dwelling is situated. This access leg is also part of the owners' property.
- 2.4. At the lower end of the access leg, where it fronts Poynters Crescent, there used to be an old garage. This garage was sited partly on the access leg and partly on land belonging to other neighbours at 12 Poynters Crescent. The garage was partially demolished by the owners as part of the building work.
- 2.5. The boundary at issue is the southeast boundary of the owners' access leg, which is also the corresponding northwest boundary of the applicant's property. This boundary is orthogonal, or near orthogonal, to the land contours. Its exact location is disputed by the parties and has not been formally established during this determination.
- 2.6. The northeast boundary between the owner's property and 12 Poynters Crescent, and the northwest boundary of the access leg, are marked by a timber fence, and (in part), by horizontal corrugated profiled metal sheets.
- 2.7. The applicant's property is at 18 Poynters Crescent. It is steeply sloping, with the dwelling on the property located approximately 5m from the boundary. The property is covered with a layer of uncertified fill, which is up to 2.5m deep, overlies the natural ground, and extends to the boundary.<sup>5</sup> I understand that this fill was placed on the site by a previous owner of 18 Poynters Crescent, and I note that the authority has placed conditions on the applicant's property's record of title regarding it.<sup>6</sup>

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<sup>5</sup> I understand that the placement of this fill predates a 1996 report on the property.

<sup>6</sup> Condition 1127 dated 28 August 2003 and Condition 2 dated 14 July 2005, which require any dwelling or structure on the property to be designed and constructed under the supervision and control of a civil engineer; and all plans accompanying all building consent applications to be signed by a chartered professional engineer, stating that the proposed excavations, foundations and drainage measures are satisfactory.

### **The retaining wall and deck**

- 2.8. The retaining wall (refer to figure 2(a) and (b)) is a timber pole wall about 14m long located northeast of the owners' dwelling and below a recently constructed deck extension ("the new deck").
- 2.9. The owner's deck extension was constructed under the auspices of a building consent (authority reference number 170357) which was granted on 23 June 2017. The deck is approximately 61m<sup>2</sup> in area, and constructed of timber poles, bearers, joists, and grip tread decking. The top of the deck is approximately 4m above finished ground level (scaled from building consent plan 03). The deck provides a sheltered area to the space underneath it, which includes part of the grassed area behind the retaining wall. In the absence of evidence to the contrary, I have assumed water collected by the deck, drains to the ground below.
- 2.10. The retaining wall is constructed from sixteen H5 treated<sup>7</sup> timber poles set at 900mm centres in post holes between 1.2m to 1.4m deep. The facing boards between these poles are H4 treated timber with a tongue and groove profile. The retaining wall is about 1m high at the southeast end nearest to the applicant's property, increasing to about 1.2m at the northwest end (as there is one less facing board between the four poles nearest the applicant's property – refer to Figure 2(a) and (b)).
- 2.11. Drainage at the base of the retaining wall includes a layer of 20mm drainage metal and a perforated drainage coil<sup>8</sup> wrapped in filter cloth which discharges to planted beds on the west side of the access leg. At the top of the retaining wall is a flat and grassed area, which extends under the deck.
- 2.12. In the area between the base of the retaining wall on the owner's property and the northeast boundary to 12 Poynters Crescent, is a vegetated garden border, a narrow stone footpath, and a channel full of loosely laid stone directly next to the horizontal corrugated sheeting (refer to figure 2(a)).
- 2.13. To the far southeast end of the retaining wall is another vegetated border and stone filled steps. This is the top flight of all the steps that wind down the access leg to Poynters Crescent below. The steps are formed using timber risers secured in place by metal pegs and angled slightly so the treads slope (in part) away from applicants' property. There is more vegetation and loosely laid stones on either side of these steps (refer to figure 2(c) and (d)).

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<sup>7</sup> Hazard class as described in New Zealand Standard NZS 3640:2003 "Chemical preservation of round and sawn timber".

<sup>8</sup> A single wall corrugated bore polyethylene land drainage pipe.





(a) The retaining wall shown below the new deck



(b) Top of the retaining wall



(c) End of retaining wall



(d) Access leg and steps

18 Poynters Crescent is to the left of horizontal corrugated sheet, and the boundary to 12 Poynters Crescent is indicated by the wooden fence to the right. Structure D is to the left of the steps.

## Figure 2: The retaining wall and steps (images from the experts' report)

### The sitework

2.14. The sitework<sup>9</sup> included excavations along and near the boundary, as well as work to create a temporary ramp for machinery access during construction of the new deck and retaining wall. The sitework resulted in cut slopes at the lower (southeast) end of the access leg and included removing some material to create a level car-pad on

<sup>9</sup> Section 7 – Interpretation of the Act: **sitework** means work on a building site, including earthworks, preparatory to, or associated with, the construction, alteration, demolition, or removal of a building.

and near the site previously occupied by the garage. The car-pad subsequently had 200mm of compacted hard fill added to it to form a parking platform.

- 2.15. I note that the owners and the authority consider that the uncertified fill generated from when the applicant's dwelling was built had previously crossed the boundary and was stacked against the garage, and it was this fill that was part of the material that was removed during the sitework. However, the applicant has provided affidavits, photographs and other evidence to support his assertion that this was not the case. Figure 3 gives an indication of what existed prior to the excavation of the ground and part demolition of the garage.



Approximate line of the boundary is indicated by the red arrows. The property of 1D Fifeshire and existing garage (prior to demolition) is to the right of the boundary, and the property of 18 Poynters Crescent is to the left of the boundary. Photograph taken in approximately 2010 and provided by the applicant.

**Figure 3: View prior to building work**

- 2.16. The photograph in figure 4 shows cut slopes along the boundary in March 2017, before the structures were erected and the additional sitework carried out to create the car-pad. The height markings of 1.2m and 1.65m are relative to the garage floor. I note that figure 4 also indicates that the previous garage has been partly demolished.





**Figure 4: Earthworks on 22 March 2017 viewed from Poynters Crescent, with the applicant's property on the left (image provided by the applicant)**

### The structures

2.17. A series of structures have been erected along the boundary, against and above the cut slopes described above. In total these structures extend for approximately 10.5m in length (refer to figure 5 and figure 6). In ascending order, starting from Poynters Crescent, these can be described as follows.

2.17.1. **Structure A: timber boarding** – 45mm thick stepped tongue-and-groove timber lagging, which is supported by narrow metal stakes<sup>10</sup> spaced at irregular intervals and embedded in fill. The timber boarding extends along the boundary for about 3m, stepping up from one board (about 180mm high) near the roadside to four boards (about 720mm high). The boarding retains natural ground and fill on the applicant's property to a maximum height of about 670mm. There is a backslope angle of between 10 to 30 degrees extending for about 1m above this structure.

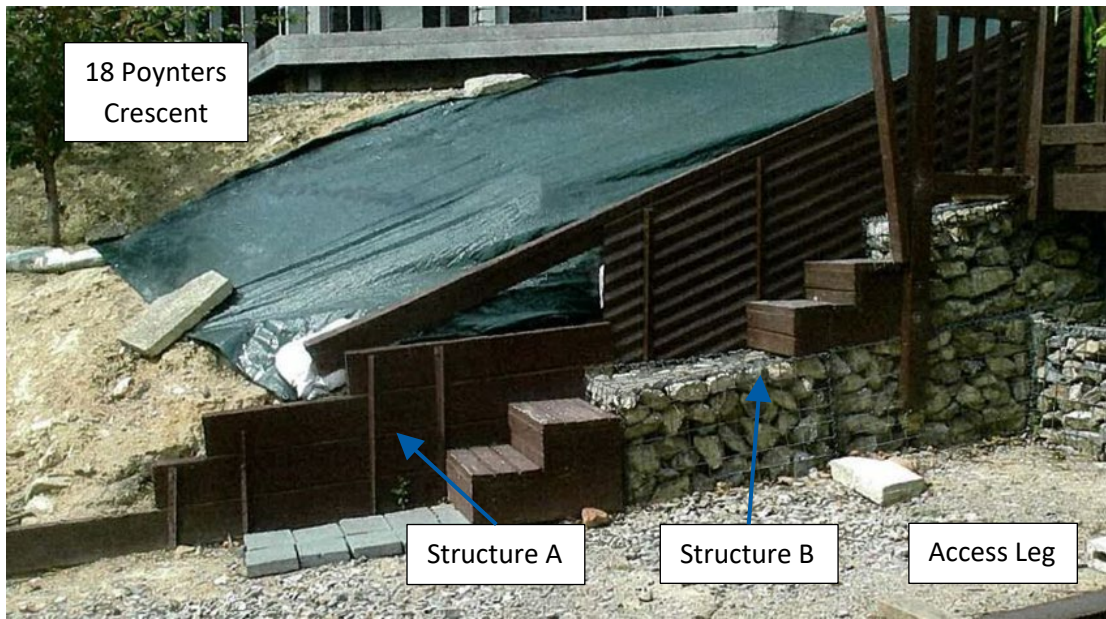
2.17.2. **Structure B: gabion baskets and corrugated iron fencing** – three rock-filled steel mesh baskets (gabions) and a section of corrugated iron fencing behind these gabions, which extend for about 2.5m along the boundary. The

<sup>10</sup> Proprietary steel stakes ranging in size from 400mm to 2400mm long, formed as either an 'L' or 'star' shaped profile between 20mm to 40mm in cross-section.



corrugated iron fencing is formed from metal sheets, set on edge and supported by irregularly spaced metal stakes, with a timber capping. The gabions are each about 500mm high and 1m long. Two of these gabions are level with the car-pad and have been laid on geotextile cloth, which is itself set on compacted hard fill. A third gabion is set partly on top of one of the other (lower) gabions and partly on the adjacent land. The gabions currently retain up to 1m at their highest point (about 500mm of natural ground and 500mm of fill). There is a backslope angle of about 35 degrees extending for about 700mm above the gabions.

- 2.17.3. **Structure C: dry-stacked masonry** – an assortment of concrete blocks stacked up to 850mm high and partially secured with narrow metal stakes and fencing wire. This structure extends about 800mm along the boundary.
- 2.17.4. **Structure D: corrugated iron fencing** – a single metal sheet set on edge and slotted between irregularly spaced pairs of narrow metal stakes. The fencing is about 800mm high and extends for about 4.2m along the boundary until it intersects with a timber retaining wall at the back of the applicant's property ("the applicant's timber retaining wall"), which is visible in figure 7(b). Beyond this wall is a separate property, namely 1E Fifeshire Crescent. Between the upper end of the corrugated iron fencing and the owners' garden steps (made from earth, gravel and staked wooden risers) is an area of loose aggregate forming a stone-filled sump. A perforated land drainage coil has been installed in this area and runs along the fence-line on the owners' side (see figure 8). This drainage coil is 100mm in diameter, about 1.8m long, and is wrapped in geotextile cloth.



(a) The timber boarding, gabion baskets, and corrugated iron fencing behind the gabions (structures A and B), viewed from car-pad (9 February 2020)



(b) Dry-stacked masonry (structure C) (c) Corrugated iron fencing (structure D)

**Figure 5: The structures along the boundary (image (a) provided by the applicant; images (b) and (c) from the Ministry’s experts’ report)**

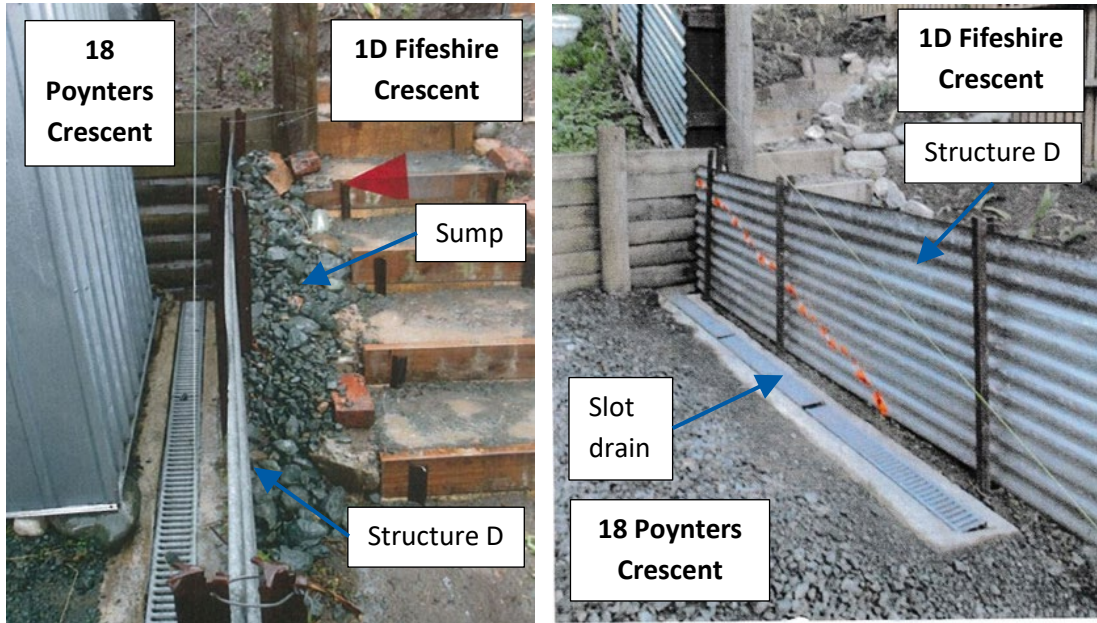


**Figure 6: Plan of approximate location of structures A (shown in yellow), B (shown in purple), C (shown in green), and D (shown in blue), and the slot drain (shown in red) [Not to scale]**

2.18. There is a narrow drain (“the slot drain”)<sup>11</sup> next to the upper end of the structure D, on the applicant’s side of the fence/retaining wall (refer to figure 6 and figure 7). The slot drain is about 3m long, 90mm wide and 75mm deep, and has a longitudinal grade of 0.7 degrees. It is orientated in the direction of the slope and is located in a flat area created by the applicant. It drains surface water away from this area to the Poynters Crescent stormwater infrastructure, and was installed by the applicant in approximately 2011. The slot drain is lower (in part) relative to the natural ground level on the access leg.

<sup>11</sup> The slot drain is not part of the owners’ building work but is described here as it is relevant to the determination.





(a) Looking along structure D and the boundary at the top of the access leg, with the applicant's property and slot drain on the left (5 January 2018). The stone-filled sump is located between the steps and structure D

(b) Looking across the applicant's property to the boundary, with orange tape marking the level of aggregate against the structure D (25 March 2018)

**Figure 3: The slot drain (images provided by the applicant)**



### 3. Background

- 3.1. In 2002, the applicant bought the property at 18 Poynters Crescent. The land was subdivided in 2004, creating the applicant's current property (still numbered 18) and 1E Fifeshire Crescent further upslope.
- 3.2. The applicant's dwelling was built in 2011. Shortly after the dwelling was completed, there was an episode of heavy rainfall. This prompted the applicant to install additional drainage at 18 Poynters Crescent (including two sumps and the slot drain).<sup>12</sup>
- 3.3. In 2015, the owners bought 1D Fifeshire Crescent. The property included a dwelling built in the late 1970s and part of the garage next to Poynters Crescent (described earlier).
- 3.4. In late 2016 or early 2017, the owners demolished their part of the garage and carried out some siteworks along the boundary, resulting in cut slopes. The owners also constructed the new deck for the dwelling<sup>13</sup> and the retaining wall (the latter was built between February and September 2017). Access for some of the machinery used during this construction was provided via the access leg.
- 3.5. In late 2017 or early 2018, the owners created a path and steps along the access leg and began erecting some of the structures described in paragraph 2.17 (the structure D corrugated iron fencing and structure C dry-stacked masonry).
- 3.6. In approximately March 2018, the owners carried out more siteworks at the lower end of the access leg to create a level car-pad, which included covering the former garage's concrete floor slab with 200mm of compacted base fill. The owners also erected the other structures along the boundary (the structure A timber boarding and structure B gabion baskets).
- 3.7. While the owners were undertaking these activities, the applicant made various complaints to the authority. The authority's responses included site visits to assess the owners' building work and ongoing communications with the parties regarding the applicant's concerns.
- 3.8. Events that are particularly relevant to the applicant's concerns about the structural stability of the building work are summarised in table 1.

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<sup>12</sup> The applicant wrote to the authority about this additional drainage on 18 October 2013 and submitted a "Notification of exempt work (Schedule 1)" form.

<sup>13</sup> The authority issued a building consent for the new deck on 23 June 2017 and a code compliance certificate on 10 October 2018.

**Table 1: Events relevant to structural stability of the building work**

Date	Event
Mid-April 2017	Small slip of the applicant's land occurred at the boundary following the owners' earthworks. The applicant expressed concern to the authority, stating the slip occurred during the ex-Cyclone Cook weather event on 12 to 14 April 2017, and that he considers the earthworks should have protected his land.
Late-April 2017	The authority visits the site and writes to the owners noting that Schedule 1 (Clause 20) <sup>14</sup> provides for walls retaining no more than 1.5m of ground, with no surcharge and with ground water drainage, <sup>15</sup> to be constructed without requiring a building consent. The authority also stated it had assessed that the owners' earthworks did not exceed 1.2m of cut or fill, so does not require a resource consent under the authority's resource management plan.
Mid-2017 to 2018	Ongoing communications between the applicant and the authority about the earthworks and structures. The authority advises the applicant (on 29 June 2018) that the owners did not apply for a building consent for these structures and notes the Schedule 1 exemption for certain retaining walls.
Nov 2018	The authority discusses the structures with the owners and says it is 'border line' whether the timber boarding is a retaining wall, but even if it were, the building work would come under Schedule 1. The authority then writes to the applicant (on 27 November 2018), saying it has reviewed the owners' car-pad area, steps and fencing, and considers this area has 'a very low level retaining feature and would be likely to comply with any provisions of the Building Act and Code'.

3.9. Events relevant to the applicant's concerns about surface water crossing the boundary are summarised in table 2.

<sup>14</sup> Schedule 1 Building work for which building consent not required, Clause 20 Retaining walls.

<sup>15</sup> "Ground water drainage" is not a test under Schedule 1, Clause 20.

**Table 2: Events relevant to surface water crossing the boundary**

Date	Event
Early to mid-2017	The applicant expresses concern to the authority about surface water crossing the boundary near the upper end of the structure D corrugated iron fencing following the owners' building work. The authority visits the site and corresponds with the owners about the proposed retaining wall construction and associated earthworks. The authority cites the Building Act requirements if the wall is to be exempt under Schedule 1, including the height, surcharge and groundwater drainage requirements.
Aug/Sep 2017	The authority visits the site again and advises the owners that surface water is being collected and concentrated by the retaining wall towards the applicant's property and is going into the slot drain. The authority says the retaining wall must still comply with Clause E1.3.1 even if its construction did not require a building consent. It also says it does not believe the applicant's slot drain is an appropriate outfall for the increased surface water, and asks the owners to rectify this.
Late 2017 - early 2018	The owners install a stone-filled sump against the upper end of the corrugated iron fencing.
2018	There are ongoing communications between the applicant and the authority, including further complaints by the applicant after heavy rainfall events on 11 February and 22 March 2018. The applicant and the authority both conduct dye tests (on 22 March and 20 August 2018 respectively) to track surface water flow across the boundary.
Nov 2018	The authority discusses suitable mitigation measures with the owners; in particular, that they will install a perforated land drainage coil in the stone sump located between the steps and structure D (refer to Figure 7(a))
Early 2019	The owners install the land drainage coil between the steps and structure D (on 18 February 2019, according to the applicant) (refer to Figure 8).

3.10. Further correspondence included the authority's response on 18 February 2019 to the applicant's requests (of 24 December 2018 and 22 January 2019) to review its decisions regarding the owners' siteworks and surface water at the boundary. The authority declined to do so, stating it had responded previously, the applicant had not provided any new information, and the owners had recently installed additional mitigating drainage measures.

3.11. The Ministry received an initial application for determination on 27 February 2019. This was accepted on 5 April 2019 after further clarification of the matters to be determined.

## 4. Initial submissions

### The applicant

- 4.1. The applicant provided various submissions, descriptions of events and extensive documentary material, including copies of:
  - 4.1.1. documents relating to the applicant's, the owners' and their neighbours' properties, including aerial photographs, site plans, details of ground levels, topographical surveys of the applicant's property, a Producer Statement - Construction Review (PS4) for the applicant's retaining wall, the authority's 'placed conditions' on the applicant's record of title, sewer/stormwater details, geotechnical assessment reports, local rainfall data, news clippings, the building consent and code compliance certificate for the owners' new deck, plus some of the consented documents and associated correspondence
  - 4.1.2. correspondence with the authority from April 2017 onwards, including after the application for a determination, and various affidavits made by the applicant and others including by a registered surveyor regarding measurements at the boundary, and by a registered valuer regarding whether there was uncertified fill on the access leg, and an order made by the Disputes Tribunal (Nelson District Court) on 14 December 2017 concerning related issues
  - 4.1.3. photographs of the applicant and owners' properties during various construction stages and during heavy rainfall events (including on 12 April 2017, 5 January 2018, 11 February 2018 and 22 March 2018).
- 4.2. The applicant submitted that regardless of the owners' intentions for their building work, it must still comply with the Building Code to the extent required by the Act, and referred to the requirements in clauses B1 and E1 for the protection of other property.
- 4.3. Regarding structural stability at the boundary, the applicant contended:
  - 4.3.1. the owners' siteworks in preparation for the new deck did not account for the effects of ground loss and slumping, and had caused loss of area and damage to the applicant's property
  - 4.3.2. it had advised the owners on 23 September 2016 of the conditions that the authority had placed on the record of title for his property. These conditions required any excavations into the uncertified fill to be under the control and supervision of a civil engineer, and any retaining structures had to be designed and constructed under the umbrella of a chartered professional engineer



- 4.3.3. the slope at the boundary remained unsupported, and the applicant had been advised by both a chartered professional engineer and a senior engineering geologist that there was “an imminent risk of regression of the landslide head-scarp” above the structures
  - 4.3.4. while the authority considered the structures to be a “very low retaining feature” and likely to be compliant, the applicant was of the view that the structures did not comply with Building Code requirements to protect other property. The applicant believed the owners and the authority did not consider various factors including the additional loads imposed by the boundary slope.
- 4.4. Regarding surface water crossing the boundary, the applicant contended:
- 4.4.1. the owners’ retaining wall collected and concentrated surface water near the upper end of the structure D corrugated iron fencing. This water then crossed the boundary and flowed into the slot drain. This was a nuisance, there was surface water flow where there had been none previously, and the applicant’s slot drain was not an appropriate means of disposal
  - 4.4.2. there was still doubt whether the perforated land drainage coil installed by the owners had addressed the “outstanding nuisance and potential catalyst to further property damage”. Surface water had crossed the boundary during a rainfall event on 12 March 2019, which was after the drainage coil had been installed in February 2019.
- 4.5. Other points made by the applicant included:
- 4.5.1. a request for the determination to clarify whether aspects of the owners’ activities were sitework or earthworks as defined in the Building Code
  - 4.5.2. an assertion that uncertified fill from the applicant’s dwelling build had not been placed against the garage as stated by the other parties (the applicant provided affidavits and historical photographs to support this assertion)
  - 4.5.3. a statement that the vertical distance measurements of the deepest cuts made at or near to the boundary during the owners’ earthworks had been surveyed at more than 1.2m by two independent professional registered surveyors (in June and October 2017).
- 4.6. After submitting the original application for a determination, the applicant continued to communicate directly with the authority including asking for results of the authority’s dye test carried out on 20 August 2018. The applicant also asked the authority to reconsider its decisions regarding the owners’ building work and to confirm whether the owners had applied for building consents or consent amendments. The applicant also complained about surface water crossing the

boundary and objected to the authority's treatment of what the applicant considered was new information.

## The owners

- 4.7. The owners provided supporting material including construction details for the retaining wall and gabion baskets, photographs, and a statement by a previous owner of the property that uncertified fill had been placed across the access leg and against the garage while the applicant's dwelling was being built.<sup>16</sup>
- 4.8. The owners also made submissions that:
- 4.8.1. supported the authority's 10 June 2019 description of events (below), and commented that they had taken advice to ensure they had "followed the rules" for consented and exempt works, and had worked willingly with the authority to address the applicant's concerns
  - 4.8.2. commented on uncertified fill from the applicant's property that had "spilled over" onto the owners' property
  - 4.8.3. provided details of a rainfall event on 4 September 2019 (the owners stated their photographs showed no surface water running down their path or entering the applicant's slot drain)
  - 4.8.4. as per a statement made on 11 September 2019, the owners had not observed water from their property entering the slot drain during any rain events they were present for in the previous six months
  - 4.8.5. the applicant's photographs of dye testing were taken before all the building work on the owners' property was completed.
- 4.9. The owners also described work they had undertaken on part of the access road that ran above the upper boundary of their property and of 1E Fifeshire Crescent to redirect surface water ("the owners' mitigation works"). This included re-contouring and sealing the road surface, directing surface water from this access road into a sump on the owners' property,<sup>17</sup> and installing a slot drain next to the owners' upper car parking area. The owners did not say when these mitigation works were carried out; however, the applicant believes it was before 17 November 2016.<sup>18</sup>
- 4.10. The owners considered that as a result of the mitigation works, the "large amount" of surface water from this area (which previously flowed into the applicant's slot

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<sup>16</sup> An undated statement which the owners identified as being prepared for a November 2017 Disputes Tribunal hearing.

<sup>17</sup> The applicant contends that the sump is not located on the owner's property but is, in fact, on the access road.

<sup>18</sup> From information provided by the applicant in response to the experts' report.

drain), was redirected into the owners' sump drain and discharged into the authority's stormwater system.

## The authority

- 4.11. On 10 June 2019, the authority provided a submission, description of key events and supporting material including:
- 4.11.1. copies of documents relating to the owners' new deck extension including a site plan and structural details
  - 4.11.2. a Producer Statement - Design (PS1) and Producer Statement - Construction Review (PS4) for the additions and alterations to the owners' deck
  - 4.11.3. the code compliance certificate for the "deck extension" dated 10 October 2018
  - 4.11.4. a letter to the owners dated 20 November 2018 that referred to "storm water runoff from the rear access site works (steps)" crossing "the boundary onto 18 Poynters Crescent", and "review of the fencing and retaining work to the steps to the carpark".
    - (a) The authority confirmed that the owners had "undertaken to install a 100mm [land drainage coil] throughout the length of the area of stone fill adjacent to formed steps to control surface water runoff and keep it from migrating across the boundary" (see figure 8). The applicant believes this drain was laid in February 2019.
    - (b) With respect to the "fencing and retaining work" the authority stated the "retained amount of soil is the height of the Gabian [sic] basket", and "the top part of the steps has a fence to prevent spoil from toppling off the neighbour's property". The authority also stated that the lower level "retaining boards...are only supporting less than 300mm of spoil" and "the top board is there to stop spoil running off the adjacent land".
    - (c) The authority concluded that, "this feature is boarder [sic] line as to whether it is a retaining wall. However, if it was presumed to be a retaining wall the work undertaken is within Schedule 1" of the Act.<sup>19</sup>
  - 4.11.5. a list of service requests (from the applicant and the owners) from 15 August 2016 through to 14 May 2019.

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<sup>19</sup> Schedule 1: Building work for which building consent not required.



**Figure 4: Image provided by the authority. Approximate location of drainage coil marked in 'blue'**

- 4.12. Regarding the applicant's concerns about the structural stability of the siteworks and structures located near to or along the boundary, and whether various building consents were required, the authority submitted as follows:
- 4.12.1. Confirmation that "in early 2017 a small land slip occurred at 18 Poynters Crescent, up slope of where the garage had been removed".
- 4.12.2. Since mid-2017, it had responded to multiple complaints and service requests from the applicant about the building work undertaken to 1D Fifeshire Crescent.
- 4.12.3. That prior to the garage being demolished (which was in part located across the access leg) it "had a significant amount of [uncertified fill], arising from the" construction of the dwelling "by the owner of 18 Poynters Crescent, placed against it".
- 4.12.4. In the authority's view, there did not appear to be any requirement in the Act or Building Code to retain the cut soil face to the boundary that the authority said was left by the garage's removal. The authority also



considered that removing the garage was exempt work (building work for which building consent not required) under Schedule 1 Clause 4.<sup>20</sup>

4.12.5. The authority had previously considered construction of the owners' garden steps to be sitework as defined in the Building Code. However, this work was not associated with the new deck or the garage removal. The authority said that given the minor nature of these steps it had since made a "judgement call" that no further action was required.

4.12.6. Regarding the timber boarding (structure A), the authority stated it had made a "practical judgement" due to this small area and limited average height, and considered it was not surcharged. The authority considered there was no requirement under the Act or the Resource Management Act 1991 to install anything in the area where the timber structure was erected. In its view, the soil face left after the removal of the garage could have been left as is.

4.12.7. Regarding the gabion baskets (structure B), the authority said it had discussed its construction with the owners and had not taken any further action. Although these baskets were near the cut slope, they appeared to be placed there as steps rather than as retaining structures.

4.12.8. Regarding the retaining wall below the new deck extension at 1D Fifeshire, the authority said it had reviewed this wall's construction and concluded that it was exempt work in accordance with Schedule 1 Clause 20.<sup>21</sup>

4.13. The authority also noted that, "there is a dispute over the boundary between the properties". It went on to state:

A retaining wall and drainage works undertaken by the owner of 18 Poynters Crescent are alleged to have been undertaken across the boundary on land owned by 1D Fifeshire Crescent. If this is the case it means surface water [from] 1D Fifeshire Crescent can easily find its way into an outfall drain owned by 18 Poynters Crescent.

4.14. Regarding the applicant's surface water concerns the authority stated:

4.14.1. The owners' steps had collected surface water and potentially directed this water across the boundary.

4.14.2. After various nuisance complaints made by the applicant, the authority had asked the owners to put measures in place to direct the surface water back onto their property. The owners' had put some mitigating measures in place

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<sup>20</sup> Schedule 1 Building work for which building consent not required, clause 4 Unoccupied detached buildings. I note the authority did not refer to clause 30, "demolition of detached building".

<sup>21</sup> Retaining walls – Building work in connection with a retaining wall that (a) retains not more than 1.5 metres depth of ground; and (b) does not support any surcharge or any load additional to the load of that ground (for example, the load of vehicles).

such as a “stone filled sump” that was “provided adjacent to the lower steps” in early 2018. The owners’ had also installed an additional land drainage pipe “to capture surface water in the sump and direct it away from 18 Poynters Crescent boundary”.

4.14.3. As it was “not totally clear” whether construction of the owners’ steps was sitework, the authority’s requests to the owners regarding surface water runoff, in view of the requirements of Clause E1.3.1, had taken “a fairly conservative interpretation”.

## 5. The Ministry’s experts’ initial report

- 5.1. The Ministry engaged a firm of chartered professional engineers with structural, geotechnical, and stormwater expertise (“the experts”). This was to assess whether the retaining wall and structures complied with the Building Code (in terms of whether they supported the applicant’s property and whether their failure would affect that property). It also considered whether the building work complied with Clause E1.3.1 such that surface water having a 10% probability of occurring annually, shall be disposed of in a way that avoids the likelihood of damage or nuisance to other property.
- 5.2. The experts made several visits to the properties between 31 July and 14 October 2019. They provided a final report on 24 January 2020, which was copied to the parties the same day. The main findings and opinions expressed in that report are summarised below.
- 5.3. The Ministry subsequently requested the experts to provide a further opinion, based on additional information that became available during the determination process. In light of this information, the experts revised some of the opinions expressed in their initial report. These updated opinions were expressed in an addendum to the initial report, which is summarised in section 7 of this determination.

### Key findings regarding structural stability (Clauses B1 and B2)

- 5.4. With respect to the retaining wall, the experts concluded that this wall could not cause damage to the applicant’s property as it was further from the boundary than its own height. It was unlikely to fail in the normal course of events, and even if it did, it would not affect the applicant’s property which was across-slope.
- 5.5. With respect to the structures A and D, the experts considered these were not compliant with either clause B1 *Structure* or clause B2 *Durability*. The experts considered that the gabion baskets (structure B) were likely to comply with these clauses. The experts’ did not consider the fencing in this area at this point. As the dry-stacked masonry (structure C) was not structural, they also did not review this

further. The experts' comments and conclusions for all the structures are summarised in table 3.

- 5.6. The experts also noted that the material supported by these structures included natural ground (assumed to be yellow brown silty clay or colluvium) and uncertified fill (loose gravels in a silt/clay matrix). They stated the need for, and performance of, the structures was heavily influenced by the presence of this fill.
- 5.7. The experts also referenced previous Determination 2019/029<sup>22</sup> specifically section 6.1.10, which stated:

I note the applicant's concerns about the fill on her property and that the completed retaining wall will not extend to the top of this. While I appreciate these concerns I agree with the authority that it is the applicant's responsibility to retain this fill on her land, not that of neighbouring property owners.

**Table 3: Summary of experts' findings for structures A, B, C and D**

Experts' comments	Do the structures comply with Clauses B1 and B2?	Consequences of failure
<b>Structure A - Timber boarding</b>		
Retains mostly fill and a small amount of natural ground on applicant's property; performance expected to be governed by stability of the fill. The backslope behind this hoarding acts as a surcharge, which can result in earth pressures two to three times higher than they would for a flat slope.  Not constructed in line with standard industry practice.	Not compliant with clause B1 or clause B2.  Metal stakes used in this structure (rather than the timber poles generally used for timber retaining walls) have only a small area providing soil bearing resistance against overturning forces, low flexural strength, and no corrosion protection although located in a high corrosion zone.	Localised rotation and loss of support to fill on the applicant's property, which may slip as a result.  Effect of this rotation expected to be on soil locally behind the wall, and would not impact the applicant's dwelling.
<b>Structure B - Gabion baskets and fencing</b>		

<sup>22</sup> Regarding the compliance of a retaining wall and associated sitework at 18 Reeves Road, Pakuranga, with Building Code Clause B1 Structure and whether a notice to fix should have been issued. Issued 27 June 2019.

Experts' comments	Do the structures comply with Clauses B1 and B2?	Consequences of failure
<p>Gabions are a proprietary system commonly used for retaining; retained both natural ground and fill.</p> <p>Timber steps and a corrugated iron fence also installed on top of the gabions, but experts said neither of these items were retaining features so were not considered further.</p>	<p>Gabions likely to comply with clause B1 and clause B2 (considered generally stable under both static and seismic conditions).</p>	<p>Re gabions: minor deformation in structure. (Independent failure of fill on the applicant's property may be possible).</p>
<b>Structure C - Dry-stacked masonry</b>		
<p>Ad hoc construction; apparent function to prevent loose fill/soil falling on the owners' steps. The experts considered this to be non-structural and slope facing, so did not consider it further in terms of Building Code requirements.</p>	<p>Considered non-structural</p>	<p>Slope stability dependent on the performance of soil on the applicant's property. Upper blocks might topple onto the access leg. Not considered to have a negative effect on the applicant's property.</p>
<b>Structure D - Corrugated iron fencing</b>		
<p>Not constructed in line with standard industry practice.</p>	<p>Not compliant with clause B1 or clause B2.</p> <p>Metal stakes used in this structure only have a small area providing soil-bearing resistance against overturning force, low flexural strength, and no corrosion protection although located in a high corrosion zone. Corrugated iron sheet also vulnerable to corrosion over time.</p>	<p>Localised rotation and creep of (owners') backfill, which may gradually overturn onto the applicant's property – the structure and backfill would eventually be deposited onto the adjacent flat ground on the owners' property.</p> <p>Impact of such rotation considered local to the structure, would not have an impact on the applicant's dwelling, and not expected to have a significant impact on the stability of the land.</p>



## Key findings regarding surface water flow (Clause E1)

- 5.8. Regarding surface water crossing the boundary, the experts stated their assessment was limited to potential nuisance rather than damage. They considered that any water that did cross was unlikely to 'enter or damage' the applicant's dwelling (given it had an elevated floor, supported by piles); and was also unlikely to damage the applicant's land (given the presence of the slot drain).
- 5.9. The experts' expressed the following views.
- 5.9.1. The small landslip that occurred on the applicant's land in April 2017 is "unlikely to have been caused by cumulative rainfall".
- 5.9.2. The boundary between the parties' properties was near orthogonal to the natural contours of the land, and in a "natural situation with unmodified surfaces and terrain", stormwater would run from the high points on each property, orthogonal with the contours, and some would tend to cross the boundary in both directions.
- 5.9.3. The retaining wall collected and concentrated surface water. The experts noted that surface water flow across the grassed area above the retaining wall was prevented from overspilling the wall's edge. This surface water (in part) then made its way to the boundary near the upper end of the corrugated iron fencing (structure D).
- 5.9.4. The owners had undertaken various measures to prevent stormwater from their land crossing the boundary, including:
- (a) initially constructing a stone sump to "mitigate boundary migration of water", along the bottom of structure D, in the area adjacent to the applicant's slot drain
  - (b) subsequently installing a land drainage coil through the length of the stone sump, with the drain wrapped in a geotextile sock and covered with backfilled drainage material
  - (c) redirecting the overland flow of stormwater above their property and the neighbouring property (1E Fifeshire Crescent). This was done by resealing and re-contouring the unowned access road, so that water flowed into a sump on their land that was connected to the authority's stormwater network. This disposed of stormwater that would previously have flowed down onto the applicant's property<sup>23</sup>.
- 5.9.5. These measures had not, however, "completely prevented" surface flow of stormwater from crossing the boundary and flowing into the applicant's slot

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<sup>23</sup> The work described here is not the building work that is the subject of this determination, but it is a description of the owners' mitigating works as noted in paragraph 2.2.

drain. This was because an approximately 1m section of the land drainage coil that the owners had installed next to structure D was “not effective”, enabling stormwater from two of the adjacent stairs to bypass it and reach the slot drain.

- 5.9.6. Before the owners did any work on their property, the contributory flow to the slot drain from their property was “a small amount of un-concentrated flow” accruing from the unmodified terrain. The experts assessed that the owners’ building work had increased the contributory flow to the slot drain from their property by 1.3 litres/second during a 10% Annual Exceedance Probability (AEP) event.<sup>24</sup>
- 5.10. The calculation of an additional 1.3 litres/second by the expert was based on a catchment area of approximately 140m<sup>2</sup>. However, the largest percentage of that catchment area (approximately 60 percent, or 84m<sup>2</sup>)<sup>25</sup> is to the southeast of the owners’ dwelling, and is not related to the building work associated with the deck extension and retaining wall (i.e. not collected or concentrated by the buildings or sitework). As such, the figure of 1.3 litres/second is conservative, and the actual amount related to the building work is therefore less. I have assessed that based on an approximate catchment area of 56m<sup>2</sup> (i.e. 140m<sup>2</sup> - 84m<sup>2</sup>), or 40 percent (i.e. 100 percent – 60 percent), this equates to a reduced figure of approximately 0.52 litres/second (0.4 x 1.3 litres/second).
- 5.11. Regarding their view that some surface water could still cross the boundary, the experts made the following points.
- 5.11.1. The junction between the structure D corrugated iron fencing and the applicant’s timber retaining wall did not appear to be watertight, and it is ‘likely’ that surface water originating on the owners’ property will find its way to the slot drain through this junction. It should be noted, however, that the expert appears to have specifically based this assessment on photos supplied by the applicant of the 22 March 2018 rainfall event, which was an extreme event outside the 10% AEP specified in Clause E1.3.1 and was also before the owners installed the drainage coil along the boundary.
- 5.11.2. The corrugated iron fencing currently dissipated and relieved hydrostatic pressure over the length of its base, but might not continue to do so and could concentrate surface water flow in future.
- 5.11.3. About 1m of the perforated land drainage coil was ineffective, as it had been laid on rock backfill.

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<sup>22</sup> An event with a 10% probability of occurring annually, which is the relevant event described in Clause 1.3.1.

<sup>25</sup> The area has been approximated based on Figure 2 “Catchment Assessment Areas”, page 9, in the expert’s memorandum dated 31 October 2019, file reference S-G3236.00/00020, Revision 1, and the “Site Plan” (dated 10 March 2017) issued by the authority as part of building consent number 170357 on 23 June 2017, copied as page D3 of the applicant’s determination application.

- 5.11.4. Some of the water entering the applicant's land was likely to be from sub-surface water accumulating on the boundary, and that some of this water will have originally been surface water.
- 5.12. In arriving at their conclusions, the experts considered local rainfall data, land contours and catchment areas, and information provided by the parties including photographs taken during heavy rainfall. The experts also observed the applicant tipped dye solution on the owners' steps near the upper end of the corrugated iron fencing and confirmed that some of this dye solution emerged at the slot drain.<sup>26</sup>
- 5.13. Regarding the various rainfall events referred to by the parties, the experts noted that Clause E1.3.1 only applied to events with (at least) a 10% AEP. The experts concluded the rainfall events on 12 April 2017, 11 February 2018 and 4 September 2019 were relevant, but the event on 22 March 2018 was not, having at most a 5% AEP.
- 5.14. The experts also assessed the amount of surface water likely to arrive at the slot drain in a 10% AEP event from other contributory catchments. This included 0.9 litres/second from the property immediately upslope of the applicant's property (1E Fifeshire Crescent). The experts estimated that the slot drain had a capacity of 1.4 litres/second, which was less than the potential combined surface water flow from 1E Fifeshire Crescent (0.9 litres/second) and the owners' property (1.3 litres/second) during a 10% AEP event. However, as per paragraph 5.10, a reduced value of 0.52 litres/second has been approximated based on the smaller catchment area associated with the building work.
- 5.15. The experts further noted that in the past the drain would also have received flow from the catchment area further upslope of both properties (comprising part of the access road and land above this road); and estimated the surface water flow originating from this catchment area was up to 13 litres/second. However, the owners' mitigation measures on the access road (which are not related to the building work in this case; see paragraph 2.2) had reduced the amount of this flow that reached the applicant's property by the same amount (i.e. to almost zero). Accordingly, the experts pointed out that the net effect of the retaining wall and the owners' mitigation works was a likely decrease in contributory surface water flow (from all sources) to the slot drain<sup>27</sup>.

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<sup>26</sup> During the experts' site visit on 31 July 2019.

<sup>27</sup> As discussed further in paragraph 9.55 the compliance assessment of the building work in respect of clause E1.3.1 will not take into account the owners' earlier mitigation works.

## 6. The parties' responses to the Ministry's experts' initial report

### The applicant

- 6.1. The applicant made extensive additional submissions in response to the Ministry's experts' report. The Ministry received these submissions on 23 March 2020 and 23 April 2020. The applicant's submissions included responses to aspects of the Ministry's experts' report plus some clarifications and corrections, further descriptions of events, more construction details and photographs, geotechnical reports, site and survey plans and diagrams, information about gabion baskets, copies of correspondence including between the authority, the owners and other neighbours regarding the upper access road and associated drainage, and other information relating to the access road. I have considered the additional submissions and have sought further advice from the Ministry's experts in response to these.
- 6.2. The key points from the applicant's additional submissions are summarised in paragraphs 6.3 and 6.4. The applicant also engaged a chartered professional engineer ("the applicant's engineer") to review the experts' report, and the opinions provided by this engineer are summarised from paragraph 6.5 onwards.
- 6.3. With respect to structural stability at the boundary, the applicant:
  - 6.3.1. referred to the applicant's engineer's conclusions; also considered that the dry-stacked masonry and gabion basket structures (B and C) were not compliant with clauses B1 or B2; and provided more details of the construction of these structures and about the mesh used for the gabions (which the applicant also noted would wear as these gabions were used as steps) and about gabion basket construction generally
  - 6.3.2. gave details of the owners' vehicle, saying its dimensions appeared the main driver behind the design and construction of the structures "with minimal regard to supporting the contiguous boundary slope in any apparent "fit for purpose" or elementary engineered outcome"
  - 6.3.3. stated that no means of support had been provided for the cut slopes for the 18 months' duration of the new deck construction siteworks, until structures A and B were completed during March 2018.
- 6.4. With respect to surface water crossing the boundary, the applicant disputed the experts' view of the efficacy of the owners' mitigation works. The applicant considered that some of the surface water from the access road was still making its way around the owners' property and onto the retaining wall (and from there across the boundary). The applicant also said the mitigation works were carried out

before 17 November 2016, which was before the rainfall events of 12 April 2017, 11 February 2018 and 22 March 2018.

### **The applicant's engineer's memorandum**

- 6.5. The applicant provided a memorandum dated 14 February 2020 from a chartered professional engineer who he had engaged to review the experts' report, with a particular focus on the structures.
- 6.6. The applicant's engineer had historic involvement in both the construction of the applicant's dwelling, and the stormwater mitigation works carried out on the unowned access road. The applicant's engineer asserted (through this involvement and from his subsequent study of topographic surveys and maps) that no uncertified fill or construction spoil had been placed across the boundary by the applicant, and that the land along the boundary was in fact approximately 200mm lower after the applicant's dwelling had been built.
- 6.7. The applicant's engineer took various measurements (from the surveyed corner boundary marker), including:
  - 6.7.1. the height of the compacted base-fill on the car-pad, which he calculated to be 200mm (at a point 3.7m from the marker)
  - 6.7.2. the angle of the backslope behind the structures, which he calculated to be "typically 30 degrees" but this reduces to 20 degrees behind structure B
  - 6.7.3. "the existing cut height [of the excavations] projected to the boundary", which was calculated to be 1550mm (at a point 3.7m from the marker), which gave a total cut height of 1750mm when the compacted fill at the base was taken into account
  - 6.7.4. the height of the handrail of structure B (formed from the gabion baskets and corrugated iron fence behind it), which he calculated to be 1850mm (at a point 5.85m from the marker)
  - 6.7.5. the provision of three sketches that confirmed both horizontal and vertical measurements taken along the structures, and the degree of the battered slope on the applicant's side. The engineer also indicated a "projected groundline [sic]" and area of the "existing slump" in the land; this gives an indication of where the land on the applicants' side of the structures would finish if it was reinstated.
- 6.8. The applicant's engineer considered that not only did the timber boarding and corrugated iron fencing not comply with clauses B1 and B2, as had been concluded by the experts, but also that the gabion basket structure and dry-stacked masonry did not comply. The applicant's engineer gave the following reasons for these conclusions.

- 6.8.1. The gabion basket structure (B) was not just a gabion wall (as was stated in the experts' report), as it had a corrugated iron/metal stake fence above it. The engineer noted that this section of the structures had not been backfilled "as it is clearly not suitable as a retaining wall". However, if the original ground line of the applicant's property was continued to the boundary, the height of the retained land at this point would be 1550mm, which would require a building consent. The applicant's engineer also highlighted other aspects of the gabions (it was out of plumb, there were no interconnections, and used uncoated, lightly pre-galvanised mesh not commonly used in retaining structures and with durability that was "highly questionable in the local coastal environment") and concluded that the whole gabions/fencing structure did not comply with the Building Code.
- 6.8.2. The dry-stacked masonry (structure C) was supporting "a cut in apparent uncertified fill". Therefore, this needed to be designed to serve as a retaining wall, which it was not, and hence did not comply with the Building Code.

### **The owners**

- 6.9. The owners responded to the experts report on 10 February 2020, commenting that the timber boarding was there temporarily until the applicant contained fill from his property.
- 6.10. The owners also said the experts' report contained a photograph showing large rocks against the corrugated iron fencing, but these rocks had been replaced with 50mm to 100mm sized stones, which were supporting the outside edge of the fencing (on the owners' side of the boundary).
- 6.11. The owners added that the applicant's timber retaining wall crossed the boundary onto their property and had battered the adjacent bank. They considered that the applicant should have erected a small retaining wall along the boundary.

### **The authority**

- 6.12. The authority did not provide a further submission in response to the experts' report.

## **7. The Ministry's experts' report addendum**

- 7.1. The Ministry requested its experts to provide a further assessment of the matters to be determined. This was to take into account and respond to the additional submissions made by the parties in response to the experts' initial report, including the memorandum provided by the applicant's engineer.
- 7.2. The experts carried out an additional site visit on 17 May 2021 and provided an addendum to its initial report dated 28 May 2021. This addendum confirmed some



of the experts' opinions, as expressed in their initial report, and altered others, based on the new information provided. The addendum report was sent to the parties on 31 May 2021.

- 7.3. The experts made the following general points about the compliance of the structures.
  - 7.3.1. The structures are not covered by an acceptable solution or verification method and must be treated as an alternative solution. The onus is on the owners to establish compliance with the Building Code, which they have not done. Nor have they applied for a building consent or exemption for these structures.
  - 7.3.2. The additional information provided by the applicant to establish the ground levels before the excavation, and to show that uncertified fill had not been allowed to cross the boundary, is at odds with other information provided during the determination process.
  - 7.3.3. Photographic evidence provided by the applicant indicates that "minor [land] slips along the cut did occur after the excavation had been carried out" by the owners.
  - 7.3.4. As no specified intended life had been given for the structures, a design life of 50 years has been assumed<sup>28</sup>.
  - 7.3.5. The experts have not verified the ground levels before and after construction, or historic earthworks activity.
  - 7.3.6. Measurements taken during the site visit confirmed that if the original ground profile on the applicant's land was reinstated, the uncertified fill would apply "earth pressure" on the corrugated iron fencing and metal stakes above the gabion baskets (structure B), and the total retained height would exceed 1.5m for approximately 1m of the structure. The experts concurred with the applicant's engineer that this meant the structures would not be exempt under clause 20 of Schedule 1 of the Act. This is also due to "the sloping ground above the top of the...wall [which] applies a surcharge" to that structure.
- 7.4. The experts then went on to reassess the compliance of structures B and C.
- 7.5. With respect to structure B the experts made the following points.

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<sup>28</sup> Section 113 of the Act, "Buildings with specified intended lives".

- 7.5.1. The experts concurred with the applicant's engineer's assessment that structure B "should be assessed for its capacity to retain the full original cut height [of the embankment] as it was prior to any slippage".
- 7.5.2. The adequacy of the gabion basket's bearing, overturning or sliding resistance was not reassessed, as only a "relatively small weight and volume of soil [was] required to reinstate the backslope" and there would be "limited" additional demands placed on the baskets.
- 7.5.3. Instead, the experts reassessed the ability of the "full constructed assembly" (including the gabions, and corrugated iron fence and metal stakes behind them), to comply with the Building Code.
- 7.5.4. The gabion baskets alone cannot retain the original cut ground profile along the boundary. Retaining this would rely on the corrugated iron fence located behind and above the gabions. This fence was not supporting any earth pressure at the time of the experts' initial site visits, as the earth had slipped in this location.
- 7.5.5. No evidence has been provided to show that the iron fencing elements (that form part of structure B) are likely to comply with clause B1 as a retaining structure. The materials used and manner of construction are not consistent with typical retaining wall construction practices, have a very small bearing surface area, and will provide inadequate resistance to probable soil pressure loads.
- 7.5.6. The experts found that, "there are no grounds to conclude that the assembly [structure B] meets the structural functional and performance requirements of the Building Code".
- 7.5.7. The experts re-affirmed the location of the property and its associated corrosion categorization, then provided an analysis of the different types of coatings available. The experts stated that the protective coating used on the gabion baskets does not meet the provisions of the acceptable solution for clause B2 *Durability* for steel building elements, and no evidence to show that it complies as an alternative solution has been provided. In particular, it has not been demonstrated that there is adequate corrosion protection for those parts of the gabion mesh in contact with the soil.
- 7.5.8. Metal stakes are typically intended for fencing purposes. The stakes and iron have been painted with "an unknown paint product" but it is not clear if the buried parts of the metal stakes are painted. Corrosion-induced deterioration in this area would go undetected. The fence does not have "any substantiated durability provision" and "the complete structural assembly for" structure B does not comply with clause B2.

- 7.6. With respect to structure C, the experts made the following points.
- 7.6.1. No information has been provided to show that structure C will meet the performance requirements of clause B1 if the structure is regarded as a retaining structure. The materials used in its construction are fencing materials and non-structural concrete masonry, and it has not been erected in accordance with typical retaining wall construction practices. There is also no defined or reliable load path within the structure.
  - 7.6.2. The experts concluded that structure C does not comply with clause B1 *Structure*, as a retaining wall.
  - 7.6.3. There had also been no documentation provided to show that the materials used in the construction of structure C would achieve the durability requirements under clause B2 *Durability*.
  - 7.6.4. The critical element in structure C is the metal stakes, which although painted with “an unknown paint product”, are unlikely to have their buried portions painted. Corrosion-induced deterioration in this area would go undetected.
  - 7.6.5. Overall, due to the inadequate durability of the metal stakes, the experts’ concluded that structure C did not comply with clause B2.
- 7.7. The experts also included a sketch that indicated the horizontal and vertical dimensions of structure B, along with lines that approximated the “current ground level” on the applicant’s side of the structure, and “projected ground” level if the landslip was reinstated.

#### **The parties’ responses to the Ministry’s expert’s report addendum**

- 7.8. The applicant responded using the services of a legal advisor on 9 June 2021. The response acknowledged receipt of the experts’ addendum report, and provided no other comments in relation to it.
- 7.9. The owners responded to the addendum report on 2 June 2021. The owners provided:
- 7.9.1. a marked-up copy of the expert’s sketch indicating where they thought the “natural ground level” was in relation to structure B, which was lower than that indicated by the experts
  - 7.9.2. photographs indicating the line of the road reserve along Poynters Crescent below the applicants’ dwelling

- 7.9.3. copies of correspondences between the parties and the authority about compliance of the structures and building and resource consent requirements
- 7.9.4. a statement to the effect that structure A “was never intended to be a retaining wall but was an interim attempt to stop” earthworks from continuing to cross over the boundary from 18 Poynters Crescent
- 7.9.5. a statement to the effect that structure B was “never intended to retain...earthworks” associated with 18 Poynters Crescent. This was a “landscape” feature “not designed to retain...uncertified fill”
- 7.9.6. a statement that the earthworks from 18 Poynters Crescent did cross over the relevant “boundary and came to rest against [the] old garage, which became a de-facto retaining wall...for [the] earthworks (fill)”. It was then “necessary to remove this...fill to reclaim the flat area for 1D Fifeshire Crescent legal road access”
- 7.9.7. a conclusion to the effect that it is the applicants’ “earthworks (fill) that have significantly altered the ground levels” and it is the applicants’ “responsibility to obtain any consents necessary” and construct retaining walls within the property boundaries. The owners also contend they “should not be required to undertake works such as constructing retaining walls” on their property “to contain” earthworks from 18 Poynters Crescent.

## 8. The draft determination

- 8.1. A draft of the determination was issued to the parties on 15 September 2021.

### The applicant

- 8.2. The applicant responded on the 4 November 2021 and confirmed he did not accept the draft determination and provided comments to clarify his position.
- 8.3. The applicant queried the accuracy of the information in relation to the work undertaken by the owner to the access road, including the sump installed (refer to paragraph 2.2).
- 8.4. The applicant stated that the boundary between the properties “was surveyed [and] pegged in 1998” and “resurveyed by an additional [three] Registered Professional Surveyor firms”. The applicant was of the view that the setting out of the boundary “has remained uncontentious ever since the applicant’s property ownership was settled in late January 2002”.
- 8.5. The applicant confirmed that he took the photograph shown in figure 4, which shows the cut slopes along the boundary in March 2017. He also provided

contextual commentary on the importance of the photograph when considering the height and extent of the cut slope.

- 8.6. The applicant provided additional commentary and background information about the slot drain.
- 8.7. The applicant disputed the location of the sump installed by the owners (refer to paragraph 4.9).
- 8.8. The applicant disputed the statement in paragraph 4.10 where the owners stated the surface water discharged into the authority's stormwater system.
- 8.9. The applicant agreed that "Yes, surface stormwater would run from the high points on each property, orthogonal with the contours, and some would tend to cross the boundary in both directions..." but excavations by the owners had changed the slope of the ground.
- 8.10. The applicant disputed items in the experts' report including the sump near to the access road, the mitigating measures to control stormwater by the owners, and the extent of the catchment area used in the surface water calculations.
- 8.11. The applicant expressed a view that the slot drain is wholly on his property.
- 8.12. The applicant submitted a number of supporting documents, the majority of which had previously been provided to the Ministry.
- 8.13. The applicant re-affirmed that it was his view "that there was not any [uncertified fill] from the build of 18 Poynters [Crescent] on the contiguous slope or against the 1D (Fifeshire Crescent) owners' garage".

## **The owners**

- 8.14. The owners responded on the 28 October 2021 and confirmed they did not accept the draft determination and provided comments to clarify their position.
- 8.15. The owners confirmed that in December 2017 they had attempted, through mediation, to engage with the applicant over the possibility of constructing a wall between the two properties but this was unsuccessful.
- 8.16. The owners stated they did not agree to the part of the draft determination subtitled "The earthworks and responsibility for retaining the fill at the boundary".
- 8.17. The owners re-stated that fill was placed over the boundary onto the access leg and up against the garage when the dwelling at 18 Poynters Crescent was first constructed. The owners believe it is the responsibility of the applicant to retain the fill material on the applicant's property.

- 8.18. The owners referred to a tribunal hearing on 17 December 2017 where the applicant admitted “under oath that some fill did cross the boundary”.
- 8.19. The owners did not agree that structures A, B, C and D do not comply with the Building Code. Again, the owners referred to the issue of the fill material, and that structures A, B and C were only intended as landscaping features to retain the fill from the applicant’s property. The owners also referred to the difference between the natural ground levels and that of the uncertified fill above it. The owners believed that the total cut height was 1.5m and not 1.75m “when the compacted base was taken into account”.
- 8.20. The owners queried the accuracy of the experts’ report in respect of the setting out of the gabion baskets for structure B, and the cut height of the ground behind it, as well as the independence of the information gathered by the experts in their second visit to the site.<sup>29</sup>
- 8.21. The owners provided supporting documentation which included:
- 8.21.1. a letter dated 26 July 1996 from a consulting engineer which stated that “the site [at Poynters Crescent] has been levelled using [uncertified] fill which may [be] up to 2.5m deep in the north west [sic] corner”
  - 8.21.2. an extract from the experts’ report related to fill material over the boundary and retention of the same
  - 8.21.3. photographs at various stages of the siteworks and construction of the structures, at the access leg. The owners stated the photographs showed evidence to the effect that fill material from 18 Poynters Crescent had extended across the boundary onto the access leg
  - 8.21.4. a sketch showing the construction of structure B and associated ground levels
  - 8.21.5. copies of emails from the Ministry and the experts
  - 8.21.6. a copy of an affidavit from the applicant dated 18 May 2021 with a section highlighted referring to ground levels on the applicant’s property.

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<sup>29</sup> The applicant and his engineer attended the site at the same time as the expert, but the owners did not. This issue was raised in emails between the expert, the parties, and the Ministry, dated 17 May 2021 to 19 May 2021. Assurances were received from the expert that “no dialogue was undertaken between any party” other than the expert did share readings they had taken with the applicant’s engineer, and these readings were used in the drafting of the addendum report by the expert, a copy of which was offered to the parties on 31 May 2021.



## The authority

- 8.22. The authority responded on 28 October 2021 and confirmed it did not accept the draft determination. It did not provide reasons why but did include comments to clarify its position in relation to the dispute between the owners.
- 8.23. The authority stated it was of the understanding that the original ground level on the applicant's property "was significantly increased" in level when building work was undertaken to construct the applicant's dwelling.
- 8.24. The ground level was raised using "construction fill". The authority was of the view that this fill had spilled across the boundary onto the access leg and "came to rest against the garage on the adjoining land". The authority's "concern is that this additional fill has created a surcharge".
- 8.25. The authority stated the "owners have retained land to the original ground level, with landscaping features" and "it now seems [the owners] are responsible for retaining additional fill that was deposited by the applicant, at the time" the dwelling was constructed.
- 8.26. The authority also raised items it sought clarification on, but these are general in nature regarding the construction of retaining walls and ground levels and are outside the matter for determination.
- 8.27. The authority "understands that the owners are responsible for retaining land from the adjoining property at the boundary".

## 9. Discussion

- 9.1. This determination only considers the compliance of the owners' building work (specifically the construction of the retaining wall, sitework, and other structures located on or adjacent to a property boundary) with those Building Code provisions that relate to the protection of other property. The relevant provisions in this case are contained in clauses B1 *Structure*, E1 *Surface Water*, and B2 *Durability* insofar as it relates to those clauses.

### The legislation

- 9.2. Section 3 (b) of the Act states that:

This Act has the following purposes:

...

- (b) to promote accountability of owners, designers, builders, and building consent authorities who have responsibilities for ensuring that building work complies with the building code.

9.3. Section 4 of the Act<sup>30</sup> requires of an authority that:

(2) In achieving the purpose of this Act, a person to whom this section applies must take into account the following principles that are relevant to the performance of functions or duties imposed, or the exercise of powers conferred, on that person by this Act:

- ...
- (c) the importance of ensuring that each building is durable for its intended use
- ...
- (f) the importance of building design and construction in achieving compliance with the building code
- ...
- (j) the need to provide for the protection of other property from physical damage resulting from construction, use, and demolition of a building
- ...
- (q) the need to ensure that owners, designers, builders, and building consent authorities are each accountable for their role in ensuring that—
  - (i) the necessary building consents and other approvals are obtained for proposed building work; and
  - (ii) plans and specifications are sufficient to result in building work that (if built to those plans and specifications) complies with the building code; and
  - (iii) building work for which a building consent is issued complies with that building consent; and
  - (iv) building work for which a building consent is not required complies with the building code.

9.4. “Building work” is defined in section 7 - Interpretation of the Act as:

- (a) means work:
  - i) for, or in connection with, the construction, alteration, demolition, or removal of a building; and
  - ii) on an allotment that is likely to affect the extent to which an existing building on that allotment complies with the building code; and
- (b) includes sitework; ...

9.5. “Sitework” is also defined in section 7, as “work on a building site, including earthworks, preparatory to or associated with the construction, alteration, demolition, or removal of a building”.

9.6. The definition of “building”, in section 8, includes “a temporary or permanent movable or immovable structure”. There are some exclusions to this definition in section 9.

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<sup>30</sup> Principles to be applied in performing functions or duties, or exercising powers, under this Act.

- 9.7. I consider the owners' retaining wall, deck extension, and structures A to D, in this case, are buildings as defined in section 8 of the Act. Therefore, it follows that their construction was building work, and I do not consider that any of the exclusions under section 9 of the Act apply in this case. I also consider the earthworks carried out along the boundary to be building work, as it was associated with the construction or demolition of buildings (i.e. the structures).
- 9.8. Section 14B of the Act relates to the outline of responsibilities of an owner; it states:
- An owner is responsible for—
- (a) obtaining any necessary consents, approvals, and certificates
  - (b) ensuring that building work carried out by the owner complies with the building consent or, if there is no building consent, with the building code
  - (c) ensuring compliance with any notices to fix.
- 9.9. Section 17 of the Act states that all building work must comply with the Building Code to the extent required by the Act. This is regardless of whether or not the building work requires a building consent.
- 9.10. In addition, both the Act and the Building Code require that any building, including sitework, must be constructed in such a manner as to protect "other property" (see Appendix A).

### **Clause B1 Structure**

- 9.11. The objectives of clause B1 include "to protect other property from physical damage caused by structural failure".<sup>31</sup> Its performance requirements include (but are not limited to):

#### **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.

...

#### **B1.3.6**

Sitework, where necessary, shall be carried out to:

- (a) Provide stability for construction on the site, and
- (b) Avoid the likelihood of damage to other property.

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<sup>31</sup> Clause B1.1(c).

9.12. With respect to the term “low probability” as expressed in clause B1.3.1, I refer to the reasoning in *Auckland City Council v Selwyn Mews Ltd*<sup>32</sup> (“*Selwyn Mews*”), where the Judge stated:

[47]...In cl B1.3.3 “a low probability of becoming unstable or collapsing” means that the risk of such events is no more than an appreciable risk (as distinct from a slight risk) or is at most a low risk (as distinct from a very low risk)

9.13. As discussed in previous determinations,<sup>33</sup> I consider that “other property” is not limited to the protection of buildings and that the land itself must also be protected from the likelihood of damage. With respect to the “likelihood of damage” I refer to the reasoning in *Selwyn Mews*, where the Judge stated:

[47]...In cl B1.3.6 “the likelihood of damage to other property” refers to a real and substantial risk of such damage.

### **Clause B2 Durability**

9.14. Clause B2 requires:

B2.2 Building materials, components and construction methods shall be sufficiently durable to ensure that the building, without reconstruction or major renovation, satisfies the other functional requirements of this code throughout the life of the building.

9.15. Accordingly, the materials, components and construction methods used in building the owners’ retaining wall and structures must be sufficiently durable to ensure that the wall and structures will continue to comply with the relevant clauses of the Building Code throughout their life.

9.16. Buildings may have specified intended lives of less than 50 years. Where this is the case, the specified intended life is stated in the building consent. In the absence of a specified intended life, the life of the building as a whole will be not less than 50 years.<sup>34</sup>

9.17. Clause B2.3.1 goes on to provide specific durability periods that particular elements within buildings must continue to comply for, with only normal maintenance. These periods will vary depending on whether the building has a specified intended life, and whether the element has a structural function and how easy it is to access and replace.

### **Clause E1 Surface Water**

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<sup>32</sup> District Court Auckland CRN2004067301-19, 18 June 2003, [2003] DCR 671.

<sup>33</sup> For example, Determination 2015/003, “Compliance of a retaining wall between two properties at 34A and 36B Ballin Street, Ellerslie, Auckland”. Issued 10 February 2015.

<sup>34</sup> Section 113(1) of the Act.

9.18. “Surface water” is defined in the Building Code as:

all naturally occurring water, other than sub-surface water, which results from rainfall on the site or water flowing onto the site, including that flowing from a drain, stream, river, lake or sea.<sup>35</sup>

9.19. The objective of clause E1 includes to “safeguard... other property from damage, caused by surface water”. Its functional requirement is “Buildings and sitework shall be constructed in a way that protects people and other property from the adverse effects of surface water.”

9.20. The relevant performance requirement is clause E1.3.1:

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% probability of occurring annually and which is collected or concentrated by buildings or sitework, shall be disposed of in a way that avoids the likelihood of damage or nuisance to other property.

9.21. I refer to the term “the likelihood of **damage**...to other property” [my emphasis] above in paragraph 9.13.

9.22. The meaning of “likelihood” as it relates to clause E1.3.1 needs to be interpreted in a way that accords with the purpose of that particular provision, for example, as referred to above in *Selwyn Mews*.

9.23. The term “nuisance” is not defined in the Act or Building Code.

9.24. A previous determination<sup>36</sup> considered the term “nuisance” and described it as:

[6.1.5] The term “nuisance” is not defined in the Act or the Building Code, and it appears only in Clauses E1.3.1 and G4.3.4<sup>37</sup>. The term “nuisance” has a particular common law meaning which is ‘the unreasonable interference with an individual person’s use or enjoyment of land or of some right connected with that land’. The question of whether a nuisance is unreasonable is a question of fact and must be considered in relation to factors such as the nature of the harm and the locality in which it occurs, and the frequency, duration and intensity of the interference.

[6.1.6] A previous determination<sup>38</sup> held that the word nuisance in clause E1.3.1 should not be given a narrow legal meaning and there ‘must be some *significant* nuisance effect before there can be a breach of clause E1.3.1’ (emphasis added). I

<sup>35</sup> In clause A2 – Interpretation.

<sup>36</sup> Determination 2015/052, “Regarding the compliance of proposed building work at 70B Grand Vue Road, Kawaha Point, Rotorua, in respect of adjacent other property”. Issued 12 August 2015.

<sup>37</sup> Clause G4.3.4 – Contaminated air shall be disposed of in a way which avoids creating a nuisance or hazard to people and other property. Clause G4.3.4 is outside the matter for determination in this case.

<sup>38</sup> Determination 2010/059, “Disposal of surface water collected behind a retaining wall at 226A Beach Road, Mairangi Bay, North Shore City”. See paragraph 6.2.4. Issued 12 July 2010.

am of the view that any nuisance has to be an *unreasonable interference*; calling a nuisance a significant nuisance is simply reflecting the fact that it is not a trivial or minor interference with a person's use and enjoyment, but must be an unreasonable or significant interference with that use or enjoyment.

9.25. In respect of the disposal of surface water, I hold the same view as discussed in previous determinations<sup>39</sup> in that:

...not all surface water needs to be so disposed of; only surface water resulting from an event with 'a 10% probability of occurring annually' or put another way, a storm or rainfall event of such severity that it only occurs once every 10 years. A 2% AEP storm event is expected to occur only once every 50 years, and falls outside the level of performance required by Clause E1.3.1.

9.26. Clause E1.3.3 is also relevant:

E1.3.3 Drainage systems for the disposal of surface water shall be constructed to:  
(a) convey surface water to an appropriate outfall....

## **Compliance with clauses B1 and B2**

9.27. I will start by considering whether the owners' building work complies with the requirements in clause B1 *Structure* relating to protection of other property.

### **The retaining wall**

9.28. Regarding the retaining wall below the new deck at 1D Fifeshire, the authority did review it and concluded that since it was not affected by a surcharge, and was less than 1.5m tall, it was building work exempt from requiring a building consent under Schedule 1 clause 20 of the Act. I have received no information that leads me to reach a different conclusion on this point.

9.29. The Ministry's experts concluded this wall could not cause damage to the applicant's property for several reasons including its construction and location.

9.30. I agree with these conclusions. The wall has been constructed in a manner typical for retaining walls of this type; it does not support a surcharge, is of a low height (a maximum of approximately 1.2m high) and is at a distance greater than its own height from the boundary. There is no reason to believe it does not or will not continue to comply, and even if it did fail, any damage would be likely to occur downslope from the wall and not across onto the applicant's property (the boundary of which is some distance across the slope).

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<sup>39</sup> For example, Determination 2017/042, "Regarding compliance of building work with Clause E1 of the Building Code at 1-5 Saint Bathans Lane, Papanui, Christchurch". Issued 20 June 2017.

9.31. Accordingly, it is my view that the retaining wall complies with the relevant performance clauses of B1, in as far as they relate to the protection of other property.

### **The earthworks and responsibility for retaining the fill at the boundary**

9.32. Regarding the owners' earthworks, these created cut slopes of varying heights along the boundary. The face of the cut slopes comprised a lower layer of natural ground and an upper layer of uncertified fill overlaying the applicant's property. The applicant advises this fill was placed there by a previous owner as far back as 1996. The applicant's engineer (who was involved in the construction of the applicant's dwelling in 2011) confirms this is the case.

9.33. The owners consider that soil spilled across the boundary when the applicant's dwelling was constructed in 2011<sup>40</sup> and that it is the applicant's responsibility to retain his land at the boundary. This view seems to stem from the fact that the top layer of this land is uncertified fill.

9.34. I have not drawn a conclusion as to who placed the fill, the timing of that placement or the extent to which it may have crossed the boundary as it is not necessary to decide on the matter to be determined. Responsibilities relating to the historic placement of the fill and for addressing the fact that fill may, or not have, migrated across the boundary between the two properties falls outside of the matters for determination.

9.35. Regardless of when the fill was placed on the site and the extent to which it may have spilled over the boundary onto the owners' property, the owners' did building work to create the cut slopes, and this building work was required to comply with the Building Code regardless of whether the material exposed was natural ground or uncertified fill.

9.36. I note that in carrying out the earthworks the owners were required to protect the applicant's dwelling and land from physical damage caused by structural failure. For example, under clause B1.3.1, these earthworks were required to have a low probability of becoming unstable, losing equilibrium or collapsing throughout their lives or during construction. In spite of this, parts of the cut slopes were left exposed for several months until the structures were completed.

9.37. From the evidence before me, I can conclude that the earthworks did cause a partial landslip of the applicant's property, the extent of which did not affect the applicant's dwelling. This is relevant to the compliance of the as-built work because the requirements in the Building Code, such as clause B1.3.1 above, should be considered in terms of the height of the land before the landslip. From the evidence of the applicant's engineer and the Ministry's experts, I conclude that part of the

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<sup>40</sup> The applicant disputes that fill crossed the boundary. See paragraph 2.15.



height of the cut bank originally exceeded 1.5m in depth (see paragraph 2.16 and figure 4).

9.38. Further, I note that the experts mentioned Determination 2019/029<sup>41</sup> in their report with respect to retaining fill at the boundary and said this determination considered a similar situation. However, I do not consider that determination 2019/029 is directly comparable to this case. The applicant in that case wanted a neighbour's retaining wall extended to the same height as fill on the applicant's property. However, the retaining wall and the excavation it supported were not located on the boundary (they were approximately 1.5m away) and the fill (and the applicant's land in general) had not been excavated or otherwise affected by the owners' building work. In that situation (which I consider materially different from the one before me), the determination concluded that retaining the fill remained the applicant's responsibility.

### **The structures**

9.39. The experts and the applicant's engineer agree that none of the four structures (referenced as A, B, C and D) along or near to the boundary comply with relevant performance requirements of clause B1.

9.40. In their first report, the experts considered that structures B and C did comply. However, this did not take into account the original height of the land being retained at the boundary and the increased earth pressure required to be retained by the structures. Considering the original height of the land rather than after the partial landslip, this meant that the fence above the gabion baskets in structure B, and the entirety of structure C, would now both have a structural function, whereas the experts had previously considered they did not.

9.41. As I have already noted in paragraph 9.37, the compliance of the building work should be considered in terms of the height of the land before the landslip. Accordingly, the structures that the owners have erected along the boundary must be capable of complying and continuing to comply with the relevant performance requirements of clause B1 taking into account the height of the land immediately prior to the building work to create the cut slope.

9.42. In summary, the reasons that the experts concluded the structures did not comply with either clause B1 or clause B2 are as follows (noting the applicant's engineer also reached the same conclusions).

9.42.1. Structure A (low timber at street end) – does not support the land on the owners' side and is not sufficiently durable.

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<sup>41</sup> "Regarding the compliance of a retaining wall and associated sitework at 18 Reeves Road, Pakuranga with Building Code Clause B1 Structure and whether a notice to fix should have been issued". Issued 27 June 2019.

- 9.42.2. Structure B (gabion baskets and steps and fences) – the iron and metal stake components of the composite structure will not support the land and none of the components have been shown to be sufficiently durable.
- 9.42.3. Structure C (metal stakes and masonry) – there is no clear load path, it has not been designed to be structural, and the stakes have not been shown to be sufficiently durable.
- 9.42.4. Structure D (fence and retaining wall) – does not support land on the owners' side and is not sufficiently durable.
- 9.43. Based on the evidence before me, I agree with the conclusions reached by both the applicant's engineer and the experts, and the owners have not provided any substantive evidence that might otherwise confirm that the structures do meet the requirements of clause B1.
- 9.44. Clause B1 of the Building Code has a number of performance clauses including (but not limited to) clause B1.3.1 which requires that buildings and building elements will have a low probability of rupturing, becoming unstable, losing equilibrium, or collapsing throughout their lives. Further, in the absence of a specified intended life, the structures are expected to remain functional for at least 50 years and I have received no evidence to suggest the structures would comply with clause B2 in this regard.
- 9.45. All four structures are required to perform a retaining function to varying degrees. In places, this function is significant, with the height of the land required to be retained exceeding 1.5m, and the surcharge created by the slope of the land on the applicant's property (i.e. in excess of the criteria for constructing a retaining wall under Schedule 1 clause 20 of the Act, which therefore requires a building consent).
- 9.46. None of the structures have shown to have been constructed to a standard to be capable of performing a retaining function, either in their design or in their choice of materials used.
- 9.47. The construction methods used are neither typical nor common, and no evidence has been provided to show that any of the structures have any ability to withstand soil pressure or surcharge. Although the gabion baskets are a typical retaining element, they are only part of a composite structure that will be required to retain the cut face of the access leg in the locations where it is at its highest.
- 9.48. The potential impacts if any part of the structures fail will be a loss of support for the applicant's land, which is likely to lead to further slips along the boundary. As discussed previously, the land itself must be protected from the likelihood of damage. Based on the evidence before me, there is more than an appreciable risk of the land becoming unstable or collapsing. This is bearing in mind the current

nature and form of construction of the structures and the concerns raised by both the applicant's engineer and the experts in regard to durability over the intended life of the buildings.

9.49. Accordingly, I conclude that none of the four structures on the boundary comply with clause B1 as it relates to the protection of other property.

9.50. In addition, based on the information before me, I consider the structures do not comply with clause B2, as far as it relates to clause B1. As already noted, many of the materials used are not typical of those generally used for retaining walls, and no evidence has been provided of their durability, either with reference to their structural function or their location in a corrosive coastal environment.

### **Compliance with clause E1**

9.51. I will now consider whether the owners' building work complies with the requirements of clause E1.3.1 as it relates to the protection of other property, namely:

9.51.1. whether surface water resulting from a 10% AEP event has been collected or concentrated by the owners' buildings or sitework, and

9.51.2. if so, whether this surface water is disposed of in a way that avoids the likelihood of damage or nuisance to the applicant's property.

9.52. As the applicant's concerns relate to surface water crossing the boundary at the upper end of the access leg and into the slot drain, I consider the relevant building work is the owners' retaining wall, the deck extension, and the upper end of structure D.

9.53. The other structures are further downslope and, as the boundary is broadly orthogonal to the land contours, I consider that these structures contribute little or nothing to the relevant surface water flow.

### **Topography**

9.54. I note the general steep sloping topography of the land in the area, and the fact that the applicant's property is more likely to receive naturally occurring surface water overland flow from the upslope neighbouring property at 1E Fifeshire Crescent, rather than the owner's property as a result of the building work.

### **Mitigating measures**

- 9.55. The owners have already incorporated mitigating measures to reduce the flow of surface water across 1D Fifeshire Crescent<sup>42</sup>. This work includes an additional stone filled sump, and land drainage coil laid adjacent to the steps as part of the access leg. I also note the additional surface water drain that connects from the owners' property to the reticulated system in Poynters Crescent.
- 9.56. I have also considered other mitigating factors in this case in terms of assessing the likely reduction in flow of surface water generally. These other factors include:
- 9.56.1. the relatively flat grassed area between the retaining wall and the deck extension, and natural absorption of surface water by the soil in this area
  - 9.56.2. the extensive vegetation below and at the southeast end of the retaining wall, as well as down the access leg
  - 9.56.3. the general construction of the stone filled steps
  - 9.56.4. the existing fence between 12 Poynters Crescent and the owners' property and access leg, and how this may affect the natural flow of water in this area
  - 9.56.5. the existing path and stone filled area near to the base of the retaining wall, closest to the boundary with 12 Poynters Crescent
  - 9.56.6. that part of the applicant's property that has been excavated to install the slot drain which is lower than the natural ground level on the owners' side of structure D
  - 9.56.7. the relatively small area of land on the owners' side of structure D that is higher than the applicants' property on the other side (i.e. less than 4.2m long which is the total length of structure D), and
  - 9.56.8. the remaining majority of the access leg which is lower in elevation than the applicants' property.

### **The slot drain**

- 9.57. I have also taken into consideration the size and location of the applicant's slot drain and the reasons for its installation. This was installed in approximately 2011, some 5 years before the building work was undertaken by the owner. Further, it is also unclear whether the slot drain is located fully or only partly on the applicant's property due to the uncertainty about the correct setting out of the boundary. This

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<sup>42</sup> This included alterations made to the access road and associated drainage, but it doesn't dispose of surface water from the building work so is outside the matter to be determined (see paragraph 2.2).

is relevant as it is subsequently unclear whether some of the surface water observed by the parties is still partly contained on the owners' property.

- 9.58. The Ministry's expert estimates that the increase in surface water flow arriving at the boundary is 1.3 litres/second. However, I am of the view that this figure is conservative as the catchment area used by the expert in its calculation includes large parts which are not related to the building work (refer to paragraph 5.10, and a reduced value of approximately 0.52 litres/second based on the smaller catchment area associated with the building work). I note that the catchment area calculated by the expert did not include the deck extension, but itself provides a sheltered environment to the space underneath it.
- 9.59. Regardless, the applicant is of the view that despite the owners' mitigation efforts (see paragraph 2.2) some of the surface water from the access road was still making its way around the owners' property and was collected and concentrated by the retaining wall and from there across the boundary.
- 9.60. However, I also note that due to the natural fall and contours of the land, some surface water would inevitably cross from the owners' land to the applicant's (and vice versa) during heavy rain fall. The amount of water arriving at the boundary during such an event has been significantly reduced due to the mitigation features carried out on the owners' property and separately the access road above. The experts assessed the reduction in surface water flow as a result of these works as up to 13 litres/second (see paragraph 5.15).
- 9.61. Regardless, in the experts' opinion, some of the surface water resulting from a 10% AEP event has been collected or concentrated by the retaining wall and directed across the boundary (in part) into the slot drain. However, the amount being considered is minimal, taking into account all the factors noted above.

### **Likelihood of damage**

- 9.62. The experts stated any surface water that did cross the boundary was "unlikely to damage" the applicant's land or buildings. In my view, the potential additional flow now reaching the boundary is insufficient to mean a likelihood of any damage is a real and substantial risk. Indeed, no evidence has been provided to suggest it has caused any damage.

### **Likelihood of nuisance**

- 9.63. I now turn my mind to the avoidance of the likelihood of nuisance to the applicants' property. The emanation of the alleged nuisance is the transportation of surface water across the boundary. Based on the evidence provided, I agree that a quantity of surface water has crossed onto 18 Poynters Crescent (see paragraph 5.13). However, this is only in a relatively localised area (near to the southwest half of structure D), and this water then gets directed into the slot drain. I have received

insufficient evidence to suggest that the amount of surface water collected and concentrated by the building work, that may make its way across the boundary in a 10% AEP event, will significantly and unreasonably interfere with applicants' right to use and enjoy his land.

9.64. Additionally, structure D appears to have had some minimal effect in preventing some surface water from crossing onto the applicants' property (although whether this will continue to be the case is in doubt).

9.65. In conclusion, I consider that there is some evidence that the owners' retaining wall is redirecting a relatively small amount of surface water flow across their land towards the boundary, and from there onto the applicant's property (in a small and localised area). However, this is not in sufficient quantities to either cause damage or be considered a nuisance, especially when considered in the context of the location and topography of the parties' properties, in addition to the mitigating measures installed by the owners (see paragraph 9.55).

9.66. Accordingly, I consider the owners' building work complies with clause E1.3.1 in as far as it relates to protection of other property.

## 10. The decision

10.1. In accordance with section 188 of the Building Act 2004, I determine that:

10.1.1. the owners' retaining wall complies with clause B1 Structure of the Building Code

10.1.2. the owners' structures located on or adjacent to the boundary between 1D Fifeshire Crescent and 18 Poynters Crescent do not comply with clause B1 Structure or clause B2 Durability as it relates to clause B1 of the Building Code

10.1.3. the owners' building work, including the deck extension, complies with clause E1 Surface water of the Building Code –

in as far as those clauses relate to the protection of other property.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 28 April 2022.

Katie Gordon  
**National Manager, Building Resolution**



## Appendix A: Extracts from the legislation

### **A1 The Building Act 2004**

Relevant sections of the Building Act 2004 include the following:

#### **7 Interpretation**

##### **building work—**

- (a) means work—
  - i) for, or in connection with, the construction, alteration, demolition, or removal of a building; and
  - ii) on an allotment that is likely to affect the extent to which an existing building on that allotment complies with the building code; and
- (b) includes sitework; and...

##### **other property —**

- (a) means any land or buildings, or part of any land or buildings, that are –
  - i) not held under the same allotment; or
  - ii) not held under the same ownership; and
- (b) includes a road

**sitework** means work on a building site, including earthworks, preparatory to, or associated with, the construction, alteration, demolition, or removal of a building

#### **8 Building: what it means and includes**

- (1) In this Act, unless the context otherwise requires, building—
  - (a) means a temporary or permanent movable or immovable structure (including a structure intended for occupation by people, animals, machinery, or chattels); ...

#### **17 All building work must comply with building code**

All building work must comply with the building code to the extent required by this Act, whether or not a building consent is required in respect of that building work.

#### **113 Buildings with specified intended lives**

...

- (3) In subsection (2), specified intended life, in relation to a building, means the period of time, as stated in an application for a building consent or in the consent itself, for which the building is proposed to be used for its intended use.

#### **Schedule 1 Building work for which building consent not required**

##### **Part 1 – Exempted building work**

##### **20 Retaining walls**

Building work in connection with a retaining wall that—

- (a) retains not more than 1.5 metres depth of ground; and
- (b) does not support any surcharge or any load additional to the load of that ground (for example, the load of vehicles).

## **A2 The Building Code (Schedule 1 of the Building Regulations 1992)**

Relevant clauses of the Building Code include:

### **Clause A2 - Interpretation**

**boundary** means any boundary that is shown on a survey plan that is approved by the Surveyor-General and deposited with the Registrar-General of Land, whether or not a new title has been issued.

### **Clause B1 - Structure**

#### **Objective**

B1.1 The objective of this provision is to:

- (a) safeguard people from injury caused by structural failure,
- (b) safeguard people from loss of amenity caused by structural behaviour, and
- (c) protect other property from physical damage caused by structural failure.

#### **Functional requirement**

B1.2 Buildings, building elements and sitework shall withstand the combination of loads that they are likely to experience during construction or alteration and throughout their lives.

#### **Performance**

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 buildings, building elements and sitework, including:

- (a) Self-weight,
- (b) Imposed gravity loads arising from use,
- (c) Temperature,

- (d) Earth pressure,
- (e) Water and other liquids,
- (f) Earthquake,
- (g) Snow,
- (h) Wind,
- (i) Fire,
- (j) Impact,
- (k) Explosion,
- (l) Reversing or fluctuating effects;
- (m) Differential movement,
- (n) Vegetation,
- (o) Adverse effects due to insufficient separation from other buildings,
- (p) Influence of equipment, services, non-structural elements and contents,
- (q) Time dependent effects including creep and shrinkage, and
- (r) Removal of support

B1.3.4 Due allowance shall be made of:

- (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 activities occur,
- (d) Variation in the properties of materials and the characteristics of the site, and
- (e) Accuracy limitations inherent in the methods used to predict the stability of buildings.

B1.3.6 Sitework, where necessary, shall be carried out to:

- (a) Provide stability for construction on the site, and
- (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 water level,
- (b) Water, weather and vegetation, and
- (c) Ground loss and slumping.

**Clause B2—Durability****Objective**

**B2.1** The objective of this provision is to ensure that a building will throughout its life continue to satisfy the other objectives of this code.

**Functional requirement**

**B2.2** Building materials, components and construction methods shall be sufficiently durable to ensure that the building, without reconstruction or major renovation, satisfies the other functional requirements of this code throughout the life of the building.

**Performance**

**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, or
- (ii) those building elements are difficult to access or replace, or
- (iii) failure of those building elements to comply with the building code would go undetected during both normal use and maintenance of the building.

(b) 15 years if:

- (i) those building elements (including the building envelope, exposed plumbing in the subfloor space, and in-built chimneys and flues) 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 (including services, linings, renewable protective coatings, and fixtures) 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—Surface water****Objective**

**E1.1** The objective of this provision is to:

- (a) safeguard people from injury or illness, and other property from damage, caused by surface water, and
- (b) protect the outfalls of drainage systems.

**Functional requirement**

**E1.2** Buildings and sitework shall be constructed in a way that protects people and other property from the adverse effects of surface water.

**Performance**

**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% probability of occurring annually and which is collected or concentrated by buildings or sitework, shall be disposed of in a way that avoids the likelihood of damage or nuisance to other property

...

**E1.3.3** Drainage systems for the disposal of surface water shall be constructed to:

- (a) convey surface water to an appropriate outfall using gravity flow where possible, ...