

VICTORIAN CIVIL AND ADMINISTRATIVE TRIBUNAL

CIVIL DIVISION

BUILDING AND PROPERTY LIST

VCAT REFERENCE NO. W119/2013

CATCHWORDS

Building and Property List; Claim by householder for damages caused by flows of water from burst water main; *Water Act* 1989 section 157; whether respondent authority has established that flow of water did not result from negligent conduct on its part.

1ST APPLICANT	Mr Peter Gerard Quigley
2ND APPLICANT	Mrs Cheryle Anne Quigley
RESPONDENT	Lower Murray Urban and Rural Water Corporation T/As Lower Murray Water
WHERE HELD	Melbourne
BEFORE	Judge Macnamara, Vice President
HEARING TYPE	Hearing
DATE OF HEARING	6 to 9 October 2014
DATE OF ORDER	21 October 2014
CITATION	Quigley v Lower Murray Urban and Rural Water Corporation trading as Lower Murray Water (Building and Property) [2014] VCAT 1325

ORDER

- 1 Within 14 days of this day the parties must bring in short minutes to give effect to these reasons.
- 2 **Adjourned to a directions hearing before me at 9.30 am, 7 November 2014.**
- 3 Costs reserved.

Judge Macnamara
Vice President

APPEARANCES:

For Applicants

Dr R.J. Sadler of Counsel, instructed by
Holman Webb Lawyers

For Respondent

Mr M. Black of Counsel, instructed by Ligeti
Partners Lawyers

REASONS

BACKGROUND

- 1 Mr & Mrs Quigley live at 72 Stradbroke Avenue, Swan Hill. In the early hours of 21 August 2009 Mr Quigley was aroused from sleep by a police officer knocking on his door. The officer told him that a water main had burst outside his house and it was threatened with flooding. Mr Quigley said that he looked outside 'and saw that my front yard was flooded with water'.
- 2 There was a plumber on-site from Standerling Plumbing Services, a firm which then was contracted to provide services to Lower Murray Water, the Respondent in this proceeding. There was no permanent officer of the Authority on site at that time. Valves were closed to stop the water flow, but not before the interior of the Quigleys' house, and their front and back yards had been inundated.
- 3 The inundation resulted in substantial damage to the Quigleys' house which was rendered uninhabitable. It had to be re-stumped and re-levelled. For the purposes of this proceeding, the parties are agreed that the quantum of damage suffered by the Quigleys is \$130,000.
- 4 Stradbroke Avenue runs approximately north-south, the Quigley residence is situated in the section between Pye Street in the South and Chapman Street in the North, on the western side of the street. The Swan Hill Secondary College is immediately opposite. The water main in question was laid under the asphalt roadway of Stradbroke Avenue, approximately 1-1.5m from the kerb and channel at the edge of the footpath. The main is said to have been laid in 1956 by the Swan Hill Water Works Trust, a predecessor of Lower Murray Water. This has been attested to by the production of minutes of the Swan Hill Water Trust for 10 February 1955, recording plans at that stage to construct
a 12 inch [water] main from the corner of Pye Street and Stradbroke Avenue northwards along Stradbroke Avenue ...
Plans for the construction of this main were drawn up by B.A. & D.B. Smith Consulting Engineers of Queen Street, Melbourne and their plans, dated 18 March 1955, were put into evidence. Under the metric system, this main is now designated as 300mm.
- 5 The task of repairing the burst in the main was undertaken by Mr Standerling and his employee, Mr Nicholas. According to his account, a 4m (presumably 12 feet) section of the main which was constituted by asbestos cement ('AC') pipes was removed and replaced with a new PVC section. Mr Nicholas said that a portion of the pipe was found to be 'blown out'. The failed section of pipe was wrapped up (presumably as a protection against its hazardous asbestos content) and disposed of at a landfill site.

THE PRESENT PROCEEDING

- 6 On 6 August 2013 solicitors acting for the Quigleys commenced the present proceeding seeking damages against the respondent Authority under the *Water Act* 1989 arising out of the damage to the Quigleys' house.
- 7 The Amended Statement of Claim relies on section 157 of the *Water Act* 1989 as establishing the cause of action. It alleges that in accordance with the terms of that section there was a flow of water from the respondent Authority's works causing damage to the Quigleys' property, which flow occurred as a result of conduct by the Authority in exercise of one of its functions under Part 8 of the *Water Act*. It was further alleged that the flow was as a result of negligent conduct by the Authority, 'given the history of incidents on the water main asset servicing Stradbroke Avenue'.
- 8 In its Defence to the Amended Statement of Claim, the Authority admitted that it was an authority under the *Water Act* 1989, responsible for the provision, management, operation, maintenance etc of the water supply system servicing the Quigleys' lot. It admitted the burst of the water main on 21 August 2009 but denied that the consequent flow of water occurred as a result of any conduct on its part, apart from conduct consistent with its responsibilities as a water authority. In particular, it denied that the flow of water was the result of any negligent conduct on its part. The Authority further alleged that the main was installed in 1956

and had an estimated service life of 60 years. It had not exceeded its estimated service life at the time of the incident.

Also, that the relevant water main 'had a good performance history' and that the Authority

had adopted a comprehensive system for the maintenance and replacement of its assets [whereby] water mains are prioritised for replacement having regard to, inter alia, their condition, performance history, estimated remaining life, the cost of replacement and allocation of budget. The subject water main was not prioritised for replacement prior to the incident given the low frequency of faults compared to other assets.

- 9 The Authority also placed reliance on Part XII of the *Wrongs Act* 1958, stating that it was a public authority within the meaning of that part of the *Wrongs Act* and that its functions
- were limited by the financial and other resources reasonably available to [it] for the purpose of carrying out those functions pursuant to section 83 of the *Wrongs Act* 1958.
- 10 It also relied on sections 84 and 85 of that Act to deny liability.

SECTION 157 OF THE WATER ACT 1989

- 11 Section 157 of the *Water Act* 1989 is central to this proceeding. It provides inter alia:

157 Liability of Authorities arising out of flow of water

- (1) If—
 - (a) as a result of intentional or negligent conduct on the part of an Authority in the exercise of a function under Part 8, Part 9, Division 2, 3 or 5 of Part 10, or Part 11 or any corresponding previous enactment, a flow of water occurs from its works onto any land; and
 - (b) the water causes—
 - (i) injury to any other person; or
 - (ii) damage to the property (whether real or personal) of any other person; or
 - (iii) any other person to suffer economic loss—

the Authority is liable to pay damages to that other person in respect of that injury, damage or loss.
- (2) If it is proved in a proceeding brought under subsection (1) that water has flowed from the works of an Authority onto any land, it must be presumed that the flow occurred as a result of intentional or negligent conduct on the part of the Authority unless the Authority proves on the balance of probabilities that it did not so occur.
- (3) For the purposes of a proceeding brought under subsection (1)—
 - (a) a flow of water is to be taken to have occurred as a result of intentional conduct on the part of an Authority if the flow—
 - (i) was designed or intended by the Authority; or
 - (ii) inevitably and without intervening cause resulted from the exercise of a power by the Authority; and
 - (b) in determining whether or not a flow of water occurred as a result of negligent conduct on the part of an Authority, account must be taken of all the circumstances including any omission or failure, in the planning, design, construction, maintenance or operation of the works, to provide reasonable standards of capacity or efficiency or exercise reasonable care or skill having regard to the following matters—
 - (i) the state of scientific knowledge and knowledge of local conditions at any relevant time;
 - (ii) the nature and situation of the works;

- (iii) the service to be provided by the works;
 - (iv) the circumstances and cost of—
 - (A) the works; and
 - (B) the maintenance and operation of the works; and
 - (C) works which it would have been necessary to construct to avoid the occurrence of any relevant injury, damage or loss.
- (4) The following provisions apply with respect to a proceeding brought under subsection (1)—

* * * * *

- (b) the proportion (if any) of the responsibility of the Authority for the injury, damage or loss must be assessed and only that proportion of the assessed damages must be awarded against the Authority;
- (c) in assessing damages in respect of damage to property or economic loss the measure of damages is the direct pecuniary injury to the person bringing the proceeding by the loss of something of substantial benefit accrued or accruing and does not include remote, indirect or speculative damage;
- (d) if damages are assessed in the proceeding in respect of any continuing cause of action, they may, in addition to being assessed down to the time of assessment, be assessed in respect of all future injury, damage or loss and, if so, the Authority is not liable to pay any further damages in respect of that injury, damage or loss;

* * * * *

- (h) a person, not being a party, in whose favour a determination is made may enforce the determination by the same means as if the person were a party.

12 The section places authorities under the *Water Act* in a somewhat more advantageous position than ordinary citizens or corporations. Their liability for the consequences of unreasonable water flows is established by section 16 of the Act and proof that a person caused an unreasonable flow from one person's land onto another's is sufficient to create liability for any resultant damage, without proof of negligence. Similar special provision is made for the liability of licensees under the *Water Industry Act* 1994 in section 74 of that Act.

13 Section 74 of the *Water Industry Act* is not materially different from section 157 of the *Water Act*. In *South East Water Limited v Transpacific*

Cleanaway Pty Ltd (2010) 27 VR 387, Cavanough J of the Supreme Court of Victoria gave extensive consideration to the operation of section 74. The parties in this proceeding were agreed that His Honour’s analysis was applicable to the present claim under section 157 of the *Water Act*. As a result, the following propositions seem to be clear: first, section 157 establishes a ‘freestanding’ cause of action. Whilst negligent conduct is an element of the cause of action, it is unnecessary to make the cause of action good to establish, in addition to the elements stated in the section, a common law duty of care. As a result, additional requirements or considerations as to the existence of a duty of care in negligence, whether deriving from the common law or from statutes such as the *Wrongs Act* 1958 are irrelevant for the purposes of section 157. Next, the onus of proof as to negligence under the section is reversed, so that to escape liability an authority must prove, on the balance of probabilities, that the flow was not caused by negligent conduct on its behalf: see sub-section (2). Next, in considering a proceeding under section 157 the Tribunal

must apply to the questions of causation and remoteness of damage, the same tests as a Court would apply to those questions in an action based on negligence.

section 19(9) of the *Water Act*.

14 In the *South East Water* case, Cavanough J said:

In these circumstances it is tempting to see the reference to “negligent conduct” in s 74 as broadly corresponding to the “breach” element of the tort of negligence, as the Tribunal itself may have done in this case, judging by its language. There may be no harm in that, as long as the Tribunal bears steadily in mind that this is a freestanding, statutory cause of action, to be assessed according to the provisions of the WIA and the provisions of any other applicable statute, not according to common law principles save to the extent that the legislation itself indicates otherwise.

(2010) 27 VR 387, 412 [45]

15 His Honour’s observation applies equally to section 157, therefore, common law doctrines as to what amounts to a breach of duty in the common law tort of negligence or statutory provisions such as are to be found in the *Wrongs Act* as to standard of care and breach of duty, are relevant in judging whether an authority has been guilty of ‘negligent conduct’ for the purposes of section 157. His Honour also observed, with respect to the equivalent in the *Water Industry Act* of section 157(3)(b), that there was ample room under this provision

with its references to “all the circumstances” and to planning and design – for the operation of considerations of foreseeability similar to those relevant at the “breach” stage of common law negligence.

(2010) 27 VR 387, 413 [48]

THE *WRONGS ACT*

16 It will be recalled that in its Defence, the Authority has placed reliance on sections 83, 84 and 85 of the *Wrongs Act* 1958. These provisions affect the liability of public authorities for damages resulting from negligence ‘whether the claim is brought in tort, in contract, under statute or otherwise’ (section 80(1)). It is common ground that the respondent is a public authority for the purposes of these provisions of the *Wrongs Act*. The sections provide as follows:

83 Principles concerning resources, responsibilities etc. of public authorities

In determining whether a public authority has a duty of care or has breached a duty of care, a court is to consider the following principles (amongst other relevant things)—

- (a) the functions required to be exercised by the authority are limited by the financial and other resources that are reasonably available to the authority for the purpose of exercising those functions;
- (b) the functions required to be exercised by the authority are to be determined by reference to the broad range of its activities (and not merely by reference to the matter to which the proceeding relates);
- (c) the authority may rely on evidence of its compliance with the general procedures and applicable standards for the exercise of its functions as evidence of the proper exercise of its functions in the matter to which the proceeding relates.

84 Wrongful exercise of or failure to exercise function

- (1) This section applies to a proceeding for damages for an alleged breach of statutory duty by a public authority in connection with the exercise of or a failure to exercise a function of the authority.
- (2) For the purpose of the proceeding, an act or omission of the public authority relating to a function conferred on the public authority specifically in its capacity as a public authority does not constitute a breach of statutory duty unless the act or omission was in the circumstances so unreasonable that no public authority having the functions of the authority in question could properly consider the act or omission to be a reasonable exercise of its functions.
- (3) For the purpose of the proceeding the public authority is not liable for damages caused by the wrongful exercise of or failure to exercise a function of the authority unless the provisions and policy of the enactment in which the duty to exercise the function is created are compatible with the existence of that liability.

- (4) Despite subsection (1), subsection (2) does not apply to a statutory duty that is imposed as an absolute duty on the public authority to do or not to do a particular thing.

85 Exercise of function or decision to exercise does not create duty

In a proceeding, the fact that a public authority exercises or decides to exercise a function does not of itself indicate that the authority is under a duty to exercise the function or that the function should be exercised in particular circumstances or in a particular way.

- 17 In conformity with the principles enunciated by Cavanough J in the *South East Water* case, section 83 appears to be relevant to this proceeding insofar as it bears upon whether or not the respondent authority 'has breached a duty of care', viz. engaged in negligent conduct. Section 157 establishes its own statutory duty of care and so no separate and additional common law duty need be found. So, section 83 is not relevant to the issue of duty of care.
- 18 Section 85 operates clearly according to its terms, though none of the submissions put to me in the course of the hearing appears directly to engage its terms.
- 19 Mr Black, who appeared on behalf of the respondent Authority, submitted that section 84 applies to this proceeding. Dr Sadler, on behalf of the applicants, submitted that it did not. Dr Sadler referred to what I had said in the *South East Water* case at the Tribunal hearing, from which the appeal to Cavanough J was brought, viz. *Transpacific Cleanaway Limited v South East Water Limited* [2008] VCAT 1798 [77]
- Section 84 deals with claims based on breach of statutory duty. This tort describes not statutory rights to damages but rather as Dr Balkin and Mr Davis in their work *Law of Torts* (3rd Ed.) 524 [16.1] but rather instances where courts have implied a civil remedy in damages from statutes imposing criminal or quasi criminal penalties.
- 20 In support of his contention that this conclusion is incorrect, Mr Black relied on the decision of the High Court of Australia in *Sydney Water Corporation v Turano* [2009] HCA 42 where their Honours proceeded on the basis that a similar provision of the New South Wales Parliament, section 43A of the *Civil Liability Act* 2002, would apply in circumstances such as the present. The Victorian section is specifically restricted in its terms to claims for breach of statutory duty. Section 43A of the New South Wales statute, however, is according to sub-section (1), stated to apply
- to proceedings to which this part applies to the extent that the liability is based on a public or other authority's exercise of, or failure to exercise, a special statutory power conferred on the authority.

- 21 This is a very different formulation from the one to be found in the Victorian statute, and therefore the High Court's conclusions simply do not apply to the Victorian provision. It may be that Parliamentary Counsel and Parliament, itself, in Victoria have chosen language which does not achieve what might have been thought to be the aim of the relevant provision. In all the circumstances, I remain of the view which I expressed in the *Transpacific* case, that section 84 does not apply to proceedings such as these.
- 22 I should also note with respect to the possible application of section 83 what Cavanough J said in the *South East Water* case. He observed that according to its terms it applies to a 'court'. He drew attention to the extended definition of court to be found in Part IVAA of the *Wrongs Act*, specifically referring to this Tribunal and the absence of such an extended definition in Part XII of the Act. For the purposes of his determination, however, His Honour said, 'I will assume, without deciding, that s 83 applies to the Tribunal' (2010) 27 VR 387, 417 [65]. Without rehearsing the now very extensive jurisprudence on whether the word 'court' is to be regarded as extending to this Tribunal, I observe that authority establishes that it does not in the context of Chapter III of the *Commonwealth Constitution*. In other contexts, however, the tribunal can be regarded as a court. My inclination is to think that the constitutional rigour which applies to the operation of Chapter III of the *Commonwealth Constitution* is not appropriate in this context, and the reference to 'court' in section 83 of the *Wrongs Act* should be regarded as sufficiently generic to extend to this Tribunal. Even were I wrong, the requirement in section 157 of the *Water Act* for the tribunal to consider all the circumstances would be sufficient to direct attention to the matters referred to in section 83 of the *Wrongs Act*.

HISTORY OF PERFORMANCE OF MAIN

- 23 As previously noted, this main seems to have been installed in 1956. From 1956 to 1996 there is no record of its performance. The present respondent has been formed by a series of reconstitutions and amalgamations over the years. The detailed records available to it do not go back before 1996. There is, therefore, no clear evidence as to what did or did not happen in those 40 years following initial installation. Mr Girdwood, who is in charge of the Authority's southern region and gave evidence on its behalf, having served with the Authority for some six years, said that he knew of no 'folklore' amongst the older hands to the effect that there had been any problems with the Stradbroke main before 1996.
- 24 According to the Authority's records by way of a document styled 'Water Interruptions/Sewerage Overflow', on 6 June 1997 the water supply in Stradbroke Avenue was cut off for a period of nine hours as an unplanned interruption of a leak described as 'major – burst main'. Some 20 water services were affected and some four workers were involved in the rectification work. A further record indicates that on 2 September 2004

there was an interruption to service to Nos. 68 to 92 because of a 'saddle burst'. And again on 31 October 2005 there was interruption to service to the same properties due to both a 'ferrule burst' and 'saddle burst'. According to the evidence, the service to individual residential properties is provided by the application of what is described either as a tapping band or a 'saddle' which is applied and tightened on the main itself to create and preserve a seal around the point at which the main is tapped into to provide the separate residential service. The tapping is affected by a separate valve assembly known as a ferrule. The documentation records that on 2 September 2004 the employees 'dug-out and replaced tapping band on 300mm a/c main' and on 31 October 2005 that the tapping band and ferrule were also dug out and replaced. Then, on 21 April 2008 there was a further failure constituted by a crack in the main outside No. 82 Stradbroke Avenue. The relevant form describes the work as 'dug-out and repaired burst 300mm a/c main'. A crack of this sort might be repaired by replacing an entire 4m (12 foot) section of pipe or by applying a 'Wang sleeve' to the pipe at the crack point. This sleeve constitutes in effect a patch on the existing pipe and consists of a stainless steel band. Since the reference is to a 'repair' to the main rather than a reference to the 'replacement' of the section which is the language used with respect to the work done in 2009, I conclude that it is more likely than not that the sleeve is used to repair the crack rather than replacement of the relevant length of pipe.

- 25 The next failure on this section of main reported is the one that is the subject of this proceeding. The comments on the relevant report form read as follows: 'Dug-out and replaced length of 300mm a/c main'. This report designated the burst as being 'full length' and the attached plan appears to locate the burst approximately mid-way along the frontage of No. 72 (the Quigleys' property).
- 26 As part of its repair and replacement program for the financial year 2010/11, a replacement of the entire length of the relevant main comprising 245m was undertaken on 18 October 2010 with the AC main being replaced with PVC pipe. According to Mr Girdwood, 'this was done predominately on the basis of the severity of the subject incident, and in particular the consequences of the failure of the main'.

THE GHD REPORT

- 27 As noted above in its Defence to the Amended Statement of Claim, the Authority says that it prioritises its replacement of water mains according to a carefully formulated regime. The Authority has 900km of water mains in the Authority's jurisdiction. According to the evidence of expert witnesses, Mr Rob Henry on behalf of the Authority and Mr Bobby Koroneos on behalf of the Quigleys, AC pipes were widely used as water mains in the period 1930 to approximately 1980. From the 1980s onwards concerns as to the occupational health and safety issues associated with the manufacture, installation and removal of AC pipes led to their deletion in

favour of the current use of PVC. The Authority and its expert Mr Henry accept that it would be preferable in the circumstances for all existing AC pipe mains to be replaced but as a matter of financial and technical practicality this is not possible.

28 The Authority's primary case is that an AC water main has an economic life of 60 years. Mr Koroneos, the engineer who gave expert evidence on behalf of the applicant, put the economic life of AC mains at between 50 and 70 years. The Authority has some AC mains which are still in situ and performing after 80 years. In cross-examination, Mr Henry, the Authority's expert, was willing to accept the estimate of economic life proposed by Mr Koroneos, namely 50 to 70 years. In particular, he agreed with me that this is not a situation where, at say, 59 years an AC water main is in good shape but after 60 years it collapses into decrepitude. Rather, the decline is a gradual process taking place from perhaps 50 years of life onwards. The Authority's principal witnesses, Mr Girdwood and Mr Murphy, the Authority's overall manager of technical services, said that the Authority was guided in dealing with the process of maintenance and replacement of its stock of AC water main by a report given to the Authority in the year 2000 by the well-known firm of consultants, civil engineers Gutheridge Haskins and Davey Pty Ltd, known as GHD for short. The executive summary of the GHD report is as follows:

- The current policies of Lower Murray Water result in water mains being replaced before the end of their economic life due to customer service issues.
- For large organisations an objective decision making process for asset rehabilitation and replacement is a valuable tool.
- A trial Risk Analysis for water main replacement has been successfully operated for the 2000/2001 planning cycle.
- Improvements to the Risk Analysis for water mains have been identified and developed following discussions with Lower Murray Water staff.
- A compatible rating system for rising mains and sewers has been developed.

29 The report said that relative risk could be determined by reference to two factors, namely the probability of failure and the consequences of failure, the latter of which was described as 'criticality' and said to be 'related to asset attributes. According to the report

Criticality defines the relative consequences of failure and is therefore a measure of the importance to the organisation of preventing, or minimising the unplanned failure of assets.

30 According to paragraph [3.2] of the report:

Failure Probability is assumed to be directly related to pipeline age. The remaining life of each pipe is calculated based on the original date of installation and the theoretical life of the pipe.

- 31 GHD adopted a theoretical lifetime for an AC main as 60 years. Clause 4.2 states:

A very high importance has been placed on public safety and damages (26% and 13% of the total score) although in practice few pipe failures lead to significant risks in these areas.

- 32 At paragraph 5.1 the report refers to studies said to have been carried out by Melbourne Water and states:

In summary the most reliable method of determining the remaining life of a pressure pipe is by examining its failure history.

According to paragraph 5.2, the economic life of a water main

is generally considered to be at the point when 5% of the replacement cost is being spent on annual maintenance.

The practical life of a water main was said to be ‘the point at which failures lead to an unacceptable level of service’ (paragraph 5.3). Paragraph 6.2 said

In order to predict failure over future years, the average actual life at replacement needs to be calculated. The system of recording installation dates should be maintained to assist in the process of recording this data.

The methodology postulated in the report was described at paragraph 8.1 as follows:

All the criticality attributes should be analysed based on their total score. The assets with a high total score or a ranking of 5 in any category should be reviewed to consider if any failure is acceptable.

If failures are unacceptable steps will need to be taken to prevent failure. This can either be by duplication, alternative supply or higher levels of maintenance.

- 33 Further, it was said (at paragraph 8.3) that all pipes with a condition rating of 4 are approaching the end of their lives and should be reviewed. The report said:

A suggested cut off point where no review is required is pipes with a total criticality score below 21 with no attribute ranking 5 on criticality.

- 34 Appendix B of the report provides a series of matters to be considered, each with a 5 fold ranking to determine criticality together with a consideration of condition and remaining life.

The rankings for **Condition/Remaining Life** are as follows:

Water Pipelines and Sewer Rising Mains

Condition rating	Description
1.	No recorded failures in last 10 years (Equivalent to Class D)

2.	Single failure in last 10 years (Equivalent to Class C)
3.	More than one failure in last five years (Equivalent to Class B).
4.	More than one failure in last two years (Equivalent to Class A)
5.	More than one failure per year (to be scheduled for replacement regardless of criticality)

35 Turning to the various criteria for ‘criticality’, they are as follows:

Size

Criticality Rating	Size
1.	< or = 100mm
2.	Greater than 100, < or = 200mm
3.	Greater than 200, < or = 300mm
4.	Greater than 300, < or = 400mm
5.	Greater than 400

Effect

Estimation of the effect of failure on customers?

1. No Customers affected
2. Less than 10 Customers affected
3. Less than 100 Customers affected
4. Less than 1,000 Customers affected
5. More than 1000 Customers affected / Major Customer

Accessibility

Is the accessibility of the asset easy?

1. Very Accessible
2. Accessible
3. Minor difficulties in access
4. Significant difficulties in access
5. Major accessibility problems

Examples of the rating system:

Criticality Rating	Asset Description
1.	<ul style="list-style-type: none">• Above ground pipeline• Pipeline in Lower Murray Water Land with no interference from other structures or services.
2.	<ul style="list-style-type: none">• In Public Reserve/Open Space• In rural road reserve
3.	<ul style="list-style-type: none">• In residential street• In urban road reserve
4.	<ul style="list-style-type: none">• In Central Business District• Under Main Highway
5.	<ul style="list-style-type: none">• Under Railway• Under or close to building• Under river• Under irrigation channel

Capacity

Can the asset meet current & future capacity requirements?

1. Excess capacity at peak flows
2. Adequate capacity at peak flows
3. Inadequate capacity at peak flows
4. Inadequate capacity at average flows
5. Inadequate capacity for majority of time

Examples of the rating system:

Criticality Rating	Asset Description
1.	<ul style="list-style-type: none">• No change in pressure in peak periods
2.	<ul style="list-style-type: none">• Occasional low pressure on peak day
3.	<ul style="list-style-type: none">• Low pressure complaints at summer daily peaks
4.	<ul style="list-style-type: none">• Low pressure complaints at winter daily peaks
5.	<ul style="list-style-type: none">• Low pressure at all times

Ease of Repair

How difficult would it be to repair if failed?

1. Very easy/within half a day
2. Easy/within one day
3. Normal difficulty/within two days
4. Very difficult/within week
5. Extremely difficult/longer than a week

Ultimate Ranking System

Applies to Water Mains, Sewers and Sewer Rising Mains

	No Services	Low Level of Services	High Level of Services
• Shallow, 80mm dia	1	2	3
• Shallow <=150	2	2	3
• Shallow <=300	3	3	4
• Shallow <=450 • Over 2m deep	4	4	5
• Over 2m deep and >300mm dia • Over 450mm dia	5	5	5

Damages

These are the costs of the failure in addition to repair costs.

What are the Third Party cost implications of failure?

1. No risk
2. Minor risk \$0 - \$1000
3. Normal risk \$1,000 - \$100,000
4. Significant risk \$100,000 - \$500,000
5. Major risk \$500,000

Ultimate Ranking System

Applies to Water Mains, Sewers and Sewer Rising Mains

Criticality Rating	Asset Description
1.	• Pipeline in LMW land, all sizes

	<ul style="list-style-type: none"> • Road reserve, rural area, all sizes
2.	<ul style="list-style-type: none"> • Road reserve urban area, up to 200mm
3.	<ul style="list-style-type: none"> • Footpath in CBD, up to 200mm • Local road, up to 200mm • Pipe across farmland
4.	<ul style="list-style-type: none"> • Under or close to building in CBD, >150mm • Major Road, >300mm
5.	<ul style="list-style-type: none"> • Under or within 1m of building in CBD, >300mm • Under or within 1m of major highway bridge, >300mm • Under Railway

Public Safety

What are the Public safety implications failure?

1. No risk
2. Minimal risk (minor injury – first aid only)
3. Normal risk (major injury - hospital)
4. Significant risk (long term disablement)/\$100,000-\$500,000
5. Major risk (death)

Ultimate Ranking System

Applies to Water Mains, Sewers and Sewer Rising Mains

Criticality Rating	Asset Description
1.	<ul style="list-style-type: none"> • Pipeline in LMW land, all sizes • Road reserve, rural area, all sizes
2.	<ul style="list-style-type: none"> • Road reserve urban area, up to 200mm • Footpath in residential area, up to 200mm
3.	<ul style="list-style-type: none"> • Footpath in CBD, up to 200mm • Local road, up to 200mm
4.	<ul style="list-style-type: none"> • Under or close to building in CBD, >150mm • Major Road, >300mm
5.	<ul style="list-style-type: none"> • Under or within 1m of building in CBD, >300mm • Under or within 1m of major highway bridge, >300mm

- 36 As I understood the respondent's evidence, before the relevant incident the water main section in question is 'off the radar', not commanding a score under the GHD system which would require it to be given serious consideration for replacement. According to Mr Girdwood, a risk management procedure which entailed the application of the GHD system to an annual review of the requirements of maintenance and replacement of water mains under the Authority's control was adopted at the end of 2013, but even although the principles had not been reduced to writing, they were in fact applied at all times relevant to this proceeding.
- 37 The replacement plan which led to the relevant section's replacement in October 2010 gave it a score under the GHD system as 'GHD Crit 24'. Its condition was said to be at the class 4 level, presumably on the basis that there had been two failures in ten years.
- 38 My attention was not called to any definition in the GHD document of the word 'failure'. The Authority has treated it as meaning only a major failure, so the minor failures associated with the saddle and ferrules in the relevant section in the period from 1996 to 2009 have been ignored and not counted. I note in the section of the report on Criticality – Effect, the following appears under the heading Water Mains and Raw Water Pipelines: 'A failure consists of complete failure of service or substantial pressure reduction'. The saddle and ferrule failures would appear to count as failures under that definition, yet they have been excluded from the consideration.

'NEGLIGENT CONDUCT'?

- 39 Whilst Dr Sadler tendered in evidence the statements of Mr & Mrs Quigley, which were admitted without objection and without the need for cross-examination, the respondent's witnesses went first. For convenience of analysis, however, and in full knowledge of the incidence of the onus of proof, I propose turning first to the applicant's case on the issue of alleged 'negligent conduct' on the part of the respondent Authority.
- 40 Dr Sadler stressed, first, that the loss which his clients had suffered was the result, not of a blockage in the water main, but a failure by way of burst. The evidence demonstrated, he submitted, that the main in question was a high pressure one 'transporting water at 390l/s'. He did not deny the effect of the evidence that the main had been installed in or about 1956.
- 41 Dr Sadler noted the first major failure in June 1997, 50m to the North of the Quigleys' property and a further major failure 95m to the South of their property in April 2008. He observed that the Authority offered no explanation as to why any of these failures, including the subject failure, occurred.

- 42 Dr Sadler said that under section 163 of the *Water Act* the Authority was obliged to ‘provide, manage, operate and protect water supply systems, including the collection, storage, treatment, transfer and distribution of water’. He said, far from protecting the supply, no proactive management of the system was undertaken. Rather, the Authority ran it to failure. He submitted that, since the Authority could not explain why the failure occurred, it was inherently incapable of discharging a reverse onus to exclude the possibility of negligent conduct on its part being part of the cause. Dr Sadler submitted that there should have been an investigation of the failures in 2008 and 2009. The evidence showed no such investigation occurred.
- 43 Dr Sadler said the pipe had begun to fail after less than 50 years of operation and therefore, as at 2009 ‘it was in its final throws of life’. He submitted the 2008 incident ‘taken in context, should have put LMW on notice that the pipe needed to be replaced’. He submitted that the following factors suggested the main should have been replaced before the 2009 burst as
- (a) it is in an urban area and property is likely to be damaged if it failed;
 - (b) it was a high pressure water supply main;
 - (c) it had a history of failure;
 - (d) it was either past or at the end of its service life; and
 - (e) it would not have been expensive to have replaced the main.
- 44 Dr Sadler submitted that a common form of deterioration for an AC water main is the leaching of the cement from the asbestos, and therefore, after the failure in 2008 the pipe was likely to have been in a substantially deteriorated condition. The service life of the pipe estimated at 60 years was just a generalisation, it was not ‘pipe specific’. The experts agreed, he noted, that the service life for an AC pipe might be as low as 50 years. He submitted in those circumstances ‘public authorities should be replacing pipes which were at serious risk of failing, not waiting for them to fail’. He submitted that this was an old pipe under continuous but differential high pressures. It had not been checked or tested despite having been dug up on at least six occasions since 1996. Opportunities to inspect were not taken when the various excavations were undertaken. He said that Mr Koroneos, the expert who gave evidence for the applicants, had noted that Melbourne Water undertook investigations of the thickness of pipe wall using acoustic measures and chemically analysed the water internally and externally. The pipes, he submitted, could have been replaced in 2008. Mr Koroneos estimated the cost at \$50,000. The cost of replacement in 2010 came out at \$105,000. He submitted that, since there had been major failures at No. 82 and No. 72 Stradbroke Avenue, both some time after saddle and ferrule works had been carried out, the inference was open that something about

the work which was done had caused the failures, for instance, over tightening of the saddle.

- 45 Dr Sadler said the knowledge and control of the water main was solely with the Authority and his clients relied on the Authority to maintain the integrity of the main and protect them from unreasonable water flows. The Quigleys, therefore, were vulnerable. He said

LMW should not just slavishly adhere to a quantitative evaluation of risk without adjustment. The GHD model is vague and 'loose'. Its inputs are vague and/or loose eg pipe installation date, estimated life, 'failure history' and its broad risk allocation methodology. As a result its quantitative output is less than precise. This may be useful for general management purposes, but not for assessing foreseeability.

- 46 Insofar as the Authority contends that what occurred was not reasonably foreseeable, he said it was making that contention in a context where its expert, Mr Henry, had sworn that ideally all AC water pipes should be replaced.

- 47 He also noted the absence of any evidence as to what caused the 2008 failure and no evidence that its cause was even investigated. He submitted the Authority should be able

to prove that it took every step open to it to make sure the risk was minimised. This means doing more than desk top analysis and model building. It means proactive maintenance and monitoring and inspecting and testing when it can. It did none of this.

- 48 Dr Sadler said:

We are informed by Mr Henry (and Mr Girdwood agreed) (although no evidence from other authorities has been called) that there are many other ageing AC pipes all over Victoria. They are being run to failure. There will be bursts. Only after those bursts occurred will the Authority then be able to say there is a problem.

- 49 He said the Authority's witnesses, Messrs Murphy and Girdwood, conceded that no proactive maintenance was undertaken. He submitted 'that as pipes move towards [the end of] their useful life they should be put on a replacement program'. Dr Sadler said the Authority 'ought not to have it both ways - to not fix potential problems when they are likely to emerge and then not have to compensate people who are injured when the problem eventuates'.

- 50 Mr Black submitted that there had been no negligent conduct on the part of his client which was causative of the burst in the flow of water which inflicted the damage on the Quigleys' house. He said that section 157(3)(b) of the *Water Act* required a consideration of all the relevant circumstances. He said that the matters mentioned in that paragraph could be broken down into the following groups:

- (a) Omission or failure in planning, design or construction of the pipe in question;
- (b) Omission or failure in maintenance or operation of the pipe in question;
- (c) Omission or failure to provide reasonable standards of capacity or efficiency;
- (d) Omission or failure to exercise reasonable care or skill.

He said, 'The matters set out in sub-paragraphs (i) to (iv) of the sub-section 'are to be taken into account in assessing whether or not each of the identified omissions or failures have not occurred'. As to the state of scientific knowledge, he mentioned the history of AC pipes and that they had a typical life span of 60 years and a maximum working pressure of 920 kPa. In fact, the operating pressure, having regard to the height of the water towers in Swan Hill, was 320 kPa. He noted the history of the main. He said it was installed in reactive clay. He submitted, 'Over the history of this section of pipe there have been few failures and the water main had an excellent performance history'. He turned to the statement of Mr Girdwood. According to Mr Black, the location of the nearby secondary college was not significant as there was no suggestion that the school was at risk of flooding. He said:

The risk of property damage did exist but was not significant. Particularly, there had been two previous failures of the main but they occurred in 1997 and 2008, both with no property damage. The 2009 incident resulted in a lifting of the asphalt of Stradbroke Avenue but did not involve water shooting into the air. It appeared that the Applicants' property bore the entirety of the flow in the 2009 incident.

- 51 Mr Black said the initial cost of the installation of this section of main was unknown, but money values would be so different now that the figure may not be meaningful. He continued:

Works necessary to avoid the flooding of the Applicants' property would have been replacement of the entire length of pipe along the section of Stradbroke Avenue between Chapman and Pye Street before the flood occurred. The cost of those works when ultimately carried out in 2010 was \$104,000.00.

- 52 He submitted the history of the pipe showed that it was adequately designed and constructed. It lasted 53 years before the event in question. Ongoing planning was encompassed in the Water Main Replacement Program which the Authority undertook in accordance with the GHD report which monitored and reviewed the performance of mains.
- 53 The Authority submitted, he said, that it had not failed to maintain the section of pipe properly, it had implemented a program of water main replacement which took into account a wide range of criteria and it would be wrong and be an impermissible use of hindsight to say that the program

failed and was inadequate 'just because this section of pipe was not reached before its failure'. He rejected any suggestion that

all water mains be replaced on a rolling basis well before the end of their expected life span so as to ensure there was never a failure of a water main. That approach would be incredibly costly and incredibly wasteful.

54 The reasonable and proper approach was the one he said the Authority adopted, namely replacing those water mains 'most at risk of failure'. He continued, 'Not all water mains are going to be replaced before bursting but that is because there is no reliable method of predicting when a water main is going to burst'. He said, 'a policy of replacing water mains too soon would not result in reasonable standards of efficiency as it would increase the Respondent's operational costs'.

55 According to Mr Black, no additional tests or investigations would have improved the prediction of when to replace the water main along Stradbroke Avenue. Mr Black denied that the Authority had a practice of running to failure:

The Respondent's procedures seek to prioritise the replacement of AC mains with the greatest risk and consequence of failure. As AC mains age they become more prone to failure. But their expected useful life is not a guarantee that they will fail on the day they reach that expected useful life.

56 He referred to Mr Girdwood's evidence of pipes that lasted 80 years. He said, 'interpreting the failure of individual sections of pipe so as to ascertain the likely remaining useful life is not running to failure in the broad sense'. He said relying on performance history was reasonable given that the conditions affecting water mains are likely to remain stable over a lengthy period of time, viz. the soil composition will remain the same, water usage will follow regular cycles etc.

57 Mr Black said that credence should not be given to the evidence of Mr Koroneos on behalf of the applicants. His evidence did not represent a freestanding opinion, but rather a critique of the first report provided by Mr Henry. Insofar as he advocated the carrying out of tests, he did not investigate the practicality of the tests or cost them. He said that, insofar as Mr Koroneos in his oral evidence offered a suggested explanation for the failures of the pipe in 2008 and 2009 based on potential over-tightening of the saddles in the relevant vicinity which was not mentioned in his written report, he adopted this at the suggestion of counsel for the applicants, as he admitted in cross-examination. Therefore, said Mr Black, the opinion of Mr Henry should be preferred to that of Mr Koroneos. The procedures adopted by the Authority were fully described by Mr Girdwood, he submitted. The financial resources of the respondent were limited, he said. Its ability to increase charges was subject to the approval of the Essential Services Commission. He noted that in 2008/2009 the Authority allocated and spent 12.8% of its total water-related revenue on repair and

replacement of water mains and 10.2% in 2009/2010. This was the sort of analysis that should be undertaken he submitted, rather than merely looking at the percentage of total revenue across a number of districts and sewerage revenue as well as against what was allocated to repair and replace water mains in Swan Hill.

- 58 He noted that according to Mr Murphy, the Authority was operating at a loss and has not paid dividends and there is no immediate contemplation that any dividends will be payable. He concluded, ‘in light of those financial constraints the Respondent is acting reasonably in the repair and replacement works it is carrying out.’
- 59 Dr Sadler had been critical of the Authority’s failure to call Mr Standering who was at the relevant time its maintenance and replacement contractor for Swan Hill and attended the relevant burst. He said that the relationship between the Authority and Mr Standering ‘ended on a sour note’ and he was unwilling to assist the Authority. He submitted, in the circumstances, no adverse inference should be drawn against the Authority. It was unnecessary, Mr Black submitted, for the Authority to postulate a cause for the burst to exclude any causative negligent conduct on its part. The effect of establishing a reverse onus in section 157 was not to create a regime of strict liability. He referred to *City of Boroondara v Yarra Valley Water Limited* [2011] VCAT 1436.
- 60 Mr Black said there is no ground for drawing an inference that the work done on saddles and ferrules in the vicinity of Nos. 72 and 82 should be implicated as causative of the 2008/2009 faults. He said the Stradbroke Avenue saddle was fitted 13 years before the 2009 failure. He noted that there was nothing in the worksheets for the 2009 incident suggesting that a new saddle was fitted. Mr Koroneos had conceded that any effect arising from the improper installation of a saddle would be manifested within a metre of the installation. Mr Nicholas, who gave evidence as to his attendance in August 2009, did not mention that the saddle and ferrule installation was implicated in the failed section of pipe at all.

‘NEGLIGENT CONDUCT’? – CONCLUSION

- 61 First, I accept the contention put by Mr Black on behalf of the respondent that, insofar as the applicants’ expert, Mr Koroneos, had suggested a series of proactive tests which might have been carried out by the Authority, his suggestions were not well formulated or costed. They were the subject of credible criticism in cross-examination. So, for instance, he conceded that carrying out routine excavation to expose and inspect an AC water main could damage the water main by impacting the excavation and could also lead to the gathering of water even after the excavation had been backfilled. The water mains operate under pressure. They do not, in contrast to sewers, have inspection hatches and could only be the subject of internal inspection if they were depressurised.

- 62 The concept of 'run to failure' was mentioned on more than one occasion in the course of the hearing. It is appropriate to consider precisely what the concept entails. It has a somewhat pejorative sound. Most householders operate a 'run to failure' practice, for instance with light globes and tubes. A globe or tube is left in situ performing until it fails. It is then replaced. This is a reasonable policy because it maximises the life of the bulb or tube and is unlikely to cause any damage or loss rather than relatively momentary inconvenience until a replacement globe or tube can be fitted.
- 63 The application of the concept to assets such as lengths of water main or sewer pipe is more problematic. A burst and overflow of a sewer pipe can be a serious public health risk. Even pressurised water pipes can do serious property and potentially personal injury damage when they occur unexpectedly. Again, the concept of failure in the case of these sorts of assets is complicated by the fact that pipelines of whatever type can be repaired, unlike bulbs and globes which are either fully operative or 'dead' after failure and not susceptible of any form of resurrection.
- 64 Turning to the present concept as the GHD report recognises, there are potential risks to water main bursts which makes running to failure a more hazardous policy with these types of assets than it is with light bulbs or tubes. The ultimate affect of the evidence given by the Authority's witnesses boasting that some AC pipes have lasted 80 years and continue to serve, in my view justifies the contention that stripped to its basics, the Authority's policy is one of 'run to failure'.
- 65 The GHD report is not a statute. It is not a regulation or even a policy that is given some form of statutory force in the way that State and Local Planning Policies are given statutory standing and force under the *Planning and Environment Act 1987*. It is merely a policy that the Authority says it has adopted. It may have some standing under section 83(c) of the *Wrongs Act*.
- 66 Having said that, I am not persuaded that what has occurred here represents a faithful application of the GHD policy. What GHD advocates is a prioritisation in light of two main axes, one being 'condition/remaining life' and the other being 'criticality'. The GHD report under the heading (a) Condition/Remaining Life says 'The most critical aspect when determining the remaining life of an asset is its condition'. It continued, 'The most appropriate way of determining the condition of pressure pipelines is by examining their failure history. This can be supplemented by testing and sampling of pipes where failures occur.' It is not clear to me that the concept of failure is limited in the way that the Authority has limited it to what it regards as major failure. Be that as it may, there has been no attempt by the Authority to supplement a consideration of the assets failure history 'by testing and sampling of pipes where failures occur'. Rather, the policy is simply to remove the failed sections to a landfill site. What seems to have been the key consideration in a decision apparently made in 2008 not to affect a replacement following a major failure in that year, but in

2010 to affect a replacement following a further major failure is, on the evidence of Mr Girdwood, what is described in the GHD report as B6 criticality – Damages. What I understand the GHD system to be seeking to import in this and in the other ‘criticality’ sections of the analysis, is not a consideration of the history of the asset - this is already allowed for in Part A, a consideration of likely remaining life - but rather, the consequences of failure should it occur. The Authority, rather than seeking to assess risk prospectively, gives effect to it only after the event. The table in the GHD report in the B6 section, under the heading ‘Ultimate Ranking System’ refers, not to the cost of damages after the event, but rather, to how dangerous particular locations might be should a burst occur. So, for instance, a risk would be in Class 4 under this table if the relevant water main were ‘under or close to buildings in CBD, >150mm’. Just how this table would apply to the old AC main under Stradbroke Avenue is perhaps open to doubt. It clearly represents a greater risk of third party damage than either Classes 1 or 2 and does not fit those classes in any event. Since the main in question is greater than 200mm it cannot fit under Class 3. It does not appear apt to go in Class 4 because it is not in a CBD location and Stradbroke Avenue would probably not be classed as a major road. In any event the main was not larger than 300mm. The main does not fit under Class 5 either.

- 67 The case put by the Authority seems to be, as I understood Mr Black’s submissions, that there had been other failures in the past which had not led to any damage with the stormwater system simply carrying the relevant water away without any property damage being done. The fact that this did not happen in the present instance was not explained away on any basis such as that the stormwater system had become blocked, someone had parked a major vehicle or piece of machinery or other impediment which blocked the escape of surface water etc. In the absence of any such indication, the obvious inference is that the water gathered as it did because of the ordinary topographical features of Stradbroke Avenue. Presumably, No. 72 was at that time, and maybe still is, at a particular low point and is therefore more vulnerable than other locations where a burst occurs immediately at its frontage. If that is the correct interpretation then there can be no suggestion that what happened was not reasonably foreseeable. Certainly, the knowledge that AC water mains, particularly the larger ones, have a tendency to burst toward the end of their life is foreseeable, and the topography of No. 72 and the place where the burst occurred leads to the consequences which in fact occurred by the simple operation of the laws of physics and gravity.
- 68 In its approach and in the manner in which it has chosen to use the GHD report, whatever that report’s inherent merits might or might not be, in my view, the Authority has given undue weight to a consideration of putting off replacement of ageing water main sections as late as possible without giving proper counterweight to the consequences of incidents such as the

present. Property owners like the Quigleys are left to bear the risk of the consequences of the bursts or cracks which the Authority's approach requires to occur before a main is replaced. There is, in my view, an element of artificiality in treating the 1997 failure of this section of main as irrelevant simply because it occurred slightly over 10 years prior to the 2009 incident. Moreover, I am far from satisfied that the other incidents do not meet the definition of 'failure' as they entailed leaks in the system which required it to be taken off line for a number of customers for lengthy periods.

- 69 Moreover, particularly in the context of reverse onus, the submission on behalf of the Authority that I should regard this water main as having 'a clean bill of health' up to 1996 is quite unjustified. There is no evidence on this point.
- 70 Balancing the relevant circumstances and the considerations referred to in the *Water Act*, I believe that the Authority has not discharged the onus of proving that this flow of water from the burst of its water main did not occur as a result of negligent conduct on its part.
- 71 For reasons already given I regard section 84 of the *Wrongs Act* as inapplicable. I make the finding that I have as to negligent conduct in light of the considerations referred to in paragraphs (a), (b) and (c) of section 83 of the *Wrongs Act*. This Authority on the evidence is in a far less robust financial condition than South East Water Limited in the *Transpacific* case was proven to be. Nevertheless, its resources proved sufficient to effect a full replacement of the problematic section of water main in 2010. The requirement of consent to increase charges is not to be regarded as an absolute bar to the raising of extra revenue if such were required to enable the Authority to adopt a somewhat more proactive approach to the issue of AC water mains in its system than the present regime which I consider is properly characterised as 'run to failure'.

RELIEF

- 72 I will direct the parties to bring in short minutes to give effect to these reasons.
- 73 I have heard no submissions on the question of costs and so I will reserve that question.