

QUEENSLAND CIVIL AND ADMINISTRATIVE TRIBUNAL

CITATION: *Col Jenkins & Associates v Queensland Building and Construction Commission* [2019] QCAT 117

PARTIES: **COL JENKINS & ASSOCIATES**
(applicant)
v
QUEENSLAND BUILDING AND CONSTRUCTION COMMISSION
(respondent)

APPLICATION NO/S: GAR096-17

MATTER TYPE: General administrative review matters

DELIVERED ON: 23 April 2019

HEARING DATES: 11 December 2017, 26 March 2018, 27 March 2018

HEARD AT: Brisbane

DECISION OF: Member Traves

ORDERS: **The decision about the scope of works made on 13 March 2017 is confirmed.**

CATCHWORDS: ADMINISTRATIVE LAW – ADMINISTRATIVE TRIBUNALS – QUEENSLAND CIVIL AND ADMINISTRATIVE TRIBUNAL – where review about scope of works decision – whether scope of review limited to determining whether rectification works reasonable and necessary – where applicant not given opportunity to review anterior decisions – whether building performing – relevance of the damage classification tables in AS2870 – whether rectification works required – whether bentonite wall surrounding the building reasonable and necessary to rectify damage

Queensland Building and Construction Commission Act 1991 (Qld), s 71, s 75, s 86, s 87
Queensland Civil and Administrative Tribunal Act 2009 (Qld), s 20, s 24

Australian Standard 2870 -1996 Residential slabs and footings

Board of Professional Engineers Queensland v Jenkins [2015] QCAT 553
Bourne v Queensland Building and Construction Commission [2018] QSC 231

J & K Homes Pty Ltd v Queensland Building and Construction Commission [2017] QCAT 269
Namour v Queensland Building Services Authority [2014] QCA 72
Queensland Building and Construction Commission v Crocker [2018] QCATA 194
Queensland Building and Construction Commission v Turcinovic [2017] QCA 77
Samimi & Anor v Queensland Building and Construction Commission [2015] QCA 106

REPRESENTATION & APPEARANCES:

Applicant: Mr J Priestley SC, instructed by CH Law
 Respondent: Mr Marshall Cooke, counsel instructed by the Queensland Building and Construction Commission

REASONS FOR DECISION

Introduction

- [1] This is an application by Col Jenkins & Associates (CJA) to review a decision made by the QBCC about a scope of works it authorised to be carried out at 248 Grace Street, Karrabin.¹ In short, the scope of works involved the construction of a 2m deep bentonite wall around the entire perimeter of the residence. The aim of the works was to stabilise the soil to minimise any further subsidence damage to the property. Mr Jenkins, principal of CJA, classified the site and designed the foundation and slab system on which the Karrabin residence was built.
- [2] The decision to approve the works was made following the acceptance of a claim for subsidence made by the homeowners under the statutory insurance scheme.² The decision about the scope of works was notified to CJA by letter dated 17 March 2017 and received by CJA on 28 March 2017.
- [3] The decision letter began by outlining the results of the QBCC's investigation, as identified in the Structural and Geotechnical Report³ obtained by the QBCC:

It is considered that the original Site Classification ground movement potential allocated by Col Jenkins and Associates significantly underestimates the potential ground surface movements due to changes in soil moisture conditions. (The movements predicted by CJR have already been exceeded by a factor in excess of 350%).

¹ Application for Review dated 10 April 2017.

² The scheme is established by Part 5 of the *Queensland Building and Construction Commission Act* 1991 (Qld), ss 67X to ss71AA.

³ Reid Consulting Engineers Pty Ltd's Structural and Engineering Report dated 16 January 2017, [7.01]-[7.02].

The strength and stiffness of the Footing and Slab system is significantly below that required to provide reliable protection to the building in the manner which should be expected for a Footing and Slab system designed and construction in accordance with the requirements of AS2870.

- [4] The letter then advised that the QBCC was proceeding with a claim and the enclosed Stabilisation Scope of Works as “a claim under the scheme” and advised CJA that it could seek a review of the scope of works.
- [5] Section 86(1)(g) of the *Queensland Building and Construction Commission Act 1991* (Qld) (QBCC Act) defines a “reviewable decision” to include “a decision about the scope of works to be undertaken under the statutory insurance scheme to rectify or complete tribunal work”.
- [6] “Tribunal work” is defined to include the construction of a building and the preparation of plans for that construction.⁴ It was not contested that the work performed by CJA in designing the foundation and slab design for the Karrabin residence was “tribunal work”.
- [7] The claim was accepted as a subsidence claim within clause 5.1 of the terms of the scheme’s policy. In this case the relevant policy is Insurance Policy Conditions Edition 8 which applies to contracts for residential construction work entered into after 1 July 2009.
- [8] Clause 5.1 of the policy provides, relevantly:
- 5.1 Payment for Subsidence or Settlement
- (a) Subject to the terms of this policy, the QBCC agrees to pay for the cost of remedying subsidence or settlement damage to the residential construction work that is primary building work.
- (b) For the purposes of this policy, “subsidence or settlement” means movement in the foundations of the residential construction work which adversely affects the structural adequacy or serviceability, performance or functional use of that work.
- [9] The claim was allowed on the basis that movement in the foundations of the Karrabin residence had adversely affected the performance of the primary building work. Performance was assessed on the basis of AS2870-1996 *Residential slabs and footings-construction*, in particular by applying the performance criteria for walls and concrete floors as set out in Appendix C, Table C1⁵ and Table C2⁶.
- [10] The QBCC submitted that the scope of works was the works required to rectify the subsidence or settlement damage to the Karrabin residence. The works involved, relevantly, construction of a 2m cut-off bentonite wall around the full perimeter of the property to stabilise moisture effects on the highly reactive soil beneath the residence and, following this, to rectify any cracks in the walls.

⁴ QBCC Act, s 75(a), s 75(f).

⁵ Classification of damage with reference to walls.

⁶ Classification of damage with reference to concrete floors.

- [11] CJA argued, in effect, that the decision to undertake the scope of works was wrong because the condition of the residence did not warrant the work proposed and that the decision was based on incorrect assumptions.⁷ CJA argued that the slab has not failed and therefore that no remedial work was required. CJA submitted that the correct and preferable decision in these circumstances was as follows:

In my opinion, the only rectification work required is repair of the crack referred to in photograph number 14 of the Reid Report. In my opinion this crack was caused by the shrinking of the concrete on the slab and the best remediation would be an incorporation of a new joint in that location and then filling. Given the building is now more than 7 years old in my opinion there would be no further damage in this area.⁸

...In my opinion if the works I have recommended...were undertaken there would be no further need for works to be done at the premises in the future other than for routine maintenance.⁹

- [12] Under s 87 of the QBCC Act, a person “affected by a reviewable decision” may apply to the Tribunal for a review of the decision. CJA is affected by the decision to approve the scope of works because the QBCC may seek to recover the costs of those works from CJA provided the Commission can satisfy the statutory pre-condition that CJA is a “person through whose fault the claim arose” within the meaning of s 71.¹⁰ The decision to recover the claim as a debt due from the contractor is not reviewable in the Tribunal.¹¹ The QBCC may recover the debt by application to the Tribunal under s 93.¹²
- [13] In conducting the review of the scope of works decision the Tribunal is to approach the matter afresh and decide the review by way of a fresh hearing on the merits.¹³ The final orders the Tribunal can make on review are:
- (a) the decision is confirmed; or
 - (b) the decision is set aside and substituted with the Tribunal’s own decision; or
 - (c) the decision is set aside and the matter returned to the Commission to reconsider the decision with directions the Tribunal considers appropriate.¹⁴

The history of the matter

- [14] The Karrabin residence was constructed by Perry Homes Pty Ltd and was completed on 18 December 2010. The house is of single storey brick veneer construction and is supported on a reinforced concrete Footing and Slab system. The site classification and foundation and slab design was undertaken by Mr Jenkins of CJA.
- [15] On 8 September 2016 the homeowner made a complaint to the QBCC alleging defective building work at the Karrabin property. On 28 October 2016 Mr Saal of the

⁷ Review application dated 10 April 2017.

⁸ Statement of Colin Jenkins dated 10 August 2017, [16].

⁹ Ibid, [17].

¹⁰ *Mahony v Queensland Building Services Authority* [2013] QCA 323, [27].

¹¹ QBCC Act, s 86F(1)(a).

¹² *Bourne v Queensland Building and Construction Commission* [2018] QSC 231, [7].

¹³ *Queensland Civil and Administrative Tribunal Act 2009* (Qld), s 20.

¹⁴ QCAT Act, s 24.

QBCC undertook a site investigation at which property levels were taken. Mr Saal completed a Subsidence Report on 23 November 2016. A report from Reid Consulting was obtained on 19 January 2017 (the Reid Report), which was revised by the inclusion of primary data on 8 February 2017.

- [16] On 25 January 2017, Mr Saal of the QBCC recommended that the matter be referred to insurance for assessment as a subsidence claim under the scheme. He also recommended against issuing a direction to rectify to the builder. On 25 January 2017, the QBCC notified the builder and homeowner that a direction would not be issued and that the matter would be referred to insurance services for assessment under the scheme. The outcome of that assessment was that the insured (homeowner) had fulfilled the necessary requirements for a claim under Part 5 - Subsidence or Settlement, of the scheme. The QBCC then engaged Sergon Building Consultants to provide a scope of works for stabilisation of the subsidence at the property in accordance with the recommendations that had been made by the Reid Report.
- [17] On 10 March 2017 the QBCC received the stabilisation scope of works from Sergon. That scope of works was approved by the QBCC on 13 March 2017 and the decision notified to CJA by letter dated 17 March 2017. That letter also advised that the QBCC was proceeding with a claim under the scheme. The decision to approve the scope of works made by the QBCC on 13 March 2017 is the decision under review.
- [18] A bentonite wall was constructed around the entire perimeter of the residence in accordance with the scope of works on 27 July 2017. It is assumed that the claim made under the statutory scheme has therefore been paid.

The scope of the review

- [19] The width of the review is a matter of statutory construction which here involves construing s 86(1)(g) of the QBCC Act in light of related provisions and the purpose of those provisions. The relevant reviewable decision is defined in s 86(1)(g) to be “a decision about the scope of works to be undertaken under the statutory insurance scheme to rectify or complete tribunal work”.¹⁵
- [20] The issue arises as to what a decision “about the scope of works” entails, in particular whether the Tribunal must accept the underlying premise of that decision, here that there was subsidence or settlement damage and that it was caused by an inadequate geotechnical investigation and slab design.
- [21] It has been held that a review of a scope of works decision is confined to determining whether the scope of works are reasonable and necessary to rectify the defects identified in the relevant direction to rectify.¹⁶ To be able to determine this question it has been held necessary “to have an understanding of the defects in question”.¹⁷
- [22] There is some disagreement between the parties as to the width of the review, even accepting that the test is whether the works are “reasonable and necessary” to rectify tribunal work. CJA submits that this style of language leads to a broad inquiry,

¹⁵ QBCC Act, s 86(1)(g).

¹⁶ *Middling v QBSA* [2005] QBSA CCT Q600-03 cited in *J & K Homes Pty Ltd v Queensland Building and Construction Commission* [2017] QCAT 269, [21]; *Tadc Pty Ltd v QBSA* [2004] QCCTB 503-03, [117]-[120]; *Turcinovic v Queensland Building Services Authority* [2012] QCAT 14, [6].

¹⁷ *Turcinovic v Queensland Building Services Authority* [2012] QCAT 14, [7].

whereas the QBCC submit that the test is a narrow one. CJA, in support of its argument, notes that the cases where the scope of works test was applied are cases where a direction to rectify had been issued. In such a case, the works required by the direction are identifiable and the decision to give the direction, itself reviewable. Assuming the decision to issue a direction is either not reviewed or is determined on review, it follows that the scope of works can be reviewed on the basis that the works directed to be carried out are the works required.¹⁸ This, CJA submits, is different from the case where, as here, there has been no direction to rectify. In such a case, in order to determine what is a reasonable and necessary scope of works, the circumstances surrounding the alleged necessary rectification need to be considered.¹⁹ It follows, CJA submits, that it is open for the Tribunal to find there is no need for the allegedly necessary rectification work. Both parties agree that it is not necessary in this review for a finding of “fault” or “cause” to be made.²⁰ However, CJA argues that cause is still relevant, in that understanding the cause of any damage will inform the issue of whether works are necessary to rectify the damage and, if so, whether the works are reasonable.

- [23] In most cases where the issue of the width of a “scope of works” decision has been considered, there have been earlier decisions which the applicant has either reviewed or had an opportunity to review, for example, a decision to give a direction to rectify or not to give a direction. In such cases it is understandable that the scope of works decision should be limited to determining what work is reasonable and necessary to rectify relevant damage. However, this is not the case here. CJA was not given notice of any of the relevant anterior decisions, namely the decision not to issue a direction to rectify to the builder and the decision to allow the insurance claim. The scope of works decision therefore is the first (and possibly only) opportunity for CJA to be heard in relation to the issues surrounding tribunal work at the Karrabin property. I say “only” because a decision following this review, to recover any amount paid on the claim from the applicant pursuant to s 71 of the QBCC Act is not reviewable in the Tribunal and, if subject to judicial review, only on limited grounds.²¹
- [24] In my view, the proper interpretation of the scope of the review does not depend on the particular circumstances which preceded it. Whatever the particular circumstances of CJA, the scheme of the Act does envisage a person affected by a decision receiving notice of it and having the opportunity to review it. There are many steps prior to the scope of works decision where that logically should occur. That CJA was not provided with that opportunity does not mean the scope of works review should now have a broader purpose. Further, the limits on a s 71 review do not, in my view, provide a basis for giving the review of a scope of works decision a broader interpretation. The QBCC would still, in pursuing CJA for the insurance debt, need to satisfy the statutory pre-condition to recovery, namely, that CJA was a person “through whose fault the claim arose”.²²

¹⁸ CJA’s submissions dated 9 April 2018, [6].

¹⁹ Ibid, [7].

²⁰ Ibid, [10].

²¹ *Queensland Building and Construction Commission v Turcinovic* [2017] QCA 77, [27]; *Bourne v Queensland Building and Construction Commission* [2018] QSC 231, [15]; *Namour v Queensland Building Services Authority* [2014] QCA 72, [19]; *Mahony v Queensland Building and Construction Commission* [2013] QCA 323.

²² *Mahony v Queensland Building and Construction Commission* [2014] HCASL 93, [27].

- [25] The decision “about the scope of works” was made by the QBCC on 13 March 2017 and notified to the applicant on 17 March 2019. In my view, the review of that decision is limited to asking what rectification work is reasonable and necessary given the nature and extent of the damage at the Karrabin property.
- [26] I agree with the parties that this is not the time or place for determining complex issues of liability surrounding issues of fault or the cause of any damage to the Karrabin property.²³ Having said that, as noted above, it is necessary for me “to have an understanding about the defects in question”. The decision about the rectification works required will necessarily be informed by my view as to the nature of the defects and what works, if any, were required to rectify them. To that extent, it will be necessary to consider what caused any damage and what works, if any, are reasonable and necessary to rectify that damage.

What rectification work is reasonably required?

- [27] Central to the review is whether the construction of a bentonite wall around the perimeter of the Karrabin property is reasonably required.
- [28] The QBCC argues that it is. Their process of reasoning is as follows:
- (a) there is subsidence at the dwelling;
 - (b) there is subsidence-related damage;
 - (c) the subsidence is due to the highly reactive soil on which the property was constructed and the inability of the slab to cope with it; and
 - (d) it is necessary to construct a bentonite wall to modify the reactivity of the soil and thereby reduce movement (the stabilisation scope of works).
- [29] CJA argues that the building is performing, that any subsidence damage is minor and able to be repaired without the need for a bentonite wall. CJA argues that all that is required by way of rectification, if anything, is for the repair of what was referred to in evidence as the “bulkhead” crack and the incorporation of a new joint.²⁴

Is the building performing?

- [30] A building must comply with the Building Code of Australia which requires in section F2.1 that the building withstand the combination of loads and other actions to which it may be reasonably subjected. Further, pursuant to section P2.1.1(a) a building during use, with appropriate degrees of reliability, must perform adequately under all reasonably expected design actions. These actions include differential movement and ground movements caused, notably, by swelling and shrinkage of the subsoil, landslip or subsidence.²⁵
- [31] In assessing whether the building was performing much of the evidence was directed to whether there had been a crack in the building that was outside the performance criteria of the Code.²⁶ The relevant Standard is AS2870. The edition of AS2870 which

²³ Applicant’s final submissions, 9 April 2018, [3].

²⁴ Ibid, [14]; Jenkins Statement of Evidence, 10 August 2017.

²⁵ Building Code of Australia, section P2.1.1(b)(x) and (xiii).

²⁶ Australian Standard AS2870-2011.

was current at the time the slab was designed was AS2870-1996. This was the version of AS2870 that was applied by the parties and their experts.

[32] The respondent also raised a history of prior cracking which had been repaired prior to the complaint relevant to this review. The applicant argues in relation to this that the evidence was not led in any meaningful way and that the Tribunal should not accept it.²⁷ The owner had not given evidence of any weight as to the nature and extent of any alleged prior cracking that was able to be tested by the applicant. Nor had there been direct evidence of the builder who had allegedly rectified earlier cracks.

[33] The respondent also relied on floor slopes which it says exceeded acceptable tolerances. This was not the subject of complaint but was raised in the Statement of Reasons provided by the QBCC in support of its scope of works decision.²⁸

[34] I turn now to consider each of these issues raised in relation to performance.

[35] The complaint by the owners of the Karrabin property was made on 8 September 2016 and listed 10 separate complaint items. The items were across most rooms of the house and related to cracks in the walls or ceilings or to doors being tight. One complaint related to a leak in the shower and another to cabinets coming away from the kitchen wall.

[36] Under the heading “Performance of Footing Systems” in AS2870, clause 1.3.1 provides:

The footing systems complying with this Standard are intended to achieve acceptable probabilities of serviceability and safety of the building during its design life.

[37] Footing systems designed in accordance with the Standard on normal sites (as defined in clause 1.3.2) are expected to experience usually no damage, a low incidence of damage category 1 and an occasional incidence of damage category 2. If any of the factors in clause 1.3.3 apply (which give rise to abnormal moisture conditions), the footings will have a higher probability of damage.

[38] The various cracks in the walls of the property were ascribed a damage category rating by the QBCC based on the application of Table C1 of Appendix C to AS2870. That Table lists 5 categories of cracks each with a corresponding movement or change in slab level in order of increasing level of seriousness from category 0 to category 4.

[39] Under the heading “Performance of Walls” it is stated in the Standard:

It is acknowledged that minor foundation movements occur on nearly all sites and that it is impracticable to design a footing system that will protect the building from movement under all circumstances. The expected performance of footing systems designed in accordance with the Standard is defined in terms of the damage classifications in Table C1, Appendix C.

Crack width is used as the major criterion for damage assessment, although tilting and twisting distortions can also influence the assessment. Local deviations of slope of walls exceeding 1:150 are undesirable. The assessment

²⁷ Ibid, [19].

²⁸ Statement of Reasons for the Decision, 25 May 2017, [35]-[37].

of damage may also be affected by where it occurs and the function of the building, although these effects are not likely to be significant in conventional buildings. In the classification of damage, account should also be taken of the history of cracking. For most situations Category 0 or 1 should be the limit; however, under adverse conditions, Category 2 should be expected although such damage should be rare. Significant damage is defined as Category 3 or worse.²⁹

- [40] The Standard then sets out, in brief terms, suggested remedial action where particular categories of damage occur. For category 1 or 2 damage, remedial action should consist of stabilizing the moisture conditions of the clay and repairing or disguising visual damage. In respect of category 3 damage it is said:

Even significant masonry cracking with crack widths over 5mm often has no influence on the function of the wall and only presents an aesthetic problem. Generally, the remedial action for such damage should start with an investigation to establish the cause of the damage. In many cases the treatment should consist of stabilizing moisture conditions by physical barriers or paths, or replenishing moisture in dry foundations. This may be followed by repair of the masonry and, wherever possible, added articulation should be included while repairs are being effected. Structural repairs to the footing system, such as deep underpinning, should only be considered as the last resort.³⁰

- [41] The QBCC focuses on the bulkhead crack which measures 6.5mm in width (7.5 mm when combined with a 1 mm crack nearby) but also refer to the need to view the damage holistically which includes assessing all cracks and doorframe issues as well as taking into account the history of cracks previously repaired. The QBCC submits that damage category 3 applies to the bulkhead crack.³¹
- [42] CJA argues that the wall damage is minor in nature and falls within category 2 at most. The only significant crack is the bulkhead crack and that when note 1 of the Table is applied, that the crack is properly classified as category 2 damage.
- [43] In my view, although the performance tables are a useful guide to classification of damage, they are not to be applied in a way that ignores the overall condition of the building.
- [44] I note that Mr Reid, the engineer called by the respondent, is of the view that the performance tables only apply to foundation designs that comply with the Code. On his view, the damage categories do not apply to the damage at the Karrabin property because that property does not have a footing and slab system designed in accordance with the Standard. The damage categories, in Mr Reid's view, were devised on the premise that the design was of a particular standard and hence future reliability. In other words, if the relevant design did not comply with the Code it was more likely to crack more often which would make the application of the Table unreasonable as far as a homeowner was concerned. As Mr Reid explains:

So there's too much potential for further damage if you haven't complied with the engineering principles. So you can't then just point at a crack and say, "Well, it sits too short for the table, so therefore it's fine" The premise of the Australian

²⁹ AS2870, 70.

³⁰ AS2870, 71.

³¹ Respondent's submissions, [23]; Interlara Report 6 October 2017, 3.

Standard is that category 1 damage should happen occasionally and category 2 damage should be rarer. And under those circumstances, the code would say that these issues can be addressed using cosmetic repairs...but that assumes that there is adequate strength in the foundation system to make those assumptions in relation to repair and what's reasonable, valid. So if the foundation system is inherently weak, it would be most unreasonable to expect a homeowner to repair it 20 times, the same thing. That's a pretty extreme example, but there's a degree of expectation within the codes that the level of damage should be rare and easily repaired.³²

[45] CJA disagrees with that approach. CJA argues that the Performance Tables in the Code apply to designs which fall outside the Code for the following reasons: the words of the Code expressly state that the Code does not prevent the use of designs not found within it; and because what determines whether a design is within the code is the design's performance.³³

[46] In my view Mr Reid is correct regarding the application of the performance standards in the Code. Indeed under the heading Performance of Walls the Standard provides:

The expected performance of footing systems *designed in accordance with the Standard* is defined in terms of the damage classifications in Table C1, Appendix C. (emphasis added)

[47] A major source of disagreement between the parties was whether CJA's design was in accordance with the Standard. CJA argued that because it had classified the site as "P" that the "deemed to comply" designs in section 3 did not apply. CJA argued that the design was compliant if it was a "locally proven design" or one designed in accordance with engineering principles. The QBCC argue that the design is not compliant with the Standard on any basis.

[48] Although, in my view, the damage category Tables are premised on the assumption that the footing system has been designed in accordance with the Standard, the Tables are still useful in providing a sliding scale of the nature and extent of damage that can occur as a result of ground movement.

[49] Based on the Table categories, cracks of widths from 5mm to 15mm are category 3, which is described as moderate damage. However, note 1 to the Table provides:

Where the cracking occurs in easily repaired plasterboard or similar clad-framed partitions, the crack width limits may be increased by 50% for each damage category.

[50] Here as the cracking occurred in plasterboard, the crack width could be increased so that category 3 damage commenced at a width of 7.5mm. This would mean the bulkhead crack was a category 2 crack, though at the high end of that category. I do not accept that the width of the crack should be deemed to be 7.5mm due to the application of that part of the Table which permits groups of cracks to be combined.³⁴ This is because the deeming provision only applies to cracks of 3mm or more and it is not clear that the 1mm and 6.5mm crack, in any event, constituted a group of cracks.

³² Mr Reid, T 3-99.

³³ CJA Submissions dated 9 April 2018, [16].

³⁴ AS2870, Table C1, fourth panel dealing with category 3.

[51] However, although crack width is the main factor by which damage to walls is categorised it is not the only factor. This is reflected in notes 2 and 3 which provide:

2. Crack width is the main factor by which damage to walls is categorized. The width may be supplemented by other factors, including serviceability, in assessing category of damage.

3. In assessing the degree of damage, account shall be taken of the location in the building or structure where it occurs, and also of the function of the building or structure.

[52] The Standard also provides that “in the classification of damage, account should also be taken of the history of cracking”.

[53] In my view, the wall damage is moderate in line with category 2, although bordering on category 3. I have come to that view for the following reasons: the house was seven years old and during that time has suffered from repeated cracking;³⁵ the owners have done repeated repairs to the cracks including in the area of the bulkhead a number of times;³⁶ there were a number of cracks spread throughout the house (in seven rooms); doors in three of the four bedrooms were “out” or sticking and kitchen cabinets and skirting were coming away from the walls in places.³⁷ In terms of serviceability I note that although the damage did not pose any risk to the occupants and was not structural, the owners had undertaken repairs themselves to avoid embarrassment at Christmas time when family and friends would be visiting. I also note that the cracking has been a major, on-going issue for the homeowners. The homeowner wrote to the builder on 23 June 2016 identifying 32 issues with respect to cracking and other problems including in relation to cornices and doors throughout their home. In that letter the homeowner states:

On 21 January 2016 I contacted Mark Richards to report the crack in the hall way had re-appeared. This crack has been cosmetically fixed several times since the house was built in 2010 but the cause of the problem has never been solved. At this time, the crack in the hallway was the only issue present, however over time the issues are increasing and it has now become a major problem.

[54] I have also taken into account that although the owners in their complaint refer to the shower leaking due to wall cracking, the plumbing was assessed as being in good working condition and there was no suggestion that the house was not weather tight. There was also no suggestion that any part of the walls needed to be replaced. Notwithstanding this, in my view, on balance, the damage is moderate when the size, frequency, number and distribution of wall cracks is considered.

[55] In relation to the floor slope I was referred to Table C2 of AS2870.³⁸ The applicant submitted that Table C2 did not apply in this case because it only applied when the slab had cracked and the slab had not cracked. In my view, the Table may apply whether or not the slab has actually cracked. The argument that it can only apply to a floor with visible curvature if the slab has cracked is, in my view, an artificial approach and not one consistent with the purpose of the classification of damage table.

³⁵ Reid Report dated 16 March 2018, [2.24]

³⁶ Reid Report dated 16 March 2018, photograph 9 and 10; emails from homeowner to builder dated 23 June 2016 and 8 September 2016.

³⁷ Interlara Condition Report, 14 July 2017.

³⁸ Respondent’s submissions, [14].

I note the evidence that slabs can curve without cracking. However, it does not follow that a curved slab which has not cracked is adequate. Note 4 to the Table provides:

Local deviation of slope, from the horizontal or vertical, of more than 1:100 will normally be clearly visible. Overall deviations in excess of 1:150 are undesirable.

- [56] Mr Burnell states in his Report that the slab damage is category 2.³⁹ Mr Middleton referred to the floor slope as “excessive” and referred to Mr Reid’s first report.⁴⁰ Mr Reid concludes in his first Report as follows:

...excessive floor slopes at the Western end of the house exceed reasonable expectations and can be expected to become more extensive.

- [57] Mr Reid took measurements at different times of the floor levels.⁴¹ At one point (marked as B1 on diagram at p 42 of the Reid Report), the change in height is recorded as 31mm over a 3 metre distance which Mr Reid refers to as excessive.

- [58] Mr Saal in his Subsidence Report⁴² recorded measurements which identified the floor slopes exceeded acceptable tolerances in that the location deviation of floor slope was more than 1:100. In particular, the floor slope in the East wing of the dwelling was the steepest, being recorded as being 1:68 (equating to a 44mm height difference over 3.0m). A 60mm height difference over 13.446m between the lowest and highest points of the top of the floor slab was recorded which is within tolerance, equating to a slope of over 1:200.

- [59] The applicant submitted that the floor deviations were connected to wet areas which are intended to have a slope. Further that, in any event, over a 6.5m distance the slope was in excess of 1:200 which is within tolerance and that therefore the slab was performing in accordance with Table C2. Any problems with drainage in the shower could be explained by defective construction rather than by an inability of the slab to cope with ground movement. Further, that even accepting the floor sloped in places was only “undesirable” and did not mean the building was “defective” or in need of rectification. Indeed, the applicant maintained, there was no evidence of any deviation having any impact on performance because the wall cracking is within tolerance and complaints of matters such as “sticking doors” were readily cosmetically fixable. Further, the applicant argues that the owners’ complaint and the Statement of Reasons provided by the QBCC did not raise any issue of cracking to the slab and that, in that respect, there was no case for CJA to answer.

- [60] Having considered all the expert evidence, I find there were deviations in floor slab levels which in some areas was excessive and, within the terms of Table C2, undesirable. I do not accept that there were no undesirable deviations because, over a distance of 6.5m, the slope was within tolerance. This is consistent with note 4 to the Table which specifically refers to “local deviation”. A horizontal deviation in a local

³⁹ Statement of Burnell, 15 March 2018. Mr Burnell retracted his earlier classification of slab damage of category 4 during the Hearing.

⁴⁰ Reid Report, drawing no 20062, sheet 2, [5.01].

⁴¹ On 16 December 2016, 16 November 2017 and 23 February 2018.

⁴² Subsidence Report, Jeffrey Saal, QBCC, 23 November 2016.

area is undesirable if it exceeds 1:150 while slopes of 1:100 are normally clearly visible.

- [61] I accept the floor levels recorded by Interlara. Based on those readings, there were floor slab slopes of 1:97 and 1:130 in section A-A, 1: 79 and 1:105 in section B-B and 1:100 and 1:132 in section C-C.⁴³ These levels show local deviations that are undesirable, to the point of being visible. There was no reference to any cracks in the slab. Based on the deviations alone, the damage was assessed by the Interlara Report to be within damage category 2 or 3 and was referred to by Mr Saal of the QBCC in the Subsidence Report as being “1:68, slope not satisfactory” and as category 2, refer to note A. Note A from Appendix B of section B3 of AS2870-1996 states that:

For category 0, 1 or 2 damage, remedial action should consist of stabilising the moisture conditions of the clay and paying attention to repairing or disguising the visual damage.

- [62] Mr Reid does not ascribe a damage category to the floor slope. In cross-examination the following exchange took place:

And when you came to later write a report which for the purposes of the court, you haven't, in any document that you have, given a category of damage to anything relating to the floor? ---

Mr Reid: That's because the category of damage is simply – it's not a category 1, 2 or 3 be definition of the Code. The definition is that it exceeds what's desirable by a factor of 200 per cent.⁴⁴

- [63] I also accept the evidence of the respondents as to predicted surface movement in response to seasonal moisture change. Douglas Partners estimated surface movements to be up to 55mm at Bore 2. This is indicative of a highly reactive site with a calculated mound movement of 38mm. This finding is consistent with those in the Reid Report which estimated surface movements to be in the range 45-55mm. This is in contrast to the Geotechnical Report undertaken by Mr Jenkins which suggests an expected surface movement of 15mm. This prediction by Mr Jenkins may go some way to explain his more conservative approach to remedial works.

- [64] In my view, when the wall damage is considered in conjunction with the floor slope it leads to the conclusion that rectification work is reasonably necessary. This is particularly the case given the fill had six years to settle prior to construction and a further seven years of settlement load post construction and in that time had not stabilised nor showed signs of improvement.⁴⁵ I also accept the evidence of Mr Reid including in particular the soil moisture profiles from each of the test holes, that the soils on which the house is founded are capable of significantly more ground movements.⁴⁶

⁴³ Interlara Report, Appendix C, Floor Levels Survey dated 14 July 2017.

⁴⁴ Mr Reid, T 3-35.

⁴⁵ Evidence of Mr Middleton, 2-112.

⁴⁶ Reid Report, [5.02].

- [65] Mr Reid gave evidence to the effect that the soils beneath the slab are capable of more movement:

The Soil Moisture Profiles recorded in each of the test holes reveal that the reactive clay soils beneath this building have significantly greater potential to give rise to more significant ground surface movements than those which have occurred to date. (Such issues are likely to become evident following extremes of weather when climatic conditions become either significantly wetter or drier).⁴⁷

- [66] Mr Middleton agreed and predicted based on his own testing that the ground movement could be in the order of 55 mm just on the basis of normal seasonal moisture variations.⁴⁸

- [67] I accept the evidence of Mr Reid and Mr Middleton and find that rectification work is required to ameliorate the high reactivity of the site. In arriving at that finding I have concluded that the slab design by CJA was inadequate to deal with the ground movement caused by the highly reactive soil at the site. I accept that the standard deemed-to-comply designs in section 3 of AS2870 do not apply to a “P” site. However, I do not accept that CJA’s slab design was otherwise designed in accordance with the Standard. In particular, I am not satisfied the slab was designed in “accordance with engineering principles”.⁴⁹ While I accept the Standard permits the use of “locally proven designs”, the preferable view is, in my opinion, that such a design must also be in accordance with engineering principles.⁵⁰ I note in this respect that clause 1.2 of the Standard provides:

The Standard requires that all sites shall be classified in accordance with Section 2 and that **footing system designs shall be prepared either by prescribing a standard design in accordance with Section 3, or by the engineering principles described in Section 4.** In either case, all construction shall comply with Sections 5 and 6. (emphasis added)

- [68] If I am wrong about that, and if it is sufficient to design in accordance with engineering principles or, alternatively, with locally proven designs, I am not satisfied of either. I find on the basis of my reasoning above, that the slab was not designed in accordance with engineering principles. Moreover, there is in my view insufficient evidence to establish that the slab was a “locally proven design”.
- [69] It has not been necessary to determine whether the workmanship of the builder was a contributor to the subsidence damage or whether the builder properly applied the design.
- [70] In my view, therefore, the property required rectification, in particular, that stabilisation rectification works were necessary. I turn now to consider what rectification works were reasonably required.

⁴⁷ Ibid, [3.09].

⁴⁸ Mr Middleton, T 2-88.

⁴⁹ AS2870, section 1.1.

⁵⁰ AS2870, section 1.1.

What rectification works are reasonably required?

- [71] In my view, the damage to the walls can not be adequately addressed by repairing the cracks together with ongoing “routine maintenance”. I have formed this view because I agree with the expert evidence of Mr Reid, Mr Middleton and Mr Burnell that soil moisture content and soil moisture transfer has contributed to surface movement which has caused, and will continue to cause, damage. I make no finding as to whether a differently designed slab would have countered or nullified that movement. My focus is on how best to reduce potential soil moisture related ground movements.
- [72] The Reid Report, Douglas Partners Report and Interlara Report all conclude that there is potential for further on-going reactive soil movement with moisture change if there is no corrective intervention. Further, that slab movement and movement cracking would otherwise continue for the life of the building.
- [73] The QBCC submitted that the construction of a 2m bentonite wall around the house was necessary in order to stabilise the slab. This view is supported by Mr Reid, Mr Middleton and Mr Burnell and by the Douglas Partners Report. The applicant submits that the building is performing and that no rectification work is required beyond repairs of the existing cracks. Alternatively, that if it is necessary to stabilise the slab, that this could be achieved by removing the hedge situated near the north-east corner of the house. Further, and in the alternative, that if a bentonite wall is required, that it is only required around one third or one quarter of the house.⁵¹ Mr Hargreaves, the expert for the applicant, supported the construction of a partial bentonite or concrete wall.
- [74] In support of the wall, the Douglas Partners Report states:
- All the evidence to hand, including the deflected shape of the slab, the reactivity of the soils, the general patterns of rainfall and the variable moisture profiles suggests that controlling the soil moisture will be the most effective measure in minimising future building movements. It seems that remaining fill settlements which might induce footing movements, will be reduced (will not be particularly large) if ground moisture is controlled.⁵²
- [75] Rationale for the depth of the wall is set out in the Interlara Report:
- We consider that the 2m depth of the cut-off wall is appropriate to the north and west side of the Residence to cut-off and redirect the soil moisture migration towards the Residence from the north-west (uphill) around the Residence. The 2m depth will have the base of the wall in very stiff soils that moisture migration would be extremely slow to pass through and would be just above the underlaying Sandstone that is not reactive. The cut off wall to the east and south sealing the full perimeter around the Residence to assist even the soil moisture content beneath the Residence within the confines of the wall.⁵³
- [76] There was an issue concerning the influence of a Lilly Pilly hedge planted after the house was built and whether the scope of works could be limited to the removal of the hedge.

⁵¹ Evidence of Mr Hargreaves, T 2-52

⁵² Douglas Partners Report, 8.5.

⁵³ Interlara Report, 12.

- [77] Mr Hargreaves was of the view that the Lilly Pilly hedge was a factor in why the soil moisture conditions were different nearby. In his view the wall would stop the moisture transfer but not necessarily the roots. He disagreed with Mr Reid's assessment of the likely influence of the trees. Mr Hargreaves thought that Mr Reid had underestimated their influence because he had treated the hedge as a single tree instead of a group of trees. This had meant that the zone of influence was less by half a metre either side of the hedge. Having said, Mr Hargreaves gave evidence that the hedge could only have affected the laundry, bedroom 4 and into bedroom 3 (or 3.6m back from bedroom 4) but could not have affected the kitchen, media room, family room, dining room or BR2. Mr Hargreaves agrees that the wall has been successful in the area affected by the trees or the hedge (partially around bedroom 4) and that had his firm been the original consultants they would have recommended something similar confined to that local area.⁵⁴ Mr Hargreaves was of the view that the wall had a neutral effect as far as the piered section of the house was concerned because there was relatively little movement there, the piers are 1700 mm deep and the depth of seasonal moisture variation in the area is 2.3 m so there would be little utility in the wall there. He states that: "I would have only done a quarter to a third of the house probably".⁵⁵
- [78] Mr Reid gave evidence that the proposition the hedge was causing problems with the building was "quite incorrect, totally incorrect".⁵⁶ Mr Reid assessed the potential theoretical zone of soil moisture related influence from the hedge in accordance with section B.2.3(c) of AS270 and concluded that only the front right hand corner of the house was potentially affected.⁵⁷ Having said that, Mr Reid concluded there was no evidence that this had been the case, in that there was no localised deformation in the area of theoretical influence.⁵⁸
- [79] Mr Burnell said that he absolutely disagreed with the proposition that a part bentonite wall which ran from near the hedge for a quarter of third of the slab would be sufficient to rectify the movement. He was of the view that in order to contain and stabilise the moisture levels in the soil beneath the slab it would be necessary to complete a perimeter cut off, that is, a wall around the whole house.⁵⁹
- [80] I find that it is reasonable and necessary to construct a bentonite wall around the full perimeter of the house. While the existence of the hedge (comprising six Lilly Pilly trees) may have contributed to soil moisture transfer and hence ground movement I am not persuaded that removing it would have solved the issues that had manifested in a significant crack beyond the area of influence of the hedge.
- [81] There was also evidence given with respect to the influence of a nearby forest. The forest trees are located approximately 19 metres from the house and are approximately 20 metres high. I accept the evidence of Mr Reid that their zone of influence, being twice their height, would extend through two thirds of the house.⁶⁰ I also find that the influence of these nearby forest trees would be reduced by the installation of the wall

⁵⁴ Mr Hargreaves, T 2-49.

⁵⁵ Ibid, T-52.

⁵⁶ Mr Reid, T 3-10.

⁵⁷ Reid Report dated 16 March 2018, [2.28].

⁵⁸ Ibid.

⁵⁹ Mr Burnell, T 3-118, 3-145.

⁶⁰ Mr Reid, T 3-18.

around the perimeter of the house in acting as a tree root barrier as well as a moisture barrier.⁶¹

- [82] The Code itself contemplates the construction of physical barriers to stabilize moisture conditions. In relation to crack widths over 5mm in length the AS2870 at B3 it is stated:

Even significant masonry cracking with crack widths over 5 mm often has no influence on the function of the wall and only presents an aesthetic problem. Generally, the remedial action for such damage should start with an investigation to establish the cause of the damage. *In many cases the treatment should consist of stabilizing moisture conditions by physical barriers or paths...*(emphasis added).

- [83] Finally, I do not accept Mr Hargreaves evidence that a partial wall would be sufficient. I prefer the evidence of Mr Reid in this regard that this is illogical⁶² and that the soil moisture conditions of the site need to be completely encapsulated through the provision of an in-ground barrier to prevent lateral migration of moisture.⁶³ This is also the view of Mr Middleton who said that a partly installed barrier would have some beneficial effect in the close vicinity of the wall but would leave the rest of the building exposed to moisture changes.⁶⁴ I note also that Mr Burnell “absolutely disagree[d]” with that proposition⁶⁵ and that, in his view, a full perimeter cut off was required.⁶⁶ As stated by Mr Burnell in his Report:

Category 3 (significant damage) is evident at the residence. This is serious damage requiring intervention and should not be fobbed off as ‘normal maintenance’. ‘Do nothing’ and continue to patch and paint for the life of the building is not an option. In our opinion, the movement damage would continue and get progressively worse with repeated seasonal moisture changes and with detrimental compounding effects of the remaining settlement of the fill with unchecked moisture control beneath the Residence yet to occur.

The effectiveness of other options such as Uretek type resin injection is somewhat unknown for this application as the product would be difficult to inject into the very stiff soils beneath the Residence. Cement injection doesn’t work well in stiff clays. Underpinning would be difficult as interior areas of the floor slab would need to have piers and the slab is already supported on piers over much of the slab.⁶⁷

- [84] There was substantive support among the experts for the construction of a bentonite wall around the full perimeter of the house. Other methods, like Uretek or cement injections and underpinning, were not raised as serious alternative proposals and I find that these methods would not be as effective or as reasonable an approach as the construction of a bentonite wall. I accept the evidence of the Interlara Report that the effectiveness of Uretek type resin injection is “somewhat unknown for this application” as it would be difficult to inject into the very stiff soils beneath the

⁶¹ Mr Reid, T 3-18.

⁶² Mr Reid, T 3-10.

⁶³ Ibid.

⁶⁴ Mr Middleton, T 2-83.

⁶⁵ Mr Burnell, T 3-118.

⁶⁶ Ibid.

⁶⁷ Report by Neil Burnell, 8 October 2017, 23

residence and that cement injection does not work well in stiff clays. I also accept that underpinning is not a practical or effective option given that interior areas of the floor slab would need piers and that the slab is already supported on piers over much of the slab.⁶⁸ Other stabilisation approaches referred to in the evidence but not explored in the hearing included replacing the 100mm thick slab with an internally constructed raft foundation system designed to cater for reactive clay soil movements and, alternatively, constructing a suspended slab which would involve jacking the house clear of the ground to enable it to be supported on pier footings keyed into stable material below the seasonal soil moisture related influences (at approximately 3 metres).⁶⁹ I find that these approaches are not reasonable alternative approaches to the bentonite wall due to their excessive cost and impracticality.⁷⁰

- [85] To the extent that the evidence of Mr Reid, Mr Middleton and Mr Burnell conflicts with the evidence of Mr Hargreaves concerning the need for a full perimeter bentonite wall, I prefer the evidence of Mr Reid, Mr Middleton and Mr Burnell. I note, in this respect, that Mr Hargreaves gave evidence that there would be no soil moisture changes under the slab with a “hundred per cent bentonite wall with a concrete outer”.⁷¹
- [86] I reject Mr Hargreaves’ evidence to the effect that the bentonite wall will cause a moisture build up or wetting up of the soils beneath the slab.⁷² I prefer the evidence of Mr Reid, who has personally designed and supervised the installation of over 150 soil moisture control barriers, that such effects do not occur in practice.⁷³ Mr Burnell gave evidence that the wall would cause a readjustment of the moisture in the soil but that it would become more uniform and in the long term lead to a much more stable moisture, even if it was a higher moisture.⁷⁴ I also find that the wall will, over time, give rise to a more stable moisture level under the slab.
- [87] Finally, it was submitted by CJA that the evidence of Mr Reid was unreliable, that Mr Reid was an advocate for the QBCC, brought a closed mind to the matter and was biased against Mr Jenkins. The submission was based, amongst other things, on the fact that Mr Reid made a complaint about Mr Jenkins in 2012 and that Mr Reid has persisted in his views about Mr Jenkins work despite a decision in Mr Jenkins’ favour in the Tribunal in 2015. I have considered this submission carefully, but I do not accept it. I find Mr Reid to be an honest and careful witness. Moreover in many important respects his evidence is consistent with the evidence of other experts in the case.
- [88] Accordingly, the decision about the scope of works made by the QBCC on 13 March 2017 and notified to the applicant by letter dated 17 March 2017 is confirmed.
- [89] There is one further matter that I wish to note. The parties did not address the issue of whether the review of the scope of works lacked utility, in the event that the insurance

⁶⁸ Interlara Report, 12.

⁶⁹ Reid Report dated 16 March 2018, [2.25].

⁷⁰ Ibid.

⁷¹ Mr Hargreaves, T 2-57.

⁷² AWGeotechnical Review dated 15 February 2018, [30].

⁷³ Reid Report dated 16 March 2018, [2.25].

⁷⁴ Mr Burnell, 3-145.

subsidence claim has been paid.⁷⁵ The issue of whether, and if so when, the decision to pay was made under the scheme was not the subject of evidence. However, it appears that the QBCC made a decision that the insured had “fulfilled the necessary requirements for a claim under Part 5 – Subsidence or Settlement of the QBCC Home Warranty Scheme” on 1 February 2017 and that the scope of works in relation to the claim was approved on 13 March 2017 (with quotations for the work to be obtained). CJA applied to review the scope of works decision on 18 April 2017 and the stabilisation works were completed on 27 July 2018. Given my decision, which confirms the decision about the scope of works, it is not necessary for me to consider the effect of the decision to pay the claim on the ability of the applicant to review the scope of works decision.⁷⁶

⁷⁵ *Namour v Queensland Building Services Authority* [2015] 2 QdR 1, [19]; *Queensland Building and Construction Commission v Crocker* [2018] QCATA 194, [45]: “It is tolerably clear from the line of authorities that if the builder...wishes to challenge such decision it should do so before the decision to pay is made under the insurance scheme”.

⁷⁶ CJA Submissions dated 9 April 2018, [16].