

# Hiss & Ors v Galea & Ors [2012] VCC 2010 (21 December 2012)

Last Updated: 11 January 2013

<u>IN THE COUNTY COURT OF VICTORIA</u> <u>AT MELBOURNE</u>	Revised (Not) Restricted
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CIVIL DIVISION  
COMMERCIAL LIST  
BUILDING CASES DIVISION

Case No. CI-11-04099

CHRISTIAN HISS & ORS

Plaintiffs

v.

KEN GALEA & ORS

Defendants

<u>JUDGE:</u>	HIS HONOUR JUDGE ANDERSON
<u>WHERE HELD:</u>	Melbourne
<u>DATE OF HEARING:</u>	6, 7, 10-14, 17 & 18 December 2012
<u>DATE OF JUDGMENT:</u>	21 December 2012
<u>CASE MAY BE CITED AS:</u>	Hiss & Ors v Galea & Ors
<u>MEDIUM NEUTRAL</u> <u>CITATION:</u>	[2012] VCC 2010

## REASONS FOR JUDGMENT

Catchwords: Nuisance – Trees planted on boundary to screen two-storey unit development on neighbouring property – Whether planting or retention of the trees caused the foundations of units to settle and cause damage – Whether an apportionable claim pursuant to Part IVAA of the [Wrongs Act 1958](#) (Vic) – Whether any liability of the defendants should be apportioned because of the actions of concurrent wrongdoers.

<u>APPEARANCES:</u>	<u>Counsel</u>	<u>Solicitors</u>
For the Plaintiffs	Mr J M Forrest	Tress Cox Lawyers
For the First and Second Defendants	Mr J Gray	Just Law
For the Third to Sixth Defendants	No appearance	

HIS HONOUR:

**1 Disputes between neighbours can escalate from small beginnings. Recourse to the courts might bring resolution but usually the cost is high and often there is little satisfaction with the result. This dispute concerns trees planted on a property boundary in 2000 and the effect their roots had on the next door units. Damage first became apparent in 2007. Eventually, proceedings were issued in the Magistrates' Court and later transferred to the County Court. After a 9 day hearing, I have concluded that the trees must be removed and the first and second defendants must pay, as damages, the cost to repair the units.**

**2 The plaintiffs are three members of a family; two brothers and a brother-in-law. In 1998, they bought a property (no. 60) in Williamstown, the sale settling in August. On 26 November 1998, the purchase of the next door property (no. 62) by the first and second defendants ("the initial defendants"), settled. Both the plaintiffs and the initial defendants intended to redevelop their properties; the plaintiffs with a four two-storey unit development, as a "retirement" investment; the initial defendants by building a two storey extension and renovating the existing house. The plaintiffs obtained a town planning permit for their redevelopment on 24 November 1998. In August 1999, the initial defendants, through their solicitors, unsuccessfully sought to have the plaintiffs' town planning permit revoked. In 2000, the construction of the units proceeded.**

**3 The existing house on no. 60 (said to date from about 1920) was demolished and the large trees on the property were removed. The four slabs for the units were poured in late March 2000. At about this time, a new 1.93m fence was erected between no. 60 and no. 62 and the initial defendants planted a row of 29 Bhutan cypress trees along part of the boundary. They were planted 300mm from the fence line and about one metre apart, from about the mid-point of the properties to the rear boundary. Before the pines were planted, existing trees on no. 62 were removed. The trees were planted by the initial defendants to provide a hedge to eventually screen the view from the upper storey windows of the rear two units (nos. 3 and 4) on the plaintiffs' property. These windows were opaque but were openable and commanded a view of the backyard of no. 62.**

**4 The initial defendants apparently intended that the trees would grow into a hedge of about five metres in height. By 2007, the trees had grown to about four to five metres high. From about mid 2007, the tenants in units 3 and 4 complained of cracking and other faults which indicated that the buildings had moved. The cause of the movement has been the principal dispute between the parties.**

**5 In 2007, the plaintiffs made claims upon the body corporate's insurance and, later that year, against the builder's warranty insurance. The plaintiffs also notified the initial defendants that they believed the row of Bhutan cypress planted near the boundary was affecting the foundations of units 3 and 4. Both insurers had experts investigate the plaintiffs' claims. The general conclusion reached was that the trees planted by the initial defendants were the primary cause of the damage to the units. It was considered that the roots of the trees had drawn moisture from the reactive soils under the slabs of units 3 and 4 causing subsidence to the foundations and movement of the buildings.**

**6 The initial defendants denied that the trees were in any way responsible for the damage and suggested other causes. The alternative causes suggested, both at that time and later, included:**

**a. the highly reactive clays in the area;**

- b. the misclassification of the slab necessary for the soil conditions;
- c. the inadequacy of the slab design;
- d. the many years of drought conditions prior to 2007;
- e. the existence of fill in the old sewer trench causing subsidence by compaction;
- f. fill under slab edge beams leading to settlement;
- g. failure to have the internal beams specified as the same depth as the external beams;
- h. heave from the removal of large trees over which the foundations for the units had been constructed;
- i. leaks in the stormwater and sewerage system of no. 60 which caused moisture to get into the soil and cause heave;
- j. water leaks flowing through gaps in the paving leading to soil swell on the east side of the property;
- k. lack of a root barrier installed by the plaintiffs on the western boundary.

7 In 2007 and 2008, the initial defendants rejected the suggestion that the trees should be removed or that any remedial measures should be taken by the plaintiffs which might affect the health of the trees.

8 On 25 August 2009, the plaintiffs issued proceedings in the Magistrates' Court at Melbourne against the initial defendants seeking an order that the trees be removed and claiming the cost of rectifying the damage to the units. The defendants joined a number of further parties to the Magistrates' Court proceeding as the third to sixth parties. These were companies which had been involved in the construction of the units on the plaintiffs' property: the geotechnical engineer, the design engineer of the slabs, the building contractor and the building surveyor. The initial defendants eventually settled with each of the third to sixth parties on 5 June 2012 and received a total payment of \$45,000.

9 On 20 June 2011, the Magistrates' Court proceeding was transferred to the County Court, as the plaintiffs had amended their claim when the rectification costs increased. The initial defendants obtained leave in the County Court on 13 June 2012 to join each of the third to sixth parties in the Magistrates' Court proceeding as defendants ("the added defendants") for the purpose of alleging that they were concurrent wrongdoers pursuant to [Part IVAA](#) of the [Wrongs Act 1958](#) (Vic). It was alleged that the plaintiffs' claim was an apportionable claim and, if the initial defendants were held to be liable to the plaintiffs, their liability should be limited to the responsibility apportioned to them.

10 No relief was sought against the added defendants; the plaintiffs did not seek relief because any possible claims were statute barred by [s134](#) of the [Building Act 1993](#) (Vic), and the initial defendants did not because they had resolved the third to sixth party claims in the Magistrates' Court proceeding.

11 The issues for determination in the proceeding are:

- a. are the initial defendants liable to the plaintiffs in nuisance for the damage caused to units 3 and 4 as a consequence of the planting of the trees or the failure by the initial defendants to remove them when requested to do so;
- b. are there other and, if so, what, causes of the damage to units 3 and 4 unrelated to the trees planted by the initial defendants;
- c. is the plaintiffs' claim against the defendants an "apportionable" claim pursuant to [Part IVAA](#) of the [Wrongs Act 1958](#) (Vic);
- d. are the added defendants or any of them liable as concurrent wrongdoers, and are the plaintiffs liable in contributory negligence, in respect of the damage to units 3 and 4 which would affect the apportionment of the claim made by the plaintiffs against the initial defendants;
- e. should the initial defendants be ordered to remove the trees on the eastern boundary

of their property;

f. should the initial defendants pay damages and, if so, in what amount, to the plaintiffs in respect of the loss and damage suffered by the plaintiffs.

#### **Evidence of the expert witnesses**

**12** A total of 13 witnesses with specialist expertise gave evidence at the trial. Written reports of a further 4 experts were received without the need for them to attend to be orally examined. Some of the experts were engaged by the parties or their solicitors. A number of others had originally been engaged by either the body corporate insurer or the builder's warranty insurer or were the representatives of the defendants added as potential concurrent wrongdoers.

**13** The appendix to these reasons for judgment contains a table setting out details of the reports of the expert witnesses received into evidence.

**14** The evidence of the experts generally dealt with the issues of, firstly, the cause of damage to units 3 and 4 and whether or not it was due to the trees planted on the boundary of no. 62 and, secondly, the necessary measures, and the cost, to remedy the situation. There was a considerable degree of divergence in the evidence. Some of this might be explained by the fact that the added defendants would be likely to defend the position they took during the design and construction of the units in 1999 and 2000. Also, other experts might have been expected to support the views expressed following their initial investigations.

**15** However, my general impression was that some experts were simply advancing the position of the party which engaged them and only reluctantly would they make any concession to the contrary views or evidence. With the notable exception of Mr Haworth, I found the defendants' expert witnesses generally intractable in their views. It was difficult to accept their independence and therefore the veracity of the views they expressed.

**16** Mr Steven Buffinton initially appeared a credible witness. However, after hearing all his evidence, I have concluded that I should not accept the findings of the investigations he directed or the opinions he expressed about the matters in issue in the proceeding.

**17** One critical issue in the proceeding was whether the line of trees on the boundary had drawn water from under the foundations on the western side of units 3 and 4. Relevant to this issue were the appearance of live tree roots in bore holes dug by Rodwell in 2008, Lawrance in 2011 and Gibney in 2012. Mr Buffinton directed site investigations in July 2012 including the digging of four bore holes and authorised the report setting out the results of the investigations.

**18** Mr Buffinton's report, dated 2 August 2012, contains the following statement on page 5:

**"In all the bore holes/test pits excavated, no apparent active tree roots were found".**

The bore hole logs reproduced in the report made no reference to tree roots having been found. Mr Buffinton said in evidence that the use of the phrase "*no apparent active tree roots*" was not a carefully chosen formulation; in fact, he confirmed, no tree roots had been found.

**19** During his cross-examination of Mr Buffinton, plaintiffs' counsel Mr Forrest asked Mr Buffinton to produce the soil technicians' original site notes and the letter of engagement from the initial defendants' then solicitors. The site notes are an original faxed copy received by Mr Buffinton at his Mornington office. The notes were

apparently sent by the technicians from the Mitcham office. The copies of the original site notes contain the following references to tree roots:

Bore hole 1: "*Fine tree roots present*"

Bore hole 3: "*Med tree root present...fine tree roots to 1300mm*"

Bore hole 4: "*Some fine and med size rootlets present to 1200mm*"

**20 Each of the references to tree roots is circled in red pen. At the end of the document is the following notation: "Don't include comments circled in red. SDB."**

**21 The initials "SDB" are Mr Buffinton's. Mr Buffinton said that the handwriting on the notation was not his but appeared to be that of one of two secretarial, or administrative, staff employed at Mr Buffinton's Mornington office. Mr Buffinton suggested that the notation may have been made by the staff member following a telephone request from one of the soil technicians who carried out the site investigations.**

**22 Mr Buffinton gave his evidence and was cross-examined on Friday, 14 December 2012. During the course of cross-examination, and before he offered the suggestion as to how the notation on the site notes might have been made, he gave the following explanations for the statement in his report that no tree roots had been found in the bore holes:**

- a. the original soil samples had been examined by Mr Buffinton at Mornington and he had found no tree roots. Accordingly, he had made the statement in his report;**
- b. the presence or absence of tree roots was not the most important issue, rather, it was the moisture content and plasticity of the clay found in the bore holes.**

**23 The initial defendants' previous solicitors' letter of instructions to Mr Buffinton included the following description of his "brief":**

**"10. Please consider the enclosed "Brief Documents" and undertake an inspection of units 1 - 4 60 Kororoit Creek Road Williamstown (at an appropriate agreed time) and undertake the following and provide a report on the results:**

**10.1 Excavate boreholes at:**

**10.1.1 the locations indicated on the site plans at tab 56 in the brief documents; and**  
**10.1.2 a control hole located at the east end of the grassed area adjacent and to the south of Unit 4. The hole should be 7.5 metres from our clients' trees (the trees are 5 metres high, the holes should be a distance from the trees of 1.5 x the height of the trees)".**

**10.2 In relation to site plan at tab please note that hole 1 is to be 100mm past the west face of unit 4 and hole 2 is to be located a distance from the tree trunk equal to that of hole 1 from the trunk. Hole 3 to be similarly positioned to hole 1. Order of drilling 2, 1 & 3.**

**10.3 We request that you auger hole depths to 2 metres or until refusal and advise on:**

**10.3.1 log the content of the holes**

**10.3.2 the soil profile of the boreholes**

**10.3.3 the moisture content of the boreholes**

**10.3.4 the depth at which you observe natural clay soil**

**10.3.5 the depth of the footings and**

**10.3.6 the profile of the soil in which the footings are founded**

**10.4 We also request that you:**

**10.3.7 recover root material for assessment/identification by an aborist**

**10.3.8 if no root material is found, please contact the writer while on site for further**

instructions”.

24 Mr Buffinton conceded that such specific instructions, particularly in relation to the location of bore holes, were “unusual” but said he did not feel that they compromised the investigations or his independence as an expert witness. Mr Buffinton said that no contact had been made with the initial defendants’ then solicitors when tree roots had been found in the bore holes. The tree roots in the bore holes noted in the site notes were apparently not assessed or identified by an arborist.

25 Mr Buffinton’s report contains a false statement about the absence of tree roots. Further, the bore log summaries for bore holes 1, 3 and 4 in Mr Buffinton’s report exclude the relevant information about the tree roots observed. The further evidence of Mr Buffinton, attempting to explain these matters, has led me to conclude that the whole investigation and report is tainted and should not be relied upon.

26 Mr Buffinton, and other experts, noted in their oral evidence that the soil samples taken at Mr Buffinton’s direction were examined for their moisture content and plasticity levels in a NATA registered laboratory rather than being examined on-site, as Mr Lawrance and Mr Gibney had done. The laboratory was part of Mr Buffinton’s Mornington office and, for the reasons I have previously expressed, I cannot have confidence in the results of investigations contained in the report authored by Mr Buffinton, particularly as the samples received from the site had passed through his hands.

27 Mr Buffinton was recalled on Monday, 17 December 2012 by the first and second defendants’ counsel, Mr Gray. Mr Buffinton gave evidence that in fact the note on the faxed copy of the bore holes report was in his wife’s handwriting. He denied that he had had any discussion with his wife at the time the document was received by fax. Evidence sought to be led from him about discussions he had had over the weekend with other staff members was objected to and disallowed. No attempt was made to call those persons as witnesses.

28 There is evidence, apart from Mr Buffinton’s report, of investigations undertaken by other experts in relation to the presence or absence of tree roots in bore holes, the moisture content and plasticity of the soils and the presence of fill in the bore holes.

29 The civil engineer, Mr Russell Brown, and the arborist, Mr Jenny Boyer, both of whom were engaged by the defendants’ present solicitors, have extensive expertise in their respective fields. Both, however, in their reports and in their oral evidence, appeared to adopt the approach of arguing to a pre-determined conclusion that supported the first and second defendants’ position without appropriate regard to the conflicting opinions or evidence.

30 One matter illustrating this approach was the downplaying of the CSIRO guidelines (‘Foundation Maintenance and Footing Performance: A Homeowner’s Guide’) in relation to the effect the planting of trees might have on buildings in the vicinity and the suggestion by those experts that Australian Standard AS 4970-2009 - Protection of Trees on Development Sites, was the appropriate standard to guide decisions on that matter.

31 Ms Boyer and Mr Brown argued that AS 4970-2009 was the appropriate standard. However, it is apparent from the Standard itself that it was intended to be used where existing trees are sought to be retained and where the surrounding site is to be redeveloped. Paragraph 1.1, under the heading “scope” of AS 4970-2009 makes this clear from the following statement:

“This Standard aims to assist those concerned with trees in relation to development. Where development is to occur, the Standard provides guidance on how to decide which trees are appropriate to obtain and on the means of protecting those trees, during

construction work. It does not argue for or against development, or for the removal or retention of trees, nor does it consider the monetary value of trees. This Standard does not apply to the establishment of new trees”. (emphasis added)

32 AS 2870-1996 ‘Residential slabs and footings – Construction’, and its reproduction of the substance of the CSIRO guidelines to ensure that foundations are adequate to cope with tree planting and garden development, are the appropriate standards to apply when considering the tree planting on the boundary of no. 62. The August 1996 version of the CSIRO guide noted that, “The guide has been updated to be consistent with the revised edition of AS 2870 (1996)”.

33 Another issue related to the evidence of the levels of the slabs given by Rodwell (2007), Lawrance (2012) and Brown (2012). Rodwell drew contour lines on plans of units 3 and 4. Lawrance plotted spot levels and later prepared an analysis of the levels in which he attempted to standardise the measurements by both himself and Rodwell so that a comparison might be made. Mr Lawrance set out his assumptions in making this comparison. Mr Brown disputed the accuracy of the comparison. However, he made no attempt to analyse the basis upon which Mr Lawrance had converted Mr Rodwell’s contours to spot levels at points at which a comparison could be made.

34 Mr Rodwell, in his evidence, accepted the levels determined by Mr Lawrance and Lawrance’s conclusion that the comparison showed that the western half of the slab had settled more than the eastern side. I prefer the analysis of Mr Rodwell and Mr Lawrance to the approach of Mr Brown.

Do the line of trees planted on the eastern boundary of no. 62 constitute a nuisance?

35 The plaintiffs’ claim is in nuisance. The relevant law, and its application in cases involving tree roots, are conveniently set out in the decision of Preston CJ in the New South Wales Land and Environment Court in *Robson v. Leischke* [\[2008\] NSWLEC 152](#); [\(2008\) 72 NSWLR 98](#), particularly at pages 109-120. Preston CJ at paragraph 60 stated that: “Examples of cases where encroaching roots have been held to constitute an actionable nuisance include where: (a) roots encroached into the neighbour’s property extracting moisture from the ground, causing shrinkage of the soil, undermining the foundations, and/or causing cracking or subsidence of the buildings on the neighbour’s land”.

36 Preston CJ discussed at paragraph 62 the “rare” circumstances in which a nuisance may be created by “planting trees, of a kind or in a location or in a condition, which are likely to cause harm to his neighbour as they grow” and gave an example in paragraph 62, “where the defendant planted a row of pine trees close to a neighbour’s boundary” and noted that in *Mandence v. Brown* [\[1952\] NZLR 447](#), this conduct “was held not to be a natural use of the land and constituted a nuisance”.

37 Earlier in the judgment at paragraph 53, Preston CJ had referred to the general principle that, “The defendant will be liable if, when the nuisance arose, the defendant did not take any reasonable means to bring it to an end when the defendant became aware, or ought to have been aware, of the existence of the nuisance, and damage results”. At paragraph 56, Preston CJ noted that, “Damage ordinarily being the last element of the cause of action in nuisance to be satisfied, the cause of action will ordinarily accrue on proof of damage occurring”.

38 These principles were also discussed in two recent decisions of the South Australian Full Court. In *Valherie v. Strata Corporation No 1841 Inc* [\[2003\] SASC 291](#), Doyle CJ at paragraph 44 stated: “The encroachment of tree roots from one property to another, if the encroachment causes damage to buildings on the other property, is an interference with the owner’s use and enjoyment of that other property of a kind that amounts to actionable nuisance”.

**39** In *State of South Australia v. Simionato* [2005] SASC 412, Besanko J noted at paragraph 53 that in an action in nuisance, “the damage which occurs must be reasonably foreseeable. However, this latter requirement relates to remoteness of damage, and the liability of the creator of a nuisance is not predicated on the criterion of liability in negligence, namely, that he is liable only if he fails to take reasonable care to eliminate a foreseeable risk of injury”.

**40** In about March 2000, the initial defendants planted 29 Bhutan cypress trees along the eastern boundary of their property. The intention was to create a five metre high screen to prevent overlooking from the upper storey of the units being erected at the rear of no. 60. The trees had the potential to grow very tall. For many years, it has been recognised that trees should be carefully sited in relation to buildings. Trees require considerable moisture and, as they grow, the root system develops to find moisture in the surrounding soils. This has the effect of drying the soil. Clay soils are reactive; they expand and contract according to their moisture content. Drying soils can compact, causing the foundations of the buildings above to settle. If the building has uneven movement, this can cause cracking in the walls and other damage.

**41** The CSIRO carried out research on these matters many years ago and in 1991, published *Foundation Maintenance and Footing Performance: A Homeowner’s Guide*. The guidelines have been republished over the years since. Under the heading, “Tree root growth”, the guidelines stated: “Trees and shrubs that are allowed to grow in the vicinity of footings can cause foundation soil movement in two ways:

- a. Roots that grow under footings may increase in cross sectional exercise, exerting upward pressure of footings
- b. Roots in the vicinity of footings will absorb much of the moisture in the foundation soil, causing shrinking or subsidence”. (emphasis added)

**42** The CSIRO guidelines in relation to trees and shrubs were incorporated in AS 2870-1996, the Australian Standard for Residential slabs and footings – Construction as part of Appendix B, “Performance Criteria on Foundation Maintenance”. Paragraph B2.3(c) under the heading “Restrictions on trees and slabs” reads as follows:

“Planting of trees should be avoided near the foundation of a house or neighbouring house on reactive sites as they can cause damage due to drying of the clay at substantial distances. To reduce, but not eliminate, the possibility of damage, tree planting should be restricted to a distance from the house of:

- (i) 1.5 x mature height for Class E sites.
- (ii) 1 x mature height for Class H sites.
- (iii) .75 x mature height for Class M sites.

Where rows or groups of trees are involved, the distance from the building should be increased. Removal of trees from the site can also cause similar problems”.

**43** In relation to the trees planted on no. 62 by the initial defendants, the evidence establishes that:

- a. before making any decisions about the type of planting to be carried out, the initial defendants carried out extensive research into what was most suitable for their purposes;
- b. the trees were planted as a hedge one metre apart, 29 in the row. The intensive planting had the effect of increasing the impact of the trees;
- c. the trees were planted when they were small, about one metre high, with narrow trunks. They were planted about 300mm from the boundary fence;
- d. no barrier was installed in the soil between the trees and the boundary fence or on the adjacent property at no. 60;
- e. at the time of the planting, the initial defendants were aware that building work was

contemplated on no. 60, and the preparation for construction of the slabs had commenced;

f. the two-storey brick walls on the western sides of units 3 and 4 on no. 60 were located about two metres from the boundary fence;

g. the trees were connected to a reticulated spray system and were regularly watered during the drought although after early 2007, stricter restrictions came into operation and only hand watering during limited hours was permitted;

h. by about mid-2007, it became apparent that units 3 and 4 were experiencing differential settling of the foundations causing cracking and other damage;

i. by 2007, it is likely that the trees were, on average, about four to five metres in height. The trees continued to grow until in November 2012, they were trimmed back to 4 to 4.5 metres in height and the branches overhanging no. 60 were removed. The boundary fence is 1.9 metres high;

j. bore hole excavations adjacent to the north-west corners of units 3 and 4 by Rodwell (2007), Lawrance (2011), Gibney (2012), and Buffinton (2010). All found tree roots in the excavated soil. It is likely that the roots were alive and were from the Bhutan cypress trees planted in no. 62. No other trees or plants were in the vicinity, and many years had passed since the previous trees on no. 60 and 62 had been removed;

k. the expert arborist (including Ms Boyer) and the geotechnical engineers all agreed that the tree roots from the boundary planting on no. 62 had established themselves beyond the boundary and into no. 60;

l. tree roots have the effect of drawing moisture from the areas beyond the actual location of the roots themselves.

44 In the circumstances, it is clear that the trees planted on the boundary of no. 62 have, at least since 2007, been a threat to the stability of the foundations of units 3 and 4, and it is likely, in my view, that the damage which manifested itself to units 3 and 4 after 2007, resulted principally from the drying effect of the tree roots.

45 The evidence also establishes that:

a. if the trees remain they will continue to grow, regardless of whether the trees are regularly trimmed;

b. it is impossible to erect an effective tree barrier on no. 62. To attempt to do so would be likely to kill the trees by damaging the roots required for stability. Further, any such works would require the removal and re-erection of the relevant section of the boundary fence and the pruning of vegetation between the trunks and the boundary. It is likely the trees would not survive this operation, even if it were a practical option;

c. an effective tree root barrier could only be erected on no. 60. It is likely that this would need to be placed about one metre from the fence line, that is, about one metre from units 3 and 4 on no. 60. It is likely that the barrier would need to be at least two, and preferably three, metres in depth;

d. the erection of the barrier would alter the soil conditions in the vicinity of units 3 and 4. The erection of a tree root barrier on no. 60 in the location proposed may itself cause further problems to the foundations of units 3 and 4 and would require works to be undertaken to strengthen the foundations;

e. the erection of a tree root barrier on no. 60 using conventional construction techniques would be very disruptive to the occupants of the units. It is possible that modern methods, including the use of air hoses, might lessen the impact, although the evidence in this regard is not persuasive.

46 Accordingly, I consider that the only appropriate relief in the circumstances is to require the initial defendants to remove the trees. It would not be appropriate to require the plaintiffs to accept a root barrier on their property between the fence and

the units. This work would be disruptive and would require extensive rectification work.

**47 In the circumstances, I propose to make the following orders:**

**1. No later than [an appropriate date to be determined after further discussion with the parties] 2013, or by such further date to which the plaintiffs have given their prior consent or which the Court, upon application prior to that date, has allowed, the first and second defendants must remove the line of Bhutan cypress trees on the eastern boundary of their property and reinstate any damage to the boundary fence or within the plaintiffs' property at no. 60.**

**2. The first and second defendants shall not carry out any plantings on the eastern boundary of the property at no. 62, in the location where any of the Bhutan cypress trees have been removed, unless and until:**

**a. The first and second defendants have obtained a qualified arborist's report that the planting (in terms of species, location, the watering system and other relevant factors) is appropriate and the report contains details of all necessary preventative measures which need to be put in place prior to the planting (including appropriate root and other barriers to be located on the defendants' property) and a maintenance program to be undertaken following the planting;**

**b. a copy of the proposal for the planting and associated works and the arborist's report have been made available to the plaintiffs at least 30 days prior to the works proposed being commenced.**

**48 In the circumstances, it is unnecessary to consider the design or cost, if a root barrier were to be installed on the plaintiffs' property and consequential strengthening of the foundations and remedial work were required.**

#### **Cause of the damage to units 3 and 4**

**49 The plaintiffs allege that the damage to units 3 and 4 was caused by the western side of the slab settling as a result of moisture being drawn from the soil below the foundations. The plaintiffs rely upon evidence which indicates that the principal cause of the slab movement was the trees on the boundary of no. 62 and that other possible causes were, at most, only minor contributors.**

**50 The opinions expressed by the experts were as follows:**

**a. the structural engineer, Mr John Juers, in his report dated 25 June 2007 stated, "In our opinion, the movement is due to shrinkage and drying out of the foundation material... the cracking and movement evident to Unit 3 and 4 has resulted due to seasonal changes in the moisture content of the foundation material related to the trees growing on the adjoining property and the recent drought. In our opinion, these problems are not related to the heavy rain that occurred around 15 and 18 May [2007]";**

**b. the geotechnical engineer, Mr David Lawrance, said in his report dated 20 September 2007, "It is apparent the distress in the building at the site has resulted from the following:**

*"Shrinkage of the highly reactive clay filling as a result of the drying action of trees and large shrubs...It is evident that tree drying settlements have occurred beneath the western sections of Units 3 and 4. After considering the above it would appear that these drying settlements have been caused predominantly by the combined drying action of the row of trees located just over the boundary on the neighbouring property to the west..."*

*The movement and distress is also likely to have been influenced by some consolidation of the filling beneath the slab beams...It is also possible that a nearby service easement trench may have contributed in part to the drying settlements that have occurred beneath the western sides of these units”;*

**c. the geotechnical and structural engineer, Mr Ray Rodwell, said in his 3 November 2007 report, “The cause of the damage appears to be excessive foundation movement and severe articulation in the two-storey brick veneer walls. The foundation movement appears to be related to various factors, the most obvious being the 5-metre hedge in the neighbour’s property to the west – excessive drying of highly reactive clay soils (tree root drying plus drought) causing shrinkages and subsidence...**

*The presence of an old sewer trench under the slabs (near west side) may also be a factor in the severity of the apparent subsidence in these areas...*

*Another factor that could be compounding the slab movement problems is a possible rebound heave due to past tree removals...If any plumbing problems exist they could also be contributing to the foundation movements”;*

**d. the arboriculturist , Mr Robert Murray, said in his report dated 20 March 2008, “The extended period below average rainfall in Melbourne has depleted soil moisture. Tree roots also have the capacity to extract moisture from the soil, and the combination of these factors has probably depleted soil moisture at this site. In this case, the trees are not large trees, but they have been planted very close together and the sheer weight of numbers probably would account for significant loss of soil moisture...”**

**“...When the moisture content of clay soil is reduced, the soil contracts and can allow the footings of a building to subside. The damage to the buildings on this site appears to be consistent with the above scenario...**

*There may be other factors, unknown to me, having a bearing on this situation. For example there may have been filling on the site which has subsided, the concrete used in the footings may not have been as specified, there may be errors in the footing design, etc”;*

**e. the arboriculturalist, Mr Glenn Waters, stated in his 30 June 2008 report, “It would appear that there are several contributing factors as causal elements in the current damage, however I would agree with the Rodwell report that the trees on the neighbouring property at 62 Kororoit Creek Road are the major contributing factor in the damage. I believe this based on the species, location/proximity, expected likely root development and soil drying influence of this tree row”;**

**f. building consultant, Rob Lees, stated in his report dated 8 August 2008, “The units have suffered significantly from soil subsidence most likely caused by the drying effect of the cypress trees in the neighbouring property”;**

**g. the structural engineer, Mr Donald Haworth, stated in his 9 April 2010 report, “Reports by both D.M Lawrance and Rodwell Consulting recorded that tree roots were present in their probe investigations on the western side of Units 3 and 4. Reference to the investigations show that the roots to the trees within No. 62 would almost certainly extend into the site of No.60 and would almost certainly extend into the site of No. 60 and would extract moisture from the basaltic clay soils beneath the raft slabs of Units 3 and 4 unless measures recommended by C.E Lawrance and GBK were taken to prevent roots extending to the units...**

*The effect is likely to have been exacerbated by the likely presence of the old drain. If this was not removed, and its trench carefully filled and compacted with substantial material, then it is likely to have added to the potential settlement along the west side of the ground slab rafts of Units 3 and 4”;*

**h. the geotechnical structural engineer, Mr Timothy Gibney, said in his 8 November 2012 report, “The distress of this house has resulted from the following factors:**

*Tree drying settlement of the clay soil along the western edge of units 2, 3 and 4. Trees and large shrubs can dry clay soils via their root systems from distances up to their height. When trees and shrubs are in groups, or if bedrock is close to the surface or paved areas surround them, this distance is increased to 1.5 times their height. Thus, the Cypress trees located on the adjacent western site are causing significant drying settlements relative to other areas of the units”.*

Although Mr Gibney referred to unit 2, he said in his oral evidence that he agreed with Mr Lawrance’s opinion that there was a totally different pattern of movement on unit 2 than units 3 and 4.

**i. The civil engineer, Mr John McFarlane, said in his 20 October 2012 report, “I consider that the row of approximately 25 Cyprus trees growing along the western edge of No. 62 to be the most significant factor causing settlement along the western edges of units 3 and 4 at No. 60 Kororoit Creek Road. Other factors influencing the floor slab variations include:**

- a. *Foundation in filling*
- b. *The influence of the old sewer trench*
- c. *Slab heave at the eastern edge due to tree removal*

*I consider that items a), b) and c) above to be minor in comparison to the effect of the trees growing within the property at No.62”.*

**51 The initial defendants more recent experts expressed the following opinions about the cause of damage:**

- a. the aboriculturalist Ms Jenny Boyer in her report dated 27 November 2012 concluded that the Cypress trees had not caused the drying and settlement of foundation soils beneath units 3 and 4. To calculate the size of the tree’s root system, Ms Boyer used the formulas in AS 4970 ‘Protection of Trees on Development Sites’. Ms Boyer criticised other experts both in her report and oral evidence for using the height of the tree to estimate the tree’s root system, a calculation recommended by the CSIRO Guidelines. I consider her criticisms to be unsubstantiated in light of the industry wide acceptance of these guidelines and the similar requirement found in AS 2870-1996 and AS 2870-2011. Her method of using the ‘Tree Protection Zone’ to calculate the extent of the Cypress trees’ root system, appears to be more appropriate in determining where the roots of a tree can be cut to ensure the tree can still remain viable, as opposed to determining the actual zone of the fibrous root systems in the soil;**
- b. the civil engineer, Mr Russell Brown, in his report dated 13 November 2012 considered that too little investigation was done at the site by other experts to conclude that the cause of the dryness was the trees. In his report he has stated, “Moisture levels has not been linked with the ground movement. The sewer lines has not been checked.**

**There has been no investigation of the old sewer line and its surrounds. None of the moisture testing to date conclusively proves whether the trees have dried out the ground of number 60 and 62 and/or that it's not solely due to heave initiated by the removal of trees, sheds and/or leaks together...I believe that the cause is pre-existing localized dryness from; houses that were built and removed, and/or trees that were removed and thereafter their localized ground built upon too quickly”.**

**52 I consider that the damage to the units has been predominantly caused by the trees planted on the boundary of no. 62. The specific matters I have relied upon in forming that conclusion are as follows:**

- a. I prefer the opinions expressed by the majority of experts to those of Ms Boyer and Mr Brown. The reasoning in the latter reports is generally unconvincing. They draw conclusions where evidence is lacking and fail to properly take account of the evidence pointing to the trees as the principal cause;**
- b. the movement of the units with the expansion joints opening more at the top of the building than at floor level was indicative of settlement of the foundations rather than heave;**
- c. the levels taken of the floor slab in 2007, 2011 and in 2012 show a greater settlement on the western side rather than the eastern side;**
- d. no damage to the units was evident until mid-2007. This is more consistent with the growing trees being the principal cause of the damage rather than other possible contributors;**
- e. the only units exhibiting relevant damage were units 3 and 4, adjacent to the trees on the boundary of no. 62;**
- f. the bore hole investigations confirm that the soil on the western side was drier than on the eastern side. Tree roots were found in the test pits on the western side of the units;**
- g. parts of the edge beam on the western side appear to be founded on fill. This might have contributed to the settlement of the foundations, unless the edge beam was sufficiently located on clay material to be able to span any areas of fill. It would be expected that, if the presence of fill was a significant cause or contributor to the settlement of the slab, that damage to the units would have manifested itself much earlier than 2007;**
- h. there was a sewer on no. 60 which served the old house that had been demolished. The approximate location of the sewer can be determined from the sewerage authority plans and the exit point at the rear of the property. It is likely that the sewer was hand-dug in a substantial trench. However, the fill would have compacted over almost 100 years and, if it were the cause of settlement, this would probably have arisen prior to 2007;**
- i. substantial trees had been located on no. 60. These were removed before construction commenced. The removal of trees can result in heave, as the dry soil and fill rehydrates and swells. This process may take some time but would ordinarily have become apparent before 2007;**
- j. investigations were made to determine if plumbing leaks were the cause of foundation movement. Repairs were effected and further investigations undertaken without disclosing any problems. The cracking in the driveway on the eastern sides of the units was repaired after it was raised as a possible cause of the soil in that location becoming moister;**
- k. the period between 2000 and 2007 was a time of quite severe drought. In the circumstances, a significant change in the weather pattern may have had a greater effect. It is unlikely, however, that the heavy rain in March (or May) 2007 was the cause of settlement or heave resulting in the damage to the units.**

**53 The search for causes of settlement, apart from the trees, tended to throw up a number of possibilities, some inconsistent with others and most without any real supporting evidence:**

- a. Mr Brown considered that his analysis of levels demonstrated that the slab had generally moved as a whole, without the differential movement noted on the western and eastern halves by Rodwell and Lawrance. Brown did not provide an adequate explanation for the wider gap at the highest point of the expansion joints;**
- b. Mr Brown thought that the eastern side of the slab had lifted because of heave caused by the rehydration of the soil after substantial trees had been removed near where units 3 and 4 were later constructed. Mr Brown also referred to heave being caused by plumbing leaks or the ingress of water through cracks in the driveway. The proposition that the western side of the slab had settled because of the edge beam of the slab being founded on fill or that compaction in the vicinity of the old sewer line had caused settlement on the western side of units 3 and 4, appeared to be inconsistent with the eastern side having been subject to significant heave. The objective evidence, including the time at which the damage occurred, makes these alternative explanations for movement less likely;**
- c. the evidence suggests that these matters were never more than possible causes of movement in the foundations and the resulting damage to the units. Where investigations were undertaken (for example for leaks), nothing was found. Mr Brown and Ms Boyer suggested that certain matters might be investigated further, without this suggestion being taken further.**

**54 I consider in the circumstances that it is more probable that units 3 and 4 have settled on the western side because of the operation of the trees planted on the eastern boundary of no. 62.**

**55 When the trees are removed as a consequence of the orders I have proposed, the expert evidence suggests that the site should be allowed, over time, to regain its equilibrium. It is possible that the slab will readjust or “rebound” as a consequence of the change in the sub-soil conditions.**

**56 The expert evidence in this regard is as follows:**

- a. the geotechnical engineer, Mr David Lawrance said in his report dated 20 September 2007, that “sufficient time should be allowed after the above action [removal of the trees] has been carried out for the moisture content in the clay soil beneath the footings to reach an equilibrium. During this time the distress in the buildings should be closely monitored until it can be determined that most of the significant soil movements that have occurred beneath the trees have stabilised. If it becomes apparent that short term works are required to ensure the stability of some sections of the buildings, these should be undertaken immediately...Where required, sections of the concrete floor may need to be realigned by pressure injections...Approximately 3 months after the floor has been realigned any remaining observable distress should be cosmetically repaired”;**
- b. building consultant, Mr Rob Lees, stated in his report dated 8 August 2008, that “Before the buildings can be repaired the trees will have to be removed or a deep root barrier installed. After such work a period of at least 9-12 months will have elapsed before direct repairs can commence on the buildings”;**
- c. consultant engineer, Mr Ray Rodwell, said in his 3 November 2007 report, that “Once conditions around the building have been stabilised [following the pruning of the Cypress trees and the construction of a 1200mm deep root barrier] then repairs to cracks and gaps should be reasonably effective – particularly if a flexible caulking compound is used to fill significant cracks/gaps. Any interim filling of cracks should only be with a compressible filler that will allow some recovery (closing of gaps). If the**

movements fail to stabilise or if the extent of natural recovery is insufficient to be acceptable, then more significant foundation works may be required (underpinning or Uretek works)”;

d. the geotechnical and structural engineer, Mr Timothy Gibney, said in his 8 November 2012 report, that “twelve months after the above action [construction of a deep vertical barrier or deep underpinning of the western edge of units 3 and 4, repair of all leaking downpipes and guttering and regrade of the paving and ground surface adjacent to the east wall] is taken, any remaining super structure distress should be cosmetically repaired.”

57 The cost of rectification work to the units has two aspects:

a. the cost of rectifying the largely “cosmetic” damage to the units where cracking to brickwork, plasterwork and tiling has occurred. This could be undertaken as soon as it is considered that the site has stabilised;

b. the cost of levelling the units, if this does not happen naturally. Included in this cost will be any expense involved in making good any consequential damage resulting from the levelling works.

58 The plaintiffs would ordinarily be entitled to recover as damages the cost of rectifying what I have termed the “cosmetic” damage. The levelling of the slabs may, however, prove to be unnecessary if the slabs were to rebound by themselves. As assessment must therefore be made of the likelihood of this occurring and the degree of rectification (and making good works) that would be likely to be required.

59 The evidence that the slabs will naturally readjust is limited. It is generally stated to be a possibility, and is likely to be a remote possibility. In these circumstances, I consider that the cost of these works, to which the plaintiffs would otherwise be entitled should be reduced by 10 per centum to cover this possibility.

#### **Quantum**

60 The plaintiffs’ updated particulars of loss and damage include a claim for \$159,300 (inclusive of GST) as the cost of a deep injection grout system to level the buildings and the cost of consequential repairs. The other monetary claims were only relevant if the Court did not make an order requiring the defendants to remove the trees on the boundary.

61 The calculation of the claim for \$159,300 is set out in the report of Mr Robert Lees of Faulkner Lees Constructions Pty Ltd dated 25 October 2012. The report examines 12 items which make up the estimate for the deep injection group (Uretek) system and the associated works, including what I have described as the “cosmetic” repairs.

62 In respect of each of the 12 items, there is a full description of the works to be undertaken and a breakdown of the labour and material costs. The report notes at page 3 that, “These cost estimates are based on an assumed design and that engineering designs have not been provided”.

63 An earlier report by Mr Lees dated 21 January 2011 contained cost estimates which were examined by a quantity surveyor, Mr Douglas Buchanan, engaged on behalf of the initial defendants. Mr Buchanan reported on 7 June 2012 but did not consider Mr Lees’ later report dated 29 May 2012. When he gave his evidence at the trial, Mr Buchanan was unable to comment on Mr Lees’ estimates contained in his reports dated 29 May 2012 and 25 October 2012.

64 Mr Lees, in the most recent report, commented upon matters raised by Mr Buchanan in his 7 June 2012 report, including the cost of the Uretek system and the cost of scaffolding.

65 Mr Alan Jones, an underpinning contractor, submitted a quotation to the initial defendants’ solicitors for the cost of carrying out certain works. These were primarily

focused on the underpinning of the floor slabs of units 3 and 4, in the event that no order was made for the removal of the trees. Mr Jones' quotation included the cost of rectifying the damage to the units caused by the movement of the slabs as well as the work needed to repair further damage resulting from the underpinning works.

66 Mr Jones' quotation was deficient in many respects. A number of items were omitted which Mr Jones conceded in his oral evidence would need to be added. The quotation contained little details and it is very difficult to compare with Mr Lees' estimate. In respect of labour costs, Mr Lees included hourly rates of \$60 for a plasterer, \$55 for a painter, and \$45 for a labourer. Mr Jones' rates were \$60 for a plasterer and painter and \$48 for a labourer. It may be, however, that an allowance for overheads and profit need to be added to Mr Lees' rates.

67 In the circumstances, I consider that I should accept Mr Lees' estimate of \$159,300 as the relevant rectification costs which the initial defendants must pay by way of damages. This sum should be reduced by 10% to take account of the possibility that such works may prove largely unnecessary and will be subject to reductions resulting from any apportionment of liability.

#### **Apportioning liability**

68 Four further defendants, involved in the construction of the units on no. 60, were joined in the proceeding as follows:

- a. the geotechnical engineer, C.E. Lawrance & Associates (Vic) Pty Ltd;
- b. the structural engineer, GBK Consulting Engineers Pty Ltd;
- c. the builder, Jadon Constructions Pty Ltd;
- d. the building surveyor, WNL Pty Ltd.

69 The initial defendants alleged that the added defendants were concurrent wrongdoers for the purposes of [Part IVAA](#) of the [Wrongs Act 1958](#) (Vic), and that any liability they may have to the plaintiffs should be apportioned.

70 The liability of the initial defendants can only be apportioned if the plaintiffs' claim against them is an "apportionable claim". The claim must be one "arising from a failure to take reasonable care". The added defendants will be regarded as concurrent wrongdoers if their "act or omission caused...the loss or damage that is the subject of the claim". The damage caused by their act or omission must be the same as the damage claimed against the initial defendants.

71 The claim by the plaintiffs that the initial defendants remove the trees on no. 62 is not a claim for "monetary compensation" and therefore is not an apportionable claim. The initial defendants are solely responsible in respect of that relief.

72 The claim for damages for the cost of rectification requires more detailed consideration. The initial defendants planted the trees in about 2000 without installing a root barrier and without undertaking a more modest planting that would have been unlikely to adversely effect the buildings being constructed on no. 60. Alternatively, the failure by the initial defendants in 2007 to remove the trees when requested by the plaintiffs to do so, after damage had become apparent to units 3 and 4, may have also been a cause of the continuing or further damage to units 3 and 4. I consider that in accordance with the broad interpretation given to the proportionate liability legislation, and its equivalents in other jurisdictions, that this damage can be regarded as having arisen as a result of the failure by the initial defendants to take "reasonable care", regardless of how the matter was formally pleaded in the Statement of Claim.

73 It is necessary therefore to examine the acts and omissions of the added defendants, as possible concurrent wrongdoers, and of the plaintiffs themselves in contributory negligence, in order to determine whether they should bear some responsibility for the loss or damage for which the initial defendants have been found to be liable.

**74 The allegations made against the added defendants and the plaintiffs are set out in the amended defence, as follows:**

**a. the geotechnical engineer, in its site report:**

- i. despite noting the presence of trees along the eastern boundary adjoining the plaintiffs' property, did not "make a mandatory recommendation for the installation of a root barrier" and/or did not "recommend that all beams be founded into the basalt cardboard collapsible former being placed between the beams. Consequently, the external beams would act as root barriers";**
- ii. "noted that there was fill found at the plaintiffs' property to a depth of 0.3m when there was fill on the plaintiffs' property to a depth of 1 metre";**
- iii. "classified the soil on the Plaintiffs' Property 'H' when in fact it was 'P'";**
- iv. contained "conflicting" recommendations, in that "the recommendation should have been that internal and external beams should be the same structural depth in order to form an integral structural grid";**

**b. the structural engineer, when designing the foundations, should have:**

- i. taken into account "and or allow[ed] for the effect of the 'old sewer drain' existing under the plaintiffs property and which was noted in the [geotechnical engineer's] report";**
- ii. "documented a mandatory root barrier and or alternate method of tree root protection and or adequately recommended when such protection is necessary";**
- iii. provided "any recommendations in respect of the long term foundation/soil effects or removing existing trees and or structures on the plaintiffs property";**

**c. the builder, during the construction of Units 3 and 4:**

- i. "erroneously founded the slab edge beams on highly reactive clay filling (clay fill) contrary to [the engineer's] recommendation for such beams to be founded 100mm into natural clay soil";**
- ii. "failed to adequately allow for the 'old sewer drain' by not carefully filling the trench and compacting with suitable material";**
- iii. "failed to flood the eastern part of the site from which the trees were removed as recommended by [the geotechnical engineer]";**
- iv. "failed to take into account and or construct preventative measures (for example a root barrier) in relation to the existing trees on the adjoining property, such trees being present during the construction of the works";**

**d. the building surveyor, during its inspection of the site, failed to:**

- i. "observe that the slab edge beams were founded in fill and not 100mm into natural clay soil as noted on the stamped [engineer's] drawings";**
- ii. "observe that the old sewer drain was addressed in the [engineer's] drawings and or was be catered for, fill and compacted the trench, during the construction of the works";**
- iii. "observe that the site was not flooded during construction";**
- iv. "observe, that despite the presence of trees on the defendants' property, no tree root barrier was installed";**

**e. the plaintiffs "failed to install a root barrier and to take other preventative measure on their property after becoming aware of the risk of the first and second defendants' trees around May 2007". The pleading of contributory negligence also referred to "The failure by the Plaintiffs to rectify the Plumbing issues on the site [that] has caused moisture variations in the founding soil".**

**75 I consider that the geotechnical engineer should have classified the site as a 'P' site. This would have required the structural engineer to have specially designed the slab for the site. This may have required more intensive investigations. The factors which made**

it appropriate for the geotechnical engineer to classify the site as a 'P' site (the removal of the existing house, the removal of trees, the large existing trees in the vicinity, fill on site and the existence of the old sewer) all should have been apparent from the inspections that Mr Charles Lawrance undertook and from his report dated 15 January 1999. He was a very experienced geotechnical engineer, he was familiar with the special soil conditions in the western suburbs, including Williamstown, and his reports, on many sites in the area, had formed the basis for slab designs.

76 I do not, however, accept Mr Lawrance's evidence that his solution of classifying the site as 'H' but making provision for the "special" features of the site by specific recommendations was a complete answer to his failure to properly classify it as a 'P' site and thereby require that a slab to be designed specifically for the site.

77 It was not, however, reasonable to have expected Mr Lawrance to have anticipated that the initial defendants would plant a substantial hedge adjacent to their eastern boundary. Mr Lawrance was aware of the existing large trees on no. 62. He made provision for those trees by noting the following matters in his report:

a. under the heading, "2.1 Site Description": "To satisfy the requirements of the landscape maintenance notes listed below it will be necessary to either remove the trees from around the proposed building (including those on adjacent properties) or alternatively install vertical barriers between the proposed building and any remaining trees, note that this action must be undertaken in accordance with item 1 of the appendix of this report";

b. in paragraph 1 of the Appendix under the heading, "Construction and Landscaping Maintenance": "Unless a vertical barrier has been recommended at this site trees and large shrubs should not be planted or allowed to exist closer to the building than 1.00 times their mature height. This distance must be increased to 1.50 times the mature height where groups of trees exist on or adjacent to the site or bedrock exists close to the surface. If any trees are removed from the vicinity of the proposed building at this site, the soil in the affected area must be flooded or kept well watered for at least two or three months prior to any significant superstructure construction being commenced";

c. on the Borehole Plan, the note: "Depending upon location of house vertical barriers may be required".

78 As it turned out, the existing large trees on no. 62 were removed and the provision of a root barrier in respect of those trees was unnecessary. In the circumstances, I do not consider that blame should be apportioned to him upon that basis. The removal of large trees on the site itself, at no. 60, was adequately dealt with by Mr Lawrance's recommendation in paragraph 1 of the Appendix to his report.

79 However, if the site had been properly classified 'P', a slab would have been specifically designed and not, as Mr Haworth noted, essentially copied from the standard design in AS 2870-1996.

80 If there had been a requirement for a specifically designed slab, it is possible the slab would, at least, have been founded more securely on solid clay and perhaps with piers or other connections into more solid sub-surface material. This might have avoided or ameliorated the problems which arose and the need for the rectification of the slab and damage to the units constitutes the plaintiffs' damages.

81 These are, to a degree, matters of speculation as there is little specific evidence of what further design features would have been likely to have been required by the structural engineer. Mr Brown suggested that more would need to be known about the soils before the slabs could be designed. Doing the best I can, I consider that 20% of the damages awarded to the plaintiffs should be apportioned as the responsibility of the geotechnical engineer for the damage which occurred.

**82 The design engineer was essentially bound to follow the recommendations of the geotechnical engineer and to provide an 'H' slab and to incorporate the specific further recommendations of Mr Lawrance. These were recommendations intended to deal with matters which would ordinarily have required a specially designed slab. However, Mr Lawrance was a very experienced geotechnical engineer and those matters were dealt with by particular recommendations in the geotechnical report.**

**83 The further notes made in Mr Lawrance's site investigation report included in paragraph 3.2.3, under the heading "Concrete Floor System": "The edge beams (plus any major loadbearing internal beams) ONLY must be founded on the natural clay soil indicated on the site investigation logs".**

**84 The recommendations in the geotechnical report were included in the structural drawings by appropriate notations on the drawings and notes in the margin of the drawings. On structure drawings sheets 3 of 6 and 4 of 6 there are the following notes and notations:**

- a. "Vertical tree root barriers may be required if trees which do not comply with soil report recommendations remain";**
- b. "Edge beam founding level note: All edge beams to be founded at least 100mm into natural clay";**
- c. "8. The owners attention is drawn to Appendix B of AS 2870 "Performance Requirements and Foundation Maintenance" and CSIRO Information Sheet 10-91 'Guide to Home Owners on Foundation Maintenance and Footing Performance';**
- d. "11. Design assumes no buried pipes exist at depths greater than their lateral distance from the footing system".**

**85 In my view, it would not have been reasonable to have expected the structural engineer in the circumstances to have challenged or ignored aspects of the site investigations report or to have done more than include the relevant notes and notations in the design drawings for the foundations. Accordingly, no apportionment of liability should be made in respect of its conduct.**

**86 The builder essentially constructed the foundations in accordance with the slab design. It is clear, however, that he failed to flood the site and leave it for at least two to three months before construction in accordance with the recommendations in the geotechnical report. There may have been a wetting down of the site by the building site supervisor but there was not complete compliance with the requirement of the geotechnical report.**

**87 Further, the bore hole investigation disclosing that the western edge beam may not be entirely founded to a depth of 100 millimetres into the clay base, as required by the geotechnical report and the note on the engineering drawings. The builder carried out the excavation. He had many years of concreting experience and agreed that he was well-capable of identifying fill in a trench.**

**88 I have previously referred to the fact that I am not satisfied that heave from the re-saturation of the sub-soil where trees were removed on no. 60, close to the eastern side of the constructed slabs, or the pouring of the western edge beam partially over fill were the primary cause of the settlement of the western side of the slab.**

**89 However, these matters are generally accepted by the investigating experts as factors which may have contributed to the settlement of the slab and the lifting at the eastern edge. The wetting of the site and, leaving the site to settle for two to three months, were clearly not contemplated by the timeframe of the building contract (the contract was signed on 23 December 1999 with a construction period of 255 days).**

**90 Nevertheless, there has been a failure by the builder to fully comply with the specific requirements of the geotechnical report in circumstances where he must have been**

aware that the site had recently been cleared of an existing home and, probably, of established trees. This would have made it appropriate for him to have at least clarified matters with the owners before proceeding. The failure to found the edge beam into at least 100mm of clay was a clear breach of the geotechnical report and the engineering design. Accordingly, I consider that 10% of the damages awarded to the plaintiffs should be apportioned as the responsibility of the builder.

91 The building surveyor would not have been expected to have challenged and rejected the geotechnical report or the structural drawings when making his assessment for the purpose of granting the building permit. Mr Lawrance was a very experienced geotechnical engineer and his report addressed all the matters which required the site to be classified as a 'P' site. There was no independent expert evidence led in relation to what a building surveyor would ordinarily have done in such a situation.

92 However, in relation to the footings trench, the building surveyor, Mr Rocco de Racco, conceded that he was capable of recognising fill and would ordinarily have carefully examined the excavation before concrete was allowed to be poured. In the circumstances, and for the reasons I discussed in relation to the builder, I consider that 5% of the damages awarded to the plaintiffs should be apportioned as the responsibility of the building surveyor.

93 The plaintiffs, through their building designer, engaged appropriate professionals to carry out the tasks of geotechnical investigations, slab design, construction of the units including the foundations, and the engagement of a building surveyor. In the circumstances, the failure by the plaintiffs to have carefully read the geotechnical engineer's report, the notes on the structural drawings and to be aware of the legal responsibility of these professionals, including the building surveyor, are not matters which would amount to a failure to take reasonable care. The installation of a root barrier on their property was not a matter that they were required, or would it have been reasonable for them, to undertake. Accordingly, I see no basis for making any apportionment of liability in respect of their conduct.

94 Liability of the initial defendants is therefore limited to 65% of the amount of \$143,370 (\$159,300 less 10%, or \$15,930) which I assessed as the appropriate damages, or \$83,190.50. I will make a further order that there be judgment for the plaintiffs against the first and second defendants that the first and second defendants pay to the plaintiffs the sum of \$83,190.50.

#### **Orders**

95 Accordingly, I propose to make the following orders:

1. No later than [an appropriate date to be determined after further discussion with the parties] 2013, or by such further date to which the plaintiffs have given their prior consent or which the Court, upon application prior to that date, has allowed, the first and second defendants must remove the line of Bhutan cypress trees on the eastern boundary of their property and reinstate any damage to the boundary fence or within the plaintiffs' property at no. 60.

2. The first and second defendants shall not carry out any plantings on the eastern boundary of the property at no. 62, in the location where any of the Bhutan cypress trees have been removed, unless and until:

- a. The first and second defendants have obtained a qualified arborist's report that the planting (in terms of species, location, the watering system and other relevant factors) is appropriate and the report contains details of all necessary preventative measures (including appropriate root and other barriers to be located on the defendants' property) which need to be put in place prior to the planting and a maintenance program to be undertaken following the planting;

**b. a copy of the proposal for the planting and associated works and the arborist's report have been made available to the plaintiffs at least 30 days prior to the works proposed being commenced.**

**3. Judgment for the plaintiffs against the first and second defendants that the first and second defendants pay to the plaintiffs the sum of \$83,190.50.**

**4. I will hear from the parties further in relation to the form of the orders and the question of costs.**

**- - -**

**Certificate**

**I certify that these 33 pages and the appendix are a true copy of the reasons for decision of His Honour Judge Anderson delivered on 21 December 2012.**

**Dated: 21 December 2012**

**Catherine Kusiak**

**Associate to His Honour Judge Anderson**

**APPENDIX 1**

**Evidence of Expert Witnesses**

<b>Name</b>	<b>Specialty</b>	<b>First Site Visit</b>	<b>Engaged By</b>	<b>Report Date</b>
John Juers (Hawthorn Consulting Engineers Pty Ltd)	Structural Engineer	22 Jun 07	GAB Robins Aust Pty Ltd (CGU Insurance)	25 Jun 07
John Myers (Australian Leak Detection)	Leak Specialists, Inspection of stormwater drains	21 Aug 07	GAB Robins Aust Pty Ltd (CGU Insurance)	24 Aug 07
DM Lawrance (DM Lawrance Soil Testing Pty Ltd)	Geotechnical Engineer	18 Sep 07	GAB Robins Aust Pty Ltd (CGU Insurance) Plaintiffs' solicitors Plaintiffs' solicitors	20 Sep 07  03 Jan 11 23 Nov 12
Ray Rodwell (Rodwell Consulting)	Geotechnical and Structural Engineer	03 Nov 07	VMIA Builders Warranty Program	Undated 29 Jan 08
R.J. Lochland Plumbing Service	Plumber	12 Dec 07	VMIA Builders Warranty Program	12 Dec 07
Robert Murray (AborReport Victoria)	Aboricultural Consultants	17 Mar 08	Jadon Constructions	20 Mar 08
Glenn Waters (Tree Logic Pty Ltd)	Aboriculturalist	26 Jun 08	Plaintiffs' solicitors	30 Jun 08 16 Dec 10 28 May 12
Rob Lees	Building Consultant	17 Jun 08	Plaintiffs' solicitors	08 Aug 08

(Faulkner Lees Constructions Pty Ltd)				26 Oct 10 21 Jan 11 29 May 12 25 Oct 12
Donald Haworth (Haworth Consulting Engineers Pty Ltd)	Civil and Structural Engineer	12 Mar 10	First and Second Defendants' solicitors	09 Apr 10 05 Oct 10 04 Jun 12
John McFarlane (McFarlane & Partners Pty Ltd)	Civil Engineer	none	Fourth party's solicitors	20 Oct 10
Douglas Buchanan (DBQS Consulting Pty Ltd)	Quantity Surveyor/Civil Engineer	none	First and Second Defendants' solicitors	07 Jun 12
Steven Buffinton (Civiltest Pty Ltd)	Geotechnical Engineer	05 Jul 10	First and Second Defendants' solicitors	02 Aug 12
Tim Gibney (Tim Gibney & Associates Pty Ltd)	Geotechnical and Structural Engineer	31 Oct 12	Plaintiffs' solicitors	08 Nov 12 20 Nov 12
Alan Jones	Underpinning Contractor	Nov 12	First and Second Defendants' solicitors	11 Nov 12
Russell Brown (RI Brown Pty Ltd)	Civil Engineer	28 Oct 12	First and Second Defendants' solicitors	13 Nov 12
Jenny Boyer (Rootology Pty Ltd)	Aboriculturalist	27 Oct 12	First and Second Defendants' solicitors	27 Nov 12