Board of Inquiry into the McCrae landslide Report

September 2025

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Report

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The Board of Inquiry into the McCrae landslide acknowledges Aboriginal and Torres Strait Islander people as the first peoples and Traditional Owners and custodians of the land and waterways on which we live. We honour and pay our respects to Elders past and present.

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Her Excellency Professor the Honourable Margaret Gardner AC
Governor of Victoria
Government House
Melbourne VIC 3000

9 September 2025

Your Excellency

In accordance with the Terms of Reference contained in the Order in Council made on 18 March 2025, and amended on 12 June 2025, it is my honour to present the report of the Board of Inquiry into the McCrae landslide.

This report details my findings and recommendations based on the information and evidence provided to the Board of Inquiry. These focus on the cause of the landslides in McCrae earlier this year, the actions of various parties, and the steps that should be taken to mitigate the risk of future landslides.

I acknowledge the ongoing stress and uncertainty experienced by affected residents, and I sincerely hope that those who remain displaced from their homes will be able to return very soon.

Yours sincerely

Renée Enbom KC
Chair
Board of Inquiry into the McCrae landslide

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Introduction

On 18 March 2025, the Board of Inquiry was established to inquire into, report on, and make recommendations in relation to, amongst other things, the cause of the landslide that occurred on 14 January 2025 in McCrae on the Mornington Peninsula (**McCrae Landslide**), the adequacy of measures taken to prevent and minimise landslides in McCrae, and measures to be taken for the prevention or mitigation of the risk of similar landslide events occurring again in McCrae.

The McCrae Landslide occurred on the escarpment of 6 and 10–12 View Point Road in McCrae on the morning of 14 January 2025. The landslide has had a profound impact on the McCrae community. It destroyed Kellie and Nicholas (Nick) Moran's house which once stood at 3 Penny Lane. It has upended the lives of many residents who were evacuated and have since been displaced.

The impact the McCrae Landslide has had on residents extends well beyond property damage. The psychological and emotional toll for members of the McCrae community has been, and continues to be, significant.

The McCrae Landslide was not an isolated landslide event. It was preceded by a smaller landslide nine days earlier, on 5 January 2025, which damaged the back of 3 Penny Lane. Remarkably, a little more than two years earlier, two landslides occurred in quick succession in November 2022, damaging two properties. Those landslides also occurred on the escarpment of 10–12 View Point Road, to the west of the site of the McCrae Landslide.

Given the history of landslides in McCrae, and the impact on the community, it was time to find the answers to the important and unanswered questions being asked by the community.

Within a short time of the Board of Inquiry commencing work, it was ascertained that it would be necessary to engage an expert geotechnical engineer to opine on the cause of the McCrae Landslide because no other expert had yet provided an opinion. Preeminent geotechnical engineer, Darren Paul, was then engaged.

Determining the cause of a landslide is often complex. They can be caused by the interaction of multiple factors – some of which are natural, some of which are anthropogenic (that is, caused by human activity). Complexities reside in disentangling these causal factors and weighing their relative contributions.

Notwithstanding those complexities, a simple point ultimately emerged: the November 2022 landslides, the 5 January 2025 landslide, and the McCrae Landslide share a common causal factor–water.

The Board of Inquiry has found that the McCrae Landslide and the earlier landslide of 5 January 2025 were caused by water that leaked from a burst water main owned by South East Water (**SEW**). That burst water main was located approximately 450 metres south of 3 Penny Lane, near the corner of Bayview Road and Outlook Road. The burst water main had leaked for several months prior to its repair over New Year's Eve, releasing about 40.3 million litres of water during the period it was undetected – the equivalent of about 16 Olympic-sized swimming pools.

In the months leading up to the McCrae Landslide, residents knew that something was not right. Water from an unknown source was observed on the streets uphill of 3 Penny Lane throughout November and December 2024. The water roared in the stormwater drainage system. It bubbled up through the roads. It pushed up and cracked the bitumen. It created potholes. It flowed down the streets. It saturated and seeped from the nature strips.

Throughout November and December 2024, residents of McCrae raised their concerns about the water with both the Mornington Peninsula Shire Council (**Shire**) and SEW. The complaints were numerous.

For many weeks, no one knew the source of the water – not the residents, the Shire nor SEW. The water was thought to be related to potential issues with stormwater drainage, road drainage or SEW's water mains. The Shire and SEW treated the water issues with varying degrees of priority.

While the Shire and SEW took steps in response to those water issues, none were effective in preventing the water from flowing towards the escarpment on which the McCrae Landslide occurred. While each organisation invested resources and time, they operated in siloes, missing valuable opportunities for collaboration and co-ordination.

The Board of Inquiry has sought to understand why the Shire and SEW acted as they did in the lead up to the McCrae Landslide. Some reasons stand out.

First, neither the Shire nor SEW knew at the relevant time that the water surfacing on the streets of McCrae throughout November and December 2024 was caused by the burst water main. The burst was only discovered on 30 December 2024 and repaired in the early hours of New Year's Day. The burst was not easy to find.

Second, neither appreciated the seriousness of excess water accumulating in an area adjacent to a steep escarpment with high susceptibility to landslides. As a result, they did not respond with the urgency, nor view the situation through the appropriate lens that the situation demanded.

Third, neither prioritised the management and mitigation of landslide risk in McCrae. The Shire had not shared with SEW information regarding landslide risk in the McCrae area.

In view of all the information before the Board of Inquiry, it became apparent that landslide risk was, and is, largely forgotten. Landslide risk does not feature in the State Emergency Management Plan (**SEMP**). It does not feature in the Southern Metro Regional Emergency Management Plan, which is applicable to McCrae. It does not feature as a significant risk in the Mornington Peninsula Shire Municipal Emergency Plan. It does not feature in the Shire's Asset Management Strategy and Stormwater Asset Management Plan. It does not feature in SEW's reactive processes and procedures for detecting leaks. This must change.

One of the chief lessons the Shire, SEW, and similarly placed organisations, must take away from the work of this Board of Inquiry is that landslide risk cannot be ignored. The consequences can be devastating. Although the McCrae Landslide resulted in no fatalities, one person was seriously injured, and several others narrowly escaped harm.

History should not repeat itself in McCrae. The Shire and SEW must change their approach to managing and mitigating landslide risk in areas of high landslide susceptibility. In determining how to move forward, each organisation must look to the past to understand what has happened, why it happened, and what could have been done differently.

Meaningful progress has been made by both the Shire and SEW in advancing reform. Both organisations are reviewing their current practices and looking for ways to change and incorporate the lessons learnt from the McCrae Landslide. One of the most significant changes is that the Shire is planning a strategic assessment of landslide risk patterns across the full escarpment area and updating its asset management strategies and processes to account for landslide risk. Similarly, SEW has recognised landslide risk in its Strategic Asset Management Plan and is in the process of mapping areas potentially susceptible to landslides to guide its approach to asset management and risk control measures, including decisions regarding asset renewal in those areas.

That said, the path forward will not be without its challenges. The solutions to prevent or mitigate the risk of a further landslide in McCrae will take time and energy to implement.

In order to mitigate the risk of further landslides at the site of the McCrae Landslide, substantial works need to be carried out, involving, for example, the use of engineered rockfill. The cost of such works will not be insignificant, nor will the time required to complete them.

In order to mitigate the risk of further landslides in McCrae generally, several risk reduction measures have been recommended. These include the introduction of an Erosion Management Overlay (**EMO**) – a planning tool designed to address landslide risk – over parts of McCrae that are known to be highly susceptible to landslides; assessing water infrastructure; improving a range of processes; amending emergency management plans; and educating the community. The recommendations will require sustained effort over several years.

Some reforms will also need to occur on a broader scale, including at state level, so that systemwide improvements can be implemented to address landslide risk.

To recognise those challenges is not to ignore that the residents of McCrae have already endured too much stress and uncertainty. Steps need to be taken promptly so that those who have not returned home as a result of the November 2022 landslides and the McCrae Landslide are able to do so soon and safely. Equally, steps need to be taken so that residents who have since returned to their homes feel safe – that is something they both need and deserve. A mechanism has been recommended to assist all relevant parties to progress the mitigation and remediation works required at the site of the 2022 and 2025 landslides. The hope is that this will result in residents returning home sooner and the Shire and SEW being able to turn their focus to broader landslide risk mitigation activities required in McCrae.

Terms of Reference

The Terms of Reference raise a number of questions. Those questions and the Board of Inquiry's answers are:

Q: What was the cause of the McCrae Landslide?

A: Water from a burst water main owned by SEW and located near the corner of Bayview Road and Outlook Road.

Q: Were actions or decisions taken before the McCrae Landslide to prevent or mitigate landslides? If so, were they adequate?

A: Yes, limited actions were taken.

In particular, at some point between 2012 and 2019, the Shire adopted an informal practice of imposing additional planning requirements on properties that were mapped by geotechnical experts as falling within high landslide susceptibility areas. The practice was intended to protect areas prone to landslide, by minimising land disturbance and inappropriate development. This measure, however, was not an adequate substitute for imposing an EMO over those areas.

Q: Were actions, decisions or omissions made that may have contributed to causing the McCrae Landslide?

A: Yes.

Two omissions stand out.

SEW's delay in locating the burst water main *may* have contributed to the McCrae Landslide.

The burst water main was located nearly *five months* after it first started leaking, *two months* after residents first noticed water rushing along and surfacing on streets uphill of Penny Lane, and *six days* before the 5 January 2025 landslide.

The Board of Inquiry is, however, unable to determine whether delay contributed to the McCrae Landslide given that this was not the subject of expert evidence. Of course, had the leak been identified and repaired very shortly after it began, the McCrae Landslide would not have occurred. However, the evidence does not establish the critical threshold or timing at which intervention would have averted the event.

Further, that the Shire and SEW did not take steps after the 5 January 2025 landslide to try to intercept the subsurface water flow upslope of the landslide site, and direct it away from the site, *may* have contributed to the McCrae Landslide.

The Board of Inquiry is, however, unable to make a positive finding on this matter as the experts were unable to opine whether taking such steps would have sufficiently lessened the likelihood of the McCrae Landslide occurring.

Q: Were risk assessments undertaken to determine the likelihood and severity of landslides in McCrae before the McCrae Landslide? If so, were they adequate?

A: Yes.

Significantly, in 2012, the Shire received a geotechnical report which classified the McCrae escarpment in the vicinity of 10–12 View Point Road, as well as other areas in the Mornington Peninsula, as exhibiting high landslide susceptibility.

The assessment in and of itself was adequate as a guide to expected landslide susceptibility. What was inadequate was the Shire's use of the assessment. The Shire did not commence updating its EMO schedules to incorporate areas identified in the report as having high landslide susceptibility.

Q: Were there any barriers to the implementation of measures to prevent or mitigate landslides in McCrae that existed before the McCrae Landslide occurred?

A: Yes.

There are regulatory barriers. Notably, there are limitations on the ability of current statewide planning policy and tools to manage landslide risk. Further, the regulatory framework relevant to how local councils and landowners manage landslide risk on private land is limited.

Q: What is the regulatory framework in relation to the prevention and management of landslides in Victoria?

A: The regulatory framework is fragmented. Various statutes directly or indirectly support the prevention and management of landslides, including the *Planning and Environment Act 1987* (Vic), *Building Act 1993* (Vic), *Building Regulations 2018* (Vic), and the *Emergency Management Act 2013* (Vic).

Q: What measures could be taken for the prevention or mitigation of the risk of a similar landslide event to the McCrae Landslide occurring in the future in McCrae?

A: A range of measures are available, and they need to be implemented by multiple organisations and agencies. The measures include imposing an EMO on parts of McCrae that are known to be at high risk of a landslide; managing water infrastructure; improving processes and procedures; developing comprehensive plans for responding to landslide events; and educating the community.

The structure of this Report

The Board of Inquiry's Report comprises eight chapters:

a. **Chapter 1: The Process of the Board of Inquiry** outlines the establishment of the Board of Inquiry, sets out the manner in which it carried out its work, and acknowledges those who provided invaluable support to it.

b. **Chapter 2: Overview of McCrae** describes key features of the suburb of McCrae including its geology and topography.

c. **Chapter 3: What happened in McCrae?** places the McCrae Landslide in context by recounting historical landslide events in McCrae, before describing the circumstances leading up to and following the November 2022 landslides, the 5 January 2025 landslide, and ultimately, the McCrae Landslide.

d. **Chapter 4: What caused the landslides?** describes the factors that caused the November 2022 landslides, the 5 January 2025 landslide, and ultimately, the McCrae Landslide.

e. **Chapter 5: Mitigation measures** describes the various proposals for mitigating the risk of further landslides at the site of the McCrae Landslide as well as the broader McCrae area.

f. **Chapter 6: Conduct of the Mornington Peninsula Shire Council and South East Water** assesses the conduct of the Shire and SEW in the lead up to the McCrae Landslide. It includes the Board of Inquiry's recommendations for those organisations to manage and mitigate landslide risk in the future in light of key learnings from the McCrae Landslide.

g. **Chapter 7: Lessons we could have learnt from other landslides** describes recurring issues identified in the context of significant historical landslides in Victoria, Australia and elsewhere. It highlights lessons learnt and opportunities for reform to reduce landslide risk.

h. **Chapter 8: Improving landslide management** describes the regulatory framework in relation to the prevention and management of landslides in Victoria and recommends improvements.

i. The Report's **Appendices** bring together a range of documents designed to assist and inform readers.

Recommendations

Recommendation 1: Appointment of a mediator

The Board of Inquiry recommends a Victorian Government Minister appoint an experienced mediator to engage in a structured process with the Shire, SEW, affected landowners and any other necessary parties, with a view to reaching agreement in relation to appropriate landslide mitigation and remediation works at and around the site of the McCrae Landslide.

Recommendation 2: Participation in the mediation process

The Board of Inquiry recommends the Shire and SEW appoint or engage a suitably experienced individual to lead and oversee their participation in the mediation process (Recommendation 1), with a view to bringing a fresh and pragmatic perspective to the issues.

Recommendation 3: Trench stops and carrier pipes

The Board of Inquiry recommends the Shire and SEW obtain expert advice about the use of trench stops and carrier pipes in parts of McCrae to mitigate the risk of landslides, including the use of such measures in more remote locations where water leaks may be less readily detected.

Recommendation 4: Assessment of infrastructure

The Board of Inquiry recommends the Shire and SEW thoroughly assess their water infrastructure in McCrae to identify any need for repair or replacement works to mitigate landslide risk. SEW should also adopt this measure in relation to its sewer system.

Recommendation 5: Shire's McCrae Landslide Incident Group

The Board of Inquiry recommends the Chief Executive Officer of the Shire review and improve the approach that has been and is being taken by the Shire's McCrae Landslide Incident Group, with the assistance of a suitably experienced external independent consultant.

Recommendation 6: EMO

The Board of Inquiry recommends the Shire progress the work that is currently underway to amend the existing EMO schedules, or add a new schedule, to the Mornington Peninsula Planning Scheme, which has the effect of applying an EMO to at least those areas of the Shire that are highly susceptible to landslides. The Shire should take advice from a geotechnical engineer as to the appropriate scope of the schedule(s).

Recommendation 7: Process for responding to landslide incidents

The Board of Inquiry recommends the Shire review and improve its processes for responding to landslide incidents with a view to including, amongst other things:

a. protocols for timely information sharing with relevant entities, agencies and individuals; and

b. mechanisms for urgent steps to be taken to mitigate the risk of a subsequent landslide, such as contacting the VicSES when there is a threat of a subsequent landslide, and using equipment on Shire or private land (with permission) to try to divert hazardous water flow.

Recommendation 8: Process for responding to water incidents

The Board of Inquiry recommends the Shire review and improve its processes for responding to incidents of water upwelling in and around areas highly susceptible to landslides.

Recommendation 9: Landslide risk assessment and mitigation project

The Board of Inquiry recommends the Shire progress the work that is planned or currently underway to assess and mitigate landslide risk in McCrae, including undertaking a strategic assessment of landslide risk patterns across the full escarpment area and updating its asset management strategies and processes to account for landslide risk.

To the extent not already incorporated, the project should include:

a. obtaining external expert advice about any necessary modifications to the Shire's stormwater system in McCrae;

b. obtaining external expert advice about the presence and management of excess water around 6 and 10–12 View Point Road and Penny Lane, McCrae; and

c. consideration of the additional mitigation matters identified in section 9.3 of the PSM Landslide Risk Assessment dated 28 May 2025.

Recommendation 10: SEW's McCrae Strategy Group

The Board of Inquiry recommends the new Managing Director of SEW review and improve the approach that has been and is being taken by SEW's McCrae Strategy Group, with the assistance of a suitably experienced external independent consultant.

Recommendation 11: Calibration of SEW alarms

The Board of Inquiry recommends SEW progress its work on calibrating its alarms in areas susceptible to landslides to drive effective and timely leak investigations.

Recommendation 12: Real-time flow balancing

The Board of Inquiry recommends SEW progress its work on developing flow balancing algorithms required for real-time flow balancing, with the objective of enhancing its ability to detect potential water leaks in a timely manner, especially in areas susceptible to landslides.

Recommendation 13: Documentation of leak detection processes and procedures

The Board of Inquiry recommends SEW clearly document its leak detection processes and procedures to:

a. outline training requirements to ensure employees and contractors apply procedures consistently;

b. set out the systematic steps that employees and contractors must take when investigating unknown sources of water;

c. provide guidance on the interpretation of field test results;

d. require employees and contractors, in more complex cases, to assess whether the unknown water may be originating from a SEW asset located uphill or at a more distant location;

e. set out roles, responsibilities, and escalation pathways for decision-making; and

f. include provisions for periodic review and updating of the processes and procedures to account for any lessons learnt, new technology, or changes in risk profile.

Recommendation 14: Adapting leak detection practices and processes

The Board of Inquiry recommends SEW review its leak detection practices and processes to ensure they are appropriately adapted to address the heightened risk of excess water accumulating or surfacing in areas susceptible to landslides.

Recommendation 15: Interpreting on-site electrical conductivity readings

The Board of Inquiry recommends SEW ensure that on-site electrical conductivity readings outside mains water range are not taken as conclusive evidence that leaking water has not originated from its assets. Appropriate processes and procedures should be developed to account for the possibility that the water may have travelled through the ground and changed in its chemical composition.

Recommendation 16: Identifying clusters of complaints

The Board of Inquiry recommends SEW progress its work to develop systems and processes capable of identifying the potential relationship between clusters of complaints in relation to potential water leaks, particularly in areas that are susceptible to landslides.

Recommendation 17: The SEMP and the landslide sub-plan to the SEMP

The Board of Inquiry recommends the Victoria State Emergency Service (the **VicSES**) progress the development of a landslide sub-plan to the SEMP.

In this context, it is also recommended the Emergency Management Commissioner consider consequential amendments to the SEMP, including making water corporations and local councils participating agencies for landslide mitigation activities, such activities should include the:

a. identification of landslide risk;

b. development of operational and maintenance plans and processes for water assets; and

c. sharing of information between water corporations and local councils to assist in the identification of landslide risk and the management of water assets.

Recommendation 18: Landslide training and education programs

The Board of Inquiry recommends Emergency Management Victoria, the VicSES, and the Inspector-General for Emergency Management update existing training and education programs to incorporate and reflect the development of the landslide sub-plan and any related amendments made to the SEMP.

Recommendation 19: Emergency management plans

The Board of Inquiry recommends Victorian regional and municipal emergency management planning committees, including the Southern Metropolitan and Mornington Peninsula Committees, review their emergency management plans to ensure that landslide risk management is appropriately addressed. This includes reviewing and updating previous risk assessments, and where landslide risk is identified, water corporations should be represented on the committee.

Recommendation 20: Addressing data gaps on landslide risk

The Board of Inquiry recommends the Victorian Government develop and implement a project that addresses data gaps on landslide risk. As part of the project, the Victorian Government should explore options for how landslide risk data can be shared and made broadly accessible, including by those living in areas with landslide risk for use in mitigating and managing the risk.

Consideration should be given to all options, including:

a. the creation of an online data resource;

b. engaging with Geoscience Australia to explore opportunities, such as a partnership, aimed at resuming online data collection of Victorian landslides which was ceased in 2018;

c. the provision of technical or financial assistance to local government authorities where necessary; and

d. statewide mapping of landslide susceptibility, in coordination with relevant government departments.

Recommendation 21: Shire landslide training and guidelines

The Board of Inquiry recommends the Shire arrange appropriate training and develop guidelines for relevant staff about local landslide risk, mitigation and management.

Recommendation 22: Community information events

The Board of Inquiry recommends the Shire arrange appropriate community information events to educate residents, business owners and service providers about local landslide risk, mitigation and management in order to support them in identifying and reducing risks on their land.

Recommendation 23: Early identification of landslide risk

The Board of Inquiry recommends the Victorian Government, local councils and relevant stakeholders work together to identify pathways for early identification of landslide risk and ensure escalation processes and procedures are well understood. This is a matter which may be most appropriately addressed as part of the development of the landslide sub-plan to the SEMP.

Recommendation 24: Emergency management planning committee debriefing

The Board of Inquiry recommends municipal emergency management planning committees review their procedures to ensure that, following landslide incidents there is appropriate debriefing which includes actively considering opportunities to improve mitigation, planning and preparedness measures.

Recommendation 25: Obtaining insights and expanding other programs

The Board of Inquiry recommends the Victorian Government consider how insights from the Victorian Coastal Monitoring Program could be applied to landslides and explore options to expand or build on the program, including by monitoring areas identified as being highly susceptible to landslides.

Recommendation 26: Strengthening the land use planning system

The Board of Inquiry recommends the Victorian Government review and strengthen the management of landslide risk within the land use planning system to ensure Victorians can have confidence that areas at risk of landslide are subject to proportionate, timely and consistent planning controls.

Consideration should be given to:

a. developing consistent principles for the application of planning overlays, including threshold requirements such as slope gradient;

b. identifying consistent tolerable levels of residual risk to the community;

c. the appropriateness of continuing to combine landslide risk and coastal erosion within a single overlay;

d. building internal geotechnical engineering expertise in the Department of Transport and Planning to support appropriate technical review and applications to amend planning schemes;

e. providing technical and financial support when appropriate to municipal councils to support the identification of landslide risk for the purpose of planning scheme amendments;

f. developing planning practice notes and guidance;

g. incorporating the Australian guidelines for landslide developed by the Australian Geomechanics Society;

h. providing planning authorities with best practice guidance on how to consider cross-cutting hazards such as bushfire and landslide; and

i. requiring more frequent reviews of hazard-related planning controls such as overlays, to ensure they reflect changing environmental impacts.

Recommendation 27: Interim EMO

The Board of Inquiry recommends the Shire urgently implement an interim EMO schedule that applies, at a minimum, to the land that was identified as highly susceptible to landslides in the 2012 mapping obtained by the Shire. The Shire should promptly obtain advice from geotechnical engineers about the appropriateness of including a wider area on an interim basis.

Recommendation 28: Progressing the interim EMO

The Board of Inquiry recommends the Victorian Minister for Planning ensure that the Shire's application for an interim EMO schedule (Recommendation 27) proceeds expeditiously, including by constituting herself to act as the planning authority if deemed appropriate and necessary to achieve this outcome.

Recommendation 29: Landslide mitigation roles and responsibilities

The Board of Inquiry recommends the Victorian Government develop guidance materials clarifying the roles and responsibilities of local councils, municipal building surveyors and residents in respect of landslide mitigation works following landslides and more generally.

Recommendation 30: Management of landslide risk on private land

The Board of Inquiry recommends the Victorian Government consider the current regulatory environment for how local government and private landowners manage risks on and from private land susceptible to landslides, both to the wider community and the environment.

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Part A

CHAPTER 1

The Process of the Board of Inquiry

01

1.1 Work of the Board of Inquiry

> We need to get to the bottom of what has happened here because too many people have been let down and too many questions remain unanswered.
>
> The Hon Jacinta Allan MP, Premier.[1]
>
> An independent inquiry will ensure local residents' voices are heard and help us do everything we can to ensure it doesn't happen again.
>
> The Hon Nick Staikos MP, Minister for Local Government.[2]

1 On 4 February 2025, the Premier of Victoria, the Hon Jacinta Allan MP and the Minister for Local Government, the Hon Nick Staikos MP, announced that a Board of Inquiry would be established to investigate the McCrae Landslide.

2 On 18 March 2025, I was appointed Chairperson of the Board of Inquiry by the Governor in Council, on the recommendation of the Premier, pursuant to s 53(1) of the *Inquiries Act 2014* (Vic) (***Inquiries Act***).

3 On 3 April 2025, I issued a Practice Direction informing interested parties of the process for making applications for leave to appear at public hearings.[3] I issued a further five Practice Directions addressing other procedural matters.[4] The Practice Directions were made available on the Board of Inquiry's website.

4 On 9 April 2025, I visited McCrae to see the site of the 2022 and 2025 landslides and to meet the community. A community session was held that day at the Dromana Community Hall. The session was well attended. Later in the day, I attended an information session with the McCrae Evacuees Response Group (**MERG**) at the McCrae Yacht Club. I returned to McCrae on 4 July 2025, to again meet with MERG to provide a broad update about the process of the Board of Inquiry and to answer questions.

5 The first public hearing was held on 7 May 2025. At the beginning of the hearing, I emphasised the need for findings to be made as quickly as possible given the number of landslides that had occurred in the area and the ongoing impact on residents. I said that while speed was important, the work of the Board of Inquiry also needed to be undertaken with care.

6 Senior Counsel Assisting the Board of Inquiry outlined the work that had been undertaken up to the first hearing and provided an overview of the events being examined. He also identified a number of lines of inquiry in relation to the cause of the McCrae Landslide.

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1 Hon Jacinta Allan MP, Victoria State Government, 'Inquiry into McCrae Landslide to give answers to residents' (Media Release, 4 February 2025).

2 Hon Jacinta Allan MP, Victoria State Government, 'Inquiry into McCrae Landslide to give answers to residents' (Media Release, 4 February 2025).

3 Practice Direction No. 1 General Information.

4 Practice Direction No. 2 Leave to Appear; Practice Direction No. 3 Hearings; Practice Direction No. 4 Production of Documents; Annexure A to Practice Direction No. 4: Document Management Protocol; Practice Direction No. 5 Media Guidelines; Practice Direction No. 6 Witnesses Expenses Policy.

7 The Shire and SEW and the State of Victoria were represented by Counsel at the hearing (and at subsequent hearings) after having been granted leave to appear.

8 Further information about the public hearings held between 7 May 2025 and 18 August 2025 is contained in Appendix D.

9 Those assisting the Board of Inquiry undertook a broad range of activities, including:

a. visiting the site of the 2022 and 2025 landslides;

b. liaising with the McCrae community;

c. interviewing potential witnesses and preparing witness statements;

d. engaging independent experts;

e. reviewing thousands of documents;

f. preparing correspondence and a public notice informing residents and the wider community of the opportunity to make a written submission; and

g. identifying specific organisations and individuals to be invited to make a written submission.

10 Information about the public submissions received by the Board of Inquiry is contained in Appendix G.

11 The Board of Inquiry issued 102 Notices to Produce under the *Inquiries Act* requiring the production of documents or information. These notices were issued to a range of bodies, including the Shire, SEW, Melbourne Water, Southern Rural Water, Detection Services Pty Ltd, Downer Utilities Australia Pty Ltd, the Building Appeals Board, and the Victorian Government (including its departments). In response, the Board of Inquiry received in excess of 25,000 documents. The Board of Inquiry received 51 witness statements.

12 The Board of Inquiry's processes and procedures were informed by considerations of procedural fairness. The Shire and SEW were given an opportunity to respond in writing to adverse findings being considered. They did so. The Shire and SEW were also given an opportunity to provide reports from experts on the cause of the McCrae Landslide, as well as the landslides that occurred in November 2022 and on 5 January 2025, and the works required to mitigate the risk of further landslides. The Shire provided reports on both issues. SEW chose to provide reports on the issue of causation only. The experts engaged by the Board of Inquiry provided reports on both issues.

13 A structured process was put in place for the preparation, exchange, and appraisal of the expert evidence, which involved:

a. the experts having access to each other's testing results during the preparation of their reports;

b. the experts providing their reports to the Board of Inquiry by a set date so that they could properly consider each other's reports before attending a conclave;

c. the experts attending private conclaves to discuss and debate the content of their reports;

d. the experts preparing joint reports identifying both agreed matters and matters remaining in dispute;

e. the experts giving evidence concurrently at the public hearings;

f. all parties with leave being permitted to cross-examine the experts;

g. all parties with leave providing written submissions; and

h. SEW providing further written submissions in reply to the submissions provided by the Shire and the owners of 10–12 View Point Road, McCrae.

14 Further detail about this process is contained in Appendix E.

1.2 Acknowledgements

15 I wish to acknowledge and thank the many people who provided invaluable support to the work of the Board of Inquiry.

16 I acknowledge the work of Counsel Assisting the Board of Inquiry. Particular mention should be made of the significant, broad ranging and invaluable assistance provided by Angela Kittikhoun of Counsel.

17 Thank you to the team of solicitors at Wotton Kearney who worked tirelessly throughout the Board of Inquiry. The whole team brought excellence, commitment and energy to their role. Particular mention should be made of Wotton Kearney Partner, Georgie Austin, who ably led the team. I also acknowledge the significant and invaluable work undertaken throughout the Board of Inquiry by Samantha Saad, Rhyse Collins, Zoe Burchill and Matthew Kenna.

18 The dedication and excellence of Chief Executive Officer, Andrew Campbell, the Policy and Research team, and the Operational team should be acknowledged. Thank you for your skills, expertise and commitment.

19 I acknowledge collectively the assistance of the following additional solicitors, staff and service providers:

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Amber Brodecky
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Operations

Hannah Moore
Dianna Bergen

Service providers

Epiq
WOO Agency

20 There are two final acknowledgements of a different type to be made.

21 I acknowledge the significant work undertaken by Darren Paul, Technical Director - Engineering Geology, together with Stephen Makin, Hydrogeologist, and Hong Phuc Vu, Geochemist/ Geochemical Modeller, of WSP. They were asked by the Board of Inquiry to assist by providing independent expert opinions, and they did so by submitting multiple expert reports, attending private conclaves and attending hearings to give evidence concurrently with experts engaged by the Shire and SEW.

22 Finally, I extend my gratitude to MERG and the broader McCrae community. Thank you for your knowledge, time and dedication to providing information throughout the Board of Inquiry. Whether you were involved in meeting with the Solicitors Assisting, attending hearings as a witness or observer, preparing witness statements, drafting submissions, or providing video and photographic evidence — you have been of tremendous assistance to the work of the Board of Inquiry. I hope this Report results in quick and honest action so that those residents still displaced may return to their homes and other residents may feel safe.

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CHAPTER 2

Overview of McCrae

02

2.1 McCrae

1 The small seaside town of McCrae sits along the Mornington Peninsula in Victoria. It is known for its steep escarpment rising high above Point Nepean Road, which winds along the picturesque coastline of Port Phillip Bay (**McCrae escarpment**). Many homes sit on the plateau across the top of the escarpment and some homes sit at the foot, on Point Nepean Road.

2 Most of McCrae is zoned as a General Residential Zone, encouraging moderate housing growth. The pace of development has grown significantly in the last two decades with private dwellings increasing by 11% from 2011 to 2016,[1] and a further 5% from 2016 to 2021.[2]

3 Between August 2024 and July 2025, the median house price in McCrae was $1.23 million, with the median rent being $690 per week.[3] Similar to other parts of the Mornington Peninsula, McCrae experiences seasonal tourism booms with only 66% of private dwellings being permanently occupied as compared with 89% in the rest of Victoria.[4]

4 Critical infrastructure has been built over the last 20 years, which has significantly shaped the landscape. The dual carriage freeway known as the Peninsula Link (M11) opened in January 2013.[5] The freeway crosses several waterways, with waterflow managed via drainage systems and bridges.

5 Greater density and infrastructure development has impacted levels of vegetation coverage, types of soil fill and natural watercourses. These are all known preparatory factors for landslides.[6]

6 The map at Figure 2.1 provides an overview of McCrae. The inset map identifies the properties where the landslides in 2022 and 2025 occurred as well as surrounding properties. It is intended to be a visual aid for subsequent chapters of this Report which discuss those properties.

1 Australian Bureau of Statistics, *McCrae 2021 Census All persons QuickStats* (Web Page, 2021) <https://abs.gov.au/census/find-census-data/quickstats/2011/SSC20857>; Australian Bureau of Statistics, *McCrae 2016 Census All persons Quickstats* (Web Page, 2016) <https://abs.gov.au/census/find-census-data/quickstats/2016/SSC21614>.

2 Australian Bureau of Statistics, *McCrae 2011 Census All persons QuickStats* (Web Page, 2011) <https://abs.gov.au/census/find-census-data/quickstats/2011/SSC20857McCrae>; Australian Bureau of Statistics, *McCrae 2016 Census All persons Quickstats* (Web Page, 2016) <https://abs.gov.au/census/find-census-data/quickstats/2016/SSC21614>; Australian Bureau of Statistics, *McCrae 2021 Census All persons QuickStats* (Web Page, 2021) <https://abs.gov.au/census/find-census-data/quickstats/2021/SAL21625>.

3 PropTrack by REA Group, *McCrae House Price Guide* (Web Page, 2024-2025) <https://www.realestate.com.au/vic/mccrae-3938/>.

4 Australian Bureau of Statistics, *McCrae 2021 Census All persons QuickStats* (Web Page, 2021) <https://abs.gov.au/census/find-census-data/quickstats/2021/SAL21625>.

5 Mike Hast, 'Peninsula Link finally up and running', *Mornington Peninsula News* (online, 22 January 2013) <https://www.mpnews.com.au/2013/01/22/peninsula-link-finally-up-and-running/>.

6 Public Hearing Transcript, Darren Paul, 7 May 2025, 42–44.

DEMOGRAPHIC OVERVIEW OF MCCRAE



3,311 people



Median age **55**



Average **2.3** people per household



2,134 private dwellings



66% dwellings occupied



17.3% population increase between 2016 and 2021

FIGURE 2.1: AN OVERVIEW OF MCCRAE INCLUDING THE SELWYN FAULT LINE AND WATER COURSES. INSET MAP SHOWS THE LANDSLIDE-AFFECTED AREA AT VIEW POINT ROAD AND PENNY LANE.[7]

On foldout →

2.2 Geology, topography and climate

7 McCrae's coastal escarpment rises 32 metres above the low coastal plains and sand dunes along Point Nepean Road.[8] The slope has developed over many years as a result of tectonic activity along the Selwyn Fault,[9] which runs through the Mornington Peninsula and continues north of Frankston.[10] The fault remains active with the most notable recent activity being a 2.4 magnitude earthquake on 6 June 2023.[11]

8 Over the last 100 years, ground conditions in the area have also been modified by natural marine and fluvial erosion, and human activity.[12] At the base of the escarpment, where dwellings are located, the area is composed of quaternary raised coastal deposits, comprising siliceous and calcareous sand, shell beds, and guano (mud islands).[13] The area is also home to many waterways and gullies cascading down the escarpment, some of which have been buried over time with urban development, as shown at Figure 2.1.

9 The Mornington Peninsula area experiences lower average temperatures and above average rainfall compared to the broader Southern Metropolitan Region. The area has significant seasonal variability ranging from 127.9 millimetres mean rainfall in spring, to 914.3 millimetres in autumn.[14] The annual mean rain days (> 5 millimetres) is 52.2, slightly above the regional average.[15]

7 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0032, _0037].

8 Exhibit CA-72, Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0008].

9 Public Hearing Transcript, Darren Paul, 7 May 2025, 39.

10 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4459].

11 Paul Somerville, 'Perspective on the Melbourne Earthquakes of Late May and Early June 2023', *Risk Frontiers: Insights* (Briefing Note, 7 June 2023) <https://riskfrontiers.com/insights/perspective-melbourne-earthquakes-late-may-early-june-2023/>.

12 Exhibit CA-77, Revised McCrae Landslide Risk Assessment for Evacuation Area prepared by PSM, 28 May 2025, [MSC.5056.0001.0003 at .0010].

13 Exhibit CA-1(1), Opening Presentation of Senior Counsel Assisting, 7 May 2025, [INQ.0005.0001.0001 at _0004].

14 These averages draw on 30-year averages from 1961 to 1990. See Department of Justice and Community Safety: Victorian Government, *Environmental Scan Report – Southern Metro Region* (Report, 14 September 2020) 11.

15 Department of Justice and Community Safety: Victorian Government, *Environmental Scan Report – Southern Metro Region* (Report, 14 September 2020) 16.

FIGURE 2.1: AN OVERVIEW OF MCCRAE INCLUDING THE SELWYN FAULT LINE AND WATER COURSES. INSET MAP SHOWS THE LANDSLIDE-AFFECTED AREA AT VIEW POINT ROAD AND PENNY LANE.





10 The Bureau of Meteorology expects that in the future, climate change will lead to fewer days with rain, but higher intensity rain events.[16] Short-duration extreme rainfall events, often associated with flash flooding and landslides, pose heightened risks to communities. Hourly extreme rainfall is expected to increase by approximately 15% per degree of warming.[17] While such projected climate change is not unique to McCrae, it raises complex challenges for future planning and preparedness in a landslide-prone area such as McCrae.

2.3 Land use planning and hazard risk

11 The geography of McCrae and the Mornington Peninsula brings exposure to a range of natural and man-made hazards, varying from floods and bushfires to disruption to essential services. Development has, and continues to be, subject to a range of planning controls to minimise risk exposure as well as avoiding the creation of new risks through development. Many of these planning controls are also used as data points to inform broader decisions around service provision and emergency preparedness.

12 In addition to planning zones, there are a range of zoning overlays across the area, developed to address hazard risks to residents and the built environment. These overlays will be referred to throughout this Report. Whilst not exhaustive, the following overlays are the most relevant for the purposes of the Board of Inquiry: erosion management, bushfire management, and vegetation protection. Flood risk is managed through the designation of land liable to flooding.[18]

16 Bureau of Meteorology, State of the Climate 2024: Australia's changing climate (Web Page, 2024) <http://www.bom.gov.au/state-of-the-climate/australias-changing-climate.shtml>.

17 Bureau of Meteorology, *State of the Climate 2024: Australia's changing climate* (Web Page, 2024) <http://www.bom.gov.au/state-of-the-climate/australias-changing-climate.shtml>.

18 *Building Regulations 2018* (Vic) reg 153.

FIGURE 2.2: PLANNING OVERLAYS,[19] AND DESIGNATED RISK AREAS IN MCCRAE.[20]



Erosion Management Overlay



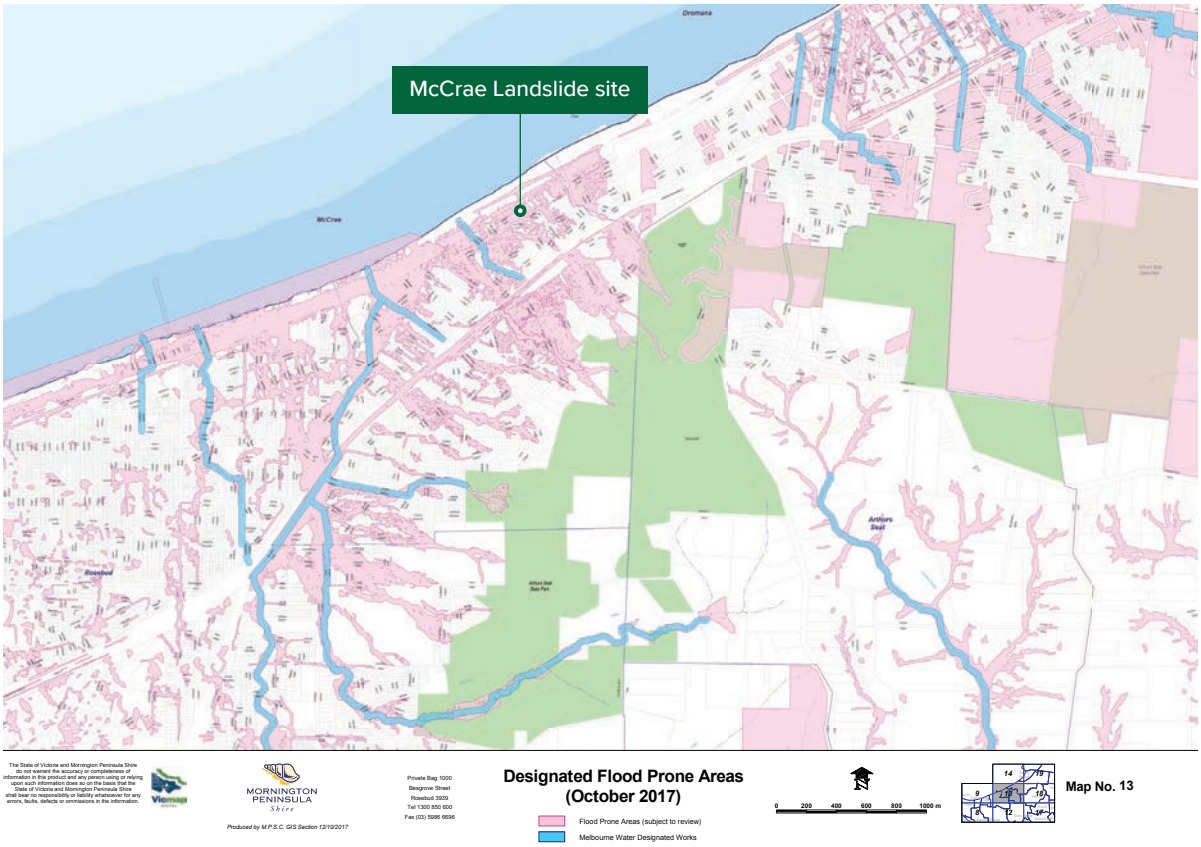
Bushfire Management Overlay

19 Department of Transport and Planning: Victorian Government, *VicPlan* (Web Page, 2025) <https://mapshare.vic.gov.au/vicplan/>.

20 Mornington Peninsula Shire Council, *Designated Flood Prone Areas (October 2017)* (Web Page, 12 October 2017) <https://www.mornpen.vic.gov.au/files/assets/public/v/3/new-website-documents/building-amp-planning/building/docs/a2-building-flood-prone_13.pdf>.



Vegetation Protection Overlay



Designated Flood Prone Areas

CHAPTER 3

What happened in McCrae?

03

3.1 Previous landslide events in McCrae

1 The McCrae Landslide is not the first time that a landslide in McCrae has destroyed a home.

2 More than several decades earlier, a significant landslide on the McCrae escarpment near Anthony's Nose impacted multiple homes. However, since then and up to the landslides in November 2022, the escarpment has experienced only relatively minor landslides and like events.

3 This history is explored below.

The 1952 landslide near Anthony's Nose, Point Nepean Road

4 The first known significant landslide to have occurred along the McCrae escarpment was near Anthony's Nose in 1952. Anthony's Nose is a rocky area between McCrae and Dromana, where the granite hill of Arthurs Seat meets Port Phillip Bay. It is not far from the site of the McCrae Landslide.

5 The landslide occurred on 14 July 1952 and reportedly destroyed many homes and a milk bar, swept away three bridges and blocked streets. A local resident and owner of an antique shop, Bill Caldwell, described "*terrifying rumblings*" prior to the landslide and then "*the whole cliff-face*" suddenly giving way.[1] Mr Caldwell described the incident as "*the most horrifying experience of [his] life*".[2]

6 The landslide coincided with a significant rainfall event of between 113 millimetres and 160 millimetres over 13 and 14 July 1952.[3] One report of the landslide also described Coburn Avenue, which sits at the top of the McCrae escarpment above Anthony's Nose, being "*covered to a depth of 10ft by flood waters and a burst water main*".[4]

7 The following photographs capture the magnitude of the landslide and some of the damage it caused:

FIGURE 3.1: VIEW LOOKING WEST AT 565 POINT NEPEAN ROAD SHOWING DAMAGE TO DWELLINGS FROM LANDSLIDE DEBRIS.[5]



1 Exhibit CA-72, Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0120].
2 Exhibit CA-72, Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0120].
3 Exhibit CA-72, Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0043].
4 Exhibit CA-72, Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0040].
5 Exhibit CA-72, Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0042].

FIGURE 3.2: VIEW LOOKING SOUTHEAST AT 563 POINT NEPEAN ROAD WITH THE LANDSLIDE HEADSCARP ON THE SLOPE TO THE REAR.[6]



THIS HOUSE, The Rocks, at the foot of Arthur's Seat, was pushed forward 10 feet by a landslide today. It collapsed on its basement garage, smashing it to matchwood. See story page one.

FIGURE 3.3: CLEAN-UP OF A CUTTING FAILURE ON POINT NEPEAN ROAD NEAR ANTHONY'S NOSE.[7]



8 In the decades that followed the July 1952 landslide, several smaller landslide events reportedly occurred along or in the vicinity of the McCrae escarpment. These included:

a. a landslide that occurred at "*The Rocks, near McCrae*" on 27 November 1952. *The Age* reported that this landslide occurred during a significant storm event which saw more than four inches of rain falling within three hours. The landslide "*partly blocked the highway*" until the debris was cleared;[8]

b. two landslides that occurred in the mid-1990s. One occurred on the McCrae escarpment to the east of 611–613 Point Nepean Road and prompted the evacuation of the property directly below the landslide site.[9] The other occurred at Anthony's Nose in 1996, around 500 metres from the location of the landslide to the east of 611–613 Point Nepean Road;[10]

c. a further landslide that reportedly occurred at or around the location of the July 1952 landslide, on 8 October 2020, following heavy rain. It left rocks and soil on Point Nepean Road;[11] and

d. a minor landslide that occurred along the McCrae escarpment directly above 599–601 Point Nepean Road, in 2021, following earthworks for the construction of the dwelling on that site.[12]

6 Exhibit CA-72, Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0041].

7 Exhibit CA-72, Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0042].

8 Exhibit CA-72, Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0132].

9 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.

10 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.

11 Lucy Callander, 'Landslides Mornington Peninsula: Mt Martha, Anthony's Nose, Flinders hit', *Herald Sun* (online, 19 October 2020) <https://www.heraldsun.com.au/leader/south-east/landslides-mornington-peninsula-mt-martha-anthonys-nose-flinders-hit/news-story/14a73a4d122d5cf9b983afca6b899a79>.

12 Exhibit CA-72, Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0045–.0046]; Public Submission of McCrae Resident, 12 May 2025, [SUB.0040.0001.0008].

9 In addition to the above:

a. it is thought that a minor landslide may have occurred at 10–12 View Point Road at some point between 1975 and 1977. This is based on aerial photographs showing a change in vegetation cover at that site between those years;[13]

b. the Board of Inquiry was informed about retaining walls that had failed or tilted on View Point Road and neighbouring streets from the 1990s onwards, as a result of the downslope movement of fill and saturated soils;[14] and

c. as recently as February 2017, the owner of 4 View Point Road is said to have observed several tonnes of surficial soils being transported down slope by flood waters during heavy rainfall.[15]

10 The record of incidents above tells a clear but also unsurprising story: the McCrae escarpment is a steep slope vulnerable to landslide.

3.2 Lead up to the November 2022 landslides

The 2000s

11 During the 2000s, the Shire became increasingly aware of the McCrae escarpment's vulnerability to landslides.

The development of 611–613 Point Nepean Road

12 In 2003, concerns about the vulnerability of the escarpment above Point Nepean Road came into focus. A development was proposed at 611–613 Point Nepean Road, involving the construction of seven dwellings. Accordingly, planning permit and planning amendment applications were made.[16]

13 The Shire placed those applications on public exhibition and received 24 submissions raising a range of different issues.[17] Of the submissions received, 16 people opposed the planning permit and planning amendment applications.[18] Many of the submissions questioned the suitability of the land for the proposed development. Several people stated that the escarpment above the site was unstable and prone to landslides.[19] Len Wharfe, a local resident, pointed to several landslides in the general area and emphatically submitted:

> Increasing housing density below a steep, unstable cliff face which is already at some risk of slippage is **not cautious, it is careless**.[20] (emphasis in original)

13 Exhibit CA-72, Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0059–.0060].

14 Exhibit CA-72, Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0048–.0050].

15 Exhibit CA-72, Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0061].

16 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 2.1.

17 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 2.3.

18 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 2.3.

19 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.

20 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.

14 Jenny Wharfe told the Shire, in a submission made on behalf of the Mornington Peninsula Ratepayers' & Residents' Association, that she was aware of extensive land slippage on a property just above and to the east of 611–613 Point Nepean Road in the mid-1990s which impacted the dwelling below, causing it to be evacuated.[21]

15 A local resident, Eunice Cain, stated in her submission to the Shire that the topographic features of the site imposed "*real physical constraints to land capacity and safe habitation in the area*".[22]

16 The Shire did not request any information (such as an expert opinion) in relation to the landslide risk raised in the submissions by residents. The Shire also did not obtain its own opinion.

17 The Shire resolved to refer the planning permit and planning amendment applications to Planning Panels Victoria.[23]

18 The Shire's submission to the Planning Panel indicated that, while it supported the aims of the amendment application, the Shire was seeking advice on the best statutory mechanism to achieve the desired outcome.[24]

19 At the hearing before the Planning Panel, the issue of landslide risk was raised in the context of consideration of the suitability of the site for the proposed development. The owner of the land told the Planning Panel that he had no knowledge of any landslides in the immediate area.[25] His legal representative submitted that a landslide at Anthony's Nose was not relevant (due to its nature) and that there was no evidence in relation to the risk of a landslide on the cliff above the site.[26] The owner's planning consultant told the Planning Panel that land slippage was not an issue because the site was almost flat and Penny Lane provided an appropriate separation from the base of the escarpment. He said that no site works were required at or around the base.[27]

20 The residents who had raised landslide risk in their written submissions, attended the hearing. John d'Helin, a local resident, told the Planning Panel at the hearing that he was aware of a landslide on the property immediately behind the building at 611 Point Nepean Road.[28]

21 Anthony Matthews, who appeared on behalf of the Shire, told the Planning Panel that he would seek the advice of the Shire's engineering department concerning their knowledge of landslide risk in the area.[29] Following the hearing, Mr Matthews sent a letter to the Planning Panel stating that "*a preliminary search of the Council's records had not revealed any relevant information [about landslide risk] and a further search was being undertaken*".[30] The Planning Panel was not notified of the results from this search following Mr Matthews' email.[31]

21 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.1.
22 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.1.
23 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 2.3.
24 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 3.4.
25 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.
26 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.
27 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.
28 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.
29 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.
30 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.
31 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.

22 In the absence of any Shire records or other documentation recording instability in the area, or of any expert testimony concerning the matter, the Planning Panel concluded that it was not in a position to make any finding on landslide risk to the site.[32] However, the Planning Panel noted that:

> [E]ffective management of stormwater drainage and other infiltration on the properties above the site would be likely to reduce any hazard that may exist and … such management is desirable regardless of the type or density of development that may occur on the subject land.[33]

23 After considering the many different issues raised, the Planning Panel concluded that the land at 611–613 Point Nepean Road was suitable for development for medium density housing.[34] However, the Planning Panel concluded that the proposed amendment to the Mornington Peninsula Planning Scheme would not necessarily result in development on the site of the type the Shire was seeking to facilitate. The Planning Panel therefore recommended that the Shire prepare and adopt a specific Development Plan Overlay for the site.[35] The Planning Panel also concluded that the development proposed in the planning application should not be approved without modification.[36] The Planning Panel provided recommendations in relation to the modifications and the content of a Development Plan Overlay.[37]

24 Around 18 months after the Planning Panel provided its report, the Shire issued a planning permit for the subdivision of 611–613 Point Nepean Road (P05/0607).[38] The permit required the applicant to "*substantially complete the construction of the dwellings in general accordance with the development plan endorsed as part of permit P04/1497 to the satisfaction of the Shire*".[39]

25 Planning Permit P04/1497 had been issued earlier, on 3 September 2004, and permitted the development of five dwellings in accordance with the endorsed plans.[40]

26 Despite the residents' concerns and the Planning Panel's inability to determine the landslide risk for the site, there is no evidence that, before issuing the planning permits, the Shire requested or obtained from the developer an assessment of the landslide risk for the site. There is also no evidence that the Shire undertook or commissioned its own assessment.

27 Further, there is no evidence of the Shire taking any steps to manage stormwater drainage or other water infiltration on the properties above the development site in connection with the issuing of the planning permits.

28 Between 15 April 2005 and 3 February 2006, the properties at 2 Penny Lane and 3/613 Point Nepean Road were constructed on the lots resulting from the subdivision.[41]

29 Those properties are no longer occupied due to the landslides that occurred on the escarpment above them (at 10–12 View Point Road) on 14 and 15 November 2022, following water infiltration. Both properties remain subject to Emergency Orders due to the ongoing risk. They were also impacted by the McCrae Landslide.

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32 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.

33 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.

34 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 7.

35 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 7.

36 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 7.

37 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 8.

38 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(8) [MSC.5014.0001.1302].

39 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(8) [MSC.5014.0001.1302].

40 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(29) [MSC.5002.0001.6966].

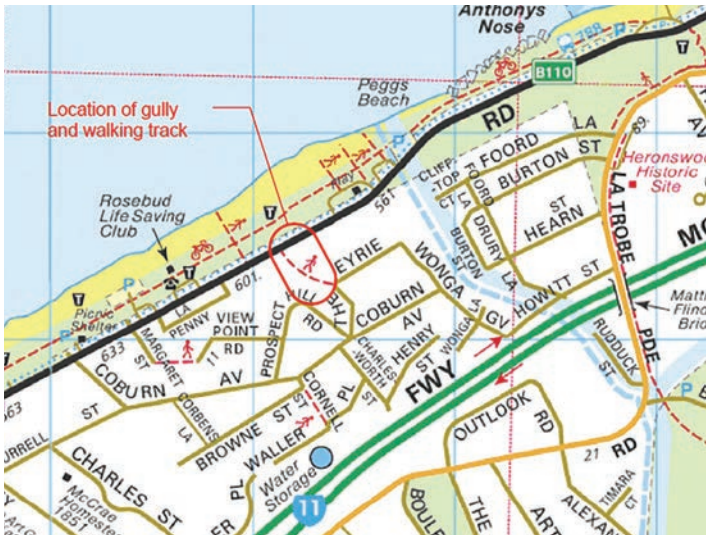
41 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, 6 [16].

Lane Piper investigation in 2007

30 In 2007, the Shire commissioned Lane Piper Pty Ltd (**Lane Piper**) to undertake a geotechnical investigation into the stability of the gully located between The Eyrie and Point Nepean Road (see Figure 3.4 below).[42] The gully is located approximately 150 metres away from the site of the McCrae Landslide.

31 The investigation was prompted by signs of destabilisation of the gully banks. It was thought that increased runoff in recent years had resulted in erosion of the gully bed. The Shire was concerned to stabilise the gully.[43]

FIGURE 3.4: ANNOTATED MAP DEPICTING THE LOCATION OF THE GULLY SUBJECT TO LANE PIPER'S INVESTIGATIONS.[44]



32 In September 2007, after conducting geotechnical investigations and fieldwork, Lane Piper observed that the deepening of the valley and increased erosion of the escarpment were driven by two key factors:

a. first, the increased urbanisation of the area around the gully. Namely, through the construction of houses, roads and paving and the removal of vegetation in the vicinity of the gully; and

b. second, the sandy terrain of the area which was easily erodible.[45]

33 Lane Piper concluded that most of the slopes of the gully examined were only marginally stable.[46]

34 To address this, Lane Piper made several recommendations to the Shire to stabilise the gully.[47] The principal recommendation was to "*partially pipe the gully to resist further erosion combined with the placement of fill around and above the pipeline to improve the stability of the gully banks*".[48] The associated recommendations included using "*sandy clay or impermeable backfill*" and concrete cut-off collars to prevent high velocity water flow through the backfill.[49]

42 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(117) [MSC.5012.0001.0123 at .0127].
43 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(117) [MSC.5012.0001.0123 at .0127].
44 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(117) [MSC.5012.0001.0123 at .0128].
45 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(117) [MSC.5012.0001.0123 at .0134].
46 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(117) [MSC.5012.0001.0123 at .0140].
47 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(117) [MSC.5012.0001.0123 at .0140–.0144].
48 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(117) [MSC.5012.0001.0123 at .0140].
49 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(117) [MSC.5012.0001.0123 at .0142].

35 The report made it abundantly clear that the Shire needed to take measures to prevent further erosion, including through the effective management of water runoff. The stabilisation works were not completed until 2014,[50] some seven years after the Shire received the report.

The 2010s

2012 Cardno Lane Piper Landslide Susceptibility Assessment and the Shire's response

36 On or around 1 February 2012, Cardno Lane Piper Pty Ltd (**Cardno**) provided a draft report to the Shire entitled *Draft for Comment Landslide Susceptibility Assessment, Stage 2*.[51]

37 The report was the culmination of a study the Shire had commissioned over a decade earlier, in 2000. Cardno had been tasked with assessing "*landslide hazards*" across the entire Mornington Peninsula Shire area.[52] The assessment was prompted by several landslides in the Mornington Peninsula in the 1980s and 1990s, which had resulted "*in considerable damage to dwellings, in some cases resulting in their demolition*".[53] There was a demonstrable need to understand landslide susceptibility across the Mornington Peninsula.

38 Over several years, Cardno used various techniques to map the contours and characteristics of the entire Mornington Peninsula to build a slope stability model.[54] By applying the resultant model, the report, in effect, classified areas of the Mornington Peninsula into subjective zones of "high", "medium" and "low" landslide susceptibility. The zones were explained as follows:

FIGURE 3.5: LANDSLIDE SUSCEPTIBILITY ZONATION FRAMEWORK.[55]

Landslide Susceptibility	Explanation	Implication for Development
High	Evidence of active or past landslips or rock or soil failure; extensive instability may occur. Evidence of significant soil creep or minor slips or rock face instability; significant instability may occur during and after extreme climatic conditions.	Strict development restrictions and/or geotechnical works required. Extensive geotechnical investigation necessary. Risk after development may be higher than usually accepted.
Medium	Evidence of possible soil creep or a steep soil covered slope; significant instability can be expected if the development does not have due regard to the site conditions.	Some development restrictions required. Moderate level of geotechnical investigation necessary. Risk after development normally acceptable.
Low	No evidence of instability observed; instability not expected unless major site changes occur.	Good engineering practices suitable for hillside construction required. Risk after development normally acceptable. Typical site classification required.

50 Mornington Peninsula Shire Council, Response to first set of potential adverse findings, 21 August 2025, [MSC.5094.0001.0020]. Email from Chloe Patching to Infrastructure Asset Notification at Mornington Peninsula Shire Council about completion of The Eyrie Gully Stabilisation Project, 10 November 2014, [MSC.5092.0001.0001].

51 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 34–35 [62]–[63].

52 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4442].

53 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4442].

54 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4475–.4477].

55 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4455].

39 Cardno stressed that the classification of the Mornington Peninsula into these three zones was not intended to represent the *likelihood* of landslides occurring nor the severity of such landslides. Rather, the zones were intended to identify and rank the relative susceptibility of areas within the Mornington Peninsula to landslides.[56]

40 In undertaking the zoning, Cardno considered multiple factors including the existing EMOs in place within the Mornington Peninsula and the geology of the area. Each of these factors warrants explanation, especially as they relate to the McCrae escarpment.

41 To establish a baseline understanding of landslide susceptibility in the Mornington Peninsula, Cardno began by examining the Shire's EMO schedules.

42 An EMO is a planning tool. Its purpose is to protect areas prone to erosion, landslip and other land degradation or coastal processes by minimising land disturbance and inappropriate development.[57] If an EMO applies to land, it may trigger the need for a planning permit for building and works, including for types of developments that are ordinarily exempt from planning permits under statewide planning controls.[58]

43 At the time of the 2012 Cardno Report, five EMO schedules were in place in the Mornington Peninsula:

a. EMO1 – Erosion Prone Slopes;

b. EMO2 – Unstable Slopes;

c. EMO3 – Ballar Creek;

d. EMO4 – Medium Landslide Susceptibility for Flinders and Tanti Creek; and

e. EMO5 – High Landslip Susceptibility for Flinders and Tanti Creek.

44 EMO1 and EMO2 were developed and introduced in the 1970s.[59] To Cardno's knowledge, these EMOs had not been used by the Shire in recent decades.[60] The limited utility of these EMOs was accepted by the Shire's current Acting Director Planning and Environment, David Simon. He told the Board of Inquiry:

> EMO1 and 2 basically don't contain any guidance or any additional information requirements whatsoever. So to that extent I would say they're probably not a great tool for a planner or an engineer or whoever's considering the [planning] application[.][61]

45 EMO3 was introduced in December 2000 as a result of "*[l]and degradation problems along Ballar Creek includ[ing] clearly visible erosion of the banks and bed and less visible landslips of much larger areas*".[62]

56 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4454].

57 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 6–7 [29].

58 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 6–7 [29].

59 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4458].

60 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4458].

61 Public Hearing Transcript, David Simon, 9 May 2025, 218.

62 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, 18 [43]; Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(62) [MSC.5014.0001.0076 at .0077].

46 EMO4 and EMO5 were introduced in January 2011 to land in the vicinity of Tanti Creek and the Flinders township.[63] Those overlays reflected several geotechnical studies concerning those locations, including a *Geotechnical Investigation of Stability of Creek Banks, Tanti Creek* by Piper and Associates in 2006 and a *Geotechnical Assessment for Landslip Risk, Flinders Foreshore* by Piper and Associates in 2007.[64] Notably, EMO4 and EMO5 required (and still require) any planning permit applications to be accompanied by a "*site specific geotechnical hazard and risk assessment report prepared by a suitably qualified geotechnical engineer or engineering geologist with experience in landslide risk assessment*".[65]

47 None of the EMOs applied to the McCrae escarpment at the time the 2012 Cardno report was prepared.

48 After reviewing the existing EMOs, Cardno turned its attention to the geology of the Mornington Peninsula. It noted that the relationship between the Mornington Peninsula's geology and slope stability is complex.[66] Several distinct geological materials were identified across the region, each exhibiting varying levels of susceptibility to slope failure.[67]

49 Cardno observed that Dromana Granite – a hard medium-grained rock – extends from the McCrae coastline and rises steeply towards Arthurs Seat.[68] Critically, Cardno stated in its report:

> The area covered by the Dromana Granite is commonly steep and the cover of residual soils and highly weathered rock can be expected to be of very variable thickness. **A concurrence of steep slope – either natural or through recent erosion – water saturation and a thick weathered profile could lead to slope failure**.[69] (emphasis added)

50 The report went on to say that "*[t]he cliffs at McCrae have been shown to be unstable in the past due to both natural and man-made causes*".[70]

51 In the final analysis, Cardno zoned the escarpment on which the McCrae Landslide (and the earlier landslides on 5 January 2025 and 14 and 15 November 2022) occurred as having high susceptibility to landslides, as depicted in the red shading below.

63 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, 18 [44]; Public Hearing Transcript, David Simon, 9 May 2025, 218.

64 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, 18–19 [44].

65 *Mornington Peninsula Planning Scheme*, Schedules 4 and 5 to Clause 44.01 Erosion Management Overlay (as it stood prior to and after Amendment C279morn gazetted on 21 July 2021).

66 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4442].

67 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4442–.4443].

68 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4462].

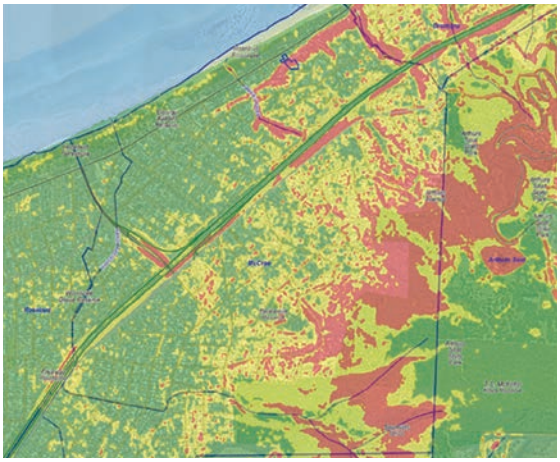
69 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4462–.4463].

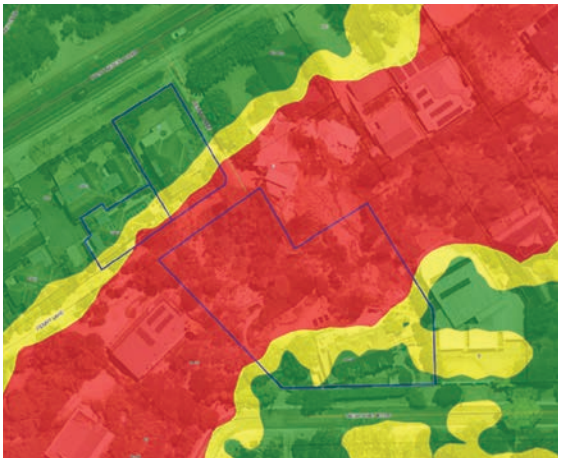
70 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4514].

FIGURE 3.6: ZONING OF THE MCCRAE ESCARPMENT IN 2012 CARDNO REPORT.[71]



FIGURE 3.7: ZONING OF MCCRAE AREA GENERALLY AND THE SITE OF THE NOVEMBER 2022 LANDSLIDES AND THE JANUARY 2025 LANDSLIDES AT 10–12 VIEW POINT ROAD.[72]





52 The Shire used the mapping generated by Cardno to implement a geographical information system (**GIS**), which overlaid low (in green), medium (in yellow) and high (in red) landslide susceptibility areas over all land in the Mornington Peninsula.[73]

53 In the concluding remarks of its report, Cardno made two relevant recommendations. First, for areas identified as having "high landslide susceptibility", it recommended that "*a landslip risk assessment is essential to consider risk to property and life [to any] proposed development and also [to] consider the impacts on nearby properties*".[74] Second, it advised that the Shire update the data, the subject of the study, every five to 10 years to incorporate new geotechnical studies or literature, and that the GIS be re-run to include that updated information.[75]

71 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4515].

72 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(3) [MSC.5014.0001.0010], Exhibit CA-11(4) [MSC.5014.0001.0068].

73 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 8 [42].

74 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4532].

75 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4533].

54 Neither of those recommendations were properly implemented by the Shire. Specifically, the Shire did not update its EMOs to cover all land that fell within the red zone of high landslide susceptibility. It also did not update its landslide susceptibility data and modelling.[76]

55 Instead, at some point after receiving Cardno's report but prior to 2019, the Shire adopted a process whereby:

> additional planning requirements [were imposed] on all properties that are mapped as falling within the areas coloured in red (i.e., high susceptibility), including in the McCrae area, so as to prevent and manage the risk of landslides and landslips.[77]

56 Those additional requirements were, and are currently, as follows:

a. first, any planning permit applications in respect of land clearly in high landslide susceptibility (red) areas must be accompanied by a peer-reviewed geotechnical report which complies with the Australian Geomechanics Society's *Practice Note Guidelines for Landslide Risk Management 2007* (**AGS Guidelines 2007**);[78]

b. second, prior to the commencement of any works for a development, a *Form B Structural/ Civil/Geotechnical Engineering Declaration* must be completed in compliance with the AGS Guidelines 2007 by both a registered structural or civil engineer (endorsed by the Victorian Business Licencing Authority) and a specialist geotechnical engineer or a specialist engineering geologist as defined by the AGS;[79] and

c. finally, upon completion of any works, but prior to occupation of a site, a *Final Geotechnical Certificate* must be completed by a specialist geotechnical engineer or a specialist engineering geologist as defined by the AGS.[80]

57 The Board of Inquiry was told that these requirements are not prescribed by any legislation. The Shire chose to adopt these requirements "*as [a] matter of practice as an additional precautionary measure*".[81] It was said that planners within the Shire knew, and know of, this practice through internal documents and systems, as well as through training by more experienced planners.[82]

58 The Shire accepted, however, that it could not be entirely confident that the process was applied across all planning permit applications relating to high landslide susceptibility areas.[83] Still, the Shire took no formal steps to mandate geotechnical hazard and risk assessments in respect of those areas.

76 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, 20 [52]–[53].

77 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 9 [43]; Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 35 [63].

78 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 9 [44].

79 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 9 [45].

80 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 9 [46].

81 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 9 [44].

82 Public Hearing Transcript, David Simon, 9 May 2025, 243.

83 Public Hearing Transcript, David Simon, 9 May 2025, 253.

Mornington Peninsula Planning Scheme Review No. 4

59 In 2018, pursuant to s 12B of the *Planning and Environment Act 1987* (Vic) (***Planning and Environment Act***), the Shire reviewed the provisions of the Mornington Peninsula Planning Scheme.[84] The review, amongst other things, considered the (then) five EMOs.

60 The Shire acknowledged the landslide susceptibility modelling undertaken by Cardno but noted that there was "*significant work still required to translate the outcomes into [EMO] mapping*".[85] Two relevant recommendations emerged from the review:

a. Recommendation 210: Merge the application requirements of EMO3 into EMO1, delete the schedules for EMO2 and EMO3, and renumber mapping of EMO2 and EMO3 to EMO1; and

b. Recommendation 211: Complete the comprehensive review and update of the Shire's landslip susceptibility data and modelling and update the ordinance and mapping of the Shire's EMOs.[86]

61 The Shire anticipated that such strategic work would be completed within two to three years of the review.[87] As it turned out, neither of those recommendations were ever implemented.[88]

62 The McCrae escarpment, despite being in an area of high landslide susceptibility, remained outside of the Shire's EMOs. This meant that strict planning controls were not automatically triggered for building works on the escarpment, including for works at 10–12 View Point Road.

2020 to November 2022

Works conducted at 10–12 View Point Road

63 In December 2020, after living in the United States for approximately two decades, Gerrard (Gerry) and Bronwyn Borghesi began permanently residing at 10–12 View Point Road. Upon their return to Australia, the Borghesis undertook general maintenance of the gardens on the property. Before describing those works, it is convenient at this stage to refer to some earlier works completed on the property.

64 Prior to moving in, and while the Borghesis were residing overseas, they arranged for works to be carried out on the property between 2015 and 2017. Such works included:

a. the construction of a new courtyard and garage at the eastern flank of the property, which necessitated the removal of approximately six trees;[89]

b. the addition of a new balcony;[90] and

c. the construction of a new courtyard on the western flank of the dwelling.[91]

84 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, 19 [48]; Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(65) [MSC.5014.0001.0182].

85 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025 19 [48]; Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(65) [MSC.5014.0001.0182 at .0270].

86 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025 19 [48]; Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(65) [MSC.5014.0001.0182 at .0387].

87 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, 19 [48]; Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(65) [MSC.5014.0001.0182 at .0387].

88 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, 20 [52]–[53].

89 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 1 [6]; Public Hearing Transcript, Gerrard Raymond Borghesi, 14 May 2025, 495–496.

90 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 1 [6].

91 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 1 [6].

65 Those works were undertaken in accordance with a planning permit issued by the Shire in April 2015.[92]

66 In early 2018, the Borghesis carried out further works, including the erection of fencing and construction of retaining walls.[93] These works were undertaken in accordance with a planning permit issued by the Shire on 15 December 2015.[94]

67 Upon the Borghesis' permanent return to Australia in December 2020, they then undertook further works which included:

a. the removal of dead vegetation and invasive weeds on the hillside;

b. the trimming of large trees at the request of their immediate neighbours;

c. the planting of 20–30 native plants and shrubs along the hillside as well as installing a new water tap and hose to water those plants;

d. the installation of a one-metre-high retaining wall directly upslope of the site of the McCrae Landslide, to create a level area for a vegetable patch; and

e. the installation of six garden beds.[95]

FIGURE 3.8: CONSTRUCTION OF ORIGINAL RETAINING WALL INSTALLED BY THE BORGHESIS.[96]



68 In addition to the above works, Mr Borghesi told the Board of Inquiry that, due to increased saturation of the hillside towards the western boundary of the property,[97] he installed agricultural (agi) drains in July 2021 in an effort "*to control erosion and make the pathway down to Penny Lane trafficable*".[98]

92 Public Hearing Transcript, Gerrard Raymond Borghesi, 14 May 2025, 495.

93 Public Hearing Transcript, Gerrard Raymond Borghesi, 14 May 2025, 495–496.

94 Public Hearing Transcript, Gerrard Raymond Borghesi, 14 May 2025, 496.

95 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 5 [29].

96 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0041].

97 Public Hearing Transcript, Gerrard Raymond Borghesi, 14 May 2025, 485–486.

98 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 3 [16].

FIGURE 3.9: COMPARISON BETWEEN THE HILLSIDE PATH PRE AND POST INSTALLATION OF THE AGRICULTURAL DRAINS.[99]



The constant presence of water in the vicinity of the McCrae Landslide site

69 The Borghesis were not alone in their observations of water on the hillside. Several local residents observed water in the vicinity of the McCrae Landslide site in the years prior to the landslides in November 2022.

70 A local resident told the Board of Inquiry that, between 2016 and 2022, they had noticed the kerbs:

> along the entirety of View Point Road would always be brim full of water, with overflow always slowly running all along the road edge gutters and across the bitumen road bends at the street's lower end. This flow was constant always, not being caused by any rainfall.[100]

71 Two residents of View Point Road made similar observations. The first resident, whose family has lived on that street for over 20 years, reported observing "*a significant and persistent water flow down View Point Road*" throughout that time. They told the Board of Inquiry that despite raising the issue with the Shire and SEW on multiple occasions, no action was taken.[101]

72 The second resident observed multiple water issues with the stormwater infrastructure along View Point Road and Prospect Hill Road, particularly following significant rain events in 2017 and on 12 July 2022. In particular, they observed the stormwater pits along Prospect Hill Road becoming overwhelmed with water, which led to flooding.[102]

99 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0008–_0009].

100 Public Submission of Brett Manders, 30 April 2025, [SUB.0026.0001.0001].

101 Public Submission of McCrae Resident, 16 April 2025, [SUB.0016.0001.0001].

102 Public Submission of McCrae Resident, 29 April 2025, [SUB.0014.0002.0002].

FIGURE 3.10: FLOODING IN FRONT OF 11 PROSPECT HILL ROAD.[103]



73 The resident also reported an increase in water along the kerbs near 5 and 7 Prospect Hill Road during the construction of both dwellings in 2020 and 2021.[104] This observation was also made by a longtime resident of McCrae, whose family has owned a property on Prospect Hill Road for over 50 years.[105] The resident added that the "*lower … northern end, of [7 Prospect Hill Road], including the nature strip, resembled a sodden marsh up until … [the] new house was built replacing the old one*".[106]

FIGURE 3.11: PHOTOS OF THE KERBS DURING THE DEVELOPMENT OF 7 PROSPECT HILL ROAD BETWEEN 5 MAY 2021 AND 11 NOVEMBER 2021.[107]



74 The issue of excess water on Prospect Hill Road was only to be made worse by the bursting of a water main on 14 November 2022.

103 Public Submission of McCrae Resident, 17 August 2025, [SUB.0014.0002.0001].

104 Public Submission of McCrae Resident, 29 April 2025, [SUB.0014.0002.0002].

105 Public Submission of McCrae Resident, 20 April 2025, [SUB.0006.0001.0002].

106 Public Submission of McCrae Resident, 20 April 2025, [SUB.0006.0001.0002].

107 Public Submissions of McCrae Resident, 10 July 2025, [SUB.0006.0002.0001], [SUB.0006.0002.0002], [SUB.0006.0002.0003].

2022 burst water main at Coburn Avenue

75 At about 5.40am on 14 November 2022, a water main at the corner of Prospect Hill Road and Coburn Avenue failed,[108] suffering two circumferential breaks along the length of the asbestos cement pipe.[109]

76 The Shire received multiple complaints concerning water issues at the site of the burst, namely:

a. at 10.18am, a resident at 23 Coburn Avenue reported that a large sinkhole had appeared in the nature strip between Coburn Avenue and Prospect Hill Road. The resident was concerned that the hole could be related to flooding at a neighbouring property;[110]

b. at 10.46am, a resident at 22 Prospect Hill Road (next door to 23 Coburn Avenue) reported that the street stormwater pit was blocked, and that water was overflowing and flooding their house;[111] and

c. at 11.46am, a resident at 17 Burton Street reported "*[w]ater spurting out of Coburn Ave just near Prospect Hill Road intersection*", and that the road surface was "*broken and the road [was] in danger of washing away*".[112]

77 After receiving these complaints, at some stage in the morning of 14 November 2022, employees of the Shire's contractor, DM Roads, attended the area near 23 Coburn Avenue. The contractor determined that the issue was due to SEW's assets.[113] The contractor took a photo of the road surface (Figure 3.12 below) and made the site safe.[114] The photo was subsequently emailed to Michelle Twaites, Customer Service Officer at DM Roads, at 11.58am.[115]

78 SEW was first notified of the burst at 1.41pm, when Ms Twaites reported it via email.[116] Ms Twaites attached a copy of the photograph that she received earlier that day:

108 Public Hearing Transcript, Julian Tully, 24 June 2025, 987–988.

109 Exhibit CA-41, Amended First Witness Statement of Julian Tully, 19 June 2025, 3 [18]; Exhibit CA-41, Amended First Witness Statement of Julian Tully, 24 June 2025, Exhibit 1 [SEW.0001.0001.4933 at _0001].

110 Exhibit CA-66, Fourth Witness Statement of David Smith, 28 July 2025, Exhibit CA-66(4) [MSC.5081.0001.0317].

111 Exhibit CA-66, Fourth Witness Statement of David Smith, 28 July 2025, Exhibit CA-66(6) [MSC.5081.0001.0215].

112 Exhibit CA-66, Fourth Witness Statement of David Smith, 28 July 2025, 5 [13]; Exhibit CA-66, Fourth Witness Statement of David Smith, 28 July 2025, Exhibit CA-66(3) [MSC.5081.0001.0313].

113 Exhibit CA-66, Fourth Witness Statement of David Smith, 28 July 2025, 6 [16].

114 Exhibit CA-66, Fourth Witness Statement of David Smith, 28 July 2025, 6 [16].

115 Exhibit CA-66, Fourth Witness Statement of David Smith, 28 July 2025, 6 [16]; Exhibit CA-66, Fourth Witness Statement of David Smith, 28 July 2025, Exhibit CA-66(10) [MSC.5081.0001.0026].

116 Exhibit CA-41, Amended First Witness Statement of Julian Tully, 19 June 2025, 4 [21].

FIGURE 3.12: PHOTO OF DEFECT IN TARMAC AND WATER FLOW ON COBURN AVENUE.[117]



79 Minutes later, SEW created a job in its Montage system and allocated it to Service Stream Ltd (**Service Stream**).[118] Service Stream was and remains contracted by SEW to provide water and sewer repair and maintenance services.[119]

80 Service Stream attended the site at around 3.20pm.[120] They remained there for several hours, until around 8.05pm.[121] During that timeframe, extensive works were undertaken to repair the pipe.[122] Those works involved drilling several holes to locate the burst, cutting and removing concrete to expose the water main, shutting off the supply of water, removing and replacing the broken pipe, filling the area around the pipe with sand/rock embedding material and repairing areas of the road that had been undermined by the water.[123]

FIGURE 3.13: IMAGES OF THE CUT TO THE ROAD SURFACE AT COBURN AVENUE.[124]



117 Exhibit CA-41, Amended First Witness Statement of Julian Tully, 19 June 2025, Exhibit 4 [SEW.0001.0001.4937].

118 Exhibit CA-41, Amended First Witness Statement of Julian Tully, 19 June 2025, Exhibit 1 [SEW.0001.0001.4933].

119 Exhibit CA-25, Witness Statement of Lara Olsen, 16 May 2025, 5 [24(c)].

120 Exhibit CA-41, Amended First Witness Statement of Julian Tully, 19 June 2025, Exhibit 1 [SEW.0001.0001.4933].

121 Exhibit CA-41, Amended First Witness Statement of Julian Tully, 19 June 2025, Exhibit 1 [SEW.0001.0001.4933 at _0007–_0008].

122 Exhibit CA-41, Amended First Witness Statement of Julian Tully, 19 June 2025, Exhibit 1 [SEW.0001.0001.4933].

123 Exhibit CA-41, Amended First Witness Statement of Julian Tully, 19 June 2025, Exhibit 1 [SEW.0001.0001.4933].

124 Exhibit CA-41, Amended First Witness Statement of Julian Tully, 19 June 2025, Exhibit 1 [SEW.0001.0001.4933 at _0023–_0024].

FIGURE 3.14: IMAGES OF THE BREAKS ALONG THE PIPE.[125]



FIGURE 3.15: PHOTO OF THE PIPE POST REPLACEMENT.[126]



81 As is evident from the photographs, the burst was not small. SEW estimates that approximately 900,000 litres of water escaped from the burst pipe, with a peak flow rate of approximately 2.3 megalitres per day just prior to the main being turned off at 6.50pm.[127]

125 Exhibit CA-41, Amended First Witness Statement of Julian Tully, 19 June 2025, Exhibit 1 [SEW.0001.0001.4933 at _0009, _0025].

126 Exhibit CA-41, Amended First Witness Statement of Julian Tully, 19 June 2025, Exhibit 1 [SEW.0001.0001.4933 at _0010].

127 Exhibit CA-41, Amended First Witness Statement of Julian Tully, 19 June 2025, 4 [19].

3.3 The November 2022 landslides

82 The same day as the burst water main on 14 November 2022, a landslide occurred on the escarpment at the north-west end of 10–12 View Point Road.[128] The impact of this landslide was small, but a more destructive landslide was coming.

83 Paul and Denise Willigenburg, who lived at the bottom of the escarpment at 3/613 Point Nepean Road, were home on the morning of 14 November 2022. They were packing for a 10-day holiday to Tasmania when they heard a loud cracking noise coming from the rear of their property.[129] In Mr Willigenburg's words: "*[i]t sounded like a tree, [like] a large branch from a tree had snapped off*".[130]

84 The Willigenburgs went downstairs and out to their back garden to locate the source of the noise but could not see anything unusual.[131] They resumed packing and departed for Tasmania later that morning.[132]

85 The following morning, on 15 November 2022, a destructive landslide occurred in the same location on the escarpment.

86 At around 11.00am, the Willigenburgs' son, Christopher, telephoned Mr Willigenburg in Tasmania to tell him that a major landslide had occurred earlier that morning.[133] Soil and debris had smashed through the back fence of the home.[134]

87 Mr Willigenburg was shocked and confused. He gave evidence to the Board of Inquiry that Christopher told him:

> [T]here was a lot of mud, debris, a lot of water flowing down the slope. The fence – the back fence was basically destroyed. A lot of vegetation had come down into the property next door and also into our property.[135]

88 Christopher sent his father a video recording of the steady flow of water coming down the slope, and photographs of the soil, debris and damage at the rear of their home.[136]

128 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(7) [MSC.5000.0001.0292 at .0293].

129 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 444; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 2 [11].

130 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 444.

131 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 2 [12].

132 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 2 [12]–[13].

133 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 2 [14].

134 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 2 [15(a)].

135 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 445.

136 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 446; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-2 [RES.0010.0001.0002].

FIGURE 3.16: THE IMPACT OF THE 15 NOVEMBER 2022 LANDSLIDE ON 3/613 POINT NEPEAN ROAD.[137]



89 The Willigenburgs' property was not the only property damaged by the landslide on 15 November 2022.

90 Damage was also caused to the property at 2 Penny Lane.[138] Soil and debris from the landslide similarly crashed through the rear fence of 2 Penny Lane, stopping just short of the back door.[139] One side of the property was left covered in mud and debris which had flowed off the escarpment.

FIGURE 3.17: THE IMPACT OF THE 15 NOVEMBER 2022 LANDSLIDE ON 2 PENNY LANE.[140]



137 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-4 [RES.0010.0001.0004 at _0002].

138 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(7) [MSC.5000.0001.0292 at _0002].

139 Public Submission of McCrae Resident, 30 April 2025, [SUB.0024.0001.0001].

140 Public Submission of McCrae Resident, 30 April 2025, [SUB.0024.0001.0003 at _0013].

FIGURE 3.18: AERIAL IMAGE DEPICTING THE LOCATION OF THE 15 NOVEMBER 2022 LANDSLIDE RELATIVE TO 10–12 VIEW POINT ROAD (P1), 3/613 POINT NEPEAN ROAD (P2) AND 2 PENNY LANE (P3).[141]



91 The landslide on 15 November 2022 involved at least 20 tonnes of soil and debris flowing to the bottom of the escarpment.[142]

92 Water was observed seeping out of several locations on the escarpment throughout the landslide area,[143] including from a displaced irrigation system at 10–12 View Point Road.[144]

93 In response to water being observed flowing down the site of the landslide, SEW was contacted by a local resident, Ben Wells. Mr Wells, who was the owner of 3 Penny Lane at the time, placed a call to SEW at around 6.40am.[145] Mr Wells was distraught and reported that "*the mountain [in] front of his house [meaning the escarpment above his home] was shifting due to a lot of water running*" and he was "*not sure if it [was] rain/stormwater or [the] burst main further up*".[146]

94 In responding to Mr Wells' call, SEW itself recognised that there may have been a connection between the water running down the site of the landslide and the burst. SEW's records state: "*[the water] may be associated with job in Coburn just up the hill*".[147]

95 Soon after the landslide, officers from the VicSES attended the site.[148] They arrived at 6.47am.[149] VicSES officers were in contact with the Shire, and engineers engaged by the Shire, who were on-site at 7.20am. They liaised regarding the evacuation of residents.[150] VicSES officers advised Christopher Willigenburg to evacuate his parents' home as soon as possible.[151]

141 Exhibit CA-6, Expert Opinion Report – Landslide Assessment about 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0643].

142 Exhibit CA-5, Landslide Risk Assessment about 10–12 View Point Road prepared by PSM, 3 November 2023, [MSC.5000.0001.1206 at .1215].

143 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(7) [MSC.5000.0001.0292 at .0295].

144 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0017].

145 South East Water Montage Record, Task 1101563/001 – 3 Penny Lane, 15 November 2022, [SEW.0001.0001.0117 at _0001].

146 South East Water Montage Record, Task 1101563/001 – 3 Penny Lane, 15 November 2022, [SEW.0001.0001.0117 at _0001].

147 South East Water Montage Record, Task 1101563/001 – 3 Penny Lane, 15 November 2022, [SEW.0001.0001.0117 at _0001].

148 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 3 [15(c)].

149 Triple Zero Victoria, Chronology of Response to 2022 Landslide, 15 November 2022, [SES.0001.0002.0001 at .0003].

150 Triple Zero Victoria, Chronology of Response to 2022 Landslide, 15 November 2022, [SES.0001.0002.0001 at .0003].

151 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 3 [15(c)].

96 Victoria Police also attended.[152]

97 At around 7.28am, a contractor from Service Stream (on behalf of SEW) attended 10–12 View Point Road and observed "*water cascading down the hill*".[153] He sounded the water meter at the property and discovered a "*good noise*".[154] He also observed the water meter was "*spinning*",[155] which he thought indicated a water leak. The contractor then attempted to shut off the water at the property but found that the stop tap was letting water through.[156] He replaced the defective stop tap and then shut off the water.[157]

98 At 10.29am, the contractor made an entry into SEW's Montage system stating that the VicSES had informed him that the water had stopped flowing down the escarpment. He then issued a Red Notice to the owners of 10–12 View Point Road, which stated that there was a leak in an internal service pipe and that "*water has been turned off because of a burst pipe on [the] property causing landslip*".[158]

99 Significant rain had fallen on McCrae immediately prior to the landslide on 15 November 2022. Around 80 millimetres of rainfall was recorded in nearby Rosebud the day prior, on 14 November 2022. This far exceeded the historical November monthly average (dating back to 1927) of 60.5 millimetres.[159] The rainfall event was the highest daily rainfall event of 2022, and the highest daily rainfall event recorded in Rosebud for the previous 17 years.[160] The monthly precipitation for November 2022 was recorded at almost three times the historical average.[161]

100 Later in the morning, Benjamin Essing, a delegate of the Shire's Municipal Building Surveyor (**MBS**), issued Christopher Willigenburg with an Emergency Order pursuant to s 102 of the *Building Act 1993* (Vic) (***Building Act***), prohibiting occupation of his parents' home.[162] The Emergency Order also stated that evidence of soil stabilisation on the land was to be provided to the satisfaction of the MBS.[163] When Mr Willigenburg was told about the Emergency Order, he was confused by that aspect of it. He told the Board of Inquiry that he was not aware of any unstable soil on his land (his property was at the bottom of the escarpment and was struck by landslide debris from above) and that he had "*no idea*" whether he was required to take any action.[164]

101 Emergency Orders requiring evacuation were also issued in respect of the following properties:

a. 10–12 View Point Road;

b. 14–16 View Point Road;

c. 2 Penny Lane;

152 Triple Zero Victoria, Chronology of Response to 2022 Landslide, 15 November 2022, [SES.0001.0002.0001 at .0003]; South East Water Montage Record, Task 1101563/002 – 3 Penny Lane, 15 November 2022, [SEW.0001.0001.0117 at _0005].

153 South East Water Montage Record, Task 1101563/002 – 3 Penny Lane, 15 November 2022, [SEW.0001.0001.0117 at _0005].

154 South East Water Montage Record, Task 1101563/002 – 3 Penny Lane, 15 November 2022, [SEW.0001.0001.0117 at _0005].

155 South East Water Montage Record, Task 1101563/002 – 3 Penny Lane, 15 November 2022, [SEW.0001.0001.0117 at _0005].

156 South East Water Montage Record, Task 1101563/002 – 3 Penny Lane, 15 November 2022, [SEW.0001.0001.0117 at _0005].

157 South East Water Montage Record, Task 1101563/002 – 3 Penny Lane, 15 November 2022, [SEW.0001.0001.0117 at _0005, _0019].

158 South East Water Montage Record, Task 1101563/002 – 3 Penny Lane, 15 November 2022, [SEW.0001.0001.0117 at _0005, _0019].

159 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0014].

160 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(7) [MSC.5000.0001.0292 at _0293].

161 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0014].

162 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-3 [RES.0010.0001.0003].

163 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-3 [RES.0010.0001.0003].

164 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 447; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 3 [17].

d. 3 Penny Lane;

e. 1/613 Point Nepean Road;

f. 2/613 Point Nepean Road; and

g. 4/613 Point Nepean Road.[165]

102 At 1.38pm on 15 November 2022, Davin Slade, a geotechnical engineer from Stantec Australia Pty Ltd (**Stantec**) (formerly Cardno) arrived to inspect the landslide site.[166] Mr Slade was engaged by the Shire. The purpose of the inspection was to identify the extent of the landslide and the zone of influence around the landslide that might be impacted by further ground movement.[167] Mr Slade walked around the perimeter of the landslide and observed the characteristics of the upper slope, noting water seepage and tension cracks on the eastern side of the landslide area.[168] His observations of the lower slope included the build-up of the upper slope's vegetation and soil debris and additional water seepage on the eastern side of the landslide area. Mr Slade was concerned that the tension cracks, water seepage and accumulation of debris had the potential to cause a further landslide.[169]

103 At 4.45pm, VicSES and Shire personnel attended a meeting during which the Shire informed the VicSES that it had determined it was safe for some residents to return home.[170] It appears that the Shire relied on geotechnical advice from Stantec to make this determination. It is, however, unclear from the records whether Mr Slade or another representative from Stantec was at this meeting.

104 At around 5.45pm, the VicSES handed the site over to the Shire, seemingly for recovery coordination.[171]

105 At 6.20pm, a Shire staff member emailed Mr Slade confirming that, following his site investigation, the Shire proposed to change the Emergency Orders issued by the MBS to allow residents from the following properties to return to their homes immediately and without restriction:

a. 14–16 View Point Road;

b. 1/613 Point Nepean Road; and

c. 2/613 Point Nepean Road.[172]

106 The Shire sought confirmation of Mr Slade's agreement with the proposed changes.

107 At 8.08pm, Mr Slade advised the Shire that, based on the site inspection, he agreed with the proposed changes. He noted that the area around the remaining houses, which had been evacuated, should be inspected the next morning and afternoon to assess the status of those properties.[173]

165 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(81) [MSC.5003.0001.0030 at .0034].
166 Triple Zero Victoria, Chronology of Response to 2022 Landslide, 15 November 2022, [SES.0001.0002.0001 at .0003].
167 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(7) [MSC.5000.0001.0292 at .0294].
168 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(7) [MSC.5000.0001.0292 at .0294–.0297].
169 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(7) [MSC.5000.0001.0292 at .0294–.0297].
170 Triple Zero Victoria, Chronology of Response to 2022 Landslide, 15 November 2022, [SES.0001.0002.0001 at .0003].
171 Triple Zero Victoria, Chronology of Response to 2022 Landslide, 15 November 2022, [SES.0001.0002.0001 at .0003].
172 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(81) [MSC.5003.0001.0030 at .0033].
173 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(81) [MSC.5003.0001.0030 at .0033].

108 At the time of the landslide, Mr and Mrs Borghesi were in Melbourne for a short overnight trip for medical reasons.[174] The Borghesis returned to McCrae the following morning,[175] but were not permitted to enter their property pursuant to the Emergency Order issued by the MBS. That Emergency Order was cancelled three days later.[176]

109 The Willigenburgs spent their Tasmanian holiday trying to arrange alternative accommodation in McCrae.[177] At that time they did not know, and could not have known, that they would be displaced from their home for at least another two and a half years.

3.4 The intervening period – what happened between 2022 and 2025?

Immediate aftermath

110 In the days following the 15 November 2022 landslide, the Shire and residents came together to discuss the next steps.

111 On 16 November 2022, the Shire held a meeting in the driveway of 2 Penny Lane for residents affected by the landslide.[178] Andrew Joseph, Resilience and Recovery Coordinator, attended on behalf of the Shire. Representatives from the VicSES and Victoria Police were also present and updated residents.[179] During the meeting, the Shire told residents that it had engaged geotechnical specialists to determine the works that would be required to ensure the safety of the landslide site and the affected properties.[180] No explanation was provided as to the cause of the landslide.

112 The significant amount of rainfall in the area in the days preceding 15 November 2022 was raised during the meeting.[181] There was also discussion regarding the smaller landslide that had occurred on 14 November 2022. That smaller landslide was understood to have displaced an irrigation system located underneath a set of stairs at the rear of 10–12 View Point Road, causing water to flow into the escarpment for approximately 24 hours before it was stopped by SEW.[182] It was thought that this may have contributed to the larger landslide the following day.[183]

113 Some residents also voiced concerns at the meeting about drainage issues at the top of the escarpment on Prospect Hill Road and on View Point Road.[184]

174 Public Hearing Transcript, Gerrard Raymond Borghesi, 14 May 2025, 507–508.

175 Public Hearing Transcript, Gerrard Raymond Borghesi, 14 May 2025, 508.

176 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2022, 5 [17].

177 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 5 [22].

178 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 4 [19]; Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 448–449.

179 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 4 [19].

180 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 5 [21(b)].

181 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 5 [20(c)].

182 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 4 [20(a)].

183 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 4 [20(a)]; Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 448–449.

184 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2023, 5 [21(a)].

114 On the same day, Mr Slade inspected the landslide site for the second time in two days. He subsequently advised that 2 Penny Lane and 3/613 Point Nepean Road, the Willigenburgs' property, were the only properties that remained at risk of being affected by a further landslide.[185] This was detailed in an email from Mr Slade dated 17 November 2022, which stated that:

> Based on my review of the site yesterday which identified that any current movement is limited to the cliff face up slope of 2 Penny Lane and 3/613 Point Nepean [Road] and does not extend significantly up slope of the crest of the cliff it is appropriate for the remaining houses to return to their properties.[186]

115 The properties referred to in Mr Slade's email, that he considered were no longer at risk, were:

a. 10–12 View Point Road;

b. 14–16 View Point Road;

c. 3 Penny Lane;

d. 1/613 Point Nepean Road;

e. 2/613 Point Nepean Road; and

f. 4/613 Point Nepean Road.[187]

116 On 17 November 2022, Mr Joseph emailed the residents who had attended the driveway meeting the previous day, identifying himself as the point of contact at the Shire.[188] Mr Joseph stressed the importance of returning residents being "*vigilant in monitoring their surrounding environment*" and noted the Shire would circulate information for residents to consider "*from a monitoring perspective*".[189] Mr Joseph also noted the drainage issues and condition of View Point Road, which had been raised at the meeting, and requested that residents send through any historical correspondence with the Shire so that it could investigate the issue.[190]

117 The following day, on 18 November 2022, Mr Essing and Claudio Flores, Senior Building Surveyor at the Shire, had an online meeting with Mr Slade to discuss his advice. Mr Flores told the Board of Inquiry that during this meeting, Mr Slade recommended the area near and around the landslide be avoided, and that 2 Penny Lane and the Willigenburgs' property remain evacuated.[191]

185 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 3 [9]; Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(81) [MSC.5003.0001.0030 at .0032], Exhibit CA-12(86) [MSC.5005.0003.0120].

186 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(81) [MSC.5003.0001.0030 at .0032].

187 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 4 [11].

188 Email from Andrew Joseph to "undisclosed recipients" about meeting on 16 November 2022, 17 November 2022, [MSC.5005.0003.0764].

189 Email from Andrew Joseph to "undisclosed recipients" about meeting on 16 November 2022, 17 November 2022, [MSC.5005.0003.0764].

190 Email from Andrew Joseph to "undisclosed recipients" about meeting on 16 November 2022, 17 November 2022, [MSC.5005.0003.0764].

191 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 4 [13].

118 Mr Flores gave evidence that he and Mr Essing considered Mr Slade's advice and decided, with Mr Slade, that there was a danger to the life and safety of the occupants of 2 Penny Lane and to the Willigenburgs if they remained in their properties.[192] Consequently, they decided that the Emergency Orders to vacate should remain in place.[193] They also decided there was a danger to the life and safety of the occupants of 14–16 View Point Road and to the Borghesis near the area of the landslide and that orders should be issued *"restricting access to areas within 3m of areas deemed a possible risk"*.[194]

119 That same day, Mr Flores attended the landslide site.[195] Following the inspection, Mr Essing issued a series of notices cancelling the Emergency Orders pursuant to s 105B of the *Building Act*, including with respect to 3 Penny Lane, 10–12 View Point Road and 14–16 View Point Road.[196] In the notices, the owners were directed to follow hillside practices and to continue monitoring for changing site conditions in accordance with advice from a suitably qualified geotechnical engineer.[197]

120 Later in the day, Mr Flores then issued a new Emergency Order pursuant to s 102 of the *Building Act* to the Borghesis prohibiting *"entry and use of the land within 3m of the embankment"*.[198]

121 No further Emergency Order was issued to 14–16 View Point Road despite the discussions between Mr Flores, Mr Essing and Mr Slade that there was a danger to the life and safety of the occupants of that property.[199] Mr Flores gave evidence to the Board of Inquiry that he did not recall why no further Emergency Order was issued, however, he *"believe[d] it may have been because [he] formed the view that there were accessibility issues near the landslide from 14–16 View Point Road"*.[200]

122 On 21 November 2022, the Willigenburgs returned home from Tasmania and moved into their rental property at 607–609 Point Nepean Road, McCrae.[201]

123 On 28 November 2022, the Borghesis received a further Emergency Order pursuant to s 102 of the *Building Act* requiring them to engage a suitably qualified geotechnical engineer to *"undertake an assessment of the site"* and *"provide a report containing recommendations and work methodology for the undertaking of make safe work to stabilise the land that has been impacted by the landslip"* by 5 December 2022.[202] The Emergency Order also stipulated that, following approval of the work methodology by the Shire's MBS, the Borghesis were required to engage a suitably qualified and professional engineer to undertake the make safe works by 19 December 2022.[203]

192 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 4 [14(a)].

193 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 4 [14(a)].

194 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 4 [14(b)].

195 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 5 [16].

196 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 5 [17]; Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(2) [MSC.5007.0003.0515], Exhibit CA-32(3) [MSC.5007.0003.0646], Exhibit CA-32(4) [MSC.5007.0003.0141].

197 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 5 [18].

198 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 5 [19]; Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(5) [MSC.5007.0003.0858].

199 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 5 [20].

200 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 5 [20].

201 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 6 [24].

202 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(6) [MSC.5007.0003.0804].

203 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(6) [MSC.5007.0003.0804].

124 The Borghesis promptly engaged CivilTest Pty Ltd (**CivilTest**), a consultancy specialising in geotechnical engineering, to "*determine the nature and extent of the landslide, and the residual risk associated with the moved earth*" in order to "*provide recommendations for immediate make-safe measures*".[204] CivilTest attended the property on 29 November 2022 and 2 December 2022, including to conduct a drone topographical survey of the landslide area.[205]

December 2022 – the CivilTest and Stantec reports

125 Throughout November and December 2022, Mr Willigenburg liaised with Mr Essing and Mr Flores, who had since been appointed as the Shire's Acting MBS, in relation to the timing of the Stantec and CivilTest reports and recommendations arising from them.[206] Mr Willigenburg told the Board of Inquiry that he wanted to understand "*what the next steps were going to be, what was going to happen, [and] when it was going to happen*".[207] Mr Willigenburg understood consideration was being given to "*some sort of temporary measure that might allow us to return back to our property*".[208]

5 December 2022 CivilTest report

126 Mr Borghesi received a report from CivilTest on 5 December 2022 and provided it to the Shire shortly thereafter.

127 The report concluded that the main cause of the 15 November 2022 landslide was the excessive amount of precipitation on 14 November 2022.[209] It explained that the excessive precipitation on that single day, and in November 2022 generally, added weight to the soil on the escarpment, which led to a "*higher driving force and lower resisting force*".[210]

128 It also noted that, on 29 October 2022 and 2 November 2022, both of which were sunny days, water was continuously flowing along the kerb drain on View Point Road.[211] The point of discharge was located at the end of View Point Road, not far from the subject landslide area.[212] CivilTest observed *"[t]here were signs of cracks and bitumen patching along the kerb [of] View Point Road"* and that *"[a] hump was built to divert water from one side of the kerb on View Point Road to the other side"*.[213] CivilTest concluded that if there was water seeping into the nature strip of View Point Road and the surrounding areas towards the north, this could have contributed to the landslide as *"the road drain collects surface runoff from a much larger catchment area, and the continuous flow would have some influence if there was any leaking along the kerb drain"*.[214]

204 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741].

205 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741 at .1741–.1745].

206 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 6 [27].

207 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 452.

208 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 452.

209 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741 at .1746].

210 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741 at .1746].

211 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741 at .1746].

212 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741 at .1746].

213 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741 at .1746].

214 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741 at .1746].

FIGURE 3.19: WATER RUNNING ALONG THE KERB ON VIEW POINT ROAD.[215]



FIGURE 3.20: CRACKS AND PATCHING ALONG THE KERB OF VIEW POINT ROAD.[216]



129 With respect to the displaced irrigation system at 10–12 View Point Road, CivilTest noted that there had been no report of leakage prior to the landslide, and so it was:

> highly likely that the Earth FLOW [that preceded the 15 November 2022 landslide] has moved the pipe downslope, breaking any connections to taps, if applicable, and causing the leakage.[217]

130 The report concluded that *"a leakage of this type is highly unlikely to trigger a landslide of this magnitude"*.[218]

131 CivilTest recommended the following measures be implemented *"immediately"* to make the area in the vicinity of the landslide site safe:

> Clear Penny Lane in the area affected by the landslide to expose undisturbed natural soil, and install an 8m long gabion wall along the northern boundary of the subject property bordering on Penny Lane as illustrated in Figure 9 [reproduced at Figure 3.21 below]. The gabion wall should be up to 2.5m to 3m high (depending on the amount of disturbed soil cleared), with the base keyed a minimum 500mm into the undisturbed natural soil.
>
> The disturbed soil hanging over the middle to lower portion of the slope (highlighted in red in Figure 9) should be removed gradually from top to bottom with a large excavator with a long reach. This should be conducted after the gabion wall has been constructed, as the gabion wall will provide protection if the loose earth further slides down the hill.
>
> After removing the disturbed material upslope of the proposed gabion wall, the batter behind the gabion wall should be backfilled with engineered crushed ROCK FILL (with an internal frictional angle of at least 40 degrees) to not steeper than 25 degrees to the horizontal against the natural slope.

215 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741 at .1746].

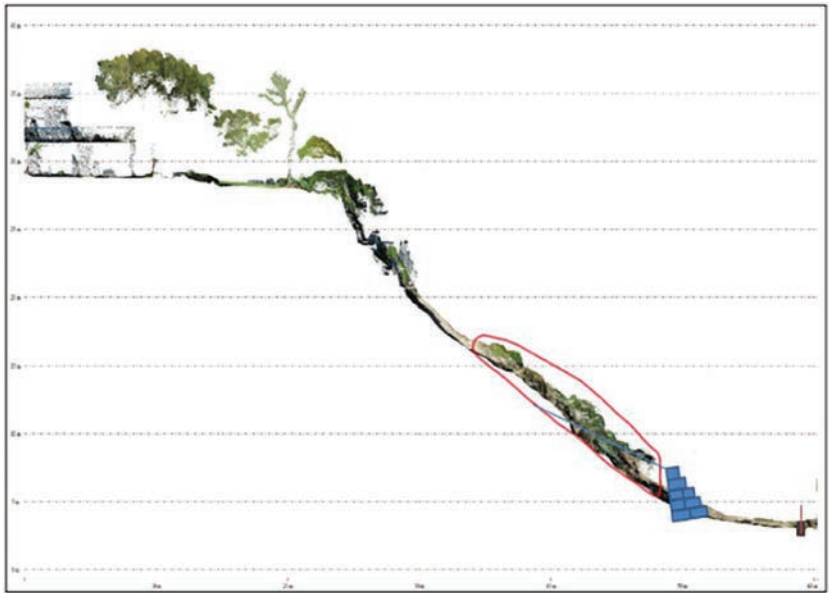
216 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741 at .1747].

217 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741 at .1746].

218 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741 at .1747].

> An additional 1.5m high sleeper wall/fence should be considered located 6 to 8 metres away from the gabion wall as illustrated in Figure 9, along the boundary of the property further downslope. This would stop possible residual Earth FLOW hitting the property downslope and reduce the residual risk to LOW. The sleeper wall should be designed as a retaining wall to retain active earth pressure of up to 1.5m of sandy soil.[219]

FIGURE 3.21: RECOMMENDATIONS FOR MAKING SAFE.[220]



132 CivilTest also stated that the affected "*Penny Lane reserve area*" should remain closed until it was stabilised, and that the area should be monitored for any signs of movement, including "*tension cracks, fallen trees, and water seepage from the uncovered scarp, etc*".[221]

133 With respect to long term stability, CivilTest recommended, amongst other things, that:

a. "*the road drainage along View Point Road should be improved, including checking for possible leaks and repairing*";[222] and

b. the "*uncovered headscarp should be revegetated using native trees and shrubs with aggressive root systems*".[223]

7 December 2022 Stantec report

134 The Shire obtained a report from Stantec on 7 December 2022.[224] Stantec identified the existence of a series of *"tension cracks"* on the upper slope and *"water seeps"* on the lower slope of the escarpment.[225] It also identified a number of landslide hazards for the site, including the risk of further translational landslides on the upper and lower slope and new debris flow similar to that which occurred on 15 November 2022.[226]

219 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741 at .1747].
220 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741 at .1748].
221 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741 at .1748].
222 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741 at .1748].
223 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 5 December 2022, [MSC.5000.0001.1741 at .1748].
224 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(7) [MSC.5000.0001.0292].
225 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(7) [MSC.5000.0001.0292 at .0297–.0299].
226 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(7) [MSC.5000.0001.0292 at .0303].

135 Stantec did not make recommendations for make safe works. Rather, it specifically stated that it was "*limited to a discussion of the immediate risk to the properties in the vicinity of the landslides*".[227] It concluded:

a. the risk to life for 3 Penny Lane and 14–16 View Point Road was "*Tolerable*" and the occupiers of those properties should be allowed access to their properties;

b. the risk to life for the Borghesis' property was "*Not Tolerable*" but this only applied to the "*steep section of the site and the area within 5m of the crest of the slope*". Provided that area was barricaded off and the occupiers of the property did not enter the barricaded area, the risk to life would be reduced to "*Tolerable*" and its occupants could return; and

c. the risk to life for the Willigenburgs' property and 2 Penny Lane was "*Not Tolerable*" and barricading off those properties from the landslide site was not considered sufficient to allow the occupiers of those properties to return. It was recommended that the occupants not be allowed to return to their homes until "*appropriate rectification works are undertaken*".[228]

136 Notably, Stantec also stated that the properties along the McCrae escarpment on the southern side of Point Nepean Road fell within an area of "*known landslide susceptibility*" and that it was important for residents to be aware of the risks associated with living in "*the vicinity of steep slopes*", including the need for appropriate hillside practices.[229] Stantec recommended that the occupiers of the affected properties be provided with a copy of the AGS's *Australian Geoguides for Slope Management and Maintenance (2007e)* for further reference.[230]

137 On 7 December 2022, Mr Essing advised Mr Willigenburg that the Shire had received both the Stantec and CivilTest reports. He told Mr Willigenburg that the reports could not be released to the residents at that time because they were being peer reviewed. Mr Essing assured Mr Willigenburg that he would update him as to when the reports could be provided to residents.[231]

Maw Civil methodology and 16 December 2022 CivilTest report

138 Following the landslides, Mr Borghesi engaged Maw Civil Marine Pty Ltd (**Maw Civil**), a civil construction and earthmoving company, to prepare a work methodology for the safe restoration and stabilisation of the impacted land, as directed by the Emergency Order issued to him on 28 November 2022.

139 On 15 December 2022, Mr Borghesi received a work methodology from Maw Civil for *"[p]re-Xmas site works"*. It proposed the removal of approximately "*60+m3 of [slip] material*" located at the base of the slip and the construction of a temporary barrier made of "*4Tonne granite rocks*".[232] Mr Borghesi provided the Maw Civil work methodology to the Shire that same day.[233]

227 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(7) [MSC.5000.0001.0292 at .0293].

228 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(7) [MSC.5000.0001.0292 at .0306–.0307].

229 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(7) [MSC.5000.0001.0292 at .0293].

230 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(7) [MSC.5000.0001.0292 at .0306].

231 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-7 [RES.0010.0001.0007].

232 Maw Civil Marine Pty Ltd, McCrae Land Slip Methodology: Pre Xmas-Site Works, 15 December 2022, [MSC.5002.0001.0655].

233 Email from Gerrard Borghesi to Benjamin Essing and Claudio Flores about Maw Civil proposed work methodology, 15 December 2022, [MSC.5005.0004.9139].

140 On 16 December 2022, following an on-site meeting between CivilTest and Maw Civil to discuss the work methodology, site preparation and make safe measures, Mr Borghesi received a further report from CivilTest in respect of the proposed work methodology.[234]

141 That report summarised the proposed remediation works in the following three stages (**3-Stage Plan**):

> **Stage 1 – Site Preparation and Make Safe for the Christmas and New Year Break:** Removal of necessary/minor vegetation along Penny Lane to allow construction machinery access; Partial [r]emoval of debris on Penny Lane to allow the installation of a 4 tonne of rock berm within the 10–12 View Point Road property boundary. The rock berm will be installed immediately following any necessary removal of existing debris.
>
> **Stage 2 – Gabion Wall Installation in Early 2023**, **Subject to Planning Approval**: Removal of any remaining debris at the toe of the slope. Install an engineered gabion wall; Then remove the disturbed material on the slope surface with a long-reach excavator and re-profile the base section of the slope with engineered fill to a 25-degree slope to the horizontal.
>
> **Stage 3 – Installation of Long-Term Stabilisation Measures in Quarter 1 2023, Subject to Planning Approval:** Installation of additional engineered retaining structures on the headscarp, restoration of walkway, backfilling any tension cracks, and revegetation.
>
> All of the above-mentioned works should only be conducted under dry conditions and under the supervision of a qualified Geotechnical Engineer.[235]

142 The report also provided a risk analysis for two scenarios:

a. if no works were undertaken between 16 December and Christmas 2022, and prolonged wet conditions occurred during the Christmas and New Year period, a further residual earth flow was possible, such that a "*Medium*" consequence and a "*Moderate*" risk rating would be applied to the two properties downslope, being the Willigenburgs' property and 2 Penny Lane;[236] and

b. if the proposed Stage 1 works were implemented before Christmas, this would reduce the consequence of a further residual earth flow to "*Medium to Minor*", however the risk rating would remain "*Moderate*".[237] CivilTest noted "*[t]he AGS guidelines suggest areas with a moderate risk level 'may be tolerated in certain circumstances…' but require investigation, planning and implementation of treatment options to reduce the risk to Low*".[238]

234 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 16 December 2022, [MSC.5005.0004.9561].

235 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 16 December 2022, [MSC.5005.0004.9561].

236 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 16 December 2022, [MSC.5005.0004.9561 at .9561–.9562].

237 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 16 December 2022, [MSC.5005.0004.9561 at .9562].

238 Jinke Yu, CivilTest Pty Ltd, Expert Assessment – 10–12 View Point Road, McCrae, 16 December 2022, [MSC.5005.0004.9561 at .9562].

143 That same day, on 16 December 2022, Mr Flores informed Mr Borghesi that the 3-Stage Plan would need to form part of a review process, including a review by Stantec and Shire engineers.[239] Mr Flores noted that "*given the time of year, this will not be able to take place until early in the new year"* and that he had *"spoken to the affected neighbours*" and advised them of the peer review and expected timeframes.[240]

144 This is contrary to evidence given by Mr Willigenburg, who told the Board of Inquiry that, as at 20 December 2022, he had not received copies of any reports, nor any updates from the Shire as to any proposed works or the timing of those works.[241] In fact, on 20 December 2022, Mr Willigenburg wrote to Mr Essing seeking an update.[242] Mr Essing responded on the same date, stating that *"the Shire's review remains pending in the context of stage 1 works to Penny Lane in the first instance and further feedback to the other two stages proposed*".[243]

145 On 21 December 2022, Mr Wells forwarded to Mr Willigenburg an email that he had received from Mr Essing setting out the 3-Stage Plan.[244]

146 On 22 December 2022, Mr Willigenburg sent a further email to Mr Essing stating, "*No plans; no detail; no timings; just some proposals*".[245] Mr Essing told Mr Willigenburg the following day that the Shire was doing everything it could to enable residents to return to their properties.[246]

147 Two and a half years on, the works proposed in the 3-Stage Plan have not been undertaken, nor have any other works been undertaken.[247] The Willigenburgs are still displaced from their home.

January to June 2023

Communications with the Shire

148 By late January 2023, Mr Willigenburg had not received any further communication from the Shire as to whether the 3-Stage Plan had been approved or not, and no works had commenced in the area. On 27 January 2023, Mr Willigenburg sent an email to Mr Essing stating:

> 10 weeks locked out of our house; whilst we expect the process to take some time at least we could have the plan approved by now.[248]

149 Mr Essing did not respond to that email, nor did Mr Willigenburg receive any other contact from Shire representatives in January 2023.[249]

239 Email chain between Gerrard Borghesi, Benjamin Essing, Claudio Flores and Christopher Lyne et al about Maw Civil proposed work methodology, 16 December 2022 [MSC.5005.0004.9619 at .9620].

240 Email chain between Gerrard Borghesi, Benjamin Essing, Claudio Flores and Christopher Lyne et al about Maw Civil proposed work methodology, 16 December 2022 [MSC.5005.0004.9619 at .9620].

241 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 8 [38].

242 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-8 [RES.0010.0001.0008].

243 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 8 [39].

244 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 8–9 [42]–[43]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-10 [RES.0010.0001.0010].

245 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 9 [45]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-11 [RES.0010.0001.0011].

246 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 9 [46]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-12 [RES.0010.0001.0012].

247 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 457.

248 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 9–10 [49].

249 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 10 [50].

150 In early to mid-February 2023, Mr Willigenburg noticed a large wet patch forming underneath a platform located around 75% of the way up the escarpment toward 10–12 View Point Road. The remaining area had started to dry out after the landslides, but that particular patch of land remained very wet. He was concerned it was related to the drainage issues other residents had identified in late 2022.[250] On 13 February 2023, he sent photographs of the wet patch to Mr Flores by email and told Mr Flores the wet patch had "*been there for a while now*".[251]

FIGURE 3.22: WET PATCH UNDER STAIRCASE ON 10–12 VIEW POINT ROAD.[252]



151 Mr Flores responded to Mr Willigenburg's email the following day, stating that he would make enquiries about the wet patch and have the area inspected.[253] Mr Borghesi separately gave evidence to the Board of Inquiry that, in the months following the landslides, he attended several on-site meetings with Mr Flores, during which he pointed out to Mr Flores the location of the water emanating from the hillside, specifically the water seepage on either side of the timber staircase.[254]

152 Mr Flores otherwise confirmed in his email to Mr Willigenburg that the peer review of the CivilTest recommendations had been completed and the 3-Stage Plan was considered appropriate.[255] Mr Flores confirmed that the next step was for Mr and Mrs Borghesi to commence design documentation, which would also be peer reviewed by the Shire, and that they were "*working hard to get the relevant documentation as soon as possible*".[256]

250 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 11 [56].

251 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 11 [57]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-14 [RES.0010.0001.0014].

252 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-14 [RES.0010.0001.0014 at _0002].

253 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 11 [59].

254 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 4 [22].

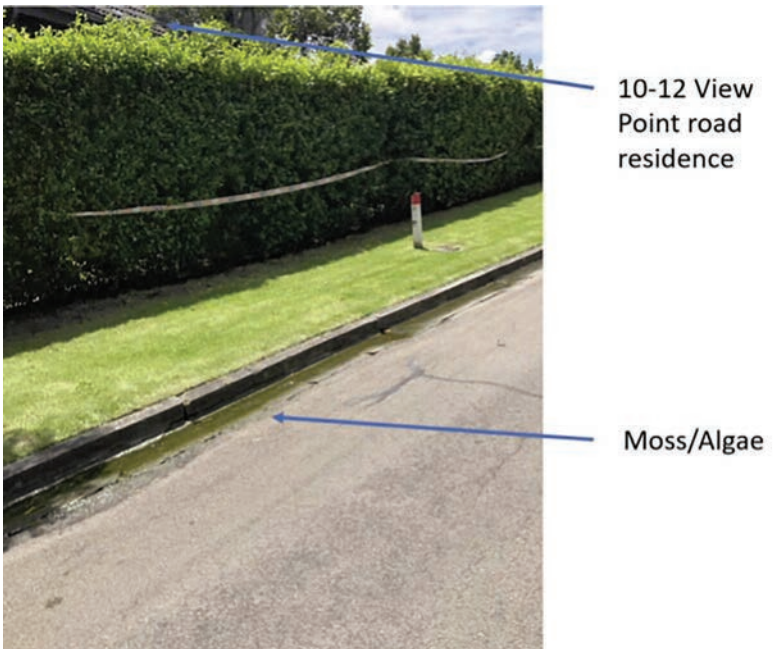
255 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 11 [58]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-15 [RES.0010.0001.0017].

256 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 11 [58]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-15 [RES.0010.0001.0017].

153 Several days later, on 17 February 2023, Mr Wells sent an email to Mr Essing and Mr Flores stating that there was a "*considerable*" amount of water travelling from View Point Road onto Penny Lane and being collected in the drainage system at the rear of 3 Penny Lane. He noted the water had been running continuously since November 2022, and there were signs it was running underneath the soil in the area where the landslides had occurred. He asked if it would be possible for the Shire to review the drainage system and make any necessary improvements to it.[257]

154 Mr Borghesi similarly told the Board of Inquiry that from the time he purchased his property in May 2014, and particularly in the period between December 2020 and May 2023, he observed a flow of water that appeared to emanate from two properties located at 1 and 5 Prospect Hill Road, directly uphill from his property.[258] That flow of water was intercepted and diverted down a stormwater drain on Prospect Hill Road and into a culvert at the top of View Point Road. The culvert was constantly overflowing, causing water to flow down the fractured and cracked kerb on View Point Road.[259] Mr Borghesi told the Board of Inquiry that he "*never saw it dry*" and that the flow of water was such that it caused moss and algae to build up from time to time.[260]

FIGURE 3.23: MOSS AND ALGAE ON VIEW POINT ROAD.[261]



155 On 21 February 2023, having not received a response from the Shire to his concerns about water flow, Mr Wells lodged a complaint with the Shire online.[262]

257 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 12 [65]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-16 [RES.0010.0001.0018].

258 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 2 [9(a)].

259 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 2 [9(b)]; Public Hearing Transcript, Gerrard Raymond Borghesi, 14 May 2025, 484.

260 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 2 [11]; Public Hearing Transcript, Gerrard Raymond Borghesi, 14 May 2025, 483–484.

261 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0006].

262 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 13 [66]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-17 [RES.0010.0001.0019].

156 That same day, Kendrick Koa, Senior Loss Adjuster at CHU Insurance (**CHU**), the insurer for the Body Corporate of 611–615 Point Nepean Road, provided the Shire with a report from Logocon.[263] Logocon, a structural engineering company, had been engaged by CHU in the aftermath of the landslides to determine the cause of the slope failure and conduct an assessment of the "*claimed building distress*" for 611–615 Point Nepean Road.[264]

157 Logocon's report concluded that the slope failure had been caused by a reduction in the shear strength of the sand soils, resulting in slope instability and subsequent failure of a wedge, due to the following factors:

> An increase in soil moisture due to an anomalously high volume of rainfall in the day preceding the slope failure.
>
> An increase in soil moisture due to a potential mains water leak at the top of the slope in the days preceding the slope failure.
>
> Removal of vegetation and trees on the failed section of the slope which has reduced the stability of the slope making it more susceptible to failure.[265]

158 Logocon's report noted, however, that had the slope been "*constructed at a safe and compliant angle, failure would not have occurred under the imposed conditions*".[266] Logocon therefore concluded that:

> preliminary slope stability analysis indicates that the proximate cause of the slope failure is inadequate construction of the slope at an excessively steep angle beyond the safe slope angle making the slope unstable and susceptible to failure.[267]

159 On 1 March 2023, Mr Wells received an email from Brandon Treblico, Civil Engineer - Drainage at the Shire, stating that "*drainage works, including installation of new pits and pipes and renewal of the kerb*" would commence very shortly and that "*[t]he landslip issue is definitely a complicated one but the drainage works should definitely help resolve some of the overland flow issues off the infrastructure*".[268] Mr Wells forwarded the email to Mr Willigenburg stating "*I have a sense from reading below that [the Shire] feel it has certainly contributed to the slide and hence the immediate response*".[269]

Purchase of 3 Penny Lane by Kellie and Nick Moran

160 It was around this same time that 3 Penny Lane went on the market.

161 The history of 3 Penny Lane can be shortly stated. From 1978 to the mid-1990s, the house that stood on that land was occupied by the Radcliffe family. Whilst living there, the Radcliffes observed, towards the lower left room of the house, "*a stream [of water] running down the hill underneath the extension which ran between the stumps and drained into a pond on the flat*".[270]

263 Email from Kendrick Koa to Benjamin Essing about Logocon Report, 21 February 2023, [MSC.5005.0007.3284].

264 Robert Logozzo, Logocon, Structural Engineering Investigation Report, 16 February 2023, [MSC.5005.0007.3288 at .3290].

265 Robert Logozzo, Logocon, Structural Engineering Investigation Report, 16 February 2023, [MSC.5005.0007.3288 at .3294].

266 Robert Logozzo, Logocon, Structural Engineering Investigation Report, 16 February 2023, [MSC.5005.0007.3288 at .3294].

267 Robert Logozzo, Logocon, Structural Engineering Investigation Report, 16 February 2023, [MSC.5005.0007.3288 at .3294].

268 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 13 [71]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-18 [RES.0010.0001.0023].

269 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 13 [72]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-18 [RES.0010.0001.0023].

270 Public Submission of Dr Joseph Radcliffe, 8 May 2025, [SUB.0036.0001.0001].

The water course was damp with a green slime.[271] Decades later, consistent with the Radcliffes' and Mr Wells' observations, signs of water erosion were seen beneath the house at 3 Penny Lane in the days following the 5 January 2025 landslide (as explained later in the Report).

162 On 3 March 2023, Kellie and Nick Moran attended an inspection of 3 Penny Lane.[272] During the inspection, when Mr and Mrs Moran stepped out onto the balcony of the second floor of the property, Mrs Moran noticed temporary fencing opposite the driveway to the garage.

163 Mrs Moran asked the real estate agent, who was showing them through the property, why there was temporary fencing near the garage. The agent told Mrs Moran that one of the neighbours was conducting works on the property. Mrs Moran had some concerns.[273]

164 While Mr and Mrs Moran travelled back to Melbourne, Mrs Moran entered "Penny Lane, McCrae" into Google and found several articles that referred to the 15 November 2022 landslide. Mrs Moran's understanding of these articles was that there had been a period of significant rain which had caused a landslide. Mrs Moran relayed this information to Mr Moran, who told her he would contact the real estate agency to find out more.[274]

165 Shortly after, Mr Moran contacted the agency seeking information about whether 3 Penny Lane had been impacted by the landslide. He was told that they would speak to the vendor, Mr Wells, to find out what impact (if any) it had had on the property. Mr Moran said that he and Mrs Moran would not purchase the property unless they received information that gave them confidence that any issues with the property had been rectified.[275]

166 On 5 March 2023, Mr Moran received an email from an agent forwarding an email from Mr Wells. Mr Wells' details and the date and time of the email were not included in the copy provided to Mr Moran.[276] The email stated that:

a. the landslide in 2022 had occurred at 10–12 View Point Road, following heavy rainfall;

b. investigations indicated that it had most likely been caused by a combination of problems with the Shire's drainage on View Point Road and a burst water pipe on the property at 10–12 View Point Road; and

c. the burst water pipe had been repaired, and Mr Wells' understanding was that the Shire was to commence works on the drainage system shortly.[277]

167 Mr Wells stated in his email:

> We have been advised that plans for the repair of the slip and reinstatement of the laneway have been approved and will commence shortly.
>
> There has been no impact on our property and we haven't been affected in any way.

271 Public Submission of Dr Joseph Radcliffe, 8 May 2025, [SUB.0036.0002.0001].

272 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 1 [3]; Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 2 [10].

273 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 1 [3]; Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 2 [11].

274 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 1 [4]; Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 2 [12].

275 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 1 [5]; Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 2 [13].

276 Exhibit CA-16 First Witness Statement of Nicholas James Moran, 12 May 2025, 2 [14].

277 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 3 [15]; Exhibit CA-16 First Witness Statement of Nicholas James Moran, 12 May 2025, Exhibit NM-3 [RES.0009.0001.0009]; Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 2 [7].

> Overall, it seems like it was an unfortunate one-off and [it] is not expected to happen again.[278]

168 Mr Wells had also forwarded to the agent a copy of the email he had received from Mr Treblico on 1 March 2023 about the planned drainage works.[279]

169 The Morans then decided to move forward with the purchase of 3 Penny Lane in May 2023.[280]

10–12 View Point Road remediation works

170 On 28 March 2023, following correspondence between Mr Borghesi and the Shire regarding the ongoing appropriateness of the Emergency Order issued on 28 November 2022,[281] the Shire issued Mr Borghesi with a Building Order for Minor Works pursuant to s 113 of the *Building Act*.[282] The Shire informed Mr Borghesi that the Building Order was to replace the Emergency Order.[283]

171 The Building Order directed them to "*[e]ngage a suitably qualified and insured professional to construct suitable retaining walls or other site stabilisation walls in accordance with an approved design and work methodology and remove the landslip debris from Penny Lane McCrae*" by 27 May 2023.[284] It also directed them, prior to undertaking any work, to submit documentation to the Shire for peer review and approval including design documentation.[285]

172 On 28 April 2023, Mr Borghesi provided the Shire with a land stability assessment conducted by CivilTest.[286] Mr Borghesi had engaged CivilTest to assess the proposed installation of a retaining wall to remediate the landslide site and to *"address the potential for further land instability on the site and to determine the depth and specification required for the retention system to protect the site"*.[287]

173 CivilTest concluded that *"sleeper retaining walls with deep foundations"* were a suitable remediation option.[288] It noted that a gabion wall could be used at the toe of the slope and recommended that "*deep piling [be] used there for long-term permanent stability*".[289] It did note, however, that the remediation of the local slope failure would "*not help stabilise the surrounding areas*".[290]

278 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 3 [16].

279 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 3 [17]; Exhibit CA-16 First Witness Statement of Nicholas James Moran, 12 May 2025, Exhibit NM-3 [RES.0009.0001.0009 at _0002].

280 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 3–4 [19]; Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 2 [8].

281 Email from Claudio Flores to Gerrard Borghesi about Building Order for 10–12 View Point Road, 28 March 2023, [MSC.5003.0001.0472].

282 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(8) [MSC.5007.0003.0564].

283 Email from Claudio Flores to Gerrard Borghesi about Building Order for 10–12 View Point Road, 28 March 2023, [MSC.5003.0001.0472].

284 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(8) [MSC.5007.0003.0564 at .0565].

285 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(8) [MSC.5007.0003.0564 at .0565].

286 Email from Gerrard Borghesi to Claudio Flores about Landslide Stability Assessment prepared by CivilTest, 28 April 2023, [MSC.5005.0019.6708]; Daniel Tolan and William She, Civil Test Pty Ltd, Land Stability Assessment at 10–12 View Point Road, 24 March 2023, [MSC.5005.0019.6709].

287 Daniel Tolan and William She, Civil Test Pty Ltd, Land Stability Assessment at 10–12 View Point Road, 24 March 2023, [MSC.5005.0019.6709 at .6711].

288 Daniel Tolan and William She, Civil Test Pty Ltd, Land Stability Assessment at 10–12 View Point Road, 24 March 2023, [MSC.5005.0019.6709 at .6720].

289 Daniel Tolan and William She, Civil Test Pty Ltd, Land Stability Assessment at 10–12 View Point Road, 24 March 2023, [MSC.5005.0019.6709 at .6720].

290 Daniel Tolan and William She, Civil Test Pty Ltd, Land Stability Assessment at 10–12 View Point Road, 24 March 2023, [MSC.5005.0019.6709 at .6720].

174 CivilTest recommended that:

> an inclinometer could be installed to confirm if there is any movement that will have an impact at the top of the slope. The inclinometer would be monitored every six months for a minimum period of three years.[291]

175 Melissa Burrage, Manager - Climate Change and Sustainability at the Shire, was seemingly unaware of this recommendation in CivilTest's report. She gave evidence to the Board of Inquiry that the Shire was not provided with any expert opinion that either the Shire or individual property owners should install inclinometers in the vicinity of the November 2022 landslides.[292]

176 In his covering email to the Shire, Mr Borghesi noted that soil borings undertaken by CivilTest had "*identified a pre-existing risk with regard to slope stability due to the underlying Aeolian sand beneath the more stable Colluvium sand*".[293] Mr Borghesi queried why properties below his property were granted permits "*when the hillside stability risk already existed, and was not identified by the building permitting due diligence?*" (error in original).[294]

177 Mr Borghesi also sought "*guidance from Council regarding what is necessary to stabli[s]e the hillside to an acceptable level*" in circumstances where the required Factor of Safety rating yields "*an extremely complex and expensive solution*".[295]

178 On 9 May 2023, Mr Flores responded to Mr Borghesi confirming the Shire had held a meeting on 5 May 2023, with officers from the Shire's Planning, Infrastructure and Engineering sections in attendance.[296] Mr Flores confirmed that "*a Factor of Safety of at least 1.5 is [C]ouncil's standard practice, and what is required to be achieved in this situation*".[297]

Stormwater drainage works on View Point Road

179 By May 2023, the drainage works foreshadowed in the email from Mr Treblico to Mr Wells on 1 March 2023 had commenced. Mr Borghesi gave evidence to the Board of Inquiry that the works took about 14 weeks and included the installation of an underground stormwater drain about 300 millimetres in diameter, along with new kerbs in View Point Road.[298]

291 Daniel Tolan and William She, Civil Test Pty Ltd, Land Stability Assessment at 10–12 View Point Road, 24 March 2023, [MSC.5005.0019.6709 at .6718].

292 Exhibit CA-60, Second Witness Statement of Melissa Burrage, 27 June 2025, 2 [7].

293 Email from Gerrard Borghesi to Claudio Flores about Landslide Stability Assessment undertaken by CivilTest, 28 April 2023, [MSC.5005.0019.6708].

294 Email from Gerrard Borghesi to Claudio Flores about Landslide Stability Assessment undertaken by CivilTest, 28 April 2023, [MSC.5005.0019.6708].

295 Email from Gerrard Borghesi to Claudio Flores about Landslide Stability Assessment undertaken by CivilTest, 28 April 2023, [MSC.5005.0019.6708].

296 Email from Claudio Flores to Gerrard Borghesi about Factor of Safety Rating, 9 May 2023, [MSC.5005.0019.6745].

297 Email from Claudio Flores to Gerrard Borghesi about Factor of Safety Rating, 9 May 2023, [MSC.5005.0019.6745].

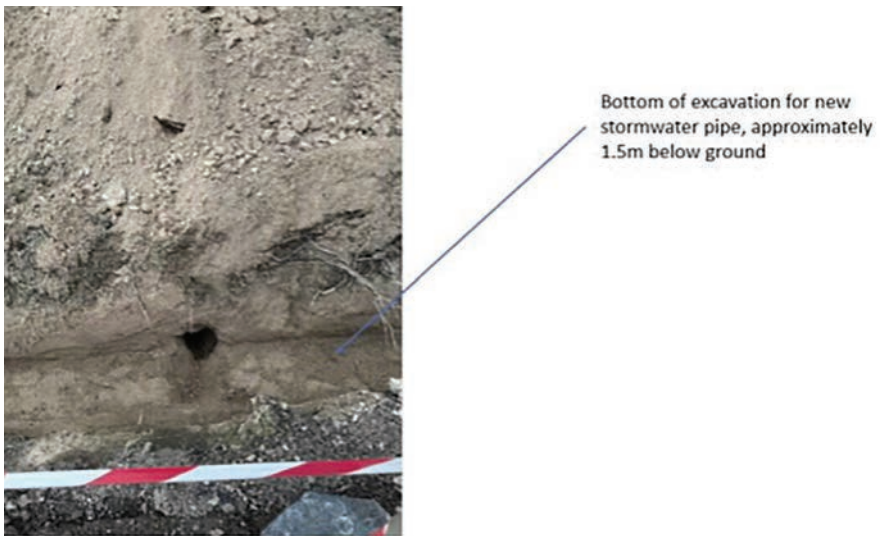
298 Public Hearing Transcript, Gerrard Raymond Borghesi, 14 May 2025, 513.

FIGURE 3.24: SHIRE'S STORM WATER UPGRADE ON VIEW POINT ROAD.[299]



180 Mr Borghesi told the Board of Inquiry that, during the excavation process for the installation of the stormwater drain, a void was discovered directly above the location of the November 2022 landslides.[300]

FIGURE 3.25: VOID LOCATED DURING THE SHIRE'S STORMWATER UPGRADE ON VIEW POINT ROAD.[301]



181 On 11 May 2023, Mr Borghesi emailed Mr Flores alerting the Shire to the existence of the void.[302] Mr Borghesi expressed and sought the Shire's response to the following:

> It is now clear the cracked kerb and channel coupled with the continuous flow of water has been a key contributor to the landslip of November 2022.
>
> As I pay rates for drainage, I believe the lack of maintenance and response to the issue of continuous water running down View Point [Road] over cracked kerb and channel changes the liability for hillside restitution to the Council.[303]

299 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0010].

300 Public Hearing Transcript, Gerrard Raymond Borghesi, 14 May 2025, 515; Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0019].

301 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0025].

302 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(9) [MSC.5005.0011.4483].

303 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(9) [MSC.5005.0011.4483].

182 Mr Borghesi told the Board of Inquiry that once the drainage works were completed, the continuous flow of water down the northern kerb of View Point Road appeared to stop, with water successfully captured and diverted into the new stormwater drain. As a result, the area of the escarpment where the landslides had occurred began to dry out progressively.[304]

June to December 2023

183 Between June and August 2023, Mr Borghesi continued to correspond with the Shire about the expert reports, including about a further land stability assessment by CivilTest obtained in June 2023.[305] The June report largely mirrored CivilTest's earlier report save for the inclusion of an updated analysis regarding the slope stabilisation system, including specifications for the piles required to support the proposed retaining walls.[306] The June report reiterated that Mr Borghesi had "*nominated the proposed remediation area*" and that "*the slopes outside this area would remain susceptible to slide in the future and this may undermine the anchors and piles installed on the subject site*".[307]

184 Mr Borghesi also provided the Shire with structural drawings prepared by Rexicon Consulting Engineers (**Rexicon**) outlining the proposed land stability design for his property and 14–16 View Point Road.[308]

185 During this same period, Mr Willigenburg instructed solicitors, McGuinness Legal, to send correspondence to the Shire requesting, amongst other things, copies of the geotechnical reports the Shire had obtained in respect of the affected area. The letters noted that as impacted parties, it was appropriate for the Willigenburgs to have access to the information they were seeking.[309] Letters were also sent to Mr and Mrs Borghesi and their insurer seeking copies of the geotechnical reports they had obtained.[310]

186 Around the same time, the Willigenburgs also decided to engage a geotechnical engineering firm, A.S.James Pty Ltd (**AS James**), to prepare a report on the impact of the landslide on their property and works that would be required to make the area safe enough for them to move back home.[311]

187 The Shire refused to provide the information sought and suggested that the Willigenburgs seek the information via freedom of information processes.[312]

304 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 3 [18]; Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 520.

305 Email chain between Gerrard Borghesi, Claudio Flores and Davin Slade et al about Stantec's peer review of the Land Stability Assessment undertaken by CivilTest, 18 July 2023, [MSC.5039.0001.0247]; Email chain between Gerrard Borghesi, Claudio Fores and Davin Slade et all about Stantec's peer review of the Land Stability Assessment undertaken by Civil Test, 21 August 2023 [MSC.5039.0001.0255]; William She and Jinke Yu, Civil Test Pty Ltd, Land Stability Assessment at 10–12 View Point Road, 6 June 2023, [MSC.5000.0001.1131].

306 William She and Jinke Yu, Civil Test Pty Ltd, Land Stability Assessment at 10–12 View Point Road, 6 June 2023, [MSC.5000.0001.1131 at .1141–.1142].

307 William She and Jinke Yu, Civil Test Pty Ltd, Land Stability Assessment at 10–12 View Point Road, 6 June 2023, [MSC.5000.0001.1131 at .1143].

308 Rexicon Consulting Engineers, Proposed Land Stability Design for 10–12 & 14–16 View Point Road, 16 June 2023, [MSC.5003.0001.0805].

309 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 15 [83], 15 [85], 16 [88(b)], 16 [91].

310 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 16 [88(a)].

311 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 16 [89].

312 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 16 [86], 17 [92]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-21 [RES.0010.0001.0028], Exhibit PW-22 [RES.0010.0001.0029 at _0004].

188 Nine months after the landslides, on 21 August 2023, following the peer review of CivilTest's June report by Stantec,[313] and an updated land stability assessment by CivilTest addressing the substance of the peer review,[314] the Shire finally confirmed with Mr Borghesi that he could proceed with finalising the retaining wall design.[315] On 24 August 2023, the Shire's Legal team also sent an email to the Willigenburgs' solicitors, stating:

> To provide you [with] an update, the rectification works, which will ensure the safety of all impacted parties, are expected to commence in middle to late September.[316]

189 Those works did not commence in September 2023.

190 In respect of that period, Mr Willigenburg had the following exchange with Counsel Assisting the Board of Inquiry:

> Q. So at that point had you been provided any expert analysis or expert report by either the council or any other party?
>
> A. No.
>
> Q. And I assume you were quite fed up with the state of affairs?
>
> A. Yes. Yes, you could say that.
>
> Q. So what is it that you decided to do?
>
> A. Through McGuinness Legal they had a view that what we probably should do was to challenge the validity of the emergency order that had been raised in November and to seek the services of a lawyer who would specialise in the Building Act, and that's basically what we decided to do.[317]

191 On 7 September 2023, after having received no further correspondence from the Shire in response to requests for information, McGuinness Legal sent a letter to the Shire stating that the Willigenburgs were moving back into their home.[318]

192 Mr and Mrs Willigenburg then returned to their home on 17 October 2023. Mr Willigenburg told the Board of Inquiry it was only then that they "*finally got some traction*".[319] That is, the Shire agreed to attend a meeting with them.[320] Counsel Assisting asked Mr Willigenburg:

> Q. So about a year after, a bit under a year after the landslide you had your first face-to-face meeting with the council; is that right?
>
> A. That's right.[321]

313 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(87) [MSC.5000.0001.0974].

314 William She and Jinke Yu, Civil Test Pty Ltd, Land Stability Assessment at 10–12 View Point Road, 2 August 2023, [MSC.5005.0030.2303].

315 Email chain between Gerrard Borghesi, Claudio Fores and David Slade et al about Stantec's peer review of the Land Stability Assessment undertaken by Civil Test, 21 August 2023, [MSC.5039.0001.0255].

316 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 17 [93]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-22 [RES.0010.0001.0029 at .0003].

317 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 465–466.

318 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 17 [97]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-23 [RES.0010.0001.0038].

319 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 466.

320 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 17 [99].

321 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 466.

193 On 13 September 2023, Mr Borghesi sent an email to the Shire confirming that all documentation for the proposed remediation works had been completed, including independent certification of the design.[322] Mr Borghesi reiterated that he considered the Shire were responsible for the landslides "*due to the inadequate maintenance of the View Point Road drainage and the cracked kerb*", and requested the Shire accept responsibility for the proposed remediation works.[323] Mr Borghesi noted in his email:

> I have invested 8 months of my time, and substantial expense, as a qualified civil/ structural engineer, to find the lowest cost, feasible solution to the restitution that meets Council's requirements … The project cost is at ~$1.1m as quoted by Maw Civil. Notably, the earlier solutions proposed would have cost upwards of $3m.[324]

194 On 18 October 2023, Mr Borghesi sent an email to Maw Civil seeking a quote for the construction of a "*[v]eggie patch retaining wall*", including the cost of bored piers, steel columns and concrete sleepers required for the job.[325] Mr Borghesi noted that he was hosting a wedding at his house in March 2024 and "*[i]f Council has not accepted responsibility soon, we'd like to get that job done, on our nickel, pretty soon!*".[326]

195 On 1 November 2023, Mr Willigenburg attended a meeting with representatives from the Shire including Mr Flores, Mathew Hopwood-Glover (Glover), who had taken over from Mr Flores as the Shire's MBS, and various legal representatives. The Shire's representatives raised concerns about the Willigenburgs re-occupying their home and told Mr Willigenburg they were continuing to work to develop a plan for the affected area.[327]

196 Mr Willigenburg left the meeting with the understanding that the Shire was still working towards implementing the 3-Stage Plan.[328] He told the Board of Inquiry:

> The period between 5 May 2023 and November 2023 caused me a considerable amount of stress, worry and frustration. However, by December 2023, I was residing in my [p]roperty again and I was feeling more optimistic that rectification works were still going to be undertaken to ensure the safety of the area, and would be commenced as soon as possible.[329]

197 On 3 November 2023, Harwood Andrews, the Shire's legal representatives, received a report from Dane Pope of PSM, Geotechnical & Engineering Services (**PSM**), providing a risk assessment for 10–12 View Point Road. The report concluded that there continued to be an "*unacceptable*" risk to life for the Willigenburgs at 3/613 Point Nepean Road and 2 Penny Lane and to pedestrians on and below the escarpment slope on 10–12 View Point Road and the Willigenburgs' property.[330]

322 Email chain between Gerrard Borghesi, Bronwyn Borghesi and Claudio Flores about the Shire's responsibility for remediation works following November 2022 landslides, 13 September 2023, [MSC.5005.0018.0340].

323 Email chain between Gerrard Borghesi, Bronwyn Borghesi and Claudio Flores about the Shire's responsibility for remediation works following November 2022 landslides, 13 September 2023, [MSC.5005.0018.0340].

324 Email chain between Gerrard Borghesi, Bronwyn Borghesi and Claudio Flores about the Shire's responsibility for remediation works following November 2022 landslides, 13 September 2023, [MSC.5005.0018.0340 at .0341].

325 Exhibit MPSC-1, Email from Gerrard Borghesi to Maw Civil about veggie patch retaining wall, 18 October 2023, [MSC.5039.0001.0259].

326 Exhibit MPSC-1, Email from Gerrard Borghesi to Maw Civil about veggie patch retaining wall, 18 October 2023, [MSC.5039.0001.0259].

327 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 18 [100]–[102]; Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 467.

328 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 18 [102].

329 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 18 [104].

330 Exhibit CA-5, Landslide Risk Assessment regarding 10–12 View Point Road prepared by PSM, 3 November 2023, [MSC.5000.0001.1206].

198 On 15 December 2023, Mr Borghesi provided Maw Civil with a design for the vegetable patch retaining wall.[331] Mr Borghesi noted in his email to Maw Civil that:

> We will have (yet another) set of reports from underground radar scans and new Geotechnical inspections which clearly implicate Council's responsibility for saturating the hillside. If Council concedes quickly, we expect they will approve the major works you have already quoted on, and we would like to have all of the work executed under one contract.[332]

199 On 21 December 2023, Mr Borghesi received a further technical report from CivilTest.[333]

200 This latest report, amongst other things, confirmed that CivilTest had engaged Safety Scan Pty Ltd to conduct a ground penetrating radar (**GPR**) scan of the landslide site to check for the existence of voids. This occurred on 12 December 2023, and the report provided the following summary of the scan results:

> Scanning was conducted along the road surface, nature strip and front of [the] property. GPR scan results indicated the presence of potential voids within the nature strip area. The location of the indicated voids commenced behind the kerb between trees. Due to the number of services located within the nature strip disturbing natural soil layers, a probe was utilised to physically confirm the GPR findings. The probe confirmed a void was present. When removed the probe was dry and the bottom of the void was solid. The void was approximately 550mm below ground surface and 450mm deep (1.0m below ground surface). The identified void travels from the kerb line to the sewer line on the property line along View Point Road. The sewer pipe has an invert level of 1.37m entering the sewer pit, the downstream pipe exits the pit at 3.01m invert. The full extent of the void network was unable to be mapped. It is typical of water to follow the easiest route downhill. Any further voids toward the North West would be expected at a depth exceeding the 1.5m effective range of the GPR equipment within the soil conditions.[334]

201 The report concluded that:

> The obvious shift in moisture conditions at the headscarp, both prior to (characterised by continuous seepage and abnormal wetness) and after (resulting in a drier headscarp) the road drainage improvement works strongly suggests the presence of a subsurface water pathway. This subsurface water pathway originates near the hump that has since been removed, where surface flow patterns change, and this is also near where voids were discovered during the drainage improvement works, and confirmed through subsequent GRP scanning. This pathway directs water toward the current headscarp area.
>
> The heavy rainfall event in November 2022, particularly on the day preceding the landslide, resulted in a substantial buildup of surface runoff throughout the general View Point Road and Arthurs Seat catchment area. It is concluded that the landslide was triggered by the accumulation of subsurface water pressure, which had built up due to the presence of a cracked road kerb and the flow of water into the voids, all directed towards the affected (landslide) area downslope.[335]

331 Email From Gerrard Borghesi to Jane Gleeson and Simon Bulk about design of veggie patch retaining wall, 15 December 2023, [MSC.5039.0001.0265]; Drawing of design of veggie patch retaining wall, 15 December 2023, [MSC.5039.0001.0268].

332 Email From Gerrard Borghesi to Jane Gleeson and Simon Bulk about design of veggie patch retaining wall, 15 December 2023, [MSC.5039.0001.0265].

333 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0012].

334 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0019].

335 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0020].

2024

Reinforcement wall at 10–12 View Point Road

202 Mr Borghesi gave evidence to the Board of Inquiry that in January 2024, he arranged for the installation of a "*geotechnical and structurally engineered wall*" at his property, located at the top of the headscarp, 30 centimetres in front of the existing retaining wall and almost directly upslope of 3 Penny Lane.[336] He said that the purpose of the reinforcement wall was to strengthen the old retaining wall that had shown signs of settlement.[337] Mr Borghesi decided to expedite the construction of the reinforcement wall due to the wedding taking place at his home in March 2024.[338]

203 The construction of the reinforcement wall was undertaken by Maw Civil in January 2024.[339]

FIGURE 3.26: CONSTRUCTION OF THE REINFORCEMENT WALL AT 10–12 VIEW POINT ROAD.[340]



FIGURE 3.27: COMPLETED REINFORCEMENT WALL AT 10–12 VIEW POINT ROAD.[341]



204 Mr Borghesi described the reinforcement wall as being just under two metres at its highest point if measured from the base to the top.[342] He did not seek a building permit to construct the reinforcement wall.[343] Consequently, the Shire was not made aware of its proposed construction.[344]

336 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 5 [29(f)]; Public Hearing Transcript, Gerrard Raymond Borghesi, 14 May 2025, 498; Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 538.

337 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 5 [29(f)].

338 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 539.

339 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 540.

340 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0044].

341 Photograph of completed reinforcement wall at 10–12 View Point Road, [MSC.5039.0001.0315].

342 Public Hearing Transcript, Gerrard Raymond Borghesi, 14 May 2025, 499–500.

343 Public Hearing Transcript, Gerrard Raymond Borghesi, 14 May 2025, 499–500. A building permit is required for any retaining wall that is above one metre in height that is not otherwise part of or related to works already permitted: *Building Regulations 2018* (Vic), sch 3, item 5.

344 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 539.

Further Emergency and Building Orders issued to the Willigenburgs and Borghesis

205 On 30 January 2024, the Borghesis' solicitors, Rotman & Morris Solicitors, provided a copy of CivilTest's December report to the Shire's solicitors.[345] Rotman & Morris emphasised the report's conclusions regarding the "*inadequate management of the drainage on View Point Road*" and the "*presence of a cracked road kerb and the flow of water into the voids*" as causal factors of the landslides, which by this stage had occurred more than 12 months earlier.[346] The letter also stated that, by reason of s 16 of the *Water Act 1989* (Vic) (***Water Act***), the Shire was strictly liable to compensate the Borghesis for the loss and damage suffered as a result.[347]

206 The letter sought, amongst other things, compensation from the Shire for the approximate cost of the 3-Stage Plan, being in the amount of $1.25 million.[348]

207 The Borghesis did not receive a response to that letter.

208 On 1 February 2024, Mr Flores, having returned to his role as Senior Building Surveyor at the Shire, gave Mr Willigenburg a letter requesting an inspection of his property.[349] The letter stated:

> As your property has been impacted by the landslip, I am following up on the Council issued Emergency Order EO-147/22 that directed you to cease occupation of the dwelling.
>
> Council undertook a recent site visit of the property which has raised concerns that the dwelling is being occupied in contravention of Emergency Order EO-147/22.[350]

209 Mr Willigenburg was not aware of any site visit having taken place at his property.[351]

210 In any case, Mr Willigenburg consented to Mr Flores inspecting the property, and an inspection took place on 6 February 2024.[352] Following the inspection, Mr Flores issued Mr Willigenburg with a further Emergency Order pursuant to s 102 of the *Building Act,* requiring the Willigenburgs to vacate the property on the basis of "*immediate safety concerns*".[353]

211 Between 6 February and 12 March 2024, the Shire issued a further six Emergency Orders (pursuant to s 102 of the *Building Act*) to the Willigenburgs.[354] As a result, the Willigenburgs left their home again and moved back into the rental property at 607–609 Point Nepean Road on 23 February 2024.[355]

345 Letter from Rotman & Morris Solicitors to Harwood Andrews about 10–12 View Point Road, 30 January 2024, [BAB.0001.0002.0020 at _0005].

346 Letter from Rotman & Morris Solicitors to Harwood Andrews about 10–12 View Point Road, 30 January 2024, [BAB.0001.0002.0020 at _0005].

347 Letter from Rotman & Morris Solicitors to Harwood Andrews about 10–12 View Point Road, 30 January 2024, [BAB.0001.0002.0020 at _0005–_0006].

348 Letter from Rotman & Morris Solicitors to Harwood Andrews about 10–12 View Point Road, 30 January 2024, [BAB.0001.0002.0020 at _0006].

349 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 19 [106].

350 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-24 [RES.0010.0001.0039].

351 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 19 [107].

352 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 19 [107].

353 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 19 [107].

354 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 19 [111].

355 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 19 [110].

212 On 7 February 2024, Mr Flores issued a Building Notice pursuant to s 106 of the *Building Act* to the Borghesis.[356] The notice required them to show cause as to why they should not be required to carry out "*stabilisation work to the landslide affected land in accordance with the geotechnical recommendations and structurally engineered design after obtaining the relevant building and planning permit approvals*".[357]

213 On 12 March 2024, the Borghesis' solicitors responded to Mr Flores stating that the Building Notice was invalid on jurisdictional grounds.[358] They stated that, even if the Building Notice was valid, it was "*inequitable*" for the Shire to require them to undertake the work at their own cost in circumstances where legal responsibility for the landslides lay with the Shire.[359]

214 On 14 March 2024, Mr Flores issued a Building Order pursuant to s 111 of the *Building Act,* prohibiting occupation of the Willigenburgs' property at 3/613 Point Nepean Road until such time as 10–12 View Point Road had been made safe to the satisfaction of the MBS.[360]

215 On 4 April 2024, Mr Flores issued a Building Order pursuant to s 111 of the *Building Act* to the Borghesis.[361] The Building Order largely mirrored the earlier Building Notice and required the Borghesis to undertake stabilisation works to the landslide affected land in accordance with geotechnical recommendations and a structurally engineered design.[362]

216 The next day, on 5 April 2024, the Shire informed the Borghesis' solicitors that the MBS did not intend to withdraw the Building Notice or the Emergency Order issued on 18 November 2022.[363]

Building Appeals Board proceedings

217 In April 2024, the Willigenburgs commenced proceedings in the Building Appeals Board to appeal the Building Order served on them.[364]

218 By that time, the Willigenburgs had obtained a report from AS James which recommended, amongst other things, that a debris flow barrier be installed at the base of the escarpment or as a substitute to the rear fence of their property and other properties on Point Nepean Road.[365] The debris flow barrier was intended to temporarily ensure that their property would be safe enough for occupation, while the 3-Stage Plan was implemented.[366]

356 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 6–7 [25]; Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(11) [MSC.5002.0001.0898].

357 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 6 [25]; Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(11) [MSC.5002.0001.0898 at .0900].

358 Letter from Rotman & Morris Solicitors to Claudio Flores about Building Notice BN-002/24, 12 March 2024, [BAB.0001.0002.0020 at _0003].

359 Letter from Rotman & Morris Solicitors to Claudio Flores about Building Notice BN-002/24, 12 March 2024, [BAB.0001.0002.0020 at _0003].

360 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 20 [113]; Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(117) [MSC.5002.0001.7583].

361 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2022, 7 [26]; Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2022, Exhibit CA-32(12) [MSC.5002.0001.1567].

362 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2022, 7 [26]; Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2022, Exhibit CA-32(12) [MSC.5002.0001.1567].

363 Email from Daniel Darling-Filby to David Graj about the withdrawal of EO-152/22, 5 April 2024, [BAB.0001.0002.0018].

364 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 20 [115].

365 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 20 [116].

366 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 20 [116].

219 The Willigenburgs sought an order that the Shire and/or the Borghesis cover the costs associated with the work in erecting the debris flow barrier.[367]

220 In May 2024, the Borghesis also commenced proceedings in the Building Appeals Board to challenge, amongst other things, the validity of the Building Order served on them and the Shire's decision to refuse to cancel the Emergency Order.[368]

221 Mr Borghesi gave evidence to the Board of Inquiry that the AS James debris flow barrier proposal was later dismissed as it would have required cables to be installed across Penny Lane, thereby restricting access to Penny Lane.[369]

Victorian Civil and Administrative Tribunal proceedings

222 The Borghesis also issued proceedings against the Shire in the Victorian Civil and Administrative Tribunal (**VCAT**) with respect to losses sustained by them as a result of the November 2022 landslides.[370]

223 In June 2024, in the context of the VCAT proceedings, the Shire received a further report from Mr Pope of PSM providing his opinion as to the causes of the landslides.[371] The report had been commissioned about six months earlier in November 2023.

224 The report concluded that:

a. it was most likely that the initial landslide on 14 November 2022 occurred primarily as a result of "*natural geomorphological processes in combination with the [r]ain [e]vent*";[372] and

b. the subsequent landslide on 15 November 2022 was a conditional event dependent on the initial landslide occurring. The initial landslide "*damaged the irrigation system which has then contributed a large amount of water into the landslide area. This additional inflow in combination with [the] natural geomorphological processes and the [r]ain [e]vent has created the conditions necessary for the subsequent landslide … to occur*".[373]

225 Mr Flores gave evidence to the Board of Inquiry that the Shire specifically sought Mr Pope's opinion as to whether voids in and under the kerb in View Point Road could have been a potential cause of the landslides.[374] Mr Flores confirmed that, while he did not recall considering the report at the relevant time, Mr Pope had concluded that the contribution of damaged infrastructure to the landslides was "*minor to negligible*".[375] The report found that the landslides would have occurred regardless of the water flow on View Point Road.[376]

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367 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 20 [117].

368 Appeal Application to the Building Appeals Board in respect of 10–12 View Point Rd, 3 May 2024, [BAB.0001.0002.0014]; Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 523.

369 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 522.

370 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 4 [25].

371 Exhibit CA-6, Expert Opinion Report: Landslide Assessment in relation to 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639].

372 Exhibit CA-6, Expert Opinion Report: Landslide Assessment in relation to 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0663].

373 Exhibit CA-6, Expert Opinion Report: Landslide Assessment in relation to 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0663].

374 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 6 [24(b)].

375 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 6 [24(b)].

376 Exhibit CA-6, Expert Opinion Report: Landslide Assessment in relation to 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0667].

Mornington Peninsula Planning Scheme Review No. 5

226 The Shire gave evidence to the Board of Inquiry that, in line with its obligations under the *Planning and Environment Act* and following its review of the Mornington Peninsula Planning Scheme in November 2018, it conducted a further review of the Mornington Peninsula Planning Scheme in 2023. That review was adopted by the Shire on 30 April 2024.[377]

227 The review noted that outstanding items from the earlier review in 2018 included Recommendation 211, being the completion of a comprehensive review and update of the Shire's landslip susceptibility data and modelling to inform and update the ordinance and mapping of the EMOs.[378] At the time of the review, this work was "*yet to be funded, resourced and programmed*".[379] The review recommended that the Shire complete this work and assigned it a *"Medium"* priority.[380]

228 More than 12 months have now passed, and the work has not been completed.

3.5 Lead up to the January 2025 landslides: November – December 2024

229 In the months leading up to the 5 January 2025 landslide, residents observed unexplained water throughout the McCrae area.

230 The water was on the streets uphill of Penny Lane – particularly, Waller Place, Charlesworth Street, and Coburn Avenue. The water roared in the stormwater drainage system. It bubbled up through the roads. It pushed up and cracked the bitumen. It created potholes. It flowed down the streets. It saturated and seeped from the nature strips.

FIGURE 3.28: MAP OF MCCRAE AREA HIGHLIGHTED TO SHOW VARIOUS LOCATIONS OF WATER ISSUES.[381]



377 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, 19 [51].

378 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(66) [MSC.5014.0001.0532 at .0648].

379 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(66) [MSC.5014.0001.0532 at .0627].

380 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(66) [MSC.5014.0001.0532 at .0664].

381 Nearmap, *Image of McCrae Area* (Web Page, July 2025) <https://apps.nearmap.com/maps/#/HtmyQ3yxQE6tLWdDNBPuoQ/@-38.3469521,144.9385121,18.00z,0d/V+R/20250504>.

231 From at least November 2024, residents of McCrae raised their concerns about the water to both the Shire and SEW. The complaints were numerous. The residents knew something was wrong, especially given the lack of rainfall in that period.

232 As the chronology of complaints below illustrates, throughout November to the end of December 2024, the water was thought to be related to potential issues with stormwater drainage, road drainage or SEW's water mains. The water issues were treated with varying degrees of priority by the Shire and SEW.

233 During that period, no one knew the source of the water – not the residents, the Shire nor SEW. An answer to the problem eluded them for several weeks.

234 A potential explanation for the water – a burst water main near the intersection of Bayview Road and Outlook Road – was discovered just before New Year's Eve.

Escalation of complaints in the lead up to the 5 January 2025 landslide

Early to mid-November 2024, eight weeks before the landslide

235 On multiple occasions throughout November 2024, a McCrae Resident who had recently moved into a property in McCrae heard "*torrents of water rushing through the under[-]road drains on Coburn Ave[nue]*". She told the Board of Inquiry that the sound of rushing water persisted for around two weeks, and that she was "*shocked [by] the amount of water (so loud [that] I could hear it through my ear buds)*".[382]

236 At around the same time, Brett Cooper, the owner of 5 Waller Place, also began to notice issues with the road surface at the intersection of Charlesworth Street and Waller Place. He told the Board of Inquiry that he ordinarily drives through that intersection several times per day, and that, in early November 2024, he saw the road begin to rise and swell. Cracks started to appear in the road surface and water was leaking from them. As each day passed, the cracks grew wider and the volume of water leaking from them increased.[383]

Late November 2024, six weeks before the landslide

237 On 24 November 2024, Philip Johnson reported to SEW via their Snap, Send and Solve application that water was surfacing in the middle of the road outside 3 Charlesworth Street. Worryingly, the impacted area had become "*progressively larger*" despite the fact that "*it had been quite dry*".[384] This is a photograph he took of the issue:

382 Public Submission of McCrae Resident, 5 May 2025, [SUB.0032.0001.0001].

383 Exhibit CA-17, Witness Statement of Brett Phillips Cooper, 12 May 2025, 1 [4]–[5]; Public Hearing Transcript, Brett Phillips Cooper, 12 May 2025, 328–329.

384 Public Submission of Philip Johnson, 30 April 2025, [SUB.0004.0010.0001].

FIGURE 3.29: WATER SURFACING OUTSIDE 3 CHARLESWORTH STREET.[385]



238 SEW responded to Mr Johnson's report on the same day, requesting further information on the basis that SEW had no assets in that location. Mr Johnson did not respond, but other residents subsequently contacted both SEW and the Shire to provide additional information.[386]

239 On 28 November 2024, at around 2.46pm, a resident called SEW to report a water leak in the vicinity of 1 Charlesworth Street, near the intersection of Charlesworth Street and Waller Place. They reported that the water was flowing into the gutter at a rate of "*approx [a] hose on half*".[387]

240 Just over an hour later, the Shire was informed of the same issue. At around 4.06pm, the Shire submitted a road maintenance request to Fulton Hogan, a construction company contracted by the Shire, concerning the road surface outside of 3 Charlesworth Street, recording:

> Customer reporting a sinkhole has appeared on the road in front of her house approx a dinner plate in diameter, reports it is leaking with water, please attend ASAP.[388]

241 The request was given an **urgent priority** rating.[389]

242 Fulton Hogan attended the site and erected traffic hazard signs and cones around the affected area, while waiting for representatives of SEW to arrive.[390]

243 By 6.41pm, Service Stream personnel (on behalf of SEW) arrived on-site and found water seeping from the middle of the road outside of 3 Charlesworth Street. They recorded:

> The road is very spongy. The council have filled in a small pothole. I tested the water a few times & got [electrical conductivity] readings of over 1350 which is well out of mains range. I sounded nearby service's & picked up no sounds & the water main is in the

385 Public Submission of Philip Johnson, 30 April 2025, [SUB.0004.0010.0001].

386 Public Submission of Philip Johnson, 30 April 2025, [SUB.0004.0010.0001].

387 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0085].

388 Exhibit CA-31, Second Witness of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0019], [MSC.5028.0001.0040].

389 Exhibit CA-31, Second Witness of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0019], [MSC.5028.0001.0040].

390 Exhibit CA-31, First Witness Statement of David Smith, 17 April 2025, Exhibit CA-31(4) [MSC.5016.0001.1915].

> n/strip. Looks to be a drainage issue from the very heavy downpour from last night. I told the council blokes of my findings & they have put bollards around the area & they are going to get a crew to come back in the morning.[391] (errors in original)

244 On 29 November 2024, SEW characterised the Charlesworth Street pothole that was inspected the day before as a "*non-urgent fault*" and assigned it a **priority rating of 5**. This rating meant that it had to be addressed within 24 hours.[392]

245 At some point during that day, Fulton Hogan returned to repair the pothole with hot mix, emulsion and dust.[393] The repair was short lived.

Early December 2024, five weeks before the landslide

246 On 1 December 2024, at around midday, a resident called SEW to report water bubbling up through the road at the intersection of Charlesworth Street and Waller Place. A few hours later, by 3.58pm, Service Stream personnel arrived on-site and noted that this was the same issue raised days earlier. They noted that the Shire had "*patched the road from where the water was seeping out*". They tested the water, observed that the electrical conductivity reading was "*over 3700*" and concluded that this was "*a council issue*".[394]

247 On 2 December 2024, SEW again allocated a **priority rating of 5** to this issue.[395]

248 On 4 December 2024, a Shire representative contacted SEW to report a "*sinkhole*" in the same location as was reported on 1 December 2024. The SEW representative advised the Shire of SEW's previous findings and referred the issue back to the Shire's Roads Corridor and Drainage team.[396]

Early to mid-December 2024, three to four weeks before the landslide

249 In early to mid-December 2024, Mr Willigenburg observed the spoon drains on Penny Lane filling with water, and that the ground on either side of the drains was saturated and spongy.[397] He described the sound of the water moving through those drains as ranging between a "*whooshing sound*" and a "*low trickling*" sound.[398]

250 Water continued to emerge elsewhere within a 50 to 100 metre radius of the Charlesworth Street and Waller Place intersection. In the 10 days following 11 December 2024, Mr Cooper observed water leaking from the nature strip in front of 34 Coburn Avenue. The nature strip was so saturated that he thought someone had left a hose running.[399] Similarly, he saw water leaking from the nature strip in front of 1 Waller Place. The nature strip was so saturated that a vehicle became bogged there in the lead up to Christmas. So significant was the water flow that it travelled across the road into a stormwater drain in front of 4 Waller Place.[400]

391 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0085].

392 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0085].

393 Exhibit CA-31, First Witness Statement of David Smith, 17 April 2025, Exhibit CA-31(13) [MSC.5018.0001.0021 at .0022].

394 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0085 at _0013].

395 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0085 at _0014].

396 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0085 at _0013].

397 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 20–21 [119].

398 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 469–470.

399 Exhibit CA-17, Witness Statement of Brett Phillips Cooper, 12 May 2025, 2 [8(a)]; Public Hearing Transcript, Brett Phillips Cooper, 12 May 2025, 332.

400 Exhibit CA-17, Witness Statement of Brett Phillips Cooper, 12 May 2025, 3 [8(b)]; Public Hearing Transcript, Brett Phillips Cooper, 12 May 2025, 330.

251 In the same period, Mr Cooper heard a significant amount of water gushing through a large stormwater pipe that runs alongside his property on Waller Place. He described the flow of water as "*unusually loud and uncharacteristic for that time period*". He told the Board of Inquiry he had never heard water flow through the stormwater pipe to that extent, when there had been no rain.[401]

252 In the meantime, on 14 December 2024, a customer reported to the Shire that the leaks outside 3 Charlesworth Street had not abated. The customer said that while there was some evidence of work being done, sludgy water was still "*oozing out of [the] roadway … [and] getting worse by the day*". The customer implored the Shire to act.[402] The Shire categorised the request as a stormwater drainage concern and gave it an **urgent priority** rating.[403]

253 Two days later, on 16 December 2024, the Shire noted that the "*[r]elevant department*" had inspected the site and deemed that all Shire assets were operating as intended, and that the issue could be related to a damaged SEW asset.[404] It is unclear from the records which Shire department conducted the inspection.

254 That same day, at around 1.45pm, SEW received a complaint that water was leaking out of the nature strip and trickling into the gutter near 4 Waller Place.[405] Five minutes later, SEW received a report that water was leaking at 34 Coburn Avenue.[406]

255 At 5.45pm, Mr Willigenburg reported to the Shire that the spoon drains at the end of Penny Lane were once again full even though there had been little rain. The report was categorised as a stormwater drainage concern and prioritised as **urgent**.[407]

256 On 17 December 2024, a resident of 4 Waller Place reported to SEW that there was water bubbling up from the ground around 1 Charlesworth Street. SEW advised the resident that its representatives had already attended the site earlier that day. Acoustic leak detection and an electrical conductivity test of the water indicated that there was no leak from the nearby water main. SEW arranged for Service Stream to attend the site again to assess whether any further action was required.[408]

257 On the same day, a resident sent a follow-up request to the Shire about the continuing water issues at the corner of Charlesworth Street and Waller Place. The resident explained the "*road is still lifting and now water is rising and sitting just outside … 3 Waller Place".* The issue was categorised as having **medium priority**.[409]

401 Exhibit CA-17, Witness Statement of Brett Phillips Cooper, 12 May 2025, 3 [9].

402 Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0020], [MSC.5028.0001.0041].

403 Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0020], [MSC.5028.0001.0041].

404 Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0020], [MSC.5028.0001.0041].

405 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076].

406 South East Water, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0094].

407 Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0020], [MSC.5028.0001.0042].

408 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076].

409 Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0020], [MSC.5028.0001.0042].

258 The Shire's Customer Service team contacted the Roads Corridor and Drainage team seeking an update on the request as it was "*bouncing from SE[W] [to] us*".[410] On an unknown date, the Shire contacted the customer providing an update regarding *"proposed works"* on Coburn Avenue.[411] Additional details concerning those works are not set out in the Shire's records.

259 Three days later, on 20 December 2024, a resident reported to the Shire that were was "*a large amount of groundwater streaming out of the road*" at 1 Charlesworth Street. The resident stated that SEW had attended the site and confirmed that the water was not from a burst water main. They thought the issue was a danger to residents and the public as the ground could be unstable. The Shire categorised the report as a stormwater drainage concern and marked it as **urgent**.[412]

260 A resident called SEW again about the leak outside 3 Charlesworth Street, which had been previously reported on 1 and 4 December 2024. SEW responded as follows:

> Advised customer of all the notes from previous jobs and she insists that we need to go out. Saw the notes on Task 2 about Drainage department handling this. So, called the council and spoke with Steff. Steff passed me onto Jenna (Infrastructure Dep at council) and Jenna advised spoke to supervisor at SEW at 9.13am this morning (did not get his name) and was told we have been out here several times. Jenna advised Fulton and Hogan were out there this morning and said too much water to be stormwater. SEW Supervisor told her that we will go out on-site today to meet with drainage supervisor from the council.[413]

261 Later that afternoon, the same resident contacted SEW to report that the hole on Charlesworth Street was getting worse. The resident wanted an update on what steps were being taken to address the issue.[414]

262 The Shire's Roads Corridor and Drainage team attended the site that day and placed bollards and tape up around the area where water was "*streaming out of the road*".[415] Fulton Hogan also noted that a "*make safe for [the] pothole with water ingress [had been] installed*".[416]

263 The Shire otherwise recorded that there were no Shire assets in the location and that SEW had been contacted to re-inspect its pipes.[417]

Mid to late December 2024, two weeks before the landslide

264 On 21 December 2024, Fulton Hogan contacted SEW to report that the volume of pressurised water flowing near Charlesworth Street was leading them to believe that it was not stormwater. They had inspected all the stormwater assets in the area on the Shire's behalf and found no faults. They also noted that the condition of the road was "*getting bad*", so bad that a road closure might soon be necessary.[418]

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410 Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0020], [MSC.5028.0001.0042].

411 Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0020].

412 Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0021], [MSC.5028.0001.0043].

413 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0085 at _0013].

414 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0085 at _0013].

415 Exhibit CA-31, First Witness Statement of David Smith, 17 April 2025, 9.

416 Exhibit CA-31, First Witness Statement of David Smith, 17 April 2025, Exhibit CA-31(13) [MSC.5018.0001.0021 at .0022].

417 Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0021], [MSC.5028.0001.0043].

418 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0016].

265 Later in the day, Service Stream personnel attended the site and saw water emerging from two locations. First, from the middle of the road opposite 3 Charlesworth Street. Second, from the nature strip in front of 1 Waller Place and travelling across the road to 4 Waller Place. The water was dirty.[419]

266 Service Stream tested the water in both locations, and the results indicated that the water was "*well above mains range*", with electrical conductivity readings between 440 and 540.[420]

267 Water was also observed "*pouring in a deep grated drain in the gutter*" at 4 Waller Place, appearing to originate from the other side of the Mornington Peninsula Freeway. This prompted the Service Stream personnel to cross the freeway to conduct acoustic leak detection on valves and services along The Boulevard and Bayview Road. No signs of leakage were detected. They concluded that the running water may have been the result of a drainage issue but recommended that specialised leak detection personnel be engaged to confirm the source.[421]

268 In the meantime, a resident of 3 Charlesworth Street reported to the Shire that there was "*[b]ad water in middle of the narrow road, plastic bollards around leak making it difficult to pass. Been like this for weeks.*" The Shire categorised the report as a road maintenance issue of **medium priority**.[422]

269 On the same day, a local resident posted the following photograph and video of the Charlesworth Street pothole to the McCrae Village Community Group page on Facebook:

FIGURE 3.30: PHOTOGRAPH AND VIDEO FOOTAGE OF WATER ON CHARLESWORTH STREET.[423]





270 The post stated "*Charlesworth Street water leak. Just posting this to see how long it takes to get repaired. Water coming out of the road for about 3 weeks now, waiting for the massive washout*".[424]

419 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0015].

420 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0015].

421 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0015].

422 Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0021], [MSC.5031.0001.5866].

423 Screenshot of Facebook Post on McCrae Village Community Group page, 21 December 2024, [MSC.5035.0001.0025].

424 Screenshot of Facebook Post on McCrae Village Community Group page, 21 December 2024, [MSC.5035.0001.0025].

271 Two days later, on 23 December 2024, a resident of 4 Waller Place expressed concern to the Shire about the condition of the road along Charlesworth Street and Waller Place. A new sinkhole had appeared on Waller Place. The report was categorised as a road maintenance issue of **medium priority**.[425]

272 The same morning, a resident of 1 Charlesworth Street telephoned SEW to request an update on the pothole on Charlesworth Street that had been reported almost a month earlier, on 28 November 2024. SEW recorded that the resident told them:

> Red bollards and a traffic hazard sign have been placed around hole in roadway where water is flowing through - says many owners in the street frustrated, have called council who keep telling them it's not their prob and to call SEW, rumour amongst locals in the street is that this is a natural spring - residents getting angry that bollards have been put up but water still flowing and a hazard, with no answers.[426] (errors in original)

273 This issue remained at a **priority rating of 5**.[427]

274 At 4.52pm on 23 December 2024, the Shire recorded that the water leak at 3 Charlesworth Street was being "*maintained by SEW*".[428] The same note was recorded in respect of the leak at 4 Waller Place.[429]

275 Notably, Shire records indicate that the 3 Charlesworth Street request was not resolved until 20 January 2025, at which time, the Shire's Road Maintenance Request Summary simply noted that work had been "*successfully completed*".[430]

Christmas Eve, 24 December 2024

276 By Christmas Eve, about a month had passed since water issues near the corner of Charlesworth Street and Waller Place had been reported. Service Stream's multiple investigations had not located the source of the water.[431]

277 SEW escalated the issue to Jason Marsh, Leak Detection Technician from SEW, and a representative from Detection Services Pty Ltd (**Detection Services**). Detection Services, was and remains, contracted by SEW to provide leak detection services.[432] They attended the site in the vicinity of 4 Waller Place to investigate.[433]

278 It was a terrible day for leak detection, given the constant and heavy rain.[434]

425 Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0021], [MSC.5032.0001.0002].

426 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0085].

427 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0085 at _0002].

428 Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0021], [MSC.5031.0001.5866].

429 Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0021], [MSC.5032.0001.0002].

430 Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0019], [MSC.5028.0001.0040].

431 Public Hearing Transcript, Jason Marsh, 23 June 2025, 916.

432 Exhibit CA-25, Witness Statement of Lara Olsen, 16 May 2025, 4 [24(a)].

433 Exhibit CA-37, Witness Statement of Jason Marsh, 23 June 2025, Exhibit 1 [SEW.0001.0001.4923]; Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025 [SEW.0001.0001.0076 at _0037].

434 Exhibit CA-37, Witness Statement of Jason Marsh, 23 June 2025, Exhibit 2 [SEW.0001.0001.4921].

279 Upon arriving, Mr Marsh noticed that water was bubbling up from the road at about 10 litres per minute,[435] the stormwater drain at 4 Waller Place was "*raging*", and that there were extremely saturated nature strips.[436] This was most concerning. The volume and forceful movement of water through the road and stormwater drain led Mr Marsh to suspect it was possibly emanating from a burst water main.[437]

280 Mr Marsh and the Detection Services representative sounded all of SEW's water main assets in the vicinity of 4 Waller Place – no leaks were detected.[438] While they were conducting their investigations, they met Mr Cooper who allowed them to access a water main pit at the back of his property for acoustic leak detection.[439] The water main was quiet – it was ruled out as the source of the water.[440]

281 Mr Cooper subsequently directed Mr Marsh and the Detection Services representative to The Boulevard Reserve on the southern side of the Mornington Peninsula Freeway, knowing that both the water main and stormwater pipe travelled across the freeway.[441]

282 Mr Marsh and the Detection Services representative proceeded there and sounded the valves and hydrants near Bayview Road. Again, no leak noises were detected.[442] Mr Marsh did not otherwise observe any signs, such as wet ground, to indicate the presence of a potential leak.[443]

283 At 6.37pm that evening, Mr Marsh sent an email to Charles Swain, Water Maintenance Manager at SEW, and others stating, "*I believe that this may become a bigger problem*".[444] Counsel Assisting asked Mr Marsh what he meant by "*this*", he replied "*I was … concerned about the water raging*" in the stormwater system.[445]

284 Mr Marsh told his colleagues that he would return when the weather had improved to take water samples. He asked if an "*operation tech*" with personal knowledge of the area was available to assist him with its layout.[446]

285 Later that evening, Hayden Phillips, Water Network and Leakage Technician at SEW, replied to Mr Marsh's email. He stated that there had been no indication of a significant leak from trends at the Waller Place Pressure Reducing Valve/Pump station and Parkes Street tanks. He suggested that the water could be emanating from smaller leaks tracking downhill through stormwater drains.[447]

435 Public Hearing Transcript, Jason Marsh, 23 June 2025, 916.

436 Exhibit CA-37, Witness Statement of Jason Marsh, 23 June 2025, Exhibit 2 [SEW.0001.0001.4921].

437 Public Hearing Transcript, Jason Marsh, 23 June 2025, 916–918.

438 Exhibit CA-37, Witness Statement of Jason Marsh, 23 June 2025, 2 [10].

439 Exhibit CA-37, Witness Statement of Jason Marsh, 23 June 2025, 2 [10].

440 Exhibit CA-37, Witness Statement of Jason Marsh, 23 June 2025, 2 [10]; Public Hearing Transcript, Jason Marsh, 23 June 2025, 921.

441 Exhibit CA-17, Witness Statement of Brett Phillips Cooper, 12 May 2025, 5 [18]; Public Hearing Transcript, Brett Phillips Cooper, 12 May 2025, 338–339.

442 Exhibit CA-37, Witness Statement of Jason Marsh, 23 June 2025, Exhibit 1 [SEW.0001.0001.4923].

443 Public Hearing Transcript, Jason Marsh, 23 June 2025, 926.

444 Exhibit CA-37, Witness Statement of Jason Marsh, 23 June 2025, Exhibit 2 [SEW.0001.0001.4921].

445 Public Hearing Transcript, Jason Marsh, 23 June 2025, 926–927.

446 Exhibit CA-37, Witness Statement of Jason Marsh, 23 June 2025, Exhibit 2 [SEW.0001.0001.4921].

447 Email from Hayden Phillips to Jason Marsh et al about potential source of water observed near 4 Waller Place, 24 December 2024, [SEW.0001.0001.0967].

Christmas Day, 25 December 2024

286 On Christmas Day, Mr Cooper walked over to The Boulevard Reserve to check his suspicions about the origin of the water. He walked towards a patch of land located behind The Boulevard Reserve at the intersection of Bayview Road and Outlook Road, where he knew there were two pits for the stormwater pipe. He was unable to locate the first pit due to overgrown vegetation. However, as he neared the second pit, he could hear running water. He did not find the pit, but he did notice that the ground was completely saturated, to the point that his shoes were sinking into it.[448]

287 Mr Cooper then walked down to the beach via a set of stairs on View Point Road that led down to Margaret Street, where he knew there to be an outfall for the stormwater pipe. When he arrived, he saw that the volume of water coming from the outfall was washing a deep trench into that section of the beach. He told the Board of Inquiry:

> I had previously seen similar trenches in that area form as a result of large volumes of water coming out of the outfall in winter, when there had been significant rain events or after a prolonged period of rain. However, I found it very unusual that this volume of water was coming from the outfall in December, in circumstances where there had been very limited rain in the preceding weeks.[449]

Late December 2024, one week before the landslide

288 On 27 December 2024, Mr Marsh returned to Waller Place to conduct further leak detection investigations. He observed water was still raging through the stormwater drain at 4 Waller Place.[450] He again crossed the Mornington Peninsula Freeway and sounded the valves and hydrant near Bayview Road but was unable to detect any leak.[451] Little did he know that he was about 30 metres away from the site of a significant burst water main. In Mr Marsh's words, he "*regrettably*" did not detect the burst that day.[452] It would take another three days before the burst would be uncovered.

289 On 29 December 2024, a resident reported to SEW that water was leaking from the nature strip near the corner of Coburn Avenue and Charlesworth Street. SEW recorded that the issues were likely to be linked to those on Waller Place.[453]

290 Service Stream personnel attended the site the next day. The following observations were recorded:

> Arrived on-site to find water pushing up from roadway opposite number 3 Charlesworth St tested water & reading was high 670 walked up hill sounded services & valves no noises walked up Waller Place & can hear water gushing in stormwater drain then SEW Jason Marsh on-site we lifted stormwater lid & **saw water like a burst flowing down drain** lowered bucket with rope got sample & reading was 160 possible burst up hill on 300mm MSCL near Bayview RD or under freeway & getting into stormwater drain sounded valve ID 362971 & it was screaming SEW leak detection & operations are chasing leak will be informed of where leak is.[454] (emphasis added) (errors in original)

291 The issue was given a **priority rating of 5**.[455]

448 Exhibit CA-17, Witness Statement of Brett Phillips Cooper, 12 May 2025, 5–6 [20]–[21].

449 Exhibit CA-17, Witness Statement of Brett Phillips Cooper, 12 May 2025 6 [22].

450 Public Hearing Transcript, Jason Marsh, 23 June 2025, 928.

451 Exhibit CA-37, Witness Statement of Jason Marsh, 23 June 2025, 3 [15]–[16].

452 Public Hearing Transcript, Jason Marsh, 23 June 2025, 929.

453 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0088].

454 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0088].

455 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0088].

Discovery of the burst water main – six days before the landslide

292 On 30 December 2024, Mr Marsh returned to Waller Place for the third time in a week. This time, he was accompanied by a Service Stream supervisor.[456] Still, they could not locate the leak.[457]

293 Mr Marsh telephoned Gary Loudon within SEW's Network Operations team, and asked for his view on the situation, noting that the Network Operations team typically has a better understanding of water sources and how water moves through SEW's systems.[458] Mr Marsh told the Board of Inquiry that, at this point, he was calling "*anyone that would listen*".[459]

294 Mr Loudon attended Waller Place at around 10.00am.[460] He noticed water bubbling up from the road. However, like Mr Marsh, it was the amount of water running through the stormwater drain that caused Mr Loudon to consider there was a potential burst.[461] Mr Loudon knew that the Parkes Street tanks supplied the zone in question and reviewed the tank outflow data to compare the differences between outflow in December 2023 and December 2024. He noted an increase in the flow rate.[462]

295 In an email Mr Loudon sent to Mr Swain later that day, he recalled:

> From there I suspected there may be a potential burst in the area based on the increase[d] flow rate and used the council drain overview on GTViewer to follow the flow of the water to the source.
>
> Whilst doing so I sounded the valves on the water mains adjacent to the drain uphill towards the tanks. It was whilst locating and sounding the valves in heavy bushland on the other side of the Mornington Freeway opp[osite] Bayview Road that I firstly heard water flow and later discovered water flowing into the large storm water pit through a grate that crosses the Peninsula link over to Waller Place. Following that surface water from the pit … **[I] located the burst** and tested the water's [electrical conductivity] confirming it was potable water.
>
> Note that the burst is not something someone would have called in as it was away from any walking paths and in heavy unmaintained bushland.[463] (emphasis added)

296 The burst water main was located approximately 50 metres west of Outlook Road, between Bayview Road and the Mornington Peninsula Freeway.[464]

297 At around 1.58pm on 30 December 2024, Service Stream personnel arrived on-site to find a burst 150 millimetre UPVC water main.[465] A repair was not attempted due to difficulties the personnel faced in accessing the leak location with machinery, as well as staffing constraints.[466]

456 Public Hearing Transcript, Jason Marsh, 23 June 2025, 930.

457 Exhibit CA-37, Witness Statement of Jason Marsh, 23 June 2025, 4 [20].

458 Exhibit CA-37, Witness Statement of Jason Marsh, 23 June 2025, 1-2 [4]-[5].

459 Public Hearing Transcript, Jason Marsh, 23 June 2025, 930.

460 Exhibit CA-28, Email chain between Charles Swain, Gary Loudon and Declan McCreesh et al about burst in Bayview Road, 3 February 2025, [SEW.0001.0001.0036 at _0002].

461 Exhibit CA-28, Email chain between Charles Swain, Gary Loudon and Declan McCreesh et al about burst in Bayview Road, 3 February 2025, [SEW.0001.0001.0036 at _0002].

462 Exhibit CA-28, Email chain between Charles Swain, Gary Loudon and Declan McCreesh et al about burst in Bayview Road, 3 February 2025, [SEW.0001.0001.0036 at _0002].

463 Exhibit CA-28, Email chain between Charles Swain, Gary Loudon and Declan McCreesh et al about burst in Bayview Road, 3 February 2025, [SEW.0001.0001.0036 at _0003].

464 Exhibit CA-29, South East Water Submission to the Board of Inquiry into McCrae Landslide, April 2025, [SEW.0001.0001.0111 at _0008–_0009].

465 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0075].

466 Exhibit CA-39, Email chain between Jason Marsh, Charles Swain, Gary Loudon et al about reported leak at 4 Waller Place, 30 December 2024, [SEW.0001.0001.0966].

Repair of the burst water main – four to five days before the landslide

298 At 9.08am on 31 December 2024, a Service Stream crew arrived at the site of the burst water main.[467]

299 By 12.47pm, the crew had located the defective section of the water main and commenced pumping water out of it. The water main was 1.7 metres below the ground. They noted the area was "*undermined*" and "*close to a couple of large trees*", one of which was hanging over the trench. They explained to Mr Loudon that the area was unsafe and that at least one of the trees would need to be removed to make it safe. They also suggested inserting a valve near Outlook Road to "*isolate the main and program the repair*". Mr Loudon agreed with that proposal.[468]

300 At around 3.50pm, SEW employees and Service Stream personnel attempted to locate the main, approximately 100 metres from the burst site, to insert the valve. They dug 2.5 metres into the ground but were unable to locate it.[469]

FIGURE 3.31: PHOTOGRAPHS OF BURST WATER MAIN SITE ON 31 DECEMBER 2024.[470]



301 In the meantime, a representative from the Shire had contacted SEW to report flooding at 1 Waller Place. The resident from that address had advised the Shire that the "*house foundations and fence [were] under water*", the road was "*crumbling*" and three sink holes had appeared.[471] A SEW representative contacted the Shire at around 4.26pm to advise that works were being undertaken to isolate a burst water main.[472] He recorded:

> Once water has been isolated, we can then re-inspect to see if water stops at other locations, ie, Cnr of Charl[es]worth Coburn & Wall[er]. Then if it turns out, that this is where the water from the burst was coming from. Then we'll put in a temp repair on these road patches until a full re-instatement can take place.[473] (errors in original)

302 Service Stream resumed working on the site between 1.20am and 3.02am on 1 January 2025.[474] During that period, it obtained approvals to cut down two unstable trees and remove cyclone fencing to make the site safe enough for the burst main to be repaired. Once the site was

467 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0075].

468 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0075].

469 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0075].

470 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0089, _0092, _0093].

471 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0075].

472 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0076].

473 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0076].

474 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0076].

safe, the Service Stream personnel then excavated around the main, located the split on the 150 millimetre PVC water main, cut out the damaged section and replaced it with a new section of pipe.[475]

FIGURE 3.32: PHOTOGRAPH OF REPAIRED SECTION OF THE BURST WATER MAIN.[476]



303 At around 9.15am on 1 January 2025, Service Stream personnel inspected Charlesworth Street and Waller Place and observed that water was still coming out of the road opposite 3 Charlesworth Street and the nature strip along Waller Place.[477] Water was also still running in the grated drain opposite 5 Waller Place.[478]

304 That afternoon, at approximately 3.25pm, Service Stream personnel returned to inspect Charlesworth Street and Waller Place. The water running in the drain opposite 5 Waller Place had slowed but there was still water flowing outside 3 Charlesworth Street.[479] Water was also observed pooling along the fence line of 1 Waller Place and flowing back toward the house. Water testing indicated the water was outside of "*mains range*".[480] The owner of 1 Waller Place was told they would need to speak with the Shire about the issue.[481]

305 The next morning, at 11.29am, Fulton Hogan informed the Shire that the water issues on Charlesworth Street, Waller Place, and Coburn Avenue were under the management of SEW. They advised the Shire that they:

> [L]iaised with SEW supervisor over the last few weeks to advocate on getting prompt action out here given the impact to both private property and MPS assets. SEW have identified a burst water main and shut water off 31.12.24, however there is still water flowing.

475 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0076].
476 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0107].
477 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0076].
478 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0076].
479 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0076–_0077].
480 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0076–_0077].
481 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0076–_0077].

> SEW have confirmed given the amount of water (flowing now for nearly 6 weeks) it is not an MPS storm water concern. Recent update as of 2.01.25 is that another leak detection team are heading down to further investigate. An update is also being provided as we speak to the SEW Customer team to be sure to advise residents that the issue is under the management of SEW.[482]

306 Mr Cooper told the Board of Inquiry that throughout the first two weeks of January 2025, he observed that water leaking from the road and nature strips on Waller Place had begun to dry. Although water continued to leak at the intersection of Charlesworth Street and Waller Place, the volume appeared to be decreasing. He attributed this reduction to the repair of the burst water main.[483]

307 The site of the burst water main is located approximately 450 metres south of 3 Penny Lane. The burst water main had leaked for an extensive period prior to its repair, releasing many millions of litres of water over that period.[484]

308 Four days after the water main was repaired, on 5 January 2025, a landslide occurred above 3 Penny Lane. It was triggered by water.

3.6 The January 2025 landslides

The 5 January 2025 landslide

309 Barely two years had passed since the November 2022 landslides when another landslide occurred, again, at the back of 10–12 View Point Road. This time, the landslide impacted 3 Penny Lane.

310 At around 7.30pm on 5 January 2025, Mrs Moran heard a rumbling sound that she thought was the beginning of a thunderstorm. She had just returned to her house with her daughter, Isabella, after having dinner with Mr Moran and their other children. She stepped out onto the balcony of the second floor of the house to collect washing that had been left there to dry, when the rumbling sound got louder and the house began to vibrate.[485] Within moments, Mrs Moran heard her daughter yell "*mum*", closely followed by the sound of what she now knows to have been dirt and debris smashing into the rear of the house.[486] She told the Board of Inquiry "*there was a lot of banging, like bang and rumbling and the house was moving, you could feel it*".[487]

311 When the movement stopped, Mrs Moran went to check on Isabella. They looked around and saw that the living room window was entirely obscured by a fallen tree and vegetation. To their left, the laundry door and cupboards had been pushed into the hallway, completely blocking access to part of the house.[488]

482 Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, Exhibit CA-31(1) [MSC.9000.0001.0017 at .0032].

483 Exhibit CA-17, Witness Statement of Brett Phillips Cooper, 12 May 2025, 7 [26].

484 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0011].

485 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 3 [13]-[14].

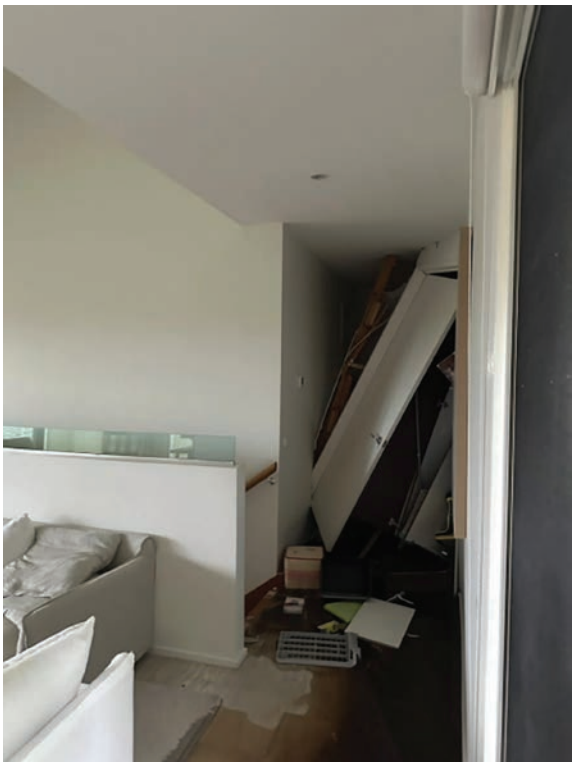
486 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 3 [14].

487 Public Hearing Transcript, Kellie Anne Moran, 12 May 2025, 266.

488 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 3 [15].

312 Mrs Moran was in shock. She told the Board of Inquiry that her daughter had been standing in the part of the hallway that the laundry door and cupboards had protruded into, only seconds before.[489] Counsel Assisting asked Mrs Moran if Isabella "*would have been in trouble*" had she not moved from the hallway.[490] She would have been. Mrs Moran said, "*it's just lucky that [Isabella] walked back*" from where she had initially been standing.[491]

FIGURE 3.33: PHOTOGRAPH TAKEN BY MR MORAN DEPICTING THE LAUNDRY DOOR AND CUPBOARDS ON THE SECOND FLOOR OF 3 PENNY LANE PROTRUDING INTO THE HALLWAY ON THE EVENING OF 5 JANUARY 2025.[492]



313 What Mrs Moran and her daughter had experienced was a landslide that brought between 20–25 tonnes of debris crashing into their house.[493] It had a sub-vertical headscarp of up to 1.5 metres high and had evacuated materials, down to natural granitic soils, to its base.[494]

314 Mr Paul told the Board of Inquiry that:

> The soil that detached from the escarpment in the 5 January 2025 landslide and then travelled towards the house at 3 Penny Lane indicated **active landslide processes** were occurring on the escarpment.[495] (emphasis added)

489 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 3 [14]–[15]; Public Hearing Transcript, Kellie Anne Moran, 12 May 2025, 267.

490 Public Hearing Transcript, Kellie Anne Moran, 12 May 2025, 267.

491 Public Hearing Transcript, Kellie Anne Moran, 12 May 2025, 267.

492 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, Exhibit KM-2 [RES.0009.0001.0004].

493 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 2 [5(a)], 46 [123]; Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(121) [MSC.5003.0001.7156].

494 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 46 [125]; Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(122) [MSC.5003.0001.7180].

495 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0107].

315 The landslide occurred on a different part of the escarpment at 10–12 View Point Road to the November 2022 landslides.[496] The depletion zone of the upper part of the earlier landslides was to the west of the location of the landslide that occurred on 5 January 2025.[497]

316 Unlike the earlier landslides, the 5 January 2025 landslide did not occur following heavy rain. Notwithstanding that, a significant portion of the headscarp was saturated and there was a measurable flow of water moving down the escarpment in the days that followed the landslide.[498] In the immediate aftermath of the landslide, Mrs Moran saw water and mud on the ground near the laundry. She told Isabella, "*we need to get out*", and they immediately left the house to contact emergency services.[499]

317 Mrs Moran dialled 000 and told the operator "*I think there has been a landslide at my house*".[500] She was transferred to the VicSES, and, by 7.50pm, a VicSES unit was en route to the house.[501]

318 After speaking with the VicSES, Mrs Moran and Isabella climbed the external stairs to the right hand side of the house to see what had occurred.[502] Mrs Moran told the Board of Inquiry that it was very clear to her that land and vegetation had come down the escarpment, and that she could see water beginning to pool inside the house.[503] Counsel Assisting asked Mrs Moran if she was concerned about the presence of water. She responded:

> Yes. It was a substantial amount of water. So we walked back down the stairs. There was a little shed sort of there, and I thought maybe the mains power was there in that area, so I tried to get in there to turn the power off. That was my concern. But it wasn't there. So I called triple O again.[504]

319 At 7.57pm, the VicSES recorded a second phone call with Mrs Moran, during which she reported that water was "*rushing into the premises*" and "*running into the middle level of the 3 stories*".[505] Mrs Moran was unable to turn off the power to the house and wanted advice as to whether she needed to take any action before the VicSES arrived. The call was marked "*critical*".[506]

320 Mrs Moran then telephoned Mr Moran, who was driving back to Melbourne from McCrae. She told him there had been a landslide and that he needed to return.[507] He immediately turned around to drive back to the house.[508]

496 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 47 [128].

497 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 47 [128].

498 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(122) [MSC.5003.0001.7180].

499 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 3 [15]; Public Hearing Transcript, Kellie Anne Moran, 12 May 2025, 267.

500 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 4 [17].

501 State Emergency Service, Emergency call log in relation to 3 Penny Lane, 5–6 January 2025, [SES.0001.0002.0009].

502 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 4 [19].

503 Public Hearing Transcript, Kellie Anne Moran, 12 May 2025, 269.

504 Public Hearing Transcript, Kellie Anne Moran, 12 May 2025, 270.

505 State Emergency Service, Emergency call log in relation to 3 Penny Lane, 5–6 January 2025, [SES.0001.0002.0009].

506 State Emergency Service, Emergency call log in relation to 3 Penny Lane, 5–6 January 2025, [SES.0001.0002.0009].

507 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 4 [21].

508 Public Hearing Transcript, Nicholas James Moran, 12 May 2025, 300.

Arrival of emergency services

321 The first VicSES unit arrived at 8.05pm, and it was quickly determined that there had been a "*considerable land slip from property up above*".[509] VicSES responders turned off power to the house and then began moving furniture away from the water running through the house.[510] They were also trying to determine whether the landslide had been caused by a burst pipe.[511]

322 Mr Moran arrived at the house shortly after and had a conversation with Mark Daw, VicSES Unit Controller (Sorrento), and several conversations with other VicSES responders. Mr Moran understood from those conversations that there had been "*some sort of landslide or slip towards the back of the house*" and that it had been assumed the water flowing through the house was coming from a burst pipe in or around the laundry. The VicSES were making arrangements with the various service providers, including SEW, to try to shut off the water.[512]

323 Mr Daw mentioned to Mr Moran that the owner of 10–12 View Point Road, Mr Borghesi, was open to speaking to him about what had happened.[513] Mr Borghesi had learned of the landslide earlier that evening. He recorded in his diary that, between 6.30pm and 8.30pm, he observed: "*mudslide and water flow north of veggie patch retaining wall and # 3 Penny Lane*" which had "*[taken] out # 3's south laundry wall*".[514]

324 At 8.20pm, Mr Daw telephoned the Shire's Emergency Management Coordinator, Brett Fletcher, to inform the Shire about the landslide.[515] Mr Fletcher was delegated the role of the Shire's Municipal Emergency Management Officer at the time.[516] He immediately contacted Dale Gilliatte, the Shire's Manager of Community Safety, Health and Compliance, to relay what he had been told.[517] The Board of Inquiry has not received any documents evidencing Mr Gilliatte's response to that phone call. However, Mr Simon told the Board of Inquiry:

> The VicSES, as the control agency, was primarily responsible for managing the response to the 5 January Landslide … [T]here were no displaced residents requiring temporary accommodation as a result of the 5 January 2025 Landslide. As a consequence, there was no activation of the response activities of the Shire's Emergency Management team in response to the 5 January Landslide.[518]

325 At around 9.09pm, Mr Daw made a second telephone call to Mr Fletcher and asked that the Shire's MBS contact him and attend the landslide site. At 9.15pm, Mr Fletcher telephoned Mr Glover to relay that request. Mr Glover made his way to the landslide site.[519]

509 State Emergency Service, Emergency call log in relation to 3 Penny Lane, 5–6 January 2025, [SES.0001.0002.0009].

510 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 4–5 [22], [24].

511 State Emergency Service, Emergency call log in relation to 3 Penny Lane, 5–6 January 2025, [SES.0001.0002.0009].

512 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 5–6 [29(a)], [29(c)]; Public Hearing Transcript, Nicholas James Moran, 12 May 2025, 301.

513 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 6 [29(d)].

514 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0033].

515 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, 3 [6(a)].

516 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, 3 [6(a)].

517 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, 3 [6(b)].

518 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, 3 [7].

519 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, 3 [6(c)-(d)], 4 [9(a)]; Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(121) [MSC.5003.0001.7156].

326 By 9.20pm, the VicSES had also informed SEW of the situation and recorded that SEW representatives were on their way to the landslide site.[520] SEW recorded in its Montage system:

> SES advised leak large leak to rear of No. 10 and the meter wasn't ticking over so said there is water running down from Viewpoint Road to the back of 10 which has caused a landslip to 3 Penny Lane. SES trying to find cause of leak and location of leak. Coming from the higher side of this address. They can hear water from the fireplug at no 10 in View point Road.[521] (errors in original)

327 At 9.36pm, SEW assigned the issue the highest **priority rating of 1**,[522] which is typically reserved for safety-related tasks.[523] SEW's contractors were required to arrive on-site within one hour,[524] and it appears they were in transit within that time.[525]

328 At around 10.11pm, David Goldfinch, the Regional Commander of the VicSES, arrived at the landslide site.[526] Mr Goldfinch spoke to Mr Moran and suggested that he contact his insurance provider as soon as possible.[527] Mr Moran then contacted RACV Insurance.[528]

Arrival of Shire and SEW representatives

329 VicSES' records indicate that the first SEW representative arrived at the site at around 10.07pm. The SEW representative told the VicSES that they believed there was "*a burst water main up top*", but they were unsure where it was located.[529] SEW records indicate that Service Stream personnel conducted an "*inspection*" of the site at around 9.08pm to scope the works required and were actively working on-site by 11.25pm.[530] The Board of Inquiry has not received any records clarifying the discrepancy in the timing or detailing the 'inspection' that was undertaken.

330 The first Shire representatives, Mr Glover and James (Jimmy) Jones, Building Inspector, arrived at the site at around 11.30pm.[531] Mr Glover told the Board of Inquiry that he spoke with Mr Daw, who told him that the VicSES had checked water meters in the area and found no signs of water loss. Mr Glover also recalled Mr Daw telling him that SEW had "*informed the SES that there were no water leaks from the water main and water tests [had] been taken*".[532]

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520 State Emergency Service, Emergency call log in relation to 3 Penny Lane, 5–6 January 2025, [SES.0001.0002.0009]. Note: document refers to 'Southwest Water' in error.

521 South East Water, Task Summary of Planned Maintenance Repair at 3 Penny Lane, 5 January 2025, [SEW.0001.0001.0127 at _0002].

522 South East Water, Task Summary of Planned Maintenance Repair at 3 Penny Lane, 5 January 2025, [SEW.0001.0001.0127 at _0002].

523 Public Hearing Transcript, Tim Lloyd, 23 June 2025, 814.

524 Public Hearing Transcript, Tim Lloyd, 23 June 2025, 814.

525 South East Water, Task Summary of Planned Maintenance Repair at 3 Penny Lane, 5 January 2025, [SEW.0001.0001.0127 at _0003].

526 State Emergency Service, Emergency call log in relation to 3 Penny Lane, 5–6 January 2025, [SES.0001.0002.0009].

527 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 6 [32].

528 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 6–7 [33]; RACV file notes relating to claim of Nicholas Moran at 3 Penny Lane, 5 January 2025–4 March 2025, [IMA.0001.0001.0188].

529 State Emergency Service, Emergency call log in relation to 3 Penny Lane, 5–6 January 2025, [SES.0001.0002.0009].

530 South East Water, Task Summary of Planned Maintenance Repair at 3 Penny Lane, 5 January 2025, [SEW.0001.0001.0127]; Exhibit CA-50, Witness Statement of Declan McCreesh, 4 June 2025, 5 [24(c)-(d)].

531 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, 4 [9(b)]; Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 3 [6]; Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(121) [MSC.5003.0001.7156]; State Emergency Service, Emergency call log in relation to 3 Penny Lane, 5–6 January 2025, [SES.0001.0002.0009].

532 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 3 [6].

331 At 12.33am, the VicSES recorded:

> SORR S2 - COUNCIL INSPECTOR CAME OUT STATING THERE SHOULDNT BE ANY FURTHER LANDSLIPS OVERNIGHT - THEY WILL REATTEND AT 9AM - PLEASE LEAVE JOB OPEN AS WE WILL BE RETURNING TO AA AT APPROX 7AM.[533]

332 Mr Moran told the Board of Inquiry that when he left the site late on 5 January 2025, the VicSES and SEW were still trying to locate the source of water running through the house.[534] Whilst Mr Moran had no intention of staying in the house given the extent of the damage, he was not issued with an Emergency Order.[535]

333 Mr and Mrs Borghesi had been given *"permission"* to remain in their house overnight.[536]

334 From that night, the Morans' property became a hub of activity. Representatives from the VicSES, the Shire, SEW, RACV, and geotechnical firms all converged on the landslide site.

335 Amidst the activity in the nine days following the landslide, two truths became clear: there was water inexplicably flowing out of the escarpment above the Morans' house and the threat of another landslide was growing as the water continued to flow.

The next day, 6 January 2025

336 At around 7.00am the following morning, on 6 January 2025, VicSES responders returned to the site.[537] They were joined shortly after by Mr Marsh from SEW,[538] and noted that SEW was trying to confirm whether there were "*any issues up the hill*".[539] Mr Marsh inspected the landslide site from the rear of the Morans' property, before speaking with Mr and Mrs Borghesi at their house and climbing down the embankment to take a water sample.[540]

337 Later in the morning, Mr Marsh sent an email to Mr Swain and others stating that water was "*running down the washed away embankment*" and that the Borghesis were "*having issues with retaining walls leaning, etc*".[541] Mr Marsh confirmed that he had arranged for Detection Services to survey the area and that he would take the samples he had obtained that morning to ALS, a company that carries out water testing. In respect of the landslide, he commented:

> Please note: its proximity to the ongoing issues at 4 Waller Pl does not present well.[542]

338 Counsel Assisting asked Mr Marsh what he meant by that statement. Mr Marsh responded:

> I was just – well, there was a – we found a large burst up the hill and there was water bubbling out of the road, and now there's a landslide. It just doesn't look good. That's what I was trying to convey in that.[543]

533 State Emergency Service, Emergency call log in relation to 3 Penny Lane, 5–6 January 2025, [SES.0001.0002.0009].

534 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 7 [34]–[35].

535 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 7 [34]–[35].

536 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0033].

537 State Emergency Service, Emergency call log in relation to 3 Penny Lane, 5–6 January 2025, [SES.0001.0002.0009].

538 Exhibit CA-38, Email from Jason Marsh to Charles Swain about inspection of landslide site and sampling, 6 January 2025, [SEW.0001.0001.0454].

539 State Emergency Service, Emergency call log in relation to 3 Penny Lane, 5–6 January 2025, [SES.0001.0002.0009].

540 Exhibit CA-38, Email from Jason Marsh to Charles Swain about inspection of landslide site and sampling, 6 January 2025, [SEW.0001.0001.0454].

541 Exhibit CA-38, Email from Jason Marsh to Charles Swain about inspection of landslide site and sampling, 6 January 2025, [SEW.0001.0001.0454].

542 Exhibit CA-38, Email from Jason Marsh to Charles Swain about inspection of landslide site and sampling, 6 January 2025, [SEW.0001.0001.0454].

543 Public Hearing Transcript, Jason Marsh, 23 June 2025, 936.

339 Counsel Assisting asked Mr Marsh whether, to his mind, there may have been a link between the burst water main, the water surfacing around Waller Place, and the landslide that had occurred on 5 January 2025. Mr Marsh replied:

> I don't think there was a [link]. That's just – that's my thoughts. But it doesn't present well. It doesn't look good, is what I was trying to say. I can't see how that water that was going through the stormwater pit above could have affected down there. Because my take on it, [the water from the burst] was all going to the stormwater pit.[544]

340 Mr Marsh told the Board of Inquiry that although he found some "*minor*" leaks in the vicinity of the landslide, he did not find "*anything substantial anywhere*".[545]

341 In the meantime, at 8.02am, Mr Glover contacted Renae Littlejohn, the Shire's Director - Planning and Environment at the time, and Rory MacDonald, Manager - Development Services, stating:

> We got home around 2am … We are heading to the site again today around lunch to see more in the daylight, especially the slip origin from 10–12 View Point Road. During the initial inspection last night, one could say the building works on-site are average.[546]

342 Mr Glover gave them a photograph of the damage to the rear of the Morans' property.[547]

FIGURE 3.34: PHOTOGRAPH OF THE REAR OF 3 PENNY LANE FOLLOWING THE 5 JANUARY 2025 LANDSLIDE.[548]



544 Public Hearing Transcript, Jason Marsh, 23 June 2025, 936.

545 Public Hearing Transcript, Jason Marsh, 23 June 2025, 937.

546 Email from Mathew Hopwood-Glover to Renae Littlejohn and Rory MacDonald about landslip impact at 10–12 View Point Road, 6 January 2025, [MSC.5005.0042.0892].

547 Email from Mathew Hopwood-Glover to Renae Littlejohn and Rory MacDonald about landslip impact at 10–12 View Point Road, 6 January 2025, [MSC.5005.0042.0892].

548 Email from Mathew Hopwood-Glover to Renae Littlejohn and Rory MacDonald about landslip impact at 10–12 View Point Road, 6 January 2025, [MSC.5005.0042.0892].

343 Around the same time, Mr Glover contacted Mr Pope of PSM for assistance. Mr Glover told the Board of Inquiry that he was concerned about controlling the water flowing under the Morans' property, and that he knew Mr Pope had experience dealing with the earlier landslides in 2022.[549]

344 At 10.09am, Zelie Foley, Coordinator, Office of the MBS, sent Mr Glover and Mr Flores documents relating to the most recent building permit issued for 3 Penny Lane and noted that she was trying to track down the original permits for the property. Mr Glover forwarded Ms Foley's email to Mr Pope.[550]

345 During the morning, Mr Borghesi also contacted the Shire about the landslide. He told Mr Flores by text message:

> The issue of seepage down [V]iew Point is clearly not our doing, and we would implore Council to take an active lead to investigate the cause of the seepage rather than issuing orders for others (us) to fix problems we are not causing.[551]

346 Mr Borghesi contacted Maw Civil to inform them of the landslide and to arrange for a representative to attend his property to inspect the retaining wall.[552] At 10.45am, a Maw Civil representative attended the property and confirmed he had no concerns about the integrity of the retaining wall "*unless undermining occurs*".[553]

347 At around midday, Mr Moran returned to the house. He told the Board of Inquiry that the sandbags the VicSES responders had installed were preventing water from entering the house, but that the flow of water had not ceased, or even decreased, from the previous night.[554]

348 Mr Glover and Mr Jones arrived at the Morans' property shortly after and carried out a further inspection.[555] Mr Glover told the Board of Inquiry:

> Following his inspection, Mr Jones said to me that he could see a large scour line with the presence of water under the house, running through the middle of underneath the dwelling. A scour line is a line created in the soil through the erosion and removal of soil caused by the movement of water. I recall that Mr Jones verbally stated there is scouring under the house. I did not see scouring or water on my side of the house. However, the presence and depth of the scouring indicated to me that water had been flowing under the Moran's property for an extensive time prior to 6 January 2025.[556]

549 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 3 [8].

550 Email chain between Dane Pope and the Mornington Peninsula Shire Council about permits for 3 Penny Lane and retaining wall at 10–12 View Point Road, 6–7 January 2025, [MSC.5003.0001.7175].

551 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0040].

552 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0032].

553 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.001 at _0032].

554 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 8 [38].

555 State Emergency Service, Emergency call log in relation to 3 Penny Lane, 5–6 January 2025, [SES.0001.0002.0009]; Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 3 [7].

556 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 3 [7].

FIGURE 3.35: PHOTOGRAPH OF SCOUR LINES UNDERNEATH 3 PENNY LANE.[557]



349 At around 1.00pm, it was recorded in SEW's Montage records that various tests had been carried out at and around 10–12 View Point Road, including:

a. "*checked FP at #10 View Point Rd no noise*";

b. "*Tested water running down SW [(stormwater)] pit is not in mains range 286SL*";

c. "*Checked the 25mm meter at #10 no noise is not ticking over*"; and

d. "*Valve for view point id #362909 was buried located with yellow wand marked and painted. Shut valve no noise opened valve no noise*".[558]

350 A SEW representative also inspected the Morans' property and reported:

> Water running down the stairs is clean and clear EC test is in mains range. Sounded garden tap good noise located b/valve was burried shut off and noise stopped. Flow down the stairs eventually stopped the water line inside the house has been damaged by the landslide. Took sample from the rear of the house from land slide EC test is not in mains range 1400SL plus. Residents advised me of a leak running from Charlesworth St drove up to find bollards in the middle of the road in two spots major pot holes. EC test is 600SL plus other pot hole is just before manhole id #430662 called Brendan out to inspect line all ok. Resident advises the leak has been running for 8-9months. Randell SEW briefed about job spoke with Brendan and W.Peters duty officer. Wally attended site advised he has been out to the area numerous times in regards to the leak advised a sample has been sent to the chemist via J.Marsh leak detection awaiting results refer to job #1295094/001 plus.[559] (errors in original)

557 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(235) [MSC.5016.0001.0863 at .0865].

558 South East Water, Task Summary of Planned Maintenance Repair at 3 Penny Lane, 5 January 2025, [SEW.0001.0001.0127].

559 South East Water, Task Summary of Planned Maintenance Repair at 3 Penny Lane, 5 January 2025, [SEW.0001.0001.0127].

351 At 1.02pm, the same SEW representative recorded:

> I checked where leaks are on job no1295094/007 & the leaks have not changed. I then met up with R-Dickins & the SES. I spoke again with Randell & i told him the leaks up the road on the other job number is still the same & Jason Marsh from SEW leak detection is looking into this. Randell told me that he will get J-Marsh back in the morning. I told the people from the SES what is happening.[560] (errors in original)

352 By 2.00pm, Mr Pope had arrived at the Morans' property and carried out an inspection. He then accompanied Mr Glover, Mr Jones and Mr Daw to 10–12 View Point Road to inspect the escarpment.[561] Following those inspections, Mr Glover asked Mr Pope to prepare a preliminary assessment of the situation.[562]

353 At around 2.00pm, the VicSES handed over control of the site to the Shire.[563]

354 Mr Glover told the Board of Inquiry there was no "*formal transfer of control*" of the site from the VicSES to the Shire; the VicSES simply deactivated its role and function as the Incident Controller of the site.[564] Mr Glover did not provide any further detail as to why the VicSES deactivated its services. He personally thought the VicSES should have remained as the Incident Controller after 6 January 2025.[565]

355 At 3.51pm, the VicSES recorded that Mr Glover was "*TAKING ONUS*" of the landslide site, and by 5.30pm, Mr Daw told Mr Borghesi that control of the site was with the Shire.[566] Mr Borghesi recorded the following view in his diary: "*right people involved, council appearing to take responsibility*".[567]

356 At some point in the afternoon, Mr and Mrs Willigenburg met Mr and Mrs Moran for the first time. Mr Willigenburg told the Morans that he had noticed the drains at the bottom of Penny Lane filling with water in December 2024 and had reported this to the Shire on 16 December 2024. He said that he considered the drains filling to be unusual in circumstances where there had been no rain.[568] Mr Moran relayed that information to Mr Glover, but Mr Glover was not aware of Mr Willigenburg's report.[569]

The second day after the landslide, 7 January 2025

357 On the morning of 7 January 2025, Mark Finningham of Midcity Group, an assessor appointed by RACV, met Mr Moran at his house to conduct an inspection.[570] Mr Finningham recorded in a document that he heard movement at the property and decided it was safer to leave. He reportedly advised Mr Moran not to re-enter the house until it was deemed safe to do so.[571]

560 South East Water, Task Summary of Planned Maintenance Repair at 3 Penny Lane, 5 January 2025, [SEW.0001.0001.0127].

561 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 3 [8]; Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0032].

562 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 3 [8].

563 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 3 [9].

564 Exhibit CA-63, Second Witness Statement of Mathew Hopwood-Glover, 17 July 2025, 2–3 [5].

565 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, 15 [55(h)].

566 State Emergency Service, Emergency call log in relation to 3 Penny Lane, 5–6 January 2025, [SES.0001.0002.0009]; Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0032].

567 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0032].

568 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 6 [32]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 21 [122]–[123].

569 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 8 [41].

570 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 9 [42]–[43].

571 Midcity, Summary of works completed by Midcity at 3 Penny Lane, 5–14 January 2025, [IMA.0001.0001.0078].

358 Mr Finningham prepared a preliminary report deeming the Morans' property to be "*extremely unsafe and unstable*".[572] He stated: "*Due to the amount of debris, I believe there is a chance that further movement could occur, and more damage to the property would be immediate.*"[573]

359 Mr Finningham also escalated the matter to David Jones, Construction Manager at Midcity, who requested that a Technical Assessor be appointed to manage the matter "*due to the immediate risk of complete structural failure*" at the property.[574] Sue Scoble was appointed to that role by the RACV, and made arrangements to meet with Mr Moran at his house on 9 January 2025.[575]

360 A note in the RACV's internal system on 7 January 2025 stated that the landslide:

> appears to be located below previously denied claim RAV224564034 [made by the Borghesis concerning the 15 November 2022 landslides], noting the unretained soil would have been stockpiled from the previous landslide, as no remediation works have been completed, also noting no weather event has happened on said date.[576]

361 Whilst Mr Finningham was inspecting the Morans' property, a representative from Maw Civil attended the Borghesis' property.[577]

362 Mr Borghesi recorded that Maw Civil had "*no concerns*" about the retaining wall on View Point Road but was concerned about the amount of water flowing down the escarpment. Mr Borghesi noted:

> Could instal[l] tie-backs if needed
>
> ...
>
> Thinks bore-holes into nature strip to ID water is needed.[578]

363 The same day, Mr Glover prepared a Significant Incident Notification for Ms Littlejohn and Mr MacDonald regarding the landslide in which he notified them that:

a. around 20–25 tonnes of material had been dislodged during the landslide, and there were "*another 10-15 tonnes of material, a concern that will be let go at any time*";

b. there was structural damage to the rear of the Morans' property "*including movement of piers in a concentrated area*". The rear external wall of the centre of the dwelling was "*unsafe and unstable*", and an underfloor inspection of the house indicated that "*the water problem has been an ongoing matter for some time*"; and

c. the water flow rate from the headscarp at 10–12 View Point Road was around 200 millilitres per second based on "*a very rough water bottle test*". SEW had taken water samples for testing and although the results of those tests were pending, SEW had confirmed there were no leaks in the water mains.[579]

364 The Significant Incident Notification stated that the Office of the MBS was undertaking water tracing and other investigations, and that PSM (Mr Pope) had been engaged to assist the MBS. It stated:

572 Mark Finningham, Midcity, Expert Report regarding damage incurred at 3 Penny Lane, 7 January 2025, [IMA.0001.0001.0320].
573 Mark Finningham, Midcity, Expert Report regarding damage incurred at 3 Penny Lane, 7 January 2025, [IMA.0001.0001.0320].
574 Midcity, Summary of works completed by Midcity at 3 Penny Lane, 5–14 January 2025, [IMA.0001.0001.0078].
575 RACV file notes relating to claim of Nicholas Moran at 3 Penny Lane, 5 January 2025–4 March 2025, [IMA.0001.0001.0188].
576 RACV file notes relating to claim of Nicholas Moran at 3 Penny Lane, 5 January 2025–4 March 2025, [IMA.0001.0001.0188].
577 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0034].
578 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0034].
579 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(121) [MSC.5003.0001.7156].

> PSM is providing a preliminary report regarding the possibility of the dwelling (the Morans' house at 3 Penny Lane) being dislodged from its piers from further impacts, causing the dwelling to collapse and affecting property along Point Nepean Road (607 and 605).[580]

365 Separately, Ms Littlejohn sent an email to Mayor Anthony Marsh and the Shire's Acting CEO, Bulent Oz, stating that the MBS had been dealing with the landslide since the VicSES handed over control of the site to the Shire the previous day. She stated that "*appropriate action*" was being taken to "*manage the site*", but she did not elaborate on what that action entailed.[581] While Mayor Marsh and Mr Oz both responded to Ms Littlejohn's email the next day, they did not seek further information concerning the actions being taken to manage the site.[582]

366 Mr Glover otherwise spent the morning of 7 January 2025 reviewing the Shire's customer complaint system to identify any reports relating to Prospect Hill Road and/or View Point Road. He told the Board of Inquiry:

> I ran this search to understand at a high level what (if any) reports had been made concerning water in the area because of the presence of water in the headscarp, as at that time South East Water had told me that there were no identified leaks.[583]

367 Those searches revealed that several reports had been made in relation to the Shire's stormwater drainage network in the vicinity of Prospect Hill Road and View Point Road between 1997 and 2023.[584]

368 Mr Glover also exchanged correspondence with Mr Pope in respect of building permits for both 3 Penny Lane and 10–12 View Point Road. This appears to have been prompted by an email from Mr Pope at 10.02am, requesting structural drawings of the "*Borghesi retaining wall*" and any feature surveys associated with it. Mr Pope stated in that email: "*It seems they placed a fair amount of fill onto the escarpment to build it. They also had to remove a bunch of trees to build that section of landscaping*".[585]

369 That afternoon, Mr Glover sent Mr Pope and Mr Flores various permits and planning approvals for the Morans' property, dating back to the 1970s.[586] Mr Pope commented that it was "*very interesting to see the 1987 complaint regarding seepage*".[587] In the emails that followed, Mr Glover noted, "*[t]he old septic trench was interesting in location??? The first land slip side. The contour line has changed a lot over time. Including the veg and the once live gum tree*".[588] Mr Pope responded, "*[l]ess than ideal location*".[589]

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580 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(121) [MSC.5003.0001.7156].

581 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2291–.2292].

582 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2291].

583 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 3 [10].

584 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 3 [11].

585 Email chain between Dane Pope and the Mornington Peninsula Shire Council about permits for 3 Penny Lane and retaining wall at 10–12 View Point Road, 6–7 January 2025, [MSC.5003.0001.7175].

586 Email chain between Dane Pope and the Mornington Peninsula Shire Council about permits for 3 Penny Lane and retaining wall at 10–12 View Point Road, 6–7 January 2025, [MSC.5003.0001.7175].

587 Email chain between Dane Pope and Mornington Peninsula Shire Council about permits for 3 Penny Lane and retaining wall at 10–12 View Point Road, 6–7 January 2025, [MSC.5003.0001.7175].

588 Email chain between Dane Pope and the Mornington Peninsula Shire Council about permits for 3 Penny Lane and retaining wall at 10–12 View Point Road, 6–7 January 2025, [MSC.5003.0001.7175].

589 Email chain between Dane Pope and the Mornington Peninsula Shire Council about permits for 3 Penny Lane and retaining wall at 10–12 View Point Road, 6–7 January 2025, [MSC.5003.0001.7175].

370 At 3.50pm on 7 January 2025, Mr Flores confirmed, via email to Mr Pope and Mr Glover, that he had inspected the landslide site that day and had sent photographs and videos to Mr Pope. He told Mr Pope and Mr Glover that he and Mr Jones had placed plumber's dye into the stormwater pits upstream of 10–12 View Point Road but could not see any traces of the dye in the area of the landslide. He also commented that "*the amount of water flow has possibly increased at the base*".[590]

371 Mr Flores told the Board of Inquiry that the water he observed caused him concern.[591] Mr Flores explained that he had not considered whether measures should be taken to divert the water, nor did he raise those issues with anyone at the time, because the investigation was being led by Mr Glover. He noted he would generally seek advice from someone "*suitably qualified*" to advise on those matters, such as a geotechnical engineer.[592]

372 Mr Borghesi recalled Mr Flores and Mr Jones carrying out dye testing on 7 January 2025. He had sent a text message to Mr Flores at around 1.15pm that afternoon, stating:

> Hi Claude. The green dye is running in the new pipe on VPR [View Point Road] as expected, as the stormwater pipe is new. Suggest you put some dye further upstream, or consider some boreholes on our nature strip to identify the course of the water.[593]

373 At 4.41pm, Mr Flores responded to Mr Borghesi's text message to confirm the Shire was awaiting advice from Mr Pope and that he would pass on the borehole recommendation.[594]

374 Mr Borghesi told the Board of Inquiry that he and Mr Flores had:

> discussed the concept of drilling boreholes or what John Bolch described as spears in View Point Road to extract water before that water emanated from the scarp, because we were all terribly concerned that, if we weren't capturing the water and redirecting it, this headscarp would continue to fail and lead to something disastrous.[595]

375 When Counsel Assisting asked Mr Flores if anyone had raised with him the concept of inserting spear pumps to divert water, Mr Flores responded "*Mr Borghesi may have raised that at some point in time*". When asked whether he would have passed that suggestion on to someone else, he stated:

> I would have passed it on possibly to Mr Glover. I'd have to check my emails because it was during January, I was on leave, kids' holidays, so there's - there may have been a text or something like that from Mr Borghesi. I'm not too sure.[596]

376 The Shire has confirmed it has not located correspondence from Mr Flores to anyone passing on Mr Borghesi's suggestion.[597] Irrespective of whether Mr Borghesi's suggestion was passed on, the fact remains that it was not actioned by the Shire.

590 Public Hearing Transcript, Claudio Flores, 20 June 2025, 773–774; Email from Claudio Flores to Dane Pope and Mathew Hopwood-Glover about use of plumber's dye in stormwater pits near 10–12 View Point Road, 7 January 2025, [MSC.5001.0001.1553].

591 Public Hearing Transcript, Claudio Flores, 20 June 2025, 774.

592 Public Hearing Transcript, Claudio Flores, 20 June 2025, 774.

593 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0040].

594 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0040].

595 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 528–529.

596 Public Hearing Transcript, Claudio Flores, 20 June 2025, 774–775.

597 Mornington Peninsula Shire Council, Response to potential adverse observations, 25 August 2025, [MSC.5094.0001.0001].

377 At some point between 10.00am and 2.30pm, Mr Swain and Mr Marsh of SEW attended 10–12 View Point Road and saw water still trickling down the escarpment. Mr and Mrs Borghesi told them there had not previously been water flowing from that point on the escarpment.[598] Mr Swain made notes in relation to the visit, recording:

> We went across to the west side of the property where there is a stair pathway towards the bottom of the hill in between 14 and 10–12 [View Point Road]. He [Mr Borghesi] … said the area was previously very wet but is now dry. And he suspected it has something to do with the construction of the stormwater drain on the north side of the View Point rd. We walked up the alignment of the drain and he mentioned that there was previously a very poor condition curb and channel that experienced flow 24/7. He believed that prior to this being constructed, this water was infiltrating through cracks in the curb and channel and discharged out of the ground on the eastern side of no. 14.[599]

378 Mr Swain and Mr Marsh walked further up onto Prospect Hill Road, accompanied by Mr Borghesi, and saw a significant flow of water inside a stormwater drain located on Prospect Hill Road. Mr Borghesi told them the water was from properties along Prospect Hill Road that had groundwater pumps. They later met with the owners of 5 Prospect Hill Road, who told them that the sump pump in their basement had started to pump more frequently around a month earlier.[600] Mr Swain recorded that the "*pump discharges [water] into the [k]erb and channel*", which in turn is connected to a *"closed stormwater drain that connects to the drain in View Point Road"*.[601]

379 Mr Swain also noted that he had observed a significant wet area in front of 6 View Point Road, but that this had been surveyed multiple times by leak detection, and no leak had been found.[602]

380 At 5.30pm on 7 January 2025, Mr Pope provided Mr Glover with his preliminary risk assessment and risk to life assessment in relation to the landslide.[603] He stated that he had observed unstable zones near the headscarp in the order of three to six cubic metres, on the southwestern flank of the landslide. He also stated:

> A preliminary risk assessment has been completed for volumes in the order of 5 to 10 m3. These volumes represent unstable volumes observed on-site and do not reflect long term volumes that are assessed for the life of the properties.[604]

381 Mr Pope expressed the view that it was not necessary for the Williegenburgs to take any actions with respect to their rental property at 607–609 Point Nepean Road. However, while the causes of the landslide were being investigated, he advised that the Borghesis and the Morans should take certain steps to mitigate the risk of any further landslide activity at 10–12 View Point Road and 3 Penny Lane. Specifically, he recommended that:

598 Comments from Charles Swain of South East Water about site visit to 10–12 View Point Road, 7 January 2025, [SEW.0001.0001.0731].

599 Comments from Charles Swain of South East Water about site visit to 10–12 View Point Road, 7 January 2025, [SEW.0001.0001.0731].

600 Comments from Charles Swain of South East Water about site visit to 10–12 View Point Road, 7 January 2025, [SEW.0001.0001.0731].

601 Comments from Charles Swain of South East Water about site visit to 10–12 View Point Road, 7 January 2025, [SEW.0001.0001.0731].

602 Comments from Charles Swain of South East Water about site visit to 10–12 View Point Road, 7 January 2025, [SEW.0001.0001.0731].

603 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, Exhibit CA-14(2) [MSC.5003.0001.7180].

604 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, Exhibit CA-14(2) [MSC.5003.0001.7180].

a. the Borghesis monitor the slope immediately behind the failure for any signs of change or deterioration, and cease watering the garden in the vicinity of the landslide. Mr Pope also recommended that the Borghesis place surficial cut off bunds with coir logs or sandbags behind the retaining wall to direct surface water away from the headscarp, and seek advice from their engaged geotechnical engineer to "*make safe as best as is practical*";[605] and

b. the Morans monitor the slope immediately behind the house for signs of change and/or deterioration, and take steps to:

    i. remove the mud from between the house and the rear of the retaining wall. Mr Pope noted that the mud upslope of the retaining wall should not be disturbed, but recommended that the Morans proceed with caution in "*areas of potentially unstable walls of the dwelling*". He suggested they seek further advice if the retaining wall had collapsed;

    ii. divert surface water around the dwelling using hand cut off drains, coir logs or sand bags, and install a secondary cut off drain under the deck. This would involve digging by hand and installing weep holes in the northern most retaining wall; and

    iii. install one or two ballasted shipping containers in the northern most section of lawn. He stated that further advice should be obtained to detail the design.[606]

382 Mr Pope noted that each property owner should take the recommended steps with *"the support of Geotechnical Engineers who are experienced in mitigation of landslide hazards"*.[607] Mr Pope included the following image showing his recommendations:

FIGURE 3.36: AERIAL PHOTOGRAPH ON WHICH MR POPE MARKED WHERE CERTAIN ACTIONS WERE TO BE TAKEN BY THE BORGHESIS AND THE MORANS.[608]



605 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, Exhibit CA-14(2) [MSC.5003.0001.7180].

606 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, Exhibit CA-14(2) [MSC.5003.0001.7180].

607 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, Exhibit CA-14(2) [MSC.5003.0001.7180].

608 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, Exhibit KM-3 [RES.0009.0001.0005 at _0003].

383 Later that evening, Mr Glover forwarded Mr Pope's preliminary risk assessment to Ms Littlejohn and Mr MacDonald, noting he would review it in more detail the following day, before approaching the Borghesis and the Morans. He wanted to understand "*the bigger picture, including where the water [was] coming from*".[609] Ms Littlejohn confirmed:

> I've put it on the Mayor's radar and will follow up with him in an email too in case it gets out there and political.[610]

384 The Board of Inquiry does not have any evidence of a response by the Mayor.

385 Mr Simon of the Shire told the Board of Inquiry:

> I understand that following the advice in Mr Pope's email dated 7 January 2025, Mr Glover or his delegates informed the owners of various surrounding properties, including the owners of 3 Penny Lane and 607 - 609 Point Nepean Road, of the need to vacate their properties. The Shire has not located any emergency orders issued by the MBS in respect of the 5 January 2025 Landslide.[611]

The third day after the landslide, 8 January 2025

386 In the morning of 8 January 2025, Mr Glover sent a further email to Ms Littlejohn, Mr MacDonald and Mr Flores, copying several others. He adopted the action items that Mr Pope had formulated for 10–12 View Point Road and 3 Penny Lane (described above) and stated that he considered those actions to be reasonable to protect the life and safety of the surrounding property.[612] He said he would discuss the action items with both affected parties.[613]

387 Mr Glover went on to explain that the MBS was also required to issue "*the necessary enforcement/s*" on the Borghesis for having constructed a retaining wall exceeding 1 metre in height, without a building permit, and to notify the planning compliance area to investigate the works undertaken at the Borghesis' property, including the placement of fill. Further, he would need to issue enforcement action on the Morans to undertake the preliminary works required to protect life at both their property and the Willigenburgs' rental property at 607–609 Point Nepean Road.[614]

388 He otherwise reported that the trace-dye testing undertaken on 7 January 2025 indicated that the water source was not the Shire's drainage assets and that no further action was required in that regard.[615]

389 The Shire has not located a response from Ms Littlejohn, Mr MacDonald, or Mr Flores to this email.[616]

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609 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 4 [13]; Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, Exhibit CA-61(5) [MSC.5005.0042.1513].

610 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 4 [13]; Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, Exhibit CA-61(5) [MSC.5005.0042.1513].

611 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 54 [148].

612 Email from Mathew Hopwood-Glover to Renae Littlejohn, Rory MacDonald and Claudio Flores et al about mitigating the risk of further landslide activity, 8 January 2025, [MSC.5003.0001.7185].

613 Email from Mathew Hopwood-Glover to Renae Littlejohn, Rory MacDonald and Claudio Flores et al about mitigating the risk of further landslide activity, 8 January 2025, [MSC.5003.0001.7185].

614 Email from Mathew Hopwood Glover to Renae Littlejohn, Rory MacDonald and Claudio Flores et al about mitigating the risk of further landslide activity, 8 January 2025, [MSC.5003.0001.7185].

615 Email from Mathew Hopwood-Glover to Renae Littlejohn, Rory MacDonald and Claudio Flores et al about mitigating the risk of further landslide activity, 8 January 2025, [MSC.5003.0001.7185].

616 Mornington Peninsula Shire Council, Response to potential adverse observations, 25 August 2025, [MSC.5094.0001.0001].

390 Mr Glover subsequently prepared an 'Actions Items' document, recording the information and action items set out in Mr Pope's preliminary risk assessment, for provision to the Morans, the Borghesis and the Willigenburgs.[617]

391 In the meantime, the Moran family had arrived at their property at around 9.30am. The Morans, with the assistance of some friends, spent the day removing some of their belongings from the house because they had been notified that their contents were not insured and water continued to enter the house.[618] They had not received an Emergency Order prohibiting them from entering the house, nor were they aware of Mr Pope's assessment that being at the house presented an unacceptable risk to life.

392 On the same day, Mr Flores and Mr Jones were again on-site conducting trace-dye testing of the Shire's stormwater drainage and road kerb collectors. Mr Glover explained that the purpose of the testing was to ascertain whether the Shire's stormwater drainage had been compromised, as part of the efforts to locate the source of the water.[619] Mr Flores and Mr Jones reported to Mr Glover that they had not seen any trace-dye flowing from the kerb collector at 2 View Point Road (facing Prospect Hill Road) to the stormwater pit on the corner of View Point Road and Prospect Hill Road.[620]

393 At around lunchtime, Mrs Moran looked on the McCrae Village Community Group page on Facebook and saw several posts from residents made in December 2024 about a large pothole on Charlesworth Street that had been filling with water. Given the water issues at the Morans' property, this piqued Mrs Moran's interest and Mr Moran forwarded screenshots of the posts to Mr Glover.[621]

394 Shortly thereafter, Mr Glover sent those screenshots to Mr Pope, stating "*[m]aybe cause. Not sure on this street location as I need to look*".[622] Minutes later, Mr Glover then sent an email to Mr Pope, Mr Flores and Mr Jones, providing the screenshots. Mr Glover also embedded in the email a map of McCrae, on which he appears to have drawn a black line showing the location of the Charlesworth Street pothole vis-a-vis the landslide. He stated, "*[i]nteresting. Water leak from Charlesworth St. pre-xmas leave*".[623]

395 In the early afternoon, Mr Flores responded to Mr Glover's email without copying Mr Pope. He stated:

> That's great, Matt, we may be able to refer to SEW for rectification and liability. Could we get the water tested to see if its tap water as it was reasonably clear compared to the milky water coming from the spring.[624]

617 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, Exhibit KM-3 [RES.0009.0001.0005].

618 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 6 [33]; Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 9 [45].

619 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 6 [23].

620 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 6 [23].

621 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 6–7 [34]; Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 9 [46]; Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, Exhibit NM-6 [RES.0009.0001.0012].

622 Text message chain between Mathew Hopwood-Glover and Dane Pope about site visit conducted at 10–12 View Point Road, 6–13 January 2025, [MSC.5031.0001.6040].

623 Email chain between Mathew Hopwood-Glover, Claudio Flores and Peter O'Brien about water leak at Charlesworth Street, 8 January 2025, [MSC.5003.0001.7213].

624 Email chain between Mathew Hopwood-Glover, Claudio Flores and Peter O'Brien about water leak at Charlesworth Street, 8 January 2025, [MSC.5003.0001.7213].

396 Mr Glover replied suggesting that they test the water coming from the landslide area and the leak on Charlesworth Street. Mr Flores then sent an email to Peter O'Brien, Team Leader of Environmental Health at the Shire, explaining that the Shire was trying to establish the source of the water flowing from the escarpment. Mr Flores noted they had ruled out that the water was from a Shire drainage asset and that they "*suspect[ed]*" it could be from a leaking water source, such as the leak on Charlesworth Street. He requested that a water sample be collected and tested to determine if it was drinking water.[625]

397 Later in the day, Mr Glover sent a further email to Mr Pope, suggesting that there could also be a "*hydrant ground-ball leak*". He included a map with two hydrant sites highlighted and confirmed he would take tools to the site with him the following day to inspect it.[626]

398 Mr Borghesi had continued to monitor the flow of water on the escarpment over the course of 8 January 2025 and sent Mr Flores a text message at 1.49pm that day, stating:

> Claude, the water flow has just recently increased about 50%, from an estimated 10l/minute to 15l/minute. No further soil collapses.[627]

399 Mr Borghesi told the Board of Inquiry that the water was "*fluctuating a little bit. It would sometimes abate and then it would increase*".[628]

The fourth day after the landslide, 9 January 2025

400 Four days on from the landslide and unexplained water was still running out of the unstable headscarp. No work was undertaken by anyone on or around the headscarp to reduce the risk of a further landslide.

401 The Shire did not re-engage with the VicSES to seek an emergency response to the threat of a further landslide caused by water continuing to infiltrate the unstable headscarp. The Shire did not otherwise set up an emergency response.

402 Instead, SEW and the Shire (through its MBS, Mr Glover) continued to separately investigate whether the water infiltrating the headscarp was emanating from their own respective assets. Mr Glover also continued to perform his separate MBS duties, namely suggesting to the Morans and the Borghesis that they act on Mr Pope's recommendations to mitigate the risk of a further landslide (as described below).

The search for the water source continues

403 At 7.42am, Mr Marsh sent an email to Mr Swain and others at SEW reporting that he had spent the previous two days checking stormwater drains and services around Waller Place and Bayview Road, including the WR174 water tank site, air valves and hydrants. He had also taken a sample from a stormwater pit located outside 6 Waller Place and delivered it to ALS for testing. He noted that Detection Services were on-site, surveying the zone "*from Bayview Road up*".[629]

625 Email chain between Mathew Hopwood-Glover, Claudio Flores and Peter O'Brien about water leak at Charlesworth Street, 8 January 2025, [MSC.5003.0001.7213].

626 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(19) [MSC.5003.0001.7216].

627 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0040].

628 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 529.

629 Email from Jason Marsh to Charles Swain et al about monitoring of storm drains and sounding services around Waller Place and Bayview Road, 9 January 2025, [SEW.0001.0001.0438].

404 At 8.41am, Mr Pope responded to Mr Glover's emails of the previous day stating that he was "*[f]ully supportive of running to ground any man-made sources of water*". He stated:

> Note that in the 1960s when SEW drilled for the Dromana tunnel (through Arthurs Seat), there were several cases of groundwater encountered in the weathered granite at levels much higher than our Site. Furthermore, two of the boreholes on the southwestern side of the mountain (DT 9 and DT 10) struck groundwater at 20 to 25 m depth and both produced flows at the surface of the borehole. i.e. significant artesian pressure. These boreholes were drilled between Jetty Road and the Bay Views Golf course in similar geology and at elevations higher than our site (RL 70 to 85 m).
>
> The SEW Map app shows where the trunk sewer runs. Yes, it's a distance from the site, but it does give good insights into the groundwater regime of Arthurs Seat.[630]

405 At around 9.00am, Ms Scoble of RACV met the Morans at their property, together with an engineer from Clear Engineering.[631] Ms Scoble saw a "*steady stream of water coming from the property*" and noted that "*water running down the hill*" was visible from the rear of the property. She recorded:

> no one seems to be able to confirm where this is coming from. [Mr Moran] advised that the council are saying it might be a natural spring as they can't find any leaks.[632]

406 Ms Scoble took this photograph of the running water:

FIGURE 3.37: PHOTOGRAPH TAKEN OF THE WATER FLOWING FROM 3 PENNY LANE DOWN PENNY LANE BY MS SCOBLE ON 9 JANUARY 2025.[633]



630 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(19) [MSC.5003.0001.7216].

631 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 7 [38]; Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 10 [49]; RACV file notes relating to claim of Nicholas Moran at 3 Penny Lane, 5 January 2025–4 March 2025, [IMA.0001.0001.0188 at _0015]; Exhibit CA-82, Second Witness Statement of Nicholas James Moran, 1 [3] –[5]; Exhibit CA-83, Second Witness Statement of Kellie Anne Moran, 14 August 2025, 1 [3] –[5].

632 RACV, Property Assessment Report in respect of 3 Penny Lane, 9 January 2025, [IMA.0001.0001.0161 at _0001].

633 RACV, Property Assessment Report in respect of 3 Penny Lane, 9 January 2025, [IMA.0001.0001.0161 at _0051].

407 Derek Rotter, Manager – Infrastructure Projects at the Shire, had also driven past the landslide site on his way to work and noticed water flowing down Penny Lane. He sent an email to Acting CEO Mr Oz, Ms Littlejohn, Mr MacDonald and others stating:

> On inspecting the site, I noticed significant water still flowing out from the property, with silt content within the water. (**This indicates the land has a significant high-risk of slipping again**).
>
> Noting no major rain events have taken place to generate this amount of water runoff, it then suggests there is a break in a domestic water line somewhere.[634] (emphasis added)

408 He included the following photograph of the flow of water and silt travelling out of the driveway of the Morans' property and onto Penny Lane:

FIGURE 3.38: PHOTOGRAPH TAKEN BY MR ROTTER OF THE WATER FLOWING FROM THE DRIVEWAY OF 3 PENNY LANE DOWN PENNY LANE ON 9 JANUARY 2025.[635]



409 Mr Rotter suggested that residents in the area be asked to turn off their water supplies one by one, to try to eliminate sources of water, and that this be overseen by the Shire "*to reduce our risk and identify where the source is coming from*".[636] Later that day, Mr Oz asked Ms Littlejohn if she could arrange this. Ms Littlejohn responded that Mr Glover and his team were monitoring the situation carefully and that she would take advice from them.[637]

634 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2289–.2290].

635 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2290].

636 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2289–.2290].

637 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2288].

Reponses to the unexplained water

410 Notwithstanding Mr Rotter's concerns that the significant water flow indicated that *"the land has a significant high-risk of slipping again"*, the Shire did not change its approach. None of the Shire's responses to Mr Rotter's email engaged with the question of whether the situation now warranted an emergency response.

411 Instead, Mr Glover attended the Morans' house and gave Mr Moran the Action Items list that he had prepared the day before.[638] Mr Glover, Ms Scoble, and the Morans stood in the living room on the second floor to discuss the actions required.[639] This was in circumstances where the Shire had Mr Pope's opinion that being on the property presented an unacceptable risk to life.

412 Mr Glover told the Board of Inquiry that he told the Morans the recommended actions were for the purpose of "*mitigat[ing] the risk of a further landslide*".[640] The Morans told the Board of Inquiry that they understood the Shire's primary concerns to be dealing with the flow of water through their property and removing the buildup of debris from behind their property.[641]

413 Mrs Moran recalled Mr Glover explaining that the weight of the dirt and rubble behind their home could become too heavy for their house to bear.[642] She also told the Board of Inquiry:

> Mr Glover told us that he was concerned that the amount of water still running from our property would place pressure on the front retaining wall and affect the house in front of ours.[643]

414 Similarly, Mr Moran remembered Mr Glover saying words to the effect that he was concerned the dirt would have nowhere to go if there was another landslide.[644] He told the Board of Inquiry that in any event, he and Mrs Moran "*just didn't have the expertise to fully understand exactly what they [the Shire] were trying to achieve … And Sue, the assessor, certainly took over*".[645]

415 Following the meeting, Ms Scoble recorded that the Shire wanted the soil and debris to be removed from behind the Morans' property within the week, and a water diversion system put in place. In addition, shipping containers and traffic bollards filled with water were to be installed on a 100-degree angle against the front retaining wall early the following week.[646]

416 Over the course of the morning, Mr Borghesi also continued to update Mr Flores about the continued flow of water at the site. He sent a text message to him at 10.51am as follows:

> Claude, the flow rate has abated to the original rate of ~10 l/minute. Council specifically asked us to report any changes or deterioration. It would be helpful if you acknowledge receipt of these updates.[647]

638 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 10 [51]; Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 7 [39]; Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, Exhibit KM-3 [RES.0009.0001.0005]; Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 4 [16]; RACV, Property Assessment Report in respect of 3 Penny Lane, 9 January 2025, [IMA.0001.0001.0161 at _0002].

639 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 7 [40].

640 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 4 [16].

641 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 7–8 [41].

642 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 8 [41(b)].

643 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 8 [41(c)].

644 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 10 [53(b)].

645 Public Hearing Transcript, Nicholas James Moran, 12 May 2025, 317.

646 RACV, Property Assessment Report in respect of 3 Penny Lane, 9 January 2025, [IMA.0001.0001.0161 at _0002].

647 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0040].

417 Mr Borghesi did not receive a response to his text message. The Shire has informed the Board of Inquiry that Mr Flores went on annual leave on 9 January 2025, and did not return until 14 January 2025.[648] It is apparent that Mr Borghesi was unaware that Mr Flores was on leave, and so continued to update Mr Flores as he had been asked to by the Shire.

418 Shortly before lunch, Mr Glover met with the Borghesis at their house and provided them with a copy of the Action Items list.[649] Mr Borghesi understood from that meeting that the Shire was focused on ensuring resident safety and identifying the source of the water flowing from the escarpment. He recorded in his diary that the "*plan*" was to take water samples, estimate flow rates, and check fire hydrants.[650]

419 In relation to him giving the Action Items to the Morans and Borghesis, Mr Glover told the Board of Inquiry:

> It was … the responsibility of the owners to take the relevant action(s) because the works concerned their properties. This was not a direction, but a strong suggestion by me. As both parties were working towards a solution and to Mr Pope's recommendations, I considered that, should they not cooperate, I would issue a formal Building Notice directing them to undertake the recommended works. I advised both parties of my intent should cooperation not occur, including Ms Scoble.[651]

420 Mr Glover did not explain why the Shire's response was limited to directing residents to take actions, rather than also seeking an emergency response from the VicSES – even though water was continuing to infiltrate the unstable headscarp and there was the threat of a further landslide, which Mr Rotter of the Shire had assessed as "*a significant high-risk*".[652]

421 After giving the residents responsibility to take actions (including diverting surface water away from the headscarp), Mr Glover and Mr Jones then went about taking further water samples for chemical analysis.[653]

422 Mr Glover spoke with the resident of 1 Waller Place, located on the corner of Charlesworth Street, who told him that residents had been reporting the water leak in that vicinity to the Shire and SEW from as early as September 2024 and throughout December 2024.[654] Mr Glover said to Mr Jones at that point, "*this could be the cause, to 10–12 View Point*".[655] They continued to track the flow of water by walking the streets down Coburn Avenue. They "*lost the water*" at the intersection of Coburn Avenue and Prospect Hill Road.[656]

423 Mr Glover told the Board of Inquiry that after seeing the leak in Charlesworth Street, he thought it may have been causing "*the extent of water in the slope*". However, the Shire's testing remained inconclusive: the trace-dye the Shire had used was not emerging in the stormwater drainage from around 2 View Point Road to the corner drainage pit. Accordingly, Mr Flores asked the Shire's Environmental Health team to assist with arranging sample bottles of water to be tested.[657]

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648 Mornington Peninsula Shire Council, Response to potential adverse observations, 25 August 2025, [MSC.5094.0001.0001].

649 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 4 [15]–[16]; Public Hearing Transcript, Gerrard Raymond Borghesi, 14 May 2025, 529.

650 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0034].

651 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 4 [16].

652 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2289 –.2290].

653 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 7 [23(d)].

654 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 7 [25].

655 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 7 [25].

656 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 7 [25].

657 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 7 [25].

424 After lunch, Mr Glover sent an email to Ms Littlejohn and Mr MacDonald to relay the steps he had taken that day.[658]

425 None of the Shire's trace-dye, water sampling tests or inspections had identified the cause of the water discharge on the escarpment, leading Mr Glover to comment that "*the water source could just be a natural spring*". He noted that if that were the case, the State Government would need to be contacted.[659] He told the Board of Inquiry that he was not certain there was a natural spring, and that he relied on his direct report and Director to communicate his update to the necessary parties.[660]

426 Mr Glover otherwise confirmed that the Office of the MBS would continue to inspect the site conditions daily during the working week. He stated:

> Work is commencing to reduce the hydrostatic loads on the premises, which will result in water being pumped via the surface along Penny Lane until the water source is known.
> ...
>
> Over the next few days, the insurers and owner have commented on undertaking works as previously communicated and reviewed by PSM Engineers as a short-term solution.
>
> Internally; Clrs, ELT, Engineering, Environmental Health have been notified. At this stage, based on the PSM initial finding, **no residents along Point Nepean are at risk, provided the short-term works are undertaken**.[661] (emphasis added)

427 In the early afternoon, Mr Borghesi contacted Dan Tolan, Geotechnical Engineer at CivilTest, to discuss the Action Items list. He was told to seek Maw Civil's advice as to what works could be safely actioned to stabilise the headscarp. Mr Borghesi then contacted Maw Civil and a representative attended the property later in the afternoon.[662]

428 Around this same time, Mr Borghesi observed that the water flow from the escarpment had increased. He was concerned the water flow was continuing to erode the headscarp and compromising the stability of a gum tree. He recorded in his diary: "*small landslip at head of scarp and crack appearing south of gum tree*", and sent Mr Flores a text message stating, "*Claude, a small amount of soil (0.5m3) collapse from near the gum tree, the tree is at risk*".[663]

658 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 7 [26].

659 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2288].

660 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 7 [26].

661 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2288].

662 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0035].

663 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0035, _0040].

FIGURE 3.39: PHOTOGRAPH TAKEN BY MR BORGHESI SHOWING THE COMPROMISED TREE ON 9 JANUARY 2025.[664]



429 Mr Borghesi also notified Mr Glover of these concerns at around 3.30pm. He made a further record in his diary regarding this communication, noting: "*apparently they have ruled out leaking hydrants and did water testing – should have results back next week*".[665]

430 By early evening, Ms Scoble had arranged for a builder to attend the Morans' property the following day to carry out the water diversion works set out in the Action Items list, "*under strict supervision due to site hazards*".[666] She had also arranged for a plumber to attend the property to try to ascertain where the water was coming from, noting "*the flow of water is constant, which is more than there would be if it was coming from a natural spring*".[667] She recorded:

> Whilst on-site CFT were under house and have advised approx. 4 stumps have been affected. I have also sent them a copy of the council recommendation for comment as they heard some of what they were recommending and reached out to me after leaving the property to express their concerns in particular around the shipping containers and the weight on the front lawn as this isn't made to take the weight that there would be, and the concern is it would affect the retaining wall between [the Morans' house] and the lower neighbour. I advised we had similar concerns, hence why we are holding off on this at this stage until I have further discussions early next week.[668]

664 Photograph of compromised tree on escarpment beneath 10–12 View Point Road taken by Gerrard Borghesi on 9 January 2025, [RES.0001.0004.0174].

665 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0035].

666 Midcity, Summary of works completed by Midcity at 3 Penny Lane, 5–14 January 2025, [IMA.0001.0001.0078].

667 RACV, Property Assessment Report in respect of 3 Penny Lane, 9 January 2025, [IMA.0001.0001.0161 at _0002].

668 RACV, Property Assessment Report in respect of 3 Penny Lane, 9 January 2025, [IMA.0001.0001.0161 at _0003].

The fifth day after the landslide, 10 January 2025

431 Five days on and the unexplained water was continuing to flow from the headscarp (albeit at a reduced rate of 5 litres per minute),[669] increasing the already significant risk of a further landslide.

432 The Shire did not change its approach to the heightened threat.

433 First thing in the morning, Mr Glover met Mr Moran at his house. They were joined by contractors, Mr Jones from Midcity and Ms Scoble, who wanted to ensure that all parties *"were on the same page"* as to what works were to be undertaken.[670] Mr Glover told the contractors what the Shire was expecting in respect of the water diversion plan, namely, the removal of decking and the installation of a pipe underneath the house.[671]

434 The plumbers who had been engaged by Ms Scoble the previous day also attended the property to investigate the source of the continuous flow of water.[672] They told Ms Scoble that they had located a pipe underneath a retaining wall at 10–12 View Point Road, and they believed the water flowing down the escarpment to be emanating from that pipe. It is said that they gave photographs to Ms Scoble,[673] but no such photographs have been produced to the Board of Inquiry.

435 The contractors, Midcity, made this note of the discussions on-site:

> A council officer is also on-site and advises David and Sue of his concerns and instructions on what works he wants completed, as he believes there is **an immediate risk to the house directly below the insured property. The retaining wall at the front of the insured property is being compromised due to continual water runoff from the cliff at the back of the property**[.][674] (emphasis added)

436 Throughout the afternoon, the contractors installed pipes under the house to divert the water.[675] The solution was short-lived. By the next day, it would fail.

437 In the meantime, while the contractors worked, Mr Glover conducted a further inspection of road kerb collectors and stormwater pits, and carried out further trace-dye testing, to determine whether the Shire's stormwater drainage had been compromised.[676] Mr Glover told the Board of Inquiry:

> I observed that the road curb collector at Prospect Hill Road was silted with debris…and the red dye did not flow via the stormwater drain to the corner pit of Prospect Hill and View Point Road. This made me consider there was a potential damaged pipe allowing water to flow subterraneously or within the trench void[.][677]

669 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0035].

670 RACV, Property Assessment Report in respect of 3 Penny Lane, 9 January 2025, [IMA.0001.0001.0161 at _0003].

671 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 5 [18]; Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 12 [59].

672 RACV, Property Assessment Report in respect of 3 Penny Lane, 9 January 2025, [IMA.0001.0001.0161].

673 RACV, Property Assessment Report in respect of 3 Penny Lane, 9 January 2025, [IMA.0001.0001.0161 at _0003].

674 Midcity, Summary of works completed by Midcity at 3 Penny Lane, 5–14 January 2025, [IMA.0001.0001.0078].

675 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 5 [18].

676 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 6 [23(c)].

677 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 7 [23(c)(ii)].

438 He then sent Mr Pope the following text message:

> Just back on-site … No evidence of red [dye] … Discharge increased slightly and water is clearer
>
> From 10–12 [View Point Road] at the head.[678]

439 Around lunchtime, Mr Glover sent photographs of the landslide site to Mr Pope.[679] The flow of water down the escarpment was clearly visible.

FIGURE 3.40: PHOTOGRAPH TAKEN BY MR GLOVER SHOWING THE FLOW OF WATER ON THE ESCARPMENT ON 10 JANUARY 2025.[680]



440 In the afternoon, Mr Borghesi sent an email to Mr Glover, attaching a document prepared by Maw Civil outlining a proposed "*methodology and stabilisation scope of works*".[681] Maw Civil stated that while the proposed works involving the installation of rock bags would not resolve the issue, it was hopeful that the works would prevent the earth from further slippage.[682]

441 Mr Borghesi asked Mr Glover to provide any comments on the proposal as the work was intended to commence the following week.[683] Mr Tolan, from CivilTest, was to review the proposed scope of works concurrently.

678 Text message chain between Mathew Hopwood-Glover and Dane Pope about site visit conducted at 10–12 View Point Road, 6–13 January 2025, [MSC.5031.0001.6040].

679 Email from Mathew Hopwood-Glover to Dane Pope about photos taken at 10–12 View Point Road, 10 January 2025, [MSC.5005.0042.2452].

680 Email from Mathew Hopwood-Glover to Dane Pope about photos taken at 10–12 View Point Road, 10 January 2025, [MSC.5005.0042.2452 at .2463].

681 Email from Gerrard Borghesi to Mornington Peninsula Shire Building Permits about methodology and stabilisation scope of works for 10–12 View Point Road, 10 January 2025, [MSC.5003.0001.7272].

682 Maw Civil Marine Pty Ltd, Expert Report on Methodology at 10–12 View Point Road, 13 January 2025, [MSC.5003.0001.7273].

683 Email from Gerrard Borghesi to Mornington Peninsula Shire Building Permits about methodology and stabilisation scope of works for 10–12 View Point Road, 10 January 2025, [MSC.5003.0001.7272].

442 Mr Borghesi also asked the Shire to provide continued updates on the identification of the source of the water flow and actions being taken to redirect or manage the water flow on the Borghesis' property.[684]

443 Later that evening, Mr Borghesi made an emergency call to the Shire, the nature of which was recorded by the Shire as a "*slide at the property*". Records indicate that the call was with Mr Glover.[685] Mr Borghesi told the Board of Inquiry that he made a phone call to Mr Flores at around 7.35pm and to Mr Glover at around 9.00pm on 10 January 2025.[686] He could not recall details of what was discussed.

The sixth day after the landslide, 11 January 2025

444 The unexplained water was continuing to run six days after the landslide.

445 Mr Moran visited his property on 11 January 2025 and observed that the flow of water had not decreased or altered since the landslide,[687] and that there was water breaching the retaining wall at the front of his property.[688]

446 He sent photographs to Ms Scoble.[689] Ms Scoble sent a text message to Mr Jones of Midcity to advise him that the "*make-safe around the front retaining wall to prevent runoff to the front neighbouring property*" was no longer effective. She told him that water and silt were washing down the cliff face and back over the retaining wall, such that it required attention. She asked him to address the issue.[690]

447 Ms Scoble sent a further text message to Mr Jones later in the day to follow up on her request, but she received no response.[691]

448 In the meantime, Mr Borghesi noticed further movement on the escarpment. He told the Board of Inquiry:

> Notably over the weekend 11 and 12 January just - we tried to contact council but there was no-one available over the weekend. They did have an after-hours call-in voicemail system that we spoke to someone and relayed our concerns that we were seeing further degradation of the hillside.[692]

449 Counsel Assisting asked Mr Borghesi if it was fair to say that he was "*actively concerned*" there might be a further failure of the slope. Mr Borghesi replied, "*Absolutely, categorically*".[693] When asked if he considered the source of the water to be the most significant issue to be dealt with at that time, he stated:

684 Email from Gerrard Borghesi to Mornington Peninsula Shire Building Permits about methodology and stabilisation scope of works for 10–12 View Point Road, 10 January 2025, [MSC.5003.0001.7272].

685 Mornington Peninsula Shire Council, Daily Report Spreadsheet, 10–11 January 2025, [MSC.5005.0042.2542].

686 Mornington Peninsula Shire Council, Daily Report Spreadsheet, 10–11 January 2025, [MSC.5005.0042.2542].

687 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 13 [66].

688 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 12 [63].

689 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, Exhibit NM-10 [RES.0009.0001.0007].

690 Midcity, Summary of works completed by Midcity at 3 Penny Lane, 5–14 January 2025, [IMA.0001.0001.0078]; Text message from Sue Scoble to David Jones of Midcity about failed water diversion at 3 Penny Lane, 11 January 2025, [IMA.0001.0001.0138].

691 Text message from Sue Scoble to David Jones of Midcity about failed water diversion at 3 Penny Lane, 11 January 2025, [IMA.0001.0001.0139].

692 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 529.

693 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 529.

> No, not at all.
>
> ...
>
> [What we] repeatedly communicated to council employees was we felt the source of the water at this point was completely irrelevant. What was relevant was water is coming out of the headscarp and likely to be identified and tracked in a relatively narrow pathway back up to View Point Road in the vicinity of the work where the dye was put into the borehole that led to the green dye coming out of the scarp. So our point was, 'Don't worry about where it's coming from. What you need to do is intercept it before it emanates from the scarp because once gravity gets a hold of it, as was evidenced between 5 and 14 January, it will just continue to erode the scarp.'
>
> And because water was continuing to flow, as I said, for many weeks after 14 January we felt it was imperative that council or South East Water undertake some urgent works to dig a trench or put spears in View Point Road to seek to intercept the water and, even if that were unsuccessful, it was critical that they do that rather than identify the source of the water.[694]

The seventh day after the landslide, 12 January 2025

450 One week after the landslide, on 12 January 2025, John Bolch, a local resident and licensed and registered commercial plumber, observed a constant stream of water flowing along the west side of the Morans' property, down Penny Lane and towards the spoon drain on Point Nepean Road. He described the water as being "*bordered by a fine silty sand, which appeared to have been brought down the slope by the water*", and noted that he saw a significant amount of water flowing from underneath the Morans' house and over the lower retaining wall in front of their house.[695] He told the Board of Inquiry:

> I proceeded to take a video of the water running down Penny Lane because it was a substantial flow. When I panned over the top of the gate and towards their retaining wall you could see a lot of silt, sand building up on the lower grass level of the retaining wall. As I moved around you could see where they'd put the pipe coming out from underneath the deck, but it had virtually stopped flowing. So obviously the sand and that had built up that much that it couldn't flow out the relief point that they were trying to achieve.[696]

451 Mr Bolch was surprised by the volume of water because it had been a "*particularly dry summer*".[697] He considered the presence of water to be related to the landslide on 5 January 2025, because he knew that landslides typically need a lot of moisture for the soil or other material to become heavy enough to slide.[698]

452 Mr Bolch was curious to understand the source of the water and spent the afternoon driving around the local area with his wife.[699] He saw water running down the kerbs along both sides of Charlesworth Street and saw that the road surface at the intersection of Coburn Avenue and Charlesworth Street was cracking and spongy with water. He was not able to locate the source of the water.[700]

694 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 536.

695 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 4 [17].

696 Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 407.

697 Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 408.

698 Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 408–409.

699 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 4 [18]–[19].

700 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 4 [19]; Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 409.

453 In the afternoon, at around 2.36pm, Ms Scoble sent an email to Mr Jones of Midcity, attaching the text messages she had sent him the previous day.[701] She wanted to ensure he would arrange for someone to attend to deal with the water diversion at the Morans' property, particularly given the wet weather. She stated:

> I'm sending you an email as I've had no response to the text I sent you on Saturday and given the importance of this claim we need to make sure we are actioning this urgently.
>
> [The Morans] are being very understanding at the moment but this could change especially if the council issue an order.[702]

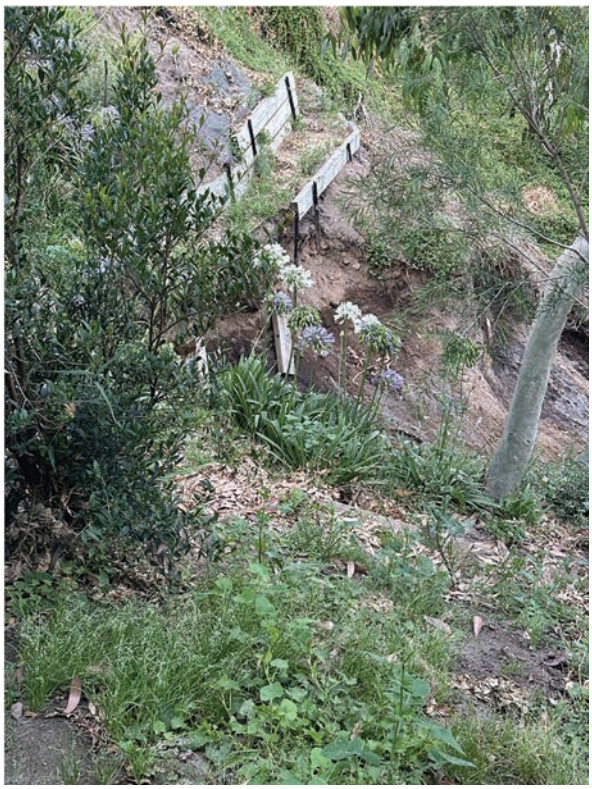
454 Mr Jones arranged a meeting at the site for the following morning.[703]

455 Mr Borghesi also recorded in his diary that there had been rain and lightning and:

> 2nd retaining wall timber beam collapsed
>
> Lost 2nd agapanthus – headscarp … stair pickets to south edge holding[.][704]

456 He took this photograph:

FIGURE 3.41: PHOTOGRAPH TAKEN BY MR BORGHESI OF THE RETAINING WALL FAILING ON 12 JANUARY 2025.[705]



701 Email chain between Sue Scoble and David Jones of Midcity Group about water diversion works at 3 Penny Lane, 9–12 January 2025, [IMA.0001.0001.0137].

702 Email chain between Sue Scoble and David Jones of Midcity about water diversion works at 3 Penny Lane, 9–12 January 2025, [IMA.0001.0001.0137].

703 Midcity, Summary of works completed by Midcity at 3 Penny Lane, 5–14 January 2025, [IMA.0001.0001.0078].

704 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0036].

705 Photograph of the retaining wall at 10–12 View Point Road failing taken by Gerrard Borghesi on 12 January 2025, [RES.0001.0004.0169].

The eighth day after the landslide, 13 January 2025

457 By the second week after the landslide, the water was still flowing and the headscarp was, unsurprisingly, even more unstable.

458 In the morning of 13 January 2025, Mr Glover sent several photographs of the headscarp to Mr Pope, which appear to have been taken from 6 View Point Road. They exchanged the following text messages:

> Mr Glover: Not good...
>
> Mr Pope: Wedge in front is slowly failing
>
> Mr Glover: I [was] told by the insurer the[re] is a water pipe under the retaining wall.
>
> Mr Pope: For irrigation??
>
> Mr Glover: I do not think so. It is a larger pipe I believe. RACV advised me and I am further investigating.[706]

459 Again, the Shire did not re-engage with the VicSES to seek an emergency response to the imminent landslide.

460 The Shire did not take the steps suggested by Mr Borghesi, namely, to dig a trench or put spears in View Point Road to try and intercept the water before it emanated from the headscarp, nor did SEW take those steps.

461 The water continued to infiltrate the headscarp.

462 At 9.50am, Mr Moran telephoned Ms Scoble to ask for an update on what was being done to repair the water diversion issue at his house. Ms Scoble confirmed that a builder would be attending that day. She noted she was otherwise still awaiting an engineer's report and would update Mr Moran once she received it.[707]

463 Shortly after, Mr Moran sent a text message to Mr Glover to enquire as to whether the rainfall the previous night had affected the water flow through his property. Mr Moran recalls receiving a telephone call from Mr Glover, during which they discussed the overnight rain and whether arrangements had been made for shipping containers to be brought onto his property.[708]

464 About an hour later, Mrs Moran contacted Ms Scoble to tell her that Mr Glover had foreshadowed issuing a Building Order if work to remove the soil on their property was not undertaken. Ms Scoble recorded:

> I advised that is fine he can issue an order but I need to know a cost as I am in the process of getting this she is concerned about the fact that if they have further slippage this will cause damage to the roof of the house as this is what has been suggested by Matt Glover[.][709] (errors in original)

706 Text message chain between Mathew Hopwood-Glover and Dane Pope about site visit conducted at 10–12 View Point Road, 6–13 January 2025, [MSC.5031.0001.6040].

707 RACV file notes relating to claim of Nicholas Moran at 3 Penny Lane, 5 January 2025–4 March 2025, [IMA.0001.0001.0188 at _0013].

708 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 13 [67].

709 RACV file notes relating to claim of Nicholas Moran at 3 Penny Lane, 5 January 2025–4 March 2025, [IMA.0001.0001.0188 at _0013].

465 Ms Scoble telephoned Mr Glover to tell him that she was waiting on quotes for the removal of the soil and debris. She also told Mr Glover that the water leakage needed to be stopped first. She said that the longer it went on, the more likely further soil would "*drop*" which could "*take out the props as well and cause the roof to collapse*". Ms Scoble noted that Mr Glover was surprised by that comment.[710]

466 In the same conversation, Mr Glover told Ms Scoble that he understood from Mr Moran that the plumbers who had attended the site had located a cracked pipe. Mr Glover requested drawings to determine the location of the pipe, and Ms Scoble subsequently contacted Mr Jones of Midcity to ask for those drawings.[711]

467 Mr Jones had, in the meantime, arrived at the Morans' house with several tradesman and a civil contractor to review the failed water diversion. A secondary make-safe was completed, diverting water away from the lower house.[712] The following observations were also made:

> While on-site, it is discovered that the water flowing down the cliffside has increased significantly since previous attendances, likely due to rain over the weekend. It is recorded that there was 8mm of rain on Saturday and 9mm on Sunday in a short period of approximately three hours.[713]

468 Mr Jones provided those updates to Ms Scoble during their conversation. She told Mr Jones that the Shire was "*putting enormous pressure*" on Mr Moran to have the soil and debris urgently removed from the rear of his property, and that she required a quote as soon as possible.[714]

469 At around lunchtime, Ms Scoble told the Morans that she believed the water to be emanating from the damaged pipe underneath the retaining wall on 10–12 View Point Road. She said that if the water was coming from a natural spring, as had been suggested, the flow would be inconsistent, varying with the ebb and flow of the spring. She thought the flow of water at the Morans' property was not behaving in that way; to her, it had not altered in volume or pace since the landslide.[715]

470 Later that afternoon, Mr Glover contacted Ms Scoble to advise that he would be attending the Morans' property the following day and would be "*up on the hill*". Following a call from Mr Moran, Ms Scoble placed a further call to Mr Glover to discuss the use of shipping containers. Specifically, Ms Scoble asked Mr Glover how he proposed to have shipping containers taken up to the site. He responded that cranes would be used. Ms Scoble recorded, "*I asked how given the access and he couldn't answer me*".[716]

471 Ms Scoble later sent to Mr Glover the following aerial shot of the Morans' property and the rear of the Borghesis' property:

710 RACV file notes relating to claim of Nicholas Moran at 3 Penny Lane, 5 January 2025–4 March 2025, [IMA.0001.0001.0188 at _0013].

711 RACV file notes relating to claim of Nicholas Moran at 3 Penny Lane, 5 January 2025–4 March 2025, [IMA.0001.0001.0188 at _0013].

712 Midcity, Summary of works completed by Midcity at 3 Penny Lane, 5–14 January 2025, [IMA.0001.0001.0078].

713 Midcity, Summary of works completed by Midcity at 3 Penny Lane, 5–14 January 2025, [IMA.0001.0001.0078].

714 Midcity, Summary of works completed by Midcity at 3 Penny Lane, 5–14 January 2025, [IMA.0001.0001.0078].

715 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 13 [68]; Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 9 [45].

716 RACV file notes relating to claim of Nicholas Moran at 3 Penny Lane, 5 January 2025–4 March 2025, [IMA.0001.0001.0188 at _0013].

FIGURE 3.42: AERIAL IMAGE OF 3 PENNY LANE AND 10–12 VIEW POINT ROAD WITH ANNOTATIONS SHOWING LOCATION OF THE BROKEN PIPE UNDERNEATH THE RETAINING WALL AT 10–12 VIEW POINT ROAD.[717]



472 She described it as "*a map with the location of the pipe that is broken from our builder*". She otherwise noted that she would update Mr Glover on the proposed use of shipping containers once she had gathered more information "*in the next couple of days*".[718] Mr Glover responded, "*I can see where the broken pipe is on the plan*".[719] He forwarded the email to Mr Pope later that afternoon and asked for Mr Pope's thoughts.[720]

473 Mr Glover was also communicating with various people in relation to works on 10–12 View Point Road. He sent an email to Mr Tolan from CivilTest, Mr Borghesi and Mr Pope, asking Mr Tolan to liaise with Mr Pope in respect of the proposed use of rock bags.[721]

474 In response, Mr Tolan sent an email to Mr Pope only, stating:

> Our immediate works plan is to create a batter against the main scarp with porous rock bags. We will use around 30 bags (1.25t). Additionally the aggie in the retaining wall is going to be extended out such that it drains six metres or so downstream of the point where the groundwater is coming out. I've also told Gerry that the non-porous paved area should be sandbagged to prevent surface runoff (This is just the entrance to the stairs I believe, but I am reattending the site this week so I will make sure there are no potential areas where water will be able to drain to the scarp).[722]

717 Photograph of 3 Penny Lane and 10–12 View Point Road with annotations showing location of broken pipe underneath retaining wall at 10–12 View Point Road, 13 January 2025, [IMA.0001.0001.0081].

718 Email chain between Mathew Hopwood-Glover and Sue Scoble about broken pipe at 3 Penny Lane, 13 January 2025, [IMA.0001.0001.0082].

719 Email chain between Mathew Hopwood-Glover and Sue Scoble about broken pipe at 3 Penny Lane, 13 January 2025, [IMA.0001.0001.0082].

720 Email chain between Mathew Hopwood-Glover and Dane Pope about broken pipe at 3 Penny Lane, 13 January 2025, [MSC.5005.0042.2868].

721 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 6 [21]; Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, Exhibit CA-61(7) [MSC.5003.0001.7277 at .7278].

722 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, Exhibit CA-61(7) [MSC.5003.0001.7277 at .7277].

475 A few hours later, Mr Pope sent an email to Mr Tolan, copying Mr Glover, disagreeing with the proposed use of the rock bags.[723] Mr Pope stated:

> If the owner wants to meaningfully reduce risk, they should unload the active side of the retaining wall. i.e. remove planter boxes within influence of the slip and unload some of the back fill. This reduces the driving forces in the landslide immediately.[724]

476 Mr Borghesi recorded in his diary the following:

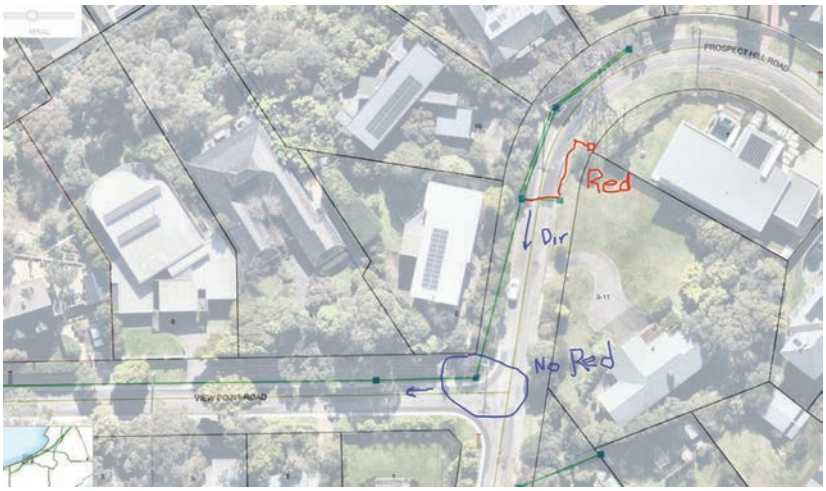
> 930 Matt (MPSC) on-site – found voids under concrete retaining wall
>
> Geotechs not aligned on emergency solution
>
> Large tension cracks at base of ret[aining] wall (new and longer cracks).[725]

477 Mr Glover provided an email update to David (Davey) Smith, Director Assets and Infrastructure at the Shire, and Tom Haines-Sutherland, Manager Infrastructure Services at the Shire, copying Ms Littlejohn and Mr MacDonald. He noted that water was still discharging from 10–12 View Point Road at around 15 litres per minute, and that the Office of the MBS had undertaken a preliminary assessment for leaks and flows, including kerb pit inspections, water sampling from the landslide site, using trace-dye, and checking surrounding water metres and ground ball hydrants.[726] He stated:

> The plan below indicates where the red trace [dye] was placed, and it stopped at 2 Prospect Hill and did not enter the [kerb] pit on the [corner] View Point / Prospect Hill.
>
> Can you please investigate further? The trace [dye] appears to disappear between 2 Prospect Hill and the [kerb] pit. It also seems that the new pit's construction has not been built to standard.[727]

478 He included the following diagram:

FIGURE 3.43: DIAGRAM PREPARED BY MR GLOVER ON 10 JANUARY 2025.[728]



723 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 6 [21]; Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, Exhibit CA-61(7) [MSC.5003.0001.7277 at .7277].

724 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, Exhibit CA-61(7) [MSC.5003.0001.7277 at .7277].

725 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0036].

726 Email from Mathew Hopwood-Glover to David Smith, Tom Haines-Sutherland, Renae Littlejohn and Rory MacDonald about OMBS preliminary assessment of leak, 13 January 2025, [MSC.5005.0042.2737].

727 Email from Mathew Hopwood-Glover to David Smith, Tom Haines-Sutherland, Renae Littlejohn and Rory MacDonald about OMBS preliminary assessment of leak, 13 January 2025, [MSC.5005.0042.2737].

728 Email from Mathew Hopwood-Glover to David Smith, Tom Haines-Sutherland, Renae Littlejohn and Rory MacDonald about OMBS preliminary assessment of leak, 13 January 2025, [MSC.5005.0042.2737 at .2738].

479 Mr Glover told the Board of Inquiry that he asked Mr Smith and Mr Haines-Sutherland to investigate the flow of water as he felt he had exhausted the investigations available to him, and it appeared to him that a potential cause of the constant flow of water could be the "*council's drainage system failure*".[729]

The McCrae Landslide, 14 January 2025

480 Nine days after the 5 January 2025 landslide, and with unexplained water still infiltrating the headscarp, the McCrae Landslide struck, destroying 3 Penny Lane.

481 At around 8.45am on 14 January 2025, Mr Willigenburg heard a deep rumbling sound coming from the rear of his rental property. Within seconds, he heard a massive crash and Mrs Willigenburg yelling, "*the house has come down*". Panicked, they ran out of the house and onto Point Nepean Road.[730]

482 Mr Willigenburg told the Board of Inquiry:

> As we came out of the house, I turned left to look towards the rear of the rental property and I immediately saw that the house at 3 Penny Lane had lurched forward into the backyard of the rental property. The house looked as though it had split in half and seemed to be hanging over the rear fence of the rental property. There was glass and timber everywhere. I was in complete shock and I do not recall Denise or me saying anything to one another in that moment.[731]

483 Mr Willigenburg noticed a person lying near the front gate of the Morans' property. He ran up to the person and realised it was Mr Glover.[732] He told Counsel Assisting:

> [Mr Glover] was in a terrible state. He was screaming and he had blood on his head. He had shards of glass sticking in his head. He was lying on his side. He was conscious, though. I can't remember what I said to him at the time, but he was conscious.[733]

484 Mr Glover had arrived at the Morans' property earlier that morning to inspect the water diversion system that had been repaired the previous day.[734] Mr Willigenburg understood from Mr Glover that he had jumped from the deck on the second floor of the Morans' property when he heard the same loud rumble that Mr Willigenburg had heard.[735]

485 Mr Borghesi had also heard the same sound. He had been sitting in his living room, typing an email to the Shire about further degradation of the escarpment, when he heard what he described as a "*loud thunderstorm*" that sounded like a "*rumbling train*".[736] He told the Board of Inquiry that he and Mrs Borghesi:

> instantly ran out the backdoor, knowingly looking at each other that we knew what had happened, and then went to not the veggie patch area but…to the paved area, which we considered to be safe, and observed the back end of the landslip actually occurring, dust rising from down below. So we were outside within 15 seconds of the initial collapse.[737]

729 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 7-8 [27].

730 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 22 [127]; Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 472.

731 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 22 [128].

732 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 22 [129].

733 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 472–473.

734 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 5 [18].

735 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 473.

736 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 529–530.

737 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 530.

486 Mrs Borghesi took several video recordings of the landslide in those initial moments. The videos clearly showed what Mr Borghesi described as "*deeply saturated soil collapsing from underneath number 6 View Point Road*" and "*topsoil falling from behind the retaining wall*". He described the soil as "*more liquified*" than what flowed from the escarpment following the landslide that had occurred nine days earlier, noting it was "*water just flowing out of the hillside*".[738]

487 Mr Cooper, who was driving through McCrae that morning, turned onto Point Nepean Road and saw "*a pile of rubble*" with dust emanating from the area where the Morans' property had stood. Mr Cooper's mother rang him at the same time and told him she could see a fire. He told his mother, "*that's not a fire. A house has fallen down the hill*".[739]

FIGURE 3.44: AERIAL PHOTOGRAPH OF 3 PENNY LANE TAKEN FOR THE VICSES ON 14 JANUARY 2025.[740]



488 Within moments of the landslide, people had begun to gather and local residents, Mike O'Neill and John D'Helin approached Mr Willigenburg and Mr Glover.[741] A bystander called "000" and handed the phone to Mr Willigenburg who was closest to Mr Glover.[742] Mr Willigenburg recalls the operator asking what had occurred and whether Mr Glover was conscious.[743] As he responded to those questions, Mr O'Neill told him "*Paul, you need to tell the d[i]spatcher the house is moving. We've got to get Matt away from here*". Mr Willigenburg told the Board of Inquiry:

738 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 531–532; Exhibit CA-24, Video of soil falling down escarpment and 3 Penny Lane debris taken by Gerrard Borghesi on 14 January 2025, [RES.0001.0004.0194].

739 Exhibit CA-17, Witness Statement of Brett Phillips Cooper, 12 May 2025, 7 [27].

740 State Emergency Service, Situation Report on landslide at 3 Penny Lane, 14 January 2025, [SES.0001.0002.0071 at .0071].

741 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 473.

742 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 22 [130].

743 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 473.

> So I told the d[i]spatcher that and they said, 'Okay, as best you can, because he's obviously seriously injured, drag him as far away as you can.' And so we probably dragged him about four or five metres towards the front of Jon McLean's property at 2 Penny Lane.[744]

FIGURE 3.45: PHOTOGRAPH OF 3 PENNY LANE FOLLOWING LANDSLIDE ON 14 JANUARY 2025.[745]



489 The VicSES recorded its first notification of the incident at 8.48am. It had received a report that a whole house had rolled down a hill and that there was an injured man lying at the bottom of the hill. The VicSES did not know, at that point in time, whether there were any other persons inside the Morans' house or who the injured person was.[746] VicSES units were immediately dispatched to the scene.[747]

490 The VicSES received several further notifications over the minutes that followed and recorded comments including:

> POSS ROLLED DUE TO WATER
>
> and
>
> ! WATER RUNNING DOWN THE HILL – POSS CAUSED THE HOUSE TO COLLAPSE.[748]

744 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 473.

745 Photograph of 3 Penny Lane following 14 January 2025 landslide, [MSC.5058.0001.0259].

746 State Emergency Service, Emergency call log in relation to 3 Penny Lane and Point Nepean Road, 14–20 January 2025, [SES.0001.0002.0012].

747 State Emergency Service, Emergency call log in relation to 3 Penny Lane and Point Nepean Road, 14–20 January 2025, [SES.0001.0002.0012].

748 State Emergency Service, Emergency call log in relation to 3 Penny Lane and Point Nepean Road, 14–20 January 2025, [SES.0001.0002.0012 at .0013].

491 The first VicSES unit arrived on scene at 8.59am.[749]

492 In the meantime, Maharlia Pakoti, Assistant Building Surveyor at the Shire, arrived at the scene. She had been due to meet Mr Glover at the Morans' property to assist him with an inspection of it. Mr Glover told Ms Pakoti that he had been standing on the balcony when he heard a loud rumble and felt the house start to move. He had tried to jump onto the nearby retaining wall but missed the wall and landed in the driveway.[750]

493 Ambulance Victoria and Shire representatives also attended the scene.[751]

494 By 9.13am, Mr Daw of the VicSES, who had assumed the role of Incident Controller of the scene, reported that the Morans' property had been "*compromised by landslip and completely destructed*". He noted there were VicSES responders assessing the area above the landslide and evacuating people from it.[752]

495 At around 9.15am, Mr Moran received a text message from a friend stating, "*I heard there was a landslide on Penny Lane, hope that's not your house*".[753] Mr Moran, who had not received any notification of the landslide, responded to his friend's message to explain that the landslide had occurred the previous week. His friend replied stating, "*no, this morning*".[754]

496 Mr Moran made a series of panicked telephone calls to try to find out what had occurred. He telephoned Mr Willigenburg, followed by Ms Scoble, and Mr Glover, but was unable to reach any of them. Mr Willigenburg returned his call. He told Mr Moran what had happened.[755] The Morans then started driving to McCrae, listening to radio news reports about the landslide. They were both, understandably, in shock.[756]

497 In the meantime, the VicSES had observed "*lots of water coming down one of the main driveways*", and had agreed with Victoria Police to close Point Nepean Road, due to the "*potential of house flipping further*".[757] By 9.50am, it was determined that there would be an evacuation warning issued to residents within a 500 metre hexagon around Penny Lane and Point Nepean Road, and an exclusion zone was established shortly after.[758]

498 Mr and Mrs Willigenburg had been permitted to enter their rental property for a few minutes, to collect any medication they required, but were told they needed to evacuate immediately after that.[759]

749 State Emergency Service, Emergency call log in relation to 3 Penny Lane and Point Nepean Road, 14–20 January 2025, [SES.0001.0002.0012 at .0016].

750 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, Exhibit CA-14(3) [MSC.5003.0001.7421].

751 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, Exhibit CA-14(3) [MSC.5003.0001.7421].

752 State Emergency Service, Emergency call log in relation to 3 Penny Lane and Point Nepean Road, 14–20 January 2025, [SES.0001.0002.0012 at .0017].

753 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 13 [71].

754 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 14 [71].

755 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 14 [72].

756 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 14 [73].

757 State Emergency Service, Emergency call log in relation to 3 Penny Lane and Point Nepean Road, 14–20 January 2025, [SES.0001.0002.0012 at .0018].

758 State Emergency Service, Emergency call log in relation to 3 Penny Lane and Point Nepean Road, 14–20 January 2025, [SES.0001.0002.0012 at .0019].

759 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 22–23 [132].

499 At 10.00am, representatives from several agencies met and determined that the VicSES would continue to manage the incident.[760] At 10.15am, the VicSES recorded: "*source of underground water likely to be underground spring causing movement of soil*".[761]

500 At around the same time, Mr Swain sent an email to Tim Lloyd, General Manager for Service Delivery at SEW, and other SEW personnel, stating:

> Over the last 10 days we have been working with the customers and Morn Pen Council to investigate the source of water coming out of the ground at multiple locations that has caused a land slip at 10 Viewpoint Rd, McCrae … We have yet to conclude these investigations, as further leak detection is currently being undertaken further north, however at this stage our investigations are concluding that the water is not from the SEW Water Network.[762]

501 Mr Swain noted that two leaks had been identified "*across the highway*" but explained that the overflowing water from those leaks had moved into the stormwater drain rather than into the ground, and that the leaks had since been repaired. He confirmed he would prepare a summary report of SEW's activities and findings.[763]

502 Mr and Mrs Moran arrived in McCrae at around 10.19am but were prevented from entering the area by Victoria Police officers who were monitoring the road closure that had been set up. They were later allowed into the restricted area.[764]

503 Counsel Assisting asked Mr Moran what he saw when he and Mrs Moran entered the restricted area. Mr Moran responded:

> It was - yes, it was horrible. I had concerns. I knew the assessors were having contractors there at different times and, with people coming and going, I had concerns there might have been some other people that they didn't know were at the property. We pretty much cleared that and found out there wasn't. And then we just - yes, it was just - yes, it was horrific.[765]

504 Mrs Moran told the Board of Inquiry, "*I don't know how to describe it, it was shocking*".[766] She had been concerned for the safety of the Willigenburgs and was asking where they were.[767] She stated:

> The SES were initially - didn't - were confused, and it did send people into a bit of a panic because they didn't know who Paul and Denise were. I then asked - that was the police, sorry. When I went to the SES, they knew who they were and they directed me - they said, 'They're over behind the bushes.' By this stage there was a lot of media there, so they were sort of behind some bushes near some neighbouring properties. So I went to them.[768]

760 State Emergency Service, Emergency call log in relation to 3 Penny Lane and Point Nepean Road, 14–20 January 2025, [SES.0001.0002.0012 at .0019].

761 State Emergency Service, Emergency call log in relation to 3 Penny Lane and Point Nepean Road, 14–20 January 2025, [SES.0001.0002.0012 at .0020].

762 Exhibit CA-35, First Witness Statement of Tim Lloyd, 4 June 2025, Exhibit 4 [SEW.0001.0001.4907].

763 Exhibit CA-35, First Witness Statement of Tim Lloyd, 4 June 2025, Exhibit 4 [SEW.0001.0001.4907].

764 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 14 [74]; Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 9 [49]–[50].

765 Public Hearing Transcript, Nicholas James Moran, 12 May 2025, 324–325.

766 Public Hearing Transcript, Kellie Anne Moran, 12 May 2025, 285.

767 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 9 [51].

768 Public Hearing Transcript, Kellie Anne Moran, 12 May 2025, 286.

505 Mrs Moran told Counsel Assisting that it was obvious there had been a second landslide. She explained:

> contrary to a lot of reports, the property didn't slide 50 metres down the hill. It was - the hill slid down and hit the property and split it in half. So you could see that there was a lot of land missing that had previously been there and that the property was - one half had gone one way and the other half had gone the other way.[769]

506 Mr Bolch and Kevin Hutchings, son-in-law of a local resident and a former Managing Director of SEW, also arrived in McCrae by around 10.30am.[770]

507 Mr Bolch had received a voicemail from a friend earlier that morning, to ask if he had been affected by the landslide.[771] He had immediately telephoned his wife and they agreed to meet at Mr Bolch's property. By the time Mr Bolch arrived, his wife and daughter had already been inside and were evacuated from it by the VicSES.[772]

508 Mr Hutchings had received a telephone call from his brother-in-law earlier that morning, to advise him that there had been a landslide.[773] Mr Hutchings had immediately set off for his mother-in-law's house (6 View Point Road) and was eventually permitted to enter the restricted area.[774] Mr Hutchings told the Board of Inquiry that as he waited in the restricted area, he overheard a bystander say words to the effect of "*do you reckon it … has anything to do with the water up the road*".[775]

509 At around 10.39am, Andrew Brick, Team Leader of the Shire's Emergency Management team, held a brief team meeting, during which it was determined that the Shire's two key responsibilities at that time were to contact affected residents and confirm they had somewhere to go, and to establish a relief hub for them.[776] Mr Brick then travelled to the site and spent the morning liaising with Mr Daw, VicSES responders and Victoria Police, in relation to road closures, traffic control, and other logistical matters.[777]

510 At around 11.23am, Mr Moran received a telephone call from a Shire representative, who notified him that his property was in the area impacted by the landslide and that a relief centre had been established for residents who required assistance. He told the Board of Inquiry "*the person I spoke with did not know that I was one of the owners of the property that had collapsed*".[778]

511 At 12.12pm, Mr Swain sent a further email to Mr Lloyd and others to confirm that SEW had shut down its water supply to View Point Road, and that "*all the houses on the landslide side of the street [had] been evacuated*". He noted that Mr Marsh, "*Ethan (Water Ops) and Bec Mcindoe (Customer liaison)*" were on-site.[779] He sent a further email to Mr Lloyd at 12.43pm, providing the following schematic of the water network he had prepared, together with notes of his observations from the site.[780]

769 Public Hearing Transcript, Kellie Anne Moran, 12 May 2025, 286–287.

770 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 4 [21]; Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 4 [22].

771 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 4 [20].

772 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 4–5 [21]–[23].

773 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 4 [21].

774 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 4 [22].

775 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 4 [24].

776 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, Exhibit CA-14(4) [MSC.5019.0001.3389].

777 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, Exhibit CA-14(4) [MSC.5019.0001.3389].

778 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 14 [75].

779 Exhibit CA-36, Email chain between Tim Lloyd, Charles Swain and Prerna Ramamurthy about water leaks in McCrae, 14 January 2025, [SEW.0001.0001.0518].

780 Exhibit CA-36, Email chain between Tim Lloyd, Charles Swain and Prerna Ramamurthy about water leaks in McCrae, 14 January 2025, [SEW.0001.0001.0518].

FIGURE 3.46: SCHEMATIC OF THE WATER NETWORK IN THE MCCRAE AREA ANNOTATED BY MR SWAIN. [781]



512 Mr Swain stated:

> The water main in Viewpoint Rd is AC [asbestos cement]. In terms of the sewer network, see GIS snapshot … I don't believe that our sewers are impacted or have contributed in any way. I want to check the maintenance holes to the west of no. 10 when things quiet down. These are 25 metres deep and would be sensitive to any land movement.[782]

513 Mr Lloyd responded to that email, stating "*The burst info is interesting*".[783] He told the Board of Inquiry that he understood the red symbols on the schematic to indicate burst pipes, and that in circumstances where there had been a landslide, water was emerging from the face of the landslide, and there was evidence of water surfacing, his genuine concern was "*have we got an issue with one of our pipes in that vicinity*". He confirmed he had not yet connected the burst which had been repaired some two to three weeks earlier, with the landslide.[784]

781 Exhibit CA-36, Schematic of the water network in the McCrae area annotated by Charles Swain, 14 January 2025, [SEW.0001.0001.0027].

782 Exhibit CA-36, Email chain between Tim Lloyd, Charles Swain and Prerna Ramamurthy about water leaks in McCrae, 14 January 2025, [SEW.0001.0001.0518].

783 Exhibit CA-36, Email chain between Tim Lloyd, Charles Swain and Prerna Ramamurthy about water leaks in McCrae, 14 January 2025, [SEW.0001.0001.0518].

784 Public Hearing Transcript, Tim Lloyd, Lloyd, 23 June 2025, 865–866.

514 Mr Rotter and other Shire representatives arrived on-site at 2.26pm.[785] At 3.48pm, Mr Rotter sent an email to Mr Smith and Mr Haines-Sutherland, copying Luke Jackson from the Shire's Roads Corridor and Drainage team.[786] He stated:

> Following site inspection today with Luke Jackson and Nilanka investigating our drainage system. Luke will provide details of proposed works, at a high level we will undertake CCTV of the drainage system as first stage, along with cleaning of our drainage system – which did look very clear. The site is under control of MBS – Claudio, who will need to make determination tomorrow and issue building orders to the private residents.[787]

515 At 4.12pm, the VicSES recorded that the "*job*" should remain open as there would be numerous crews attending the site over the next 24 to 48 hours.[788] Mr Jackson also sent an email to Mr Smith, Mr Flores, Mr Rotter and Mr Haines-Sutherland to confirm that:

> Roads & Drainage have engaged Fulton Hogan to be on-site tomorrow morning to perform CCTV to determine the condition of the drainage network.
>
> We have also instructed them to clean some of the pits in the View Point & Prospect Hill Roads area, which show signs of some silt, leaf litter and refuse but nothing that appears to be impacting the efficiency of the network.
>
> ...
>
> As an FYI, our contractor is performing investigative excavation works at Charlesworth St / Waller Place, in an attempt to determine the source of the water which is bubbling up and damaging the roads. This [i]s a last resort, as we have exhausted all possibility of defects from the relevant stakeholders with assets in the area.[789]

516 Mr Jackson noted that Mr Rotter had strongly recommended a directive be given to residents in the area to cease all irrigation of their properties until the source of the water had been identified, and that SEW was continuing investigations into its assets in the area as well. He was hoping to receive a full report on SEW's investigations in the coming days, including in respect of a burst water main they had identified and repaired "*on the opposite side of the freeway*".[790]

517 At 6.00pm, Jackson Evans, Road Rescue Capabilities Assessor at the VicSES, prepared a situation report, stating:

> A known landslide occurred last week, resulting in the cordoning off of a holiday house and below houses, ensuring the surrounding residents were safe. After SES's response, the scene was transitioned across to Council. On Tuesday, January 14th, at 8:48 a.m., Sorrento SES responded to an initial call of a rescue person structure collapse. An underground natural spring's constant water further degraded the area's foundations, resulting in a further landslide and the collapse of the house. At the time of the incident, a council Building Surveyor was attending and was injured.[791]

785 State Emergency Service, Emergency call log in relation to 3 Penny Lane and Point Nepean Road, 14–20 January 2025, [SES.0001.0002.0012 at .0022].

786 Email from Derek Rotter to David Smith, Tom Haines-Sutherland and Luke Jackson about information on efforts to locate water source, 14 January 2025, [MSC.5005.0042.3308].

787 Email from Claudio Flores to Jack Divers and Rory MacDonald about information on efforts to locate water source, 14 January 2025, [MSC.5005.0042.3308 at .3309].

788 State Emergency Service, Emergency call log in relation to 3 Penny Lane and Point Nepean Road, 14–20 January 2025, [SES.0001.0002.0012 at .0023].

789 Email from Luke Jackson to David Smith, Claudio Flores, Derek Rotter and Tom Haines-Sutherland about information on efforts to locate water source, 14 January 2025, [MSC.5005.0042.3308 at .3308].

790 Email from Luke Jackson to David Smith, Claudio Flores, Derek Rotter and Tom Haines-Sutherland about information on efforts to locate water source, 14 January 2025, [MSC.5005.0042.3308 at .3308].

791 State Emergency Service, Situation Report on landslide at 3 Penny Lane, 14 January 2025, [SES.0001.0002.0071].

3.7 The effect of the November 2022 landslides and January 2025 landslides on the McCrae community

518 The landslides have had a profound impact on the McCrae community.

519 The landslides marked the sudden destruction of normality for those living in the vicinity of the landslide sites. They caused stress, fear and uncertainty for many residents and they continue to do so. They not only destroyed the house which once stood at 3 Penny Lane, but they also claimed the homes of multiple residents who were evacuated and have since been displaced.

520 While the Board of Inquiry cannot inquire into actions taken since the McCrae Landslide on 14 January 2025,[792] nor the related emergency response, relief and recovery activities,[793] it is important to acknowledge the impact that the landslides have had on the community.

521 The residents' stories bring into sharp focus that the toll of the landslides extends well beyond property damage. The psychological and emotional toll for members of the McCrae community has been, and continues to be, immense.

Evacuations

The Emergency Orders

522 The McCrae Landslide on 14 January 2025 led to Emergency Orders being issued to multiple residents, causing the temporary and, in some cases, ongoing displacement from their homes.

523 On 17 January 2025, the Shire's MBS issued Emergency Orders to 17 properties in the vicinity of the McCrae Landslide site,[794] pursuant to s 102 of the *Building Act*. As a result, each affected resident was prohibited from entering their house and land.[795]

524 The Emergency Orders stated:

> The buildings and land have been identified as a potential risk to the life [and] safety of any occupant. This is due to the landslip that has occurred at the property known as 10–12 View Point Road, McCrae.[796]

525 Residents were required to vacate their homes promptly, with little notice and in the hours approaching midnight.[797] Residents, some of whom were vulnerable and elderly, had to find their own alternative accommodation.[798]

792 Terms of Reference, paragraph 3.4(j).

793 Terms of Reference, paragraph 3.4(l).

794 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 50-51 [138].

795 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 50–51 [138].

796 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(5) [MSC.5003.0002.3366].

797 Public Submission of Merryl and Bob Officer, 20 April 2025, [SUB.0005.0001.0002].

798 McCrae Community Session held on 9 April 2025.

526 At the time the Emergency Orders were issued, two properties were already, and remained, subject to Emergency Orders that were issued following the 15 November 2022 landslide.[799] Residents of those properties were similarly prohibited from entering their house and land.[800]

527 All told, in the aftermath of the McCrae Landslide, 19 properties fell within an area known as the exclusion zone established by the VicSES and the Shire.[801]

528 By 14 February 2025, the Emergency Orders in respect of eight of the properties were lifted.[802]

529 By 21 February 2025, the Emergency Orders in respect of another three properties were lifted.[803]

530 The cancellation notices issued to the residents pursuant to ss 105B and 110 of the *Building Act* were brief. These decisions were communicated in terms such as "*the directions within the [Emergency] Order have been completed and the Order is subsequently cancelled*" and "*this [Building Notice] is no longer warranted and is subsequently cancelled*".[804] The residents did not know how it had been determined that it was safe for them to return to their homes.

531 In the weeks following the McCrae Landslide, despite the establishment of the exclusion zone, the homes of multiple residents within that zone were ransacked by looters.[805] This compounded the residents' distress.

532 One resident explained that there have been:

> multiple burglaries and home invasions, the impact of which is still being felt. We have lost priceless heirlooms. For example, jewellery items passed down across many generations with countless stories and sentimental value attached to them, that simply cannot be replaced by any level of monetary value.[806]

533 By early August 2025, the Emergency Orders in respect of another two properties were lifted.

534 Today, six properties remain subject to Emergency Orders. Those affected residents have been unable to return to their homes, and they have been living with the uncertainty of not knowing if, and when, they will be able to return. The Board of Inquiry has heard that the hardship flowing from this uncertainty is significant and relentless.

799 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 51 [140].

800 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(111) [MSC.5002.0001.0883], Exhibit CA-12 (116) [MSC.5005.0027.0228].

801 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 4 [9].

802 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 85.

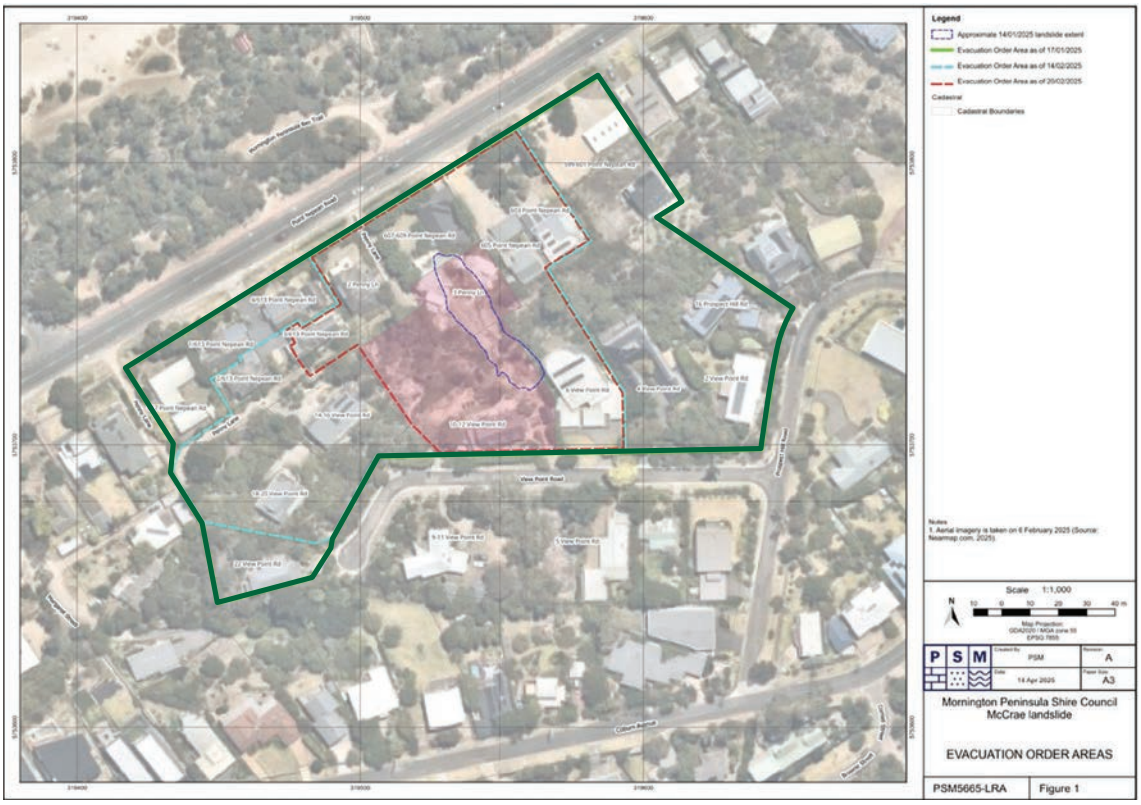
803 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 85.

804 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(286) [MSC.5017.0001.0122].

805 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 5 [24]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 23 [134].

806 Public Submission of McCrae Resident, 1 May 2025, [SUB.0029.0001.0003].

FIGURE 3.47: MCCRAE LANDSLIDE: EVACUATION ORDER AREA AS AT 22 MAY 2025.[807]



MERG

535 In the weeks following the McCrae Landslide, the evacuated residents came together as a closeknit community to share information, express their concerns, and provide comfort to one another.[808] United by the need to find answers, the residents formed a group known as the MERG.

536 On 28 January 2025, MERG had its first group meeting at the McCrae Yacht Club.[809]

537 Days later, on 31 January 2025, MERG met again.[810] At that meeting, it became clear through the residents' discussions that the task of obtaining answers about the cause of the McCrae Landslide was too immense for just one person. The residents collectively decided that particular individuals should be appointed to progress the interests of MERG, including to locate the source of the water flowing near the Morans' property.[811]

538 The formation of MERG is a powerful demonstration of community strength in the face of adversity. The work of MERG is both commendable and impressive. MERG has provided a cohesive voice for evacuated residents. MERG has also enabled resident-led investigations into the cause of the McCrae Landslide to be advanced.

539 The Board of Inquiry has benefited greatly from the valuable information that MERG has shared.

807 Exhibit CA-72, McCrae Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0091].

808 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 10 [48]; Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 9 [42].

809 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 9 [42].

810 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 9 [43].

811 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 10 [49].

The lived experiences of McCrae community members

540 Many members of the McCrae community have generously and poignantly shared their experiences with the Board of Inquiry.

541 The adverse impacts of the landslides on the community are undeniable. As one resident, who has been displaced from their home, told the Board of Inquiry:

> The stress and anxiety of not returning to familiar surroundings, routine and community have not only affected my mental health but have also led to a decline in my physical health. The sense of security and routine that my home provided has been lost.[812]

542 This sentiment is not unique. It has been echoed in the experiences shared by many other displaced residents. It is a profound reason why events like the McCrae Landslide must be prevented in the future.

543 The following stories provide some insight into the impact of the landslides on certain members of the McCrae community. These stories illustrate the range of challenges faced by those who have homes in the immediate vicinity of the landslides. They do not represent the full breadth of difficulties faced by those affected by the landslides. The absence of others' stories in no way diminishes their importance.

Kellie and Nick Moran – 3 Penny Lane, McCrae

544 The McCrae Landslide destroyed Kellie and Nick Moran's house.

545 The home — once a testament to years of hard work and a place of happy memories — was reduced to rubble within moments. The landslide has not only robbed the Morans of their home, it has taken away their sense of safety and security.[813] Mr Moran told the Board of Inquiry:

> [W]e're a pretty resilient family, but this has broken us. And my wife's one of the strongest people you can come across, and she's still not sleeping and she's pretty broken by this.[814]

546 The Morans purchased the house in May 2023.[815] It was their pride and joy. It was purchased using funds from the sale of a business that Mr Moran had established at the age of 18 and operated for 29 years. The house was intended to be a holiday home for the Morans to enjoy with their three children and, potentially, to live in once they had retired.[816]

547 Shortly after settlement, the Morans began to use the house regularly with their children. In the weeks leading up to 5 January 2025, the house was rarely vacant. The Morans and their children stayed there frequently, along with members of their extended family and friends.[817] This period of enjoyment at their summer sanctuary was, however, abruptly cut short.

548 Two landslides were to upend their home and their lives. The first landslide struck their home on 5 January 2025. Nine days later, the second landslide on 14 January 2025 demolished their home.

812 Public Submission of McCrae Resident, 30 April 2025, [SUB.0024.0001.0001].

813 Letter from Nicholas and Kellie Moran to the Board of Inquiry, 28 April 2025.

814 Public Hearing Transcript, Nicholas James Moran, 12 May 2025, 325.

815 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 2 [9].

816 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 1–2 [8].

817 Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, 2 [11].

549 It warrants repeating that at around 9.30am on the morning of 14 January 2025, Mr Moran received a phone call from his neighbour, Mr Willigenburg, who delivered the devastating news: "*The whole thing's come down*".[818] The Morans' house had slid down the hill and splintered in half.[819]

550 Shocked, Mr Moran telephoned Mrs Moran to tell her what had happened.[820] At around 10.30am, after a "*horrible drive*",[821] the Morans arrived to see rubble where their home once stood.

551 In Mr Moran's words:

> it was horrific … it's just a fluke that it hasn't taken out my whole family and we weren't there that day.[822]

552 The Moran family will not be able to return to their home or their land in the short term. The Moran family lives with emotional and financial stress to this day.[823]

Paul and Denise Willigenburg – 3/613 Point Nepean Road, McCrae

553 The McCrae Landslide struck the rear of 607–609 Point Nepean Road, the rental property occupied by two retirees and pensioners, Paul and Denise Willigenburg.[824]

554 The backyard of the rental property was, prior to the McCrae Landslide, directly in front of the house at 3 Penny Lane.[825]

555 The McCrae Landslide was not the first time Mr and Mrs Willigenburg had suffered the consequences of a landslide. As described above, they were also impacted by the 15 November 2022 landslide, which destroyed the back fence of their home at 3/613 Point Nepean Road,[826] located just a few doors down from the Morans' house.

556 Since the 15 November 2022 landslide, the Willigenburgs have been displaced from their home, apart from a brief period between 17 October 2023 and 23 February 2024.[827] This period of displacement has been marked by stress, worry and frustration.[828]

557 Ongoing delays in remediation works on the slope above their home have repeatedly forced the Willigenburgs to seek alternative accommodation.[829] They managed to secure a rental property within metres of their home — only for that property, too, to suffer the misfortune of landslide damage.

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818 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 14 [72]; Public Hearing Transcript, Nicholas James Moran, 12 May 2025, 324.

819 Public Hearing Transcript, Kellie Anne Moran, 12 May 2025, 286–287.

820 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 14 [73].

821 Public Hearing Transcript, Nicholas James Moran, 12 May 2025, 324.

822 Public Hearing Transcript, Nicholas James Moran, 12 May 2025, 325.

823 Letter from Nicholas and Kellie Moran to the Board of Inquiry, 28 April 2025.

824 Exhibit CA-72, McCrae Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0058]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 1 [3].

825 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 2 [9].

826 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 2 [15(a)]; Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-4 [RES.0010.0001.0004].

827 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 6 [24], 17 [99], 19 [110].

828 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 18 [104].

829 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 19 [110].

558 On 14 January 2025, debris from the McCrae Landslide damaged the retaining walls, house and the garage of the Willigenburgs' rental property.[830]

559 The Willigenburgs narrowly escaped injury by running out of the rental property as soon as they heard the deep rumbling sound that preceded the McCrae Landslide.[831] Shortly after their escape, a VicSES responder told the Willigenburgs:

> You need to get into the house, grab whatever medication, anything that you can grab, but you're only going to get one minute to do it.[832]

560 Mrs Willigenburg retrieved some medication and vacated the rental property as ordered. That was the last minute either of the Willigenburgs were to have in the rental property until mid-April 2025.[833]

561 The Willigenburgs left with basically nothing; all their possessions were in the rental property. Mr Willigenburg told the Board of Inquiry:

> So the Shire had provided us with some funds to buy some clothes and some medication and a few bits and pieces, which was good. But we needed a lot more than that. So, to be honest, you know, we spent a bit of our own money to start buying a few more things again and visited a few opportunity shops here and there to get a bit more.[834]

562 In the weeks following the McCrae Landslide, both the Willigenburgs' home and rental property were broken into. A laptop, watches and jewellery were taken, along with memorabilia that Mr Willigenburg had kept for many years and which held sentimental value to him.[835]

563 It has now been more than two and a half years since the Willigenburgs were displaced from their home following the 15 November 2022 landslide. They have not been told when they will be able to return to their home or the rental property.[836]

564 The remediation works required to render the Willigenburgs' home safe for reoccupation remain to be done. The Willigenburgs sought an order from the Building Appeals Board that the Shire and/or the Borghesis cover the costs associated with such works.[837] However, judgment in that proceeding has been delayed because of, amongst other matters, the McCrae Landslide.[838]

565 The Willigenburgs continue to live with uncertainty. The stress they are feeling is understandably immense.

830 Exhibit CA-72, McCrae Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0058].

831 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 22 [127].

832 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 474.

833 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 474.

834 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 474.

835 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 23 [134].

836 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 23 [135].

837 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 20 [117].

838 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, 20 [118].

Gerry and Bronwyn Borghesi – 10–12 View Point Road, McCrae

566 As described above, the McCrae Landslide occurred on the escarpment located within the property owned by Gerry and Bronwyn Borghesi.[839]

567 Like the Willigenburgs, the McCrae Landslide was not the Borghesis' first encounter with a landslide. The 14 and 15 November 2022 landslides also occurred on their property.[840]

568 Since those landslides, the Shire has sought to compel the Borghesis to undertake stabilisation works to the landslide affected land.[841] This led to the Borghesis commencing proceedings in the Building Appeals Board in May 2024 to challenge the validity of the Shire's actions. Those proceedings were successful.

569 On 30 April 2025, the Building Appeals Board determined, amongst other things, that the Shire's MBS did not have the power to compel such works.[842]

570 The Borghesis have also issued proceedings against the Shire in the Victorian Civil and Administrative Tribunal to recover their loss and damage arising from the November 2022 landslides. [843] Those proceedings are currently on foot.[844]

571 As the consequences of the November 2022 landslides continued to unfold, the Borghesis experienced two further landslides on their property.

572 The 5 January 2025 landslide occurred below the ground level of the Borghesis' vegetable patch, located at the back of their property.[845]

573 In the nine days that followed, the Borghesis lived in their home and watched "*like hawks*" as the land beneath their vegetable patch eroded due to the continuous flow of water from an unidentified source.[846]

574 Mr Borghesi told the Board of Inquiry:

> So we were watching that slow degradation [of the escarpment] on a daily basis. We were living in the house between 5 January and 14 January. We hadn't been evacuated at that point. So naturally this is the only thing that matters in our lives. We're watching it, you know, 12 to 16 hours a day, and watching that headscarp come up towards the retaining wall.[847]

575 The Borghesis feared that another landslide was imminent. Their fears were soon realised.

839 Exhibit CA-72, McCrae Landslide Risk Assessment for Evacuation Area prepared by PSM, 22 May 2025, [MSC.5047.0001.0001 at .0058].

840 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 2 [9(c)]; Public Submission of Gerrard Raymond Borghesi, 23 February 2025, [RES.0001.0001.0004].

841 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(90) [MSC.5002.0001.1567].

842 *Borghesi v Municipal Building Surveyor for the Shire of Mornington Peninsula* [2025] VBAB 60.

843 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 4 [25].

844 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 4 [25]; Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 523.

845 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 6 [31].

846 Interview with Gerrard Raymond Borghesi and Bronwyn Borghesi, 11 April 2025.

847 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 525.

576 At around 3.00am on 14 January 2025, Mrs Borghesi was awake. As she had many nights since the landslide of 5 January, Mrs Borghesi looked at the large gum tree in the gully. She hoped that its roots were still stabilising the soil. They were.[848] But the gum tree would not hold on for much longer.

577 Around five hours later, when the McCrae Landslide occurred, Mr Borghesi was in his living room writing an email to the Shire about degradation on the slope. He heard a "*loud thunderstorm noise*", which lasted for about 10 seconds but felt like two minutes.[849]

578 The Borghesis instantly ran out the backdoor. They knew what had happened. They saw dust rising from below a paved area at the back of their property.[850] The Morans' house had been destroyed.[851]

579 It warrants repeating that Mr Borghesi observed that:

> there [was] deeply saturated soil collapsing from underneath number 6 View Point Road, with a consistency of what I would describe as tiramisu … [there was] water, liquified soil … collapsing from beneath the retaining wall[.][852]

580 On the day of the McCrae Landslide, the Borghesis were evacuated from their home. They did not return to their property until early August 2025, at which point it was deemed safe to reoccupy by the Shire's MBS. Understandably, the Borghesis wish this had occurred much sooner.

Pugh family – 6 View Point Road, McCrae

581 The McCrae Landslide also occurred on part of the escarpment on the neighbouring property at 6 View Point Road, owned by Pamela Pugh. It encroached, and nearly undermined, the patio of the house.[853]

582 Mrs Pugh, a 90-year-old grandmother, and her late husband, Charles Pugh, purchased the land in around 2002.[854] Mr Pugh built the home that stands there today.[855]

583 In the months prior to the McCrae Landslide, the extended Pugh family had been preparing the home for sale.[856] The family intended for the sale proceeds to fund Mrs Pugh's transition to permanent aged care.[857] The McCrae Landslide has put a halt to these plans, causing the Pugh family significant emotional distress.[858]

848 Interview with Gerrard Raymond Borghesi and Bronwyn Borghesi, 11 April 2025.

849 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 530.

850 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 530.

851 Exhibit CA-24, Video of escarpment and dust emanating from 3 Penny Lane taken by Gerrard Borghesi on 14 January 2025, [RES.0001.0004.0142].

852 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 531.

853 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0113].

854 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 1 [1], 2 [8]; Public Hearing Transcript, Kevin Barry Hutchings, 12 May 2025, 359.

855 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 2 [9]; Public Hearing Transcript, Kevin Barry Hutchings, 12 May 2025, 360.

856 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 2–3 [11].

857 Public Hearing Transcript, Kevin Barry Hutchings, 12 May 2025, 361; Public Submission of McCrae Resident, 16 April 2025, [SUB.0016.0001.0001].

858 Public Submission of McCrae Resident, 16 April 2025, [SUB.0016.0001.0001].

584 Kevin Hutchings, Mrs Pugh's son-in-law, told the Board of Inquiry that the McCrae Landslide was, and remains, a huge source of stress for the family.[859] He explained:

> [My] mother-in-law loves the [aged care home] she's in. We would like her to stay there. But of course the financial burden is now an issue because we can't sell the house. And we're not sure when we will be able to get [the proceeds] because there's no one giving us any remedies at all … So we just don't know where this is going to end up. But [my mother-in-law] won't be able to afford to stay in that aged care. So it's a concern for the whole family.[860]

585 Thoughts of the McCrae Landslide were, and have been, all-consuming for the Pugh family.[861] Mr Hutchings and his wife could not sleep at night in the week following the landslide.[862] This prompted Mr Hutchings, a former Managing Director of SEW, to seek answers as to the source of the unexplained water flowing out of the escarpment at the landslide site and at various locations in McCrae.[863]

586 On 21 January 2025, Mr Hutchings commenced his investigations.[864] He and his wife drove to two locations higher up on the Arthurs Seat hillside to investigate the source of the water: a stormwater storage basin and a dam within Seawinds Gardens.[865] On inspection, both were "*bone dry*".[866] Mr Hutchings concluded that neither the stormwater storage basin nor dam could account for the continuous flow of water observed on Charlesworth St.[867]

587 The Hutchings' investigations were not, however, wasted. On that day, Mr Hutchings learnt from a local resident that a water main had burst near Bayview Road and Outlook Road. Repairs of the burst water main had commenced on New Year's Eve.[868]

588 While inspecting the burst site, Mr Hutchings noticed that there was evidence of significant water flow previously occurring at that location. The vegetation had been stripped. There was scoring on the ground, indicating that water had travelled across the surface.[869] Mr Hutchings was to discover the potential significance of this site in the weeks to follow.

589 By the end of January 2025, MERG appointed Mr Hutchings along with Mr Bolch to find the source of the water seen emanating near 3 Penny Lane prior to and after the McCrae Landslide.[870]

859 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 6 [34]; Public Hearing Transcript, Kevin Barry Hutchings, 12 May 2025, 375.

860 Public Hearing Transcript, Kevin Barry Hutchings, 12 May 2025, 375–376.

861 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 6 [34]; Public Hearing Transcript, Kevin Barry Hutchings, 12 May 2025, 376.

862 Public Hearing Transcript, Kevin Barry Hutchings, 12 May 2025, 376.

863 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 6–7 [34]; Public Hearing Transcript, Kevin Barry Hutchings, 12 May 2025, 376.

864 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 7–8 [35]–[41].

865 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 6–7 [34]–[36].

866 Public Hearing Transcript, Kevin Barry Hutchings, 12 May 2025, 378.

867 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 7 [35]–[36].

868 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 7 [37].

869 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 8 [39].

870 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 10 [49].

590 For several months, Mr Hutchings has worked independently and, at times with Mr Bolch, to investigate the unexpected flows of water in McCrae. Their work has been extensive. It has ranged from studying the layout of water infrastructure in the area, conducting multiple on-site physical inspections, to marshalling information concerning local residents' observations in the lead up to, and following, the McCrae Landslide.[871]

591 Based on the investigations, Mr Hutchings considered that the accumulation of water – which he believed may have been caused by the burst water main – could have played a central role in putting weight on the escarpment and providing lubricant near the Borghesis' property, destabilising the ground behind the Morans' house and triggering the landslides. He thought it was possible that the water had travelled through a combination of pipeline trench flow and significant ground saturation.[872]

592 Mr Hutchings and Mr Bolch have shared their investigative work with the Shire and the Board of Inquiry.

593 Today, the Pugh family remains excluded from their home at 6 View Point Road. They are concerned as to what the future holds.[873]

John and Vicki Bolch – 605 Point Nepean Road, McCrae

594 The McCrae Landslide occurred next door to the house that was occupied by John and Vicki Bolch.

595 The Bolch family took possession of the house around Easter of 2024 and had just moved in prior to Christmas of that year.[874] Unfortunately, in Mr Bolch's words, "*no sooner did we get it than we were out*".[875]

596 On the day of the McCrae Landslide, no one was at the Bolchs' house.[876] Mr Bolch, a licensed and registered commercial plumber, was meeting with one of his clients in Cranbourne.[877]

597 At the end of the meeting, Mr Bolch listened to a voicemail from a friend asking whether the Bolchs' house had been affected by the McCrae Landslide. Mr Bolch contacted his wife to share the shocking news, and they agreed to meet at the house.[878]

598 Mrs Bolch and her daughter, Sasha, who were at a nearby campsite at Capel Sound, got on their push bikes and rode back to their house. Mr Bolch set out from Cranbourne.[879] The three eventually met on the beach track running along Point Nepean Road.[880]

599 Prior to Mr Bolch's arrival, Mrs Bolch and Sasha had taken photos and videos of the landslide site.[881] Upon seeing those videos, Mr Bolch told the Board of Inquiry that "*the devastation [and] the destruction of [the Morans' house] was … a lot to consume*".[882]

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871 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 10 [50].

872 Exhibit CA-18, Witness Statement of Kevin Barry Hutchings, 12 May 2025, 13–14 [64].

873 Public Submission of McCrae Resident, 16 April 2025, [SUB.0016.0001.0001].

874 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 2 [7].

875 Interview with John Nicholas Bolch, 8 April 2025.

876 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 4 [20].

877 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 1 [4], 4 [20]; Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 409.

878 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 4 [20]; Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 409–410.

879 Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 410.

880 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 4–5 [21].

881 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 5 [22].

882 Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 411.

600 Mr Bolch observed in one of the videos that water was flowing down the escarpment from a location somewhere between the Borghesis' house and the Morans' house.[883] The presence of water piqued Mr Bolch's interest. Days earlier, he had observed a considerable amount of water flowing from under the Morans' house, over the lower retaining wall at the front of the house and down Penny Lane.[884]

601 On 15 January 2025, Mr Bolch decided to take a drive around the streets uphill of Penny Lane to look for the possible source of the unusual water he had observed around the Morans' house.[885] He observed a pothole at the intersection of Charlesworth Street and Coburn Avenue in a wet spongy area. The surrounding asphalt was visibly cracked from water damage.[886] Mr Bolch also noticed that the nature strips around the intersection were sodden, so much so that water was leaking from the nature strips into the kerbs.[887] It was "*very boggy and wet*".[888] Mr Bolch thought that things were not as they should be, especially since it had been a "*very dry summer*".[889]

602 Mr Bolch told the Board of Inquiry:

> Asphalt's enemy is water … at this point I'm thinking … there's an issue along here with water flowing down the streets, and you're trying to link – does this have something to do with the landslide because of the water coming down Penny Lane?[890]

603 Mr Bolch has diligently set out to answer that question since 15 January 2025, drawing on his professional expertise. He has worked independently and, at times with Mr Hutchings, to investigate whether water may have been a contributing factor to causing the landslides.[891] As mentioned above, the investigatory work undertaken by Mr Bolch and Mr Hutchings has been extensive.

604 Based on his investigations, Mr Bolch believes that water saturation of the hillside near the Morans' property was a significant contributing factor to causing the landslides.

605 Mr Bolch told the Board of Inquiry that water leaking from the burst water main "*most certainly*" could travel into the sewer trench line.[892] A trench line could basically become "*the highway for the water to travel*".[893] He explained:

> The separation between those pipes [the water main and sewer pipe] is probably less than a metre, with a standard cover that you would use on the water main, and the sewer, I think the invert level was around 2.1 metres. So the [sewer] pipe would have been directly below the burst pipe. So if water was leaking at that point, even at a slow rate, it would have been going down into the easiest point of travel, which would have been the sewer trench and possibly the stormwater trench. But early on … I believe it would be going down the sewer trench.[894]

883 Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 411–412.

884 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 4 [17].

885 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 6 [27].

886 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 6 [28].

887 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 6 [29].

888 Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 413.

889 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 6 [30]; Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 414.

890 Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 413.

891 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 5 [25].

892 Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 425.

893 Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 437.

894 Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 425.

606 After conducting testing on water infrastructure near the burst site, Mr Bolch estimated that had the leak persisted for 60 days, through a 25 millimetre opening, as much as 84.4 million litres of water may have been released from the burst water main,[895] the equivalent of about 34 Olympic-sized swimming pools' worth of water.[896]

607 Given that significant volume of water, and the lay of the land, Mr Bolch was concerned that it was "*highly possible that the water has made its way from Point A to Point B*".[897] Point A being the burst site and Point B being the Morans' property.[898]

608 Mr Bolch's demonstrable commitment to determining the cause of the McCrae Landslide is underpinned by his belief that:

> This is not just a technical or bureaucratic issue. It is deeply human, with real impacts on people's homes, families and futures.[899]

609 The Bolch family has not been allowed to occupy their home since 14 January 2025.[900] They have only been allowed to access their house on two occasions. First, on 14 February 2025, to secure a sliding door that had been left open after the house had been ransacked. Second, on 28 February 2025, to retrieve some personal items and determine what had been stolen from them.[901]

610 The stress and uncertainty continues for the Bolch family.

895 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 16 [72], 17 [74.2].

896 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 17 [74.2].

897 Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 434.

898 Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 435.

899 Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 440.

900 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 5 [24]; Public Hearing Transcript, John Nicholas Bolch, 14 May 2025, 412.

901 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 5 [24].

CHAPTER 4

What caused the landslides?

04

4.1 Introduction

1 A central task of the Board of Inquiry has been to inquire into, and report on, what caused the McCrae Landslide. In the course of undertaking that inquiry, however, it became apparent that understanding the cause of the McCrae Landslide required consideration of the causes of the November 2022 landslides and, in particular, the 5 January 2025 landslide, all of which predominantly occurred on the escarpment at 10–12 View Point Road. This Chapter therefore examines and identifies the causes of those landslides in turn.

2 Shortly stated, the November 2022 landslides, 5 January 2025 landslide and McCrae Landslide share a common causal factor: water. The experts are unanimous in that opinion.

3 What divides the experts is the source of that water. This is addressed in detail below.

4 As will become apparent from the analysis that follows, there are complexities in determining the causes of landslides. The question does not typically lend itself to a straightforward answer. Landslides are caused by the interaction of multiple factors – some of which are natural, some of which are anthropogenic (that is, caused by human activity). Complexities reside in disentangling these causal factors and weighing their relative contributions. Notwithstanding these complexities, a simple point emerged from the evidence: excess water in an area susceptible to landslides is inherently dangerous.

4.2 The experts

5 The Board of Inquiry was assisted in its task of determining the causes of the landslides by several expert witnesses.

6 Expert evidence on the causes of the landslides was principally given by three geotechnical engineers specialising in landslides:

a. Darren Paul of WSP, who was engaged by the Board of Inquiry;

b. Dane Pope of PSM, who was engaged by the Shire; and

c. David Hartley of SMEC, who was engaged by SEW.

7 Mr Pope and Mr Paul gave opinions about the causes of the November 2022 landslides. All three experts gave opinions about the causes of the 5 January 2025 landslide and the McCrae Landslide.

8 In the course of answering the question of what caused the 5 January 2025 landslide and the McCrae Landslide, it emerged that resolution of that question turned on two subsidiary questions. The first was whether water from another location could travel through the ground to the landslide site. The second was whether the chemical composition of the water emanating from the headscarp could identify its source. In seeking to answer those subsidiary questions, evidence was also provided by the following experts:

a. a geochemist/geochemical modeller, Hong Vu of WSP; and

b. four hydrogeologists: Stephen Makin of WSP, Hugo Bolton of SMEC, Christopher Jewell of CM Jewell & Associates (engaged by SEW), and Phillip Hitchcock of Australian Environmental Auditors Pty Ltd (engaged by the Shire).

9 A list of all of the expert reports received by the Board of Inquiry in relation to the cause of the 5 January 2025 landslide and the McCrae Landslide is contained in Appendix E.

FIGURE 4.1: THE KEY EXPERTS

Board of Inquiry	SEW	The Shire
Mr Darren Paul, Technical Director – Engineering Geology of WSP	Mr David Hartley, Senior Associate – Engineer of SMEC	Mr Dane Pope, Principal Geotechnical Engineer of PSM
Dr Hong Vu, Senior Associate Geochemist/Geochemical Modeller of WSP	Mr Hugo Bolton, Technical Principal – Hydrogeologist of SMEC	Mr Phillip Hitchcock, Principal Hydrogeologist of Australian Environment Auditors Pty Ltd
Mr Stephen Makin, Senior Hydrogeologist of WSP	Mr Christopher Jewell, Principal Hydrogeologist of CM Jewell & Associates	

10 An expert conclave was held on questions of causation on 28 and 29 July 2025. It was attended by Mr Paul, Mr Makin (on 28 July 2025 only), Mr Pope, Mr Hitchcock, Mr Hartley and Mr Bolton. On 1 August 2025, a further expert conclave was held specifically concerning geochemistry. It was attended by Mr Paul, Mr Hitchcock, Mr Hartley, Mr Bolton, Dr Vu and Mr Jewell.

11 The participants in the conclave concerning causation produced a joint report on 31 July 2025.[1] The report included a table which recorded the comments of each of Mr Paul, Mr Pope, Mr Hitchcock and Mr Hartley about the factors that the experts agreed on and the factors in dispute. Similarly, the participants in the geochemistry conclave produced a joint report on 1 August 2025, containing a minute of the conclave.[2]

12 Further details about the expert evidence process can be found in Appendix E.

4.3 Some basics in the causes of landslides, geology and hydrogeology

13 It is not possible to understand and analyse the causes of landslides without first understanding some basic principles.

14 The most convenient starting point is understanding the factors that contribute to causing landslides.

Factors that contribute to causing landslides

15 The factors that contribute to causing landslides can be grouped into two broad categories: (1) preparatory factors; and (2) triggering factors.[3]

16 Preparatory factors make the landscape susceptible or prone to landslides. Identifying and assessing preparatory factors can allow suitably trained professionals to identify *where* landslides might occur and *what* might happen if they do occur. An understanding of preparatory factors is key to the development of landslide susceptibility maps and associated planning controls such as an EMO.[4]

1 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001].

2 Exhibit CA-75, Joint Report about geochemistry prepared by expert conclave, 1 August 2025, [INQ.0010.0001.0001].

3 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0001].

4 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0020].

17 The preparatory factors addressed in this Report are as follows and warrant brief explanation:

Erosion of the escarpment	Erosion can change the height and angle of a slope. The steeper and higher a slope, the more susceptible it is to landslides. That is because the forces of gravity acting on steeper slopes are greater.[5]
Anthropogenic changes	Anthropogenic changes are changes made to the landscape by humans, which can increase landslide susceptibility. Examples of anthropogenic changes include earthworks on a slope, development that obstructs or alters groundwater flow or changes the natural surface water flow paths, and the installation of water bearing services (sewers, water main and stormwater pipes).[6]
Fill at the top or face of a slope	The placement of fill at the top of a slope or on the face of a slope can increase the stress applied to a slope, rendering it more susceptible to landslides.[7]
Loss or removal of vegetation	The loss or removal of vegetation can weaken slope stability in several ways: less water is drawn up from the soil, more water is able to infiltrate the ground, and fewer roots remain to bind and reinforce the strength of the soil.[8]
Piping through soils upslope	Piping refers to subsurface voids and channels within soil that can provide preferential pathways for water. These pathways can convey water to different parts of a slope, weakening the soil and thereby increasing its susceptibility to landslides.[9]
Groundwater from a shallow aquifer	Water from a shallow aquifer – an underground water-bearing layer close to the surface – can elevate moisture levels, pre-saturate an escarpment, weaken the soil, and increase its susceptibility to landslides.[10]
Stormwater leakage	Defects in a stormwater system can promote loss of water from the system causing water to infiltrate the ground, reducing its stability and increasing the risk of landslides.[11]
Water from domestic water usage	Water from domestic usage, such as irrigation systems, can result in increased subsurface water flow and wetting of soils, which, again, can increase the risk of landslides.[12]

18 Triggering factors are those that trigger landslides. They determine *when* a landslide might occur. Amongst other things, landslide risk mitigation might focus on reducing the potential for causal factors to trigger a landslide.[13]

19 The triggering factors addressed in this Report are:

Earthquake	Rainfall	Leaks from water bearing services
Erosion	Groundwater from aquifer	Domestic usage (irrigation)

5 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0025–_0026].

6 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0028].

7 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0028].

8 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0028].

9 Public Hearing Transcript, Darren Paul, 4 August 2025, 1096.

10 Public Hearing Transcript, Dane Pope, 4 August 2025, 1109–1111.

11 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0028]; Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025 [MSC.5087.0001.0157 at .0191]; Public Hearing Transcript, Darren Paul and Dane Pope, 5 August 2025, 1264–1265.

12 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0012].

13 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0020].

20 Each of those triggering factors will be considered in greater detail below.

21 In the joint causation report, the experts evaluated the relative contribution of each preparatory and triggering factor on a scale from insignificant to significant. They expressed their assessments by reference to a confidence scale ranging from very low to very high. The scales are captured in the following table:[14]

Magnitude of Contribution		Level of Certainty	
Significant	80% - 100%	Very High	80% - 100%
Major	30% - <80%	High	60% - <80%
Medium	10% - <30%	Moderate	40% - <60%
Minor	1% - <10%	Low	20% - <40%
Insignificant	0 - <1%	Very Low	0 - <%20

McCrae engineering geological model

22 In order to understand the preparatory and triggering factors that may have contributed to causing the 5 January 2025 landslide and the McCrae Landslide, each geotechnical expert developed what is known as an "engineering geological model" for the McCrae escarpment and its surrounds.

23 In broad terms, the purpose of the model is twofold: (1) to comprehensively identify the "geological units", essentially soils and rocks at a site; and (2) to identify and describe how those units interact with one another within the ground.[15] Critically, the model assists in answering the first subsidiary question identified above: whether water from another location could travel through the ground to the landslide site.

24 The models developed by the geotechnical experts were largely consistent; any differences were at the margins.[16] Four geological units were identified and analysed as part of the model for McCrae:

a. fill;

b. transported soils (colluvium and aeolian soils);

c. residual granitic soils; and

d. extremely weathered granite.[17]

25 Each geological unit has distinct properties – this has two significant implications. First, those properties determine how permeable that geological unit is to water, which in turn influences the "linear velocity" – the rate at which water can move through that medium.[18] Second, the

14 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0002].

15 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0043]; Public Hearing Transcript, Darren Paul, 4 August 2025, 1139.

16 Public Hearing Transcript, Darren Paul, 4 August 2025, 1139–1140.

17 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0043].

18 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0094–_0095]; Public Hearing Transcript, Stephen Makin, 5 August 2025, 1253.

geological unit's properties also influence the chemical composition of water as it passes through that medium.[19] As will be seen, both linear velocity and the changes in the chemical composition of water are important to understanding the causes of the 5 January 2025 landslide and the McCrae Landslide.

26 Set out below is a table prepared by Mr Paul which summarises the properties of the four geological units:

FIGURE 4.2: GEOLOGICAL UNITS IDENTIFIED AND INCLUDED IN THE ENGINEERING GEOLOGICAL MODEL.[20]

Unit	Description	Occurrence
Fill	Highly variable, typically silty sand to sand. Multiple generations of fill, in particular near the McCrae escarpment. Backfilling of service trenches.	Observed from surface across the site with variable thickness, typically less than 1.5 metres. Localised deep fill is expected behind retaining walls and within service trench backfill.
Transported Soils (Colluvium and Aeolian Soils)	Comprises colluvium (soils deposited through landslide processes) and aeolian (wind blown) sands. Clayey sand to sand with cobbles and gravel. Aeolian sands typically do not contain clays in notable proportions and the aeolian proportions are typically calcareous.	Aeolian sands are largely present at the base of the escarpment. May be observed in thin horizons or be absent at the top of the escarpment. Colluvium is observed as an apron around Arthurs Seat, with areas of increased thickness expected within both existing gullies and historic, now buried, gullies/channels.
Residual Granitic Soils	Clayey sand to sandy clay. Clays are typically very stiff to hard and sands are typically dense to very dense.	Underlies transported soils across the site originating from the weathering of the basement rock, the Dromana Granite. Observed to be of variable thickness, up to 9.5 metres thick.
Extremely Weathered Granite	Clayey sand to sandy clay with relic rock fabric observed. Clays are typically very stiff to hard and sands are typically dense to very dense.	Underlies residual soils across the site extents.

27 In building the model, the relative positions of the geological units are inferred. This enables approximate subsurface material cross-sectional profiles to be constructed for different geographical spans.

28 Two cross sections of McCrae produced by WSP are of particular interest and are reproduced below. A regional one, extending from the foot of Arthurs Seat around The Boulevard to 3 Penny Lane and a local one, extending from approximately 23 Coburn Avenue to 3 Penny Lane. The cross sections show the relative positions of the residual granite (labelled "Granite: RS"), extremely weathered granite (labelled "Granite: XW or better"), transported soils (colluvium) and fill.

19 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0011–_0012]; Exhibit CA-70, Technical Memorandum about Geochemical Analysis of Groundwater Provenance prepared by SMEC, 25 July 2025, [SEW.0001.0002.4197]; Public Hearing Transcript, Christopher Jewell, 5 August 2025, 1304–1306.

20 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0043].

29 The geotechnical experts produced effectively identical regional cross sections.[21] However, the local cross sections gave rise to one area of dispute: the volume of fill on the slope above 3 Penny Lane.[22] This dispute will be returned to later in this Chapter.

FIGURE 4.3: REGIONAL CROSS SECTION OF PSM'S CONCEPTUAL ENGINEERING GEOLOGICAL MODEL – THE BOULEVARD TO 3 PENNY LANE.[23]

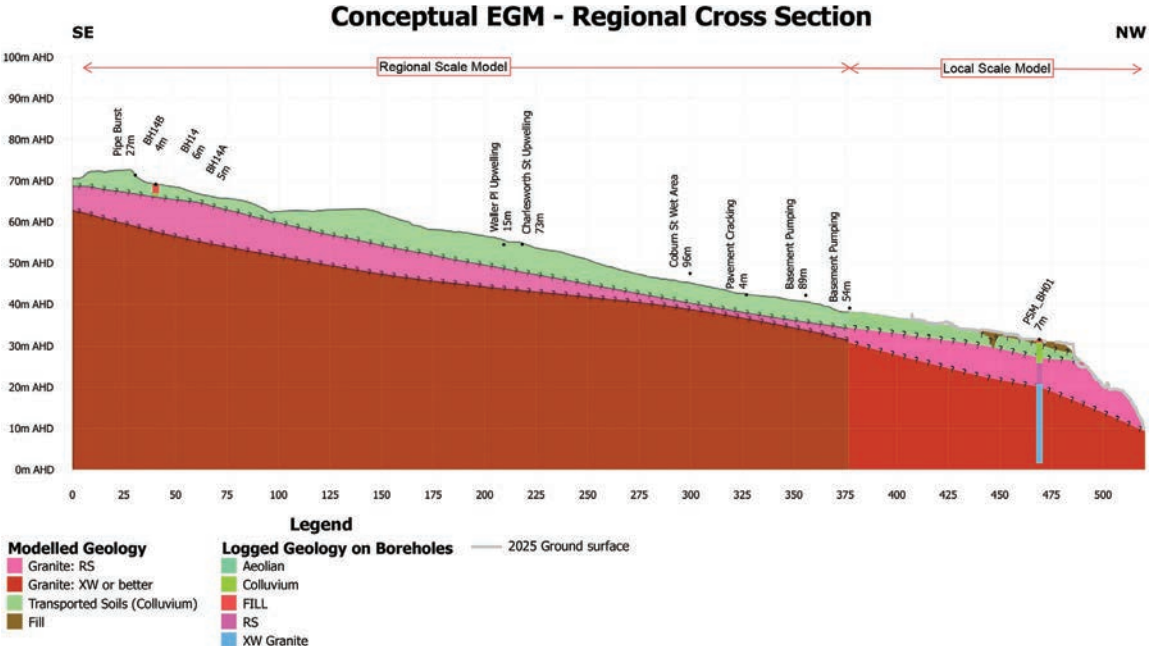
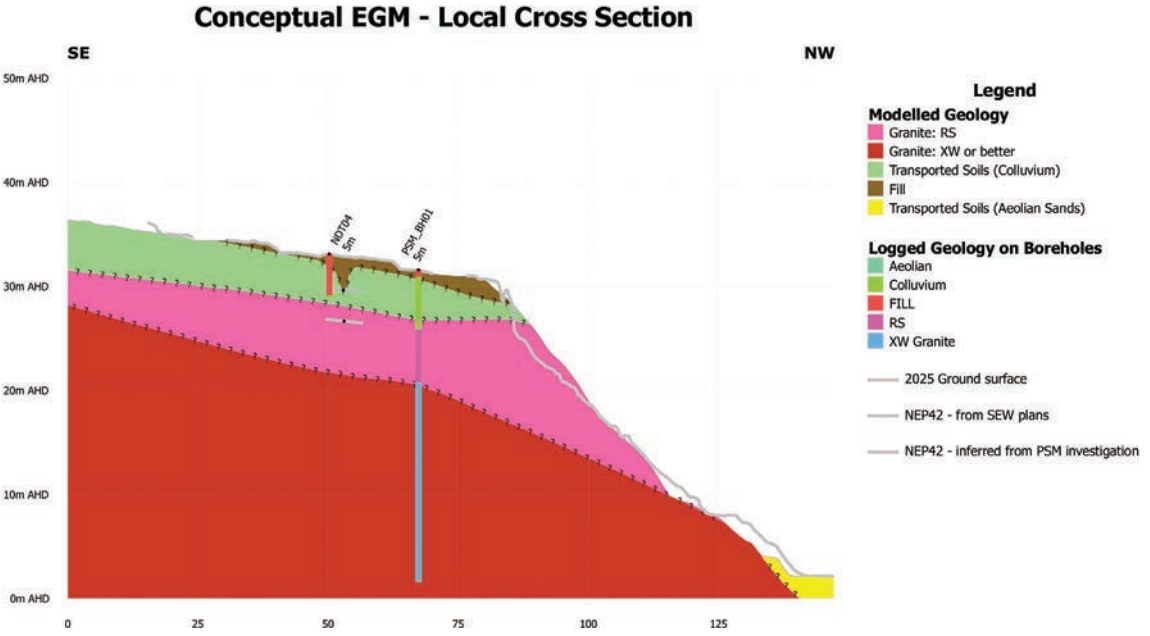


FIGURE 4.4: LOCAL CROSS SECTION OF PSM'S CONCEPTUAL ENGINEERING GEOLOGICAL MODEL – 23 COBURN AVENUE TO 3 PENNY LANE.[24]



21 Public Hearing Transcript, Darren Paul, 4 August 2025, 1139; also Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0147]; Exhibit CA-69, Revised Multidisciplinary Expert Supplementary Report about McCrae Landslide prepared by SMEC, 30 July 2025, [SME.0001.0001.0501 at _0054].

22 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0148]; Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025 [MSC.5087.0001.0157 at .0210].

23 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0147].

24 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0148].

Water definitions and characteristics

30 To properly address the second subsidiary question identified above – whether the chemical composition of water emanating from the headscarp can be used to identify its source – it is necessary to say something about groundwater and its characteristics.

31 Generally speaking, the term "groundwater" can be used to describe any water that is held or travels underground.[25]

32 Strictly speaking, however, groundwater has a particular meaning in hydrogeology, the scientific discipline concerning how water moves through subsurface pathways and interacts with the surrounding soil and rock.

33 In its technical sense, groundwater refers to water that resides in an aquifer, being water-bearing layers beneath the ground surface. Aquifers vary in both their depth and their continuity of water supply. A permanent aquifer lies deeper underground and provides a constant supply of water, [26] whereas a shallow aquifer is closer to the surface and provides a more variable, often intermittent, supply.[27]

34 "Regional groundwater" resides in the permanent aquifer for long periods. Its chemistry is therefore influenced by the aquifer material with which it comes in contact.[28]

35 Contrastingly, "perched groundwater" is water in the shallow soils, which has infiltrated from the surface (typically from rainfall) or from a leaking water bearing service. Three points can be made about the characteristics of perched groundwater:

a. it is transient in nature and can travel through shallow aquifers;[29]

b. it is not a continuous water source and is usually present for short periods;[30] and

c. its chemistry is more heavily influenced by its source, whether rainfall, stormwater, mains water or sewage.[31]

36 The distinct locations of regional groundwater and perched groundwater in McCrae can be seen in the regional cross section prepared by SMEC (reproduced below). The regional groundwater is deeper underground, sitting just above the weathered granite "basement". The perched groundwater is in the "perched water table" (or shallow aquifer) that sits closer to the surface.

25 Exhibit CA-73, Expert Hydrogeological Report about the McCrae Landslide prepared by Australian Environmental Auditors, 21 July 2025, [MSC.5087.0001.0001 at .0011–.0012].

26 Public Hearing Transcript, Phillip Hitchcock, 5 August 2025, 1206–1207.

27 Public Hearing Transcript, Stephen Makin and Phillip Hitchcock, 5 August 2025, 1207.

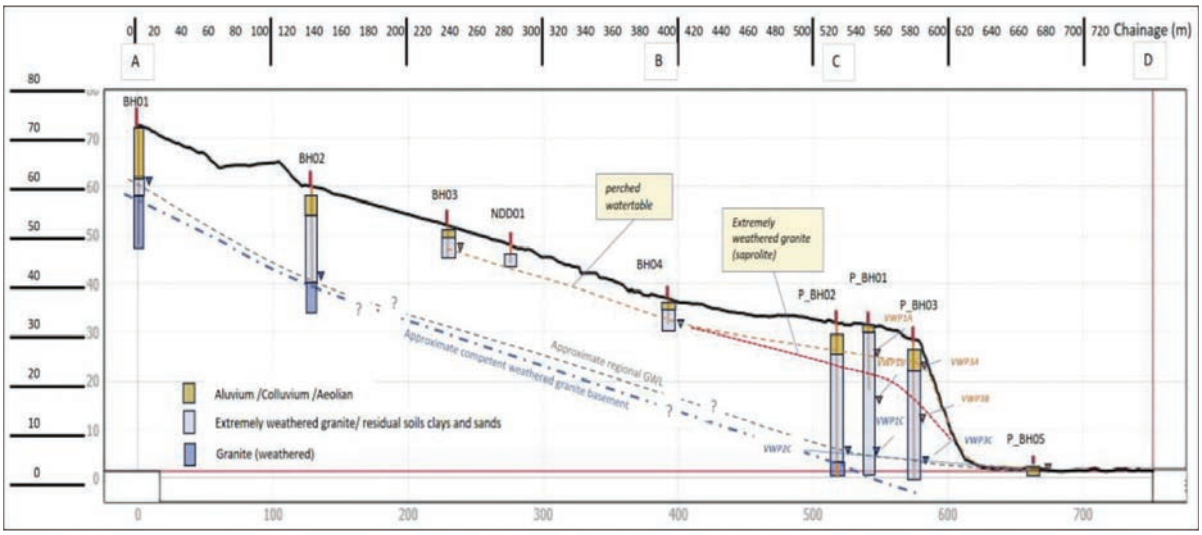
28 Exhibit CA-73, Expert Hydrogeological Report about the McCrae Landslide prepared by Australian Environmental Auditors, 21 July 2025, [MSC.5087.0001.0001 at .0011–.0012].

29 Public Hearing Transcript, Stephen Makin and Phillip Hitchcock, 5 August 2025, 1206–1207.

30 Exhibit CA-73, Expert Hydrogeological Report about the McCrae Landslide prepared by Australian Environmental Auditors, 21 July 2025, [MSC.5087.0001.0001 at .0012].

31 Exhibit CA-73, Expert Hydrogeological Report about the McCrae Landslide prepared by Australian Environmental Auditors, 21 July 2025, [MSC.5087.0001.0001 at .0012].

FIGURE 4.5: INTERPRETATIVE HYDROGEOLOGICAL CROSS SECTION.[32]



37 Increases in the volume of regional groundwater and perched groundwater (that is, "recharge") occur in different ways:

a. as to regional groundwater recharge, water enters at a recharge point (for example, a rock outcrop or ground surface) and then migrates vertically to the water table level in the permanent aquifer;[33] and

b. as to perched groundwater recharge, water volume increases through:

i. infiltration of rainfall; and/or

ii. leakage of water bearing service infrastructure in the area, including stormwater, mains supply and sewage.[34]

38 Both regional groundwater and perched groundwater can discharge through the surface at exit or exfiltration points called "springs".[35]

39 Having laid the foundation with these basic principles, it is now appropriate to turn to considering the causes of the landslides, starting with the November 2022 landslides.

32 Exhibit CA-69, Revised Multidisciplinary Expert Supplementary Report about McCrae Landslide prepared by SMEC, 30 July 2025, [SME.0001.0001.0501 at _0288].

33 Exhibit CA-73, Expert Hydrogeological Report about the McCrae Landslide prepared by Australian Environmental Auditors, 21 July 2025, [MSC.5087.0001.0001 at .0014].

34 Exhibit CA-73, Expert Hydrogeological Report about the McCrae Landslide prepared by Australian Environmental Auditors, 21 July 2025, [MSC.5087.0001.0001 at .0011]; Public Hearing Transcript, Dane Pope, 4 August 2025, 1112.

35 Exhibit CA-73, Expert Hydrogeological Report about the McCrae Landslide prepared by Australian Environmental Auditors, 21 July 2025, [MSC.5087.0001.0001 at .0020]; Public Hearing Transcript, Darren Paul, 4 August 2025, 1111.

4.4 What caused the November 2022 landslides?

40 The November 2022 landslides occurred on the escarpment at the north-west end of 10–12 View Point Road on 14 and 15 November 2022.[36] The more destructive of the two landslides occurred on the morning of 15 November 2022. It brought down at least 20 tonnes of soil and debris to the base of the escarpment.[37] Two properties at the toe of the slope were damaged: 2 Penny Lane and 3/613 Point Nepean Road.[38]

41 Both Mr Pope and Mr Paul agree that water triggered the November 2022 landslides.[39] The key question is, therefore, what was the source of the water?

42 Before turning to that question, three points should be made at the outset:

a. first, the experts did not view the November 2022 landslides as having a causal relationship with the McCrae Landslide;

b. second, the Shire's submission in relation to the cause of the landslides only briefly touches on the cause of the November 2022 landslides;[40] and

c. third, the Board of Inquiry has not sought to determine the causes of the November 2022 landslides as an independent chain of inquiry in and of itself – that is beyond its Terms of Reference. Rather, the causes of the November 2022 landslides have formed the backdrop against which some of the experts have analysed the causes of the 5 January 2025 landslide and the McCrae Landslide. To that extent, the Board of Inquiry has had regard to, and considers it appropriate to address, the causes of the November 2022 landslides.

What was the source of the water that triggered the November 2022 landslides?

43 The experts considered four potential sources of water:

a. rainfall;

b. groundwater from a shallow aquifer;

c. a burst water main near 23 Coburn Avenue; and

d. domestic water usage.

36 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(7) [MSC.5000.0001.0292 at .0293].

37 Exhibit CA-5, Landslide Risk Assessment about 10–12 View Point Road prepared by PSM, 3 November 2023, [MSC.5000.0001.1206 at .1215].

38 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 445; Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(7) [MSC.5000.0001.0292 at .0293].

39 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0003].

40 Submission of the Mornington Peninsula Shire Council about the causes of the McCrae Landslide, 13 August 2025, [MSC.5095.0001.0001].

44 Little needs to be said about two of those sources – groundwater from a shallow aquifer and domestic water usage – beyond noting their relative insignificance. Mr Pope and Mr Paul agreed, with a high level of confidence, that groundwater from a shallow aquifer was an insignificant trigger for the November 2022 landslides.[41] Mr Paul did not assess whether domestic water usage was a trigger, and Mr Pope considered its effect to be insignificant to minor with low confidence.[42]

45 More does need to be said about rainfall and the burst water main near 23 Coburn Avenue as potential sources, each of which will now be addressed in turn.

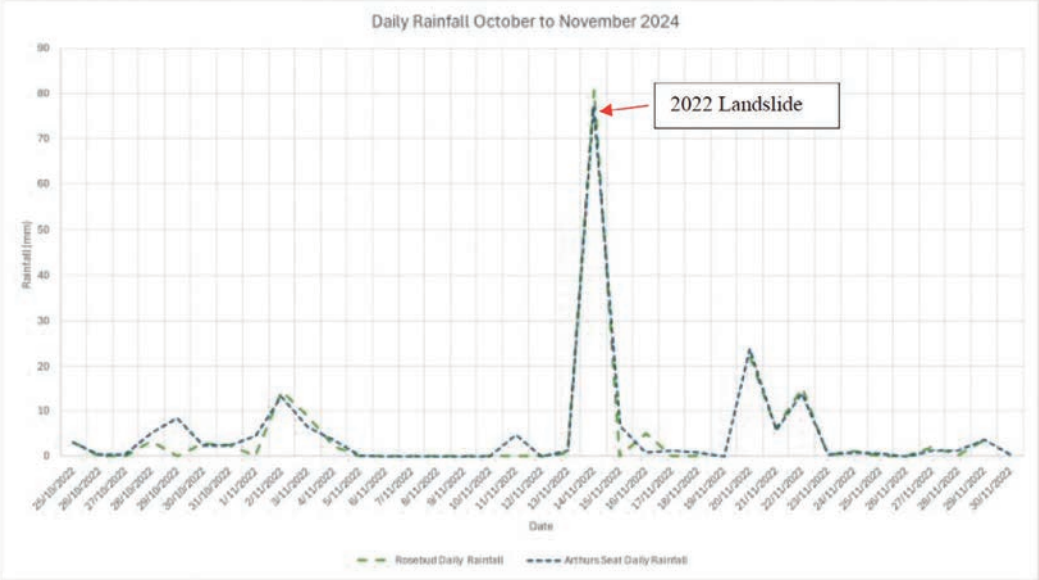
The water was the result of rainfall

46 A significant rain event occurred in McCrae the day before the 15 November 2022 landslide. Approximately 80 millimetres of rain was recorded at the Rosebud weather station, the closest rain gauge to McCrae, much of which fell within an eight hour period.[43]

47 This was the fourth largest rain event on record.[44] Mr Pope described the event as having a 1 in 100 year to 1 in 200 year probability of occurring within an eight hour window.[45] Mr Paul described it as "*anomalously high rainfall*".[46]

48 The intense nature of the rainfall on 14 November 2022 is shown in the following graph:

FIGURE 4.6: DAILY RAINFALL TOTALS FOR THE PERIOD BETWEEN OCTOBER 2022 AND NOVEMBER 2022 FOR ROSEBUD (BUREAU OF METEOROLOGY) AND ARTHURS SEAT (MELBOURNE WATER).[47]



41 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0003].

42 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0003].

43 Exhibit CA-6, Expert Opinion Report – Landslide Assessment about 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0650].

44 Exhibit CA-6, Expert Opinion Report – Landslide Assessment about 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0650].

45 Exhibit CA-6, Expert Opinion Report – Landslide Assessment about 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0650].

46 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0071].

47 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0071].

49 It is no coincidence that the November 2022 landslides occurred shortly after this significant rain event. It is well-established that rainfall can trigger a landslide.

50 Intense rainfall can cause water to infiltrate the ground and change the pressure between soil particles.[48] If the space between soil particles (also referred to as pores) is filled with water, the increase in pressure exerted by the water can effectively "push" the soil particles apart.[49] The increase in pore pressure can lead to a "*tipping point at which soil strength is lost to the extent that a landslide is triggered*".[50]

51 That tipping point was reached on the escarpment at 10–12 View Point Road.

52 Mr Pope and Mr Paul gave evidence that the rainfall event was a major or significant triggering factor for the November 2022 landslides.[51] The experts only differed in their level of confidence: Mr Pope expressed his opinion with high confidence,[52] while Mr Paul expressed his opinion with moderate confidence.[53]

53 Mr Pope stated:

> [T]he Rain Event was a major contributor to the landslide. In my opinion the initial translational landslide [that occurred on 14 November 2022] and the subsequent debris flow [that occurred on 15 November 2022] is unlikely to have occurred had the Rain Event not occurred or had the Rain Event been of lower intensity.[54]

54 Mr Paul stated:

> The anomalously high rainfall on the day preceding [the] 15 November 2022 landslide gives cause to suspect rainfall as one of the sources of water that infiltrated into the ground and migrated to the escarpment causing the 2022 landslide, although the pathway along which water migrated is not certain.[55]

55 The Board of Inquiry accepts that water triggered the November 2022 landslides and that rainfall was a significant contributor to that volume of water. That much is obvious.

Finding

Water triggered the November 2022 landslides.

56 What is less obvious is whether the rain alone or in combination with another water source – namely, the burst water main at 23 Coburn Avenue – triggered the landslides.

48 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0029].

49 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0023].

50 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0029].

51 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0003].

52 Public Hearing Transcript, Dane Pope, 4 August 2025, 1114.

53 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0074].

54 Exhibit CA-6, Expert Opinion Report – Landslide Assessment about 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0666].

55 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0071].

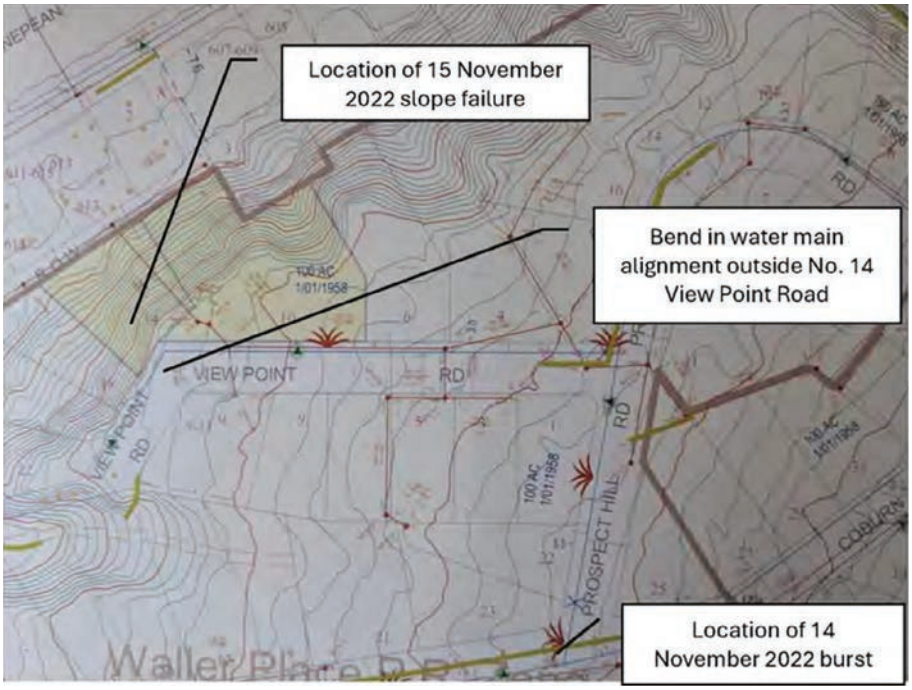
It cannot be determined whether some of the water originated from the burst near 23 Coburn Avenue

57 At about 5.40am on 14 November 2022, a water main failed at the corner of Prospect Hill Road and Coburn Avenue,[56] at approximately 23 Coburn Avenue.

58 The asbestos cement pipe suffered two circumferential breaks along its length,[57] allowing approximately 900,000 litres of water to be released prior to the main being turned off at 6.50pm.[58] The water from the burst water main significantly compromised the road surface and nature strip. A large sinkhole appeared on Coburn Avenue to the great concern of multiple residents.[59]

59 The failure occurred upslope of the site of the November 2022 landslides, as can be seen in the diagrams below.

FIGURE 4.7: LOCATION OF WATER MAIN BURST RELATIVE TO THE NOVEMBER 2022 LANDSLIDES.[60]



56 Public Hearing Transcript, Julian Tully, 24 June 2025, 987–988; Exhibit CA-41, Amended Witness Statement of Julian Tully, 19 June 2025, 3 [18]; Exhibit CA-41, Amended Witness Statement of Julian Tully, 24 June 2025, Exhibit 1 [SEW.0001.0001.4933].

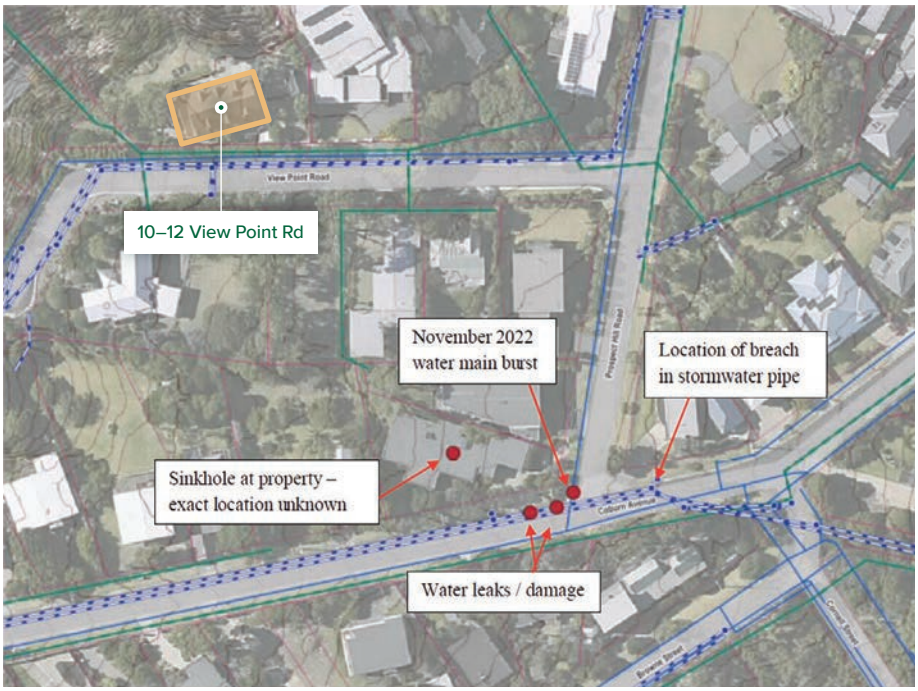
57 Exhibit CA-41, Amended Witness Statement of Julian Tully, 19 June 2025, 4 [20]; Exhibit CA-41, Amended Witness Statement of Julian Tully, 24 June 2025, Exhibit 1 [SEW.0001.0001.4933 at _0001].

58 Exhibit CA-41, Amended Witness Statement of Julian Tully, 19 June 2025, 4 [19].

59 Exhibit CA-66, Fourth Witness Statement of David Smith, 28 July 2025, 5 [13]; Exhibit CA-66, Fourth Witness Statement of David Smith, 28 July 2025, Exhibit CA-66(3) [MSC.5081.0001.0313], Exhibit CA-66(4) [MSC.5081.0001.0317], Exhibit CA66(6) [MSC.5081.0001.0215].

60 Exhibit CA-27, Multidisciplinary Expert Report about McCrae Landslip Project prepared by SMEC, 5 May 2025, [SEW.0001.0001.0142 at _0049].

FIGURE 4.8: LOCATION OF WATER MAIN BURST AND OTHER OBSERVATIONS IN ITS VICINITY.[61]



60 The distance between the burst water main and the landslide site was greater than 120 metres.[62] Could water from the burst have travelled downslope and triggered the landslides?

61 Only Mr Paul gave an expert opinion on this issue. Mr Pope said he was unable to comment.[63] Mr Paul expressed, with low confidence, the view that water from the burst water main was a medium contributor to the November 2022 landslides.[64] He explained:

> Some of this water [from the burst water main] exfiltrated at the road surface near the leak, and some must have infiltrated the ground because the point of water exfiltration at the ground surface was about 5 m away from the burst location and the sinkhole had opened in the private property at 23 Coburn Avenue.
>
> Whilst the water main leakage … may not have been the direct trigger of the landslide on [15 November 2022,] due to the insufficient evidence on which to base it, I am unable to provide an opinion on the proportion of water from the burst compared to the proportion from rainfall that might have contributed to the [landslide]. It is possible that the burst caused wetting of the ground and helped to form subsurface pathways, making the ground at the escarpment more susceptible to landslide upon the extreme rainfall event[.][65]

61 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0090]. For the avoidance of any doubt, the reference in the image to the breach in the stormwater pipe was not considered by the experts to be relevant to the source of the water that triggered the November 2022 landslides.

62 Public Hearing Transcript, Darren Paul, 4 August 2025, 1125.

63 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0003].

64 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0013].

65 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0071].

62 SEW did not adduce any contrary expert opinion in response to Mr Paul's evidence. However, it submitted that the expert evidence does not permit a finding that the burst water main triggered the November 2022 landslides.[66] SEW pointed to a temporal issue and the paucity of evidence.

63 As to the temporal issue, SEW highlighted that the burst occurred at approximately 5.40am on 14 November 2022 and was fixed at around 6.45pm on the same day. SEW submitted that there was insufficient time for any infiltrated water from the burst to reach the landslide site by subterranean means, assuming that the landslide on 14 November 2022 occurred at around 6.30am.[67]

64 The difficulty with this submission is that it hinges on the loud cracking noise that Mr Willigenburg heard at 6.30am on 14 November 2022 as being conclusive evidence of when the landslide occurred. That is open to doubt. There is no other evidence corroborating that the noise signalled the occurrence of the landslide. Mr Willigenburg himself gave evidence that, upon inspecting the back of his property after hearing the loud cracking noise, he did not observe anything unusual.[68]

65 In any event, the repair of the burst water main on the evening of 14 November 2022 does not preclude the possibility that part of the 900,000 litres of escaped water flowed to the landslide site and contributed to causing the more significant landslide on 15 November 2022.

66 The Board of Inquiry, therefore, does not accept that the temporal issue is determinative.

67 As to the paucity of evidence, SEW submitted that there is no evidence of the:

a. volume of water that entered the stormwater drain, save for some photographs taken on 14 November 2022 of water flowing downhill of Coburn Avenue, away from Prospect Hill Road, into a stormwater drain in the kerb;

b. volume of water that infiltrated the ground;

c. flow path of any subterranean water; and

d. precise location of the leak.[69]

68 In the course of cross-examination by SEW's Counsel, Mr Paul acknowledged that in forming his opinion, he had not personally undertaken tests to identify the underground channels from Coburn Avenue to View Point Road.[70] He acknowledged that the connectivity between the burst water main and the landslide site was a "*main [area of] uncertainty*".[71] He also said that he had not seen evidence of how much water went down the stormwater drain.[72]

69 There is no direct evidence before the Board of Inquiry concerning the volume of water that diverted down Coburn Avenue and into the stormwater drain as opposed to the volume that travelled through a subsurface flow path towards the landslide site. That does not, however, eliminate the possibility that a proportion of the water may have infiltrated the escarpment at 10–12 View Point Road.

66 Submission of South East Water about the causes of the McCrae Landslide, 29 July 2025, [SEW.0001.0002.4201 at _0002].

67 Submission of South East Water about the causes of the McCrae Landslide, 29 July 2025, [SEW.0001.0002.4201 at _0002]; Public Hearing Transcript, Darren Paul, 4 August 2025, 1122–1123.

68 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 444.

69 Submission of South East Water about the causes of the McCrae Landslide, 29 July 2025, [SEW.0001.0002.4201 at _0002].

70 Public Hearing Transcript, Darren Paul, 4 August 2025, 1126.

71 Public Hearing Transcript, Darren Paul, 4 August 2025, 1123.

72 Public Hearing Transcript, Darren Paul, 4 August 2025, 1125.

70 There is some evidence that the water did not entirely flow into the stormwater drain and, in fact, progressed down Prospect Hill Road. For example, as outlined in Chapter 3, at 10.36am on 14 November 2022, a resident at 22 Prospect Hill Road (next door to 23 Coburn Avenue) reported that the street stormwater pit was blocked, and that water was overflowing and flooding their house.[73]

71 Nevertheless, the point remains that the experts and the Board of Inquiry are in no position to conclude with any degree of certainty the proportion of water from the burst water main that flowed towards the landslide site. As Mr Paul said, properly, there are too many "*unknowns*" considering the current evidentiary base.[74] A more wide-ranging and in-depth investigation would have been necessary in order for the Board of Inquiry to be satisfied of the relevant facts; however, that was outside the Terms of Reference.

72 The Board of Inquiry, therefore, draws no conclusions as to the extent to which the burst water main near 23 Coburn Avenue may have contributed to triggering the November 2022 landslides.

What were the preparatory factors that may have contributed to causing the November 2022 landslides?

73 It will be recalled that preparatory factors are those which make the landscape more susceptible to landslide, even before a triggering event – like the intense rainfall of 14 November 2022 – occurs.

74 The experts addressed five preparatory factors in relation to the November 2022 landslides, each of which can be dealt with relatively briefly.

Erosion of the escarpment

75 The site of the November 2022 landslides was located on the prominent escarpment at 10–12 View Point Road. The escarpment is approximately 25 metres high, with an overall slope angle of 35 degrees.[75]

76 To contextualise the steepness of the slope, Mr Borghesi gave evidence that one could "*scramble down the entire area of the 2022 landslide"* but that it was still "*quite a steep slope, so you would tend to traverse it rather than use it"*.[76]

77 Both Mr Pope and Mr Paul agreed, with very high confidence, that erosion of the escarpment was a major or significant preparatory factor for the November 2022 landslides.[77]

78 Mr Pope explained that erosion had led to "*marginally stable slope conditions, for which landsliding may occur*". He added that in the upper zone of the slope, the soil slope angle exceeded the effective friction angle of the soils, rendering the slope susceptible to landslides upon a change in soil moisture.[78]

73 Exhibit CA-66, Fourth Witness Statement of David Smith, 28 July 2025, Exhibit CA-66(6) [MSC.5081.0001.0215].

74 Public Hearing Transcript, Darren Paul, 4 August 2025, 1125.

75 Exhibit CA-6, Expert Opinion Report – Landslide Assessment about 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0653].

76 Public Hearing Transcript, Gerrard Raymond Borghesi, 14 May 2025, 482.

77 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0003].

78 Exhibit CA-6, Expert Opinion Report – Landslide Assessment about 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0660, .0664].

Finding

Erosion was a significant preparatory factor for the November 2022 landslides.

Subsurface voids/piping channels

79 As outlined in Chapter 3, in May 2023, the Shire commenced a major stormwater drainage improvement project along View Point Road. During the excavation process, a "*substantial void*" was revealed directly upslope of the location of the November 2022 landslides.[79]

80 It was common ground between the experts that a void existed. Ground penetrating radar testing conducted in December 2023 along View Point Road confirmed the existence of a void "*approximately 550mm below ground surface and 450mm deep (1.0m below ground surface)*".[80] The full extent of the void was unable to be mapped, but it minimally extended from the kerb line to the sewer line along 10–12 View Point Road.[81] Mr Paul assumed the correctness of, and relied on, this evidence.[82] Mr Pope agreed that the presence of the identified "*void in a recently excavated stormwater trench is consistent with natural voids observed in the escarpment*".[83]

81 What divided the experts was whether the void had acted as a preferential channel for water, leading to the saturation of the escarpment prior to the November 2022 landslides. On the one hand, CivilTest, geotechnical engineers engaged by the Borghesis in November 2022, concluded that the void had provided a pathway for water towards the headscarp area.[84] It was also CivilTest's opinion that the cracked kerbs along View Point Road allowed for water from the rain event to accumulate and build up below ground.[85] Mr Paul and Mr Pope were not able to express a confident view about that matter. They expressed, with a low level of confidence (less than 40%), that the void was a significant (for Mr Paul) or minor (for Mr Pope) preparatory factor for the November 2022 landslides.[86]

82 Both Mr Paul and Mr Pope were constrained by the evidence available. Mr Paul identified two key gaps in the evidence: he did not know to where the void led, nor did he know whether there were other voids in the area.[87] It is, however, important to note that the effect of Mr Paul's evidence is that the subsurface voids may have been a "significant" preparatory factor. It is also important to recognise that Mr Pope has only low confidence that the voids were a minor preparatory factor. As to his low level of confidence on the issue, Mr Pope said that the "*orientation of the*

79 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0019].

80 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0019].

81 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0019].

82 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0090].

83 Exhibit CA-6, Expert Opinion Report – Landslide Assessment about 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0665].

84 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0020].

85 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0017].

86 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0003].

87 Public Hearing Transcript, Darren Paul, 4 August 2025, 1098–1099.

void is unknown", but he expected it to be consistent with groundwater flow directions and perpendicular to the escarpment or parallel with the sewer trench.[88] Moreover, he noted that he had not observed any direct evidence of "*connectivity*" between the void and the landslide site.[89]

83 Without the benefit of a more comprehensive evidence base, the Board of Inquiry draws no conclusions as to whether subsurface voids were a preparatory factor for the November 2022 landslides. The Terms of Reference constrained a deeper inquiry into the issue.

Groundwater from a shallow aquifer

84 The Board of Inquiry heard extensive evidence from the Borghesis about the continuous flow of "spring water" down the fractured and cracked northern kerb of View Point Road, and a general increase in the saturation of the hillside in the location of the November 2022 landslides. These observations were made from May 2014 and particularly in the period between December 2020 and May 2023.[90]

85 The increased saturation was so significant that Mr Borghesi installed "*agi drains*" across the hillside pathway in July 2021 to redirect water, control erosion and make the pathway down to Penny Lane trafficable.[91]

86 CivilTest opined that the Borghesis' observations of natural seeps on the slope constituted "*strong evidence of perched water forming at the materials interface due to the soil profile and topography of the area*".[92] It concluded that "*[p]erched water had built up at the material interface … which led to a lack of friction and cohesion at the interface of [the] materials*".[93]

87 Both Mr Pope and Mr Paul were less definitive in their opinions. Mr Pope expressed the view, with moderate confidence (40%-<60%), that groundwater from a shallow aquifer was a medium preparatory factor for the November 2022 landslides.[94] He acknowledged that groundwater seepage provides a direct source of water which can contribute to increases in soil moisture content, and appeared to accept that the seeps were likely to be partly associated with natural springs further upslope.[95] Mr Paul provided no opinion on this preparatory factor as he had "*not seen evidence for a spring or natural conveyance of water to the location of the 2022 landslides*".[96]

88 In view of the above, the Board of Inquiry accepts that the site of the November 2022 landslides was saturated for some time prior to the landslides. However, in light of the state of the expert evidence and the limit in the Terms of Reference, it draws no conclusions as to the extent to which groundwater from a shallow aquifer was a preparatory factor for the November 2022 landslides.

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88 Exhibit CA-6, Expert Opinion Report – Landslide Assessment about 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0665].

89 Exhibit CA-6, Expert Opinion Report – Landslide Assessment about 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0645].

90 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 2 [9], 3 [15]; Public Transcript Hearing, Gerrard Raymond Borghesi, 14 May 2025, 483–488.

91 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, 3 [16].

92 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0015].

93 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0017].

94 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0003].

95 Exhibit CA-6, Expert Opinion Report – Landslide Assessment about 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0664].

96 Public Hearing Transcript, Darren Paul. 4 August 2025, 1094.

Finding

The site of the November 2022 landslides was saturated for some time prior to the landslides.

Anthropogenic changes

89 Several anthropogenic changes were identified in relation to the site of the November 2022 landslides. Namely, Mr Pope observed the presence of paths, retaining walls and stairs above the site, which he considered allowed "*surface water from outside the Landslide area to concentrate and direct flow into the Landslide site*".[97] He further observed that three subsurface "*agi-drains*" discharged water onto the slope above the site,[98] providing an additional source of infiltration that reduced slope stability.

90 In the result, Mr Pope expressed, with moderate confidence, that such anthropogenic changes made a medium contribution, whereas Mr Paul, with low confidence, considered their contribution to be minor.[99]

91 Overall, anthropogenic changes were given brief treatment as a preparatory factor for the November 2022 landslides and were not explored in detail in the public hearings due to the limit in the Terms of Reference. The Board of Inquiry, therefore, draws no conclusions in relation to their contribution to the November 2022 landslides.

Loss or removal of vegetation

92 Finally, the experts considered the extent to which removal of vegetation from the escarpment may have contributed to the November 2022 landslides.

93 Initially, Mr Pope considered this factor to be significant. In a report he prepared for legal proceedings in June 2024 on the causes of the November 2022 landslides, he stated:

> I note that trees have been removed in 2021 including a large mature gum and further vegetation has been removed by the Landslide[.] In my opinion tree removal is a significant conditional event that has occurred at the Site and suction will change in the escarpment slopes … In my opinion the Landslide Area is well within the influence zone of removed trees.[100]

94 During examination by Counsel Assisting, Mr Pope accepted that his conclusions concerning the extent of vegetation removal may have been expressed too conclusively, saying that the tree line had changed, but he was not able to say whether the trees had been heavily pruned or removed altogether.[101]

97 Exhibit CA-6, Expert Opinion Report – Landslide Assessment about 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0665].

98 Exhibit CA-6, Expert Opinion Report – Landslide Assessment about 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0665].

99 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0003].

100 Exhibit CA-6, Expert Opinion Report – Landslide Assessment about 10–12 View Point Road prepared by PSM, 11 June 2024, [MSC.5000.0001.0639 at .0660].

101 Public Hearing Transcript, Dane Pope, 8 May 2025, 136–140.

95 Ultimately, Mr Pope expressed, with high confidence, that removal of vegetation had a medium to major contribution.[102] He explained that his level of confidence was supported by his examination of aerial photographs as well as three-dimensional models of the subject area.[103]

96 Mr Paul agreed that removal of vegetation had a medium contribution but expressed this opinion with very low confidence.[104] He explained that his assessment was based on historical images and photographs, which made it "*quite hard*" for him to determine the extent of root removal.[105] In his view, this was more relevant to assessing slope stability than the extent of visible canopy cover in a photograph.[106]

97 Mr Pope disagreed. He stated that a tree's capacity to draw water up from the soil is directly linked to the canopy size, making it unnecessary to identify details of the affected root systems to assess the impact on slope stability.[107]

98 The Board of Inquiry is not able to resolve the conflict given that this factor was not extensively explored in evidence due to the limit in the Terms of Reference. The Board of Inquiry did not have, for example, evidence from a witness with sufficient expertise in water suction through vegetation. It draws no conclusions in relation to the contribution of loss of vegetation to the November 2022 landslides.

Conclusion on the November 2022 landslides

99 Water – from an intense rainfall event or in combination with water from a burst water main – triggered the November 2022 landslides. It may also be that the subsurface voids, in combination with the poor drainage and cracked kerb in View Point Road, were significant preparatory factors, and that loss of vegetation also played a role.

100 Beyond making these observations, it is neither appropriate, nor necessary, to draw conclusions about the causes of the November 2022 landslides given the limitations imposed by the Terms of Reference. The Board of Inquiry is conscious of the pressing need, after almost three years, for there to be a resolution between the Shire and affected residents in relation to these landslides. While the Terms of Reference constrained the Board of Inquiry, there is no need for the mediation process that has been recommended (Recommendation 1) to be similarly constrained.

101 The November 2022 landslides form an important part of the backdrop to the 5 January 2025 landslide and the McCrae Landslide. It cannot be forgotten that all of those landslides predominantly occurred on the same property, albeit on different parts of the escarpment. Moreover, while the intense rainfall event was unique to the November 2022 landslides, water again played a significant role in triggering the 5 January 2025 landslide and the McCrae Landslide. It is to this central issue that the Report now turns.

102 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0003].

103 Public Hearing Transcript, Dane Pope, 4 August 2025, 1095.

104 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0003].

105 Public Hearing Transcript, Darren Paul. 4 August 2025, 1094.

106 Public Hearing Transcript, Darren Paul. 4 August 2025, 1094–1095.

107 Public Hearing Transcript, Dane Pope, 4 August 2025, 1095.

4.5 What caused the 5 January 2025 landslide and the McCrae Landslide?

102 An issue of central significance for the Board of Inquiry was the cause of the McCrae Landslide. On this question, the Board of Inquiry had the benefit of extensive expert geotechnical, hydrogeological and geochemical evidence.

103 Although there is no doubt that the 5 January 2025 landslide and the McCrae Landslide were causatively related, the Board of Inquiry investigated the cause of each landslide independently. Critically, the Board of Inquiry did not proceed from the assumption that the McCrae Landslide was caused by the same factors as the 5 January 2025 landslide, or that the earlier landslide itself caused the later one.

104 Even on that approach, it quickly emerged that the causes of the two landslides could not be disentangled. The landslides, to borrow Mr Paul's language, "*can be considered separate stages of the one landslide event*".[108] Consequently, much of the analysis that follows applies to both landslides.

105 With that in mind, the causal analysis for the 5 January 2025 landslide and the McCrae Landslide is as follows.

106 On one point of significance there was unanimous agreement by the experts: the trigger for the landslides was excess water in the slope in the vicinity of 10–12 View Point Road.[109] The origin of that water was disputed.

107 All experts other than those engaged by SEW (being, Mr Paul, Dr Vu, Mr Makin, Mr Pope and Mr Hitchcock) considered that the water originated from a burst water main located near the corner of Bayview Road and Outlook Road. SEW's expert, Mr Hartley (assisted by Mr Bolton and Mr Jewell), considered that the burst water main was not the source (and accordingly considered it to be a minor, or even insignificant, cause).

108 Because water is accepted by all experts to be the trigger for the 5 January 2025 landslide and the McCrae Landslide, other common landslide triggers can be put to one side. Three potential water sources were identified:

a. the burst water main;

b. groundwater from an aquifer; and

c. domestic irrigation.

109 The preponderance of expert opinion was that the burst water main was the source of the excess water in the slope. All experts ruled out groundwater from an aquifer as a cause of any significance.[110] SEW's experts, Mr Hartley and Mr Bolton of SMEC were the only experts who considered domestic irrigation to be anything other than a minor cause.[111]

108 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0016].

109 Public Hearing Transcript, Darren Paul and Dane Pope, 5 August 2025, 1205.

110 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0004,_0011].

111 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0004,_0012].

110 It was important for the Board of Inquiry's investigation to receive an opinion from SEW's experts, which diverged from the views of all other experts. The provision of the contrary opinion served to rigorously test the prevailing expert consensus and has given the Board of Inquiry increased confidence in its conclusion that the burst water main was the source of the water.

The water originated from SEW's burst water main

111 As discussed in Chapter 3, SEW accepts that there was a long-running and substantial leak from the burst water main, which commenced around August 2024. In determining whether some of that water reached 6 and 10–12 View Point Road, the following issues arise for consideration:

a. What was the volume of water lost from the burst water main?

b. What were the available paths of travel for the burst water?

   i. Did water from the burst water main get to those flow paths?

   ii. Do those flow paths convey water to the site of the January 2025 landslides?

c. Do the observed conditions along each path support the flow of water along them?

d. What volume of water travelled along each path?

e. Did water from the burst water main make it to the slope?

112 Each issue is considered in turn. The analysis is necessarily technical and detailed.

What was the volume of water lost from the burst water main?

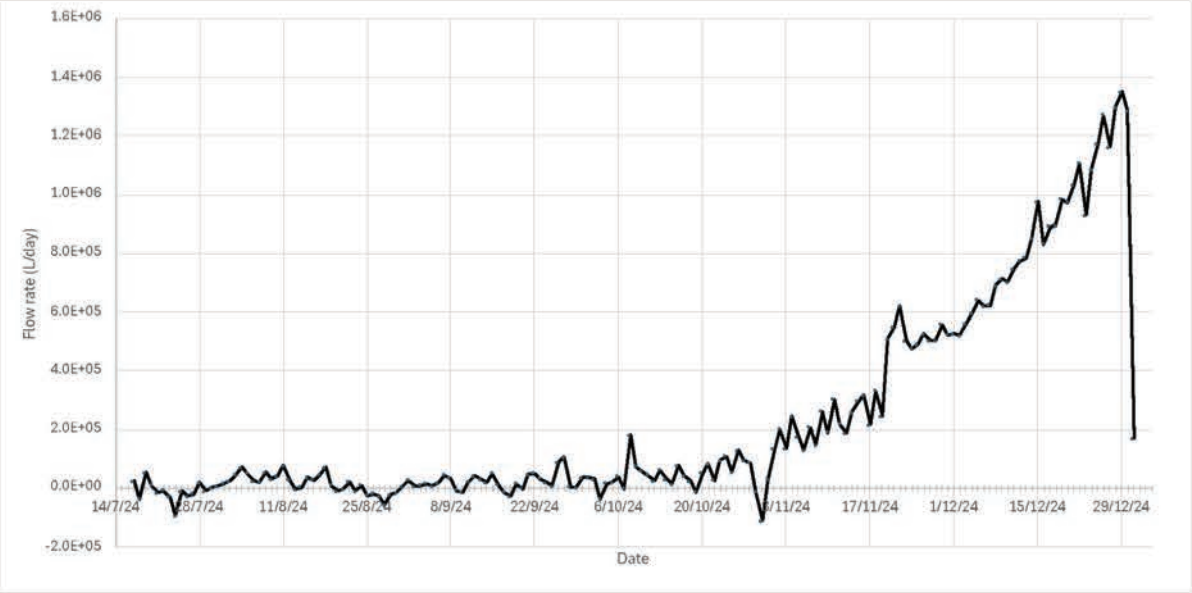
113 There is no doubt that a very significant volume of water escaped from the burst water main. SEW undertook various calculations to determine the likely extent of the leakage and, ultimately, engaged Professor van Zyl to opine on various matters connected with the burst.

114 Relying on analysis prepared by Dr Jonathan Crook, Group Manager for Analytics and Performance of SEW, Professor van Zyl estimated that the leak commenced in around the start of August 2024 and ceased on 1 January 2025 when the burst was repaired, and that the total volume of water that escaped from the burst water main was 40.3 million litres.[112]

115 Professor van Zyl estimated that the flow rate of the leak progressively increased over time, rising sharply throughout December 2024, and peaking at approximately 1.4 million litres per day in late December 2024. Professor van Zyl graphically represented this flow rate as follows:

112 Exhibit CA-76, Flow Rate from Longitudinal Split in PVC pipe Report prepared by Dr Jakobus van Zyl and Dr Andrew Brown, 17 July 2025, [SEW.0001.0002.4191 at _0012].

FIGURE 4.9: PROFESSOR VAN ZYL'S FLOW RATE ANALYSIS.[113]



116 Professor van Zyl modelled leakage volume per day between 11 August and 31 December 2024. On that model:

a. from 11 August until sometime in mid-October, around 11,000 litres per day was lost;

b. from mid-October, that loss increased to around 50,000 litres per day;

c. by November, it had risen to 160,000 litres per day;

d. by the end of November the volume reached 560,000 litres per day;

e. by mid-December, about 1 million litres per day was escaping the pipe; and

f. finally, by the end of December, the leakage had risen to approximately 1.4 million litres per day.

117 The Board of Inquiry has assumed the correctness of Professor van Zyl's conclusions as to the total water loss and maximum daily flows in its consideration of the cause of the January 2025 landslides.

118 The next question is: where did that water go?

What were the available travel paths for the burst water?

119 Three potential flow paths for the water were considered by the experts:

a. through sewer and water mains trenches, including through the permeable embedment (or bedding) materials;

b. through the stormwater system; and

c. through the shallow aquifer in the colluvium.

113 Exhibit CA-76, Flow Rate from Longitudinal Split in PVC pipe Report prepared by Dr Jakobus van Zyl and Dr Andrew Brown, 17 July 2025, [SEW.0001.0002.4191 at _0012].

120 The plausibility of each flow path falls to be considered across two geographical segments:

a. at the site of the burst water main; and

b. between the burst water main and the escarpment at 10–12 View Point Road.

121 Before turning to the hypothesised paths, something needs to be said about how water moves through different materials. This topic was addressed in several of the expert reports and during the course of the public hearings. The evidence in its critical respects can be summarised as follows:

a. Ordinarily, water travels downward with gravity, following the path of least resistance.[114]

b. Water on the ground surface, will either infiltrate that surface if it is permeable (e.g. soil), or otherwise flow over that surface following the path of least resistance downhill until it reaches a permeable surface.[115]

c. "Permeability" is the ability of a material to absorb or transmit a given volume of water. "Hydraulic conductivity" is the rate at which water moves through a given material in metres per second. This can be used to compute the "linear velocity" of water using Darcy's Law, which states that the discharge rate is proportional to the hydraulic gradient and the hydraulic conductivity.[116]

d. Where the volume of water per minute infiltrating a given area of soil exceeds the amount of water that can pass through that area in the same minute, that water will pool on top of the soil and spread out across it.[117]

e. When water infiltrates permeable materials, it will travel until it reaches a low permeability layer that limits its migration.[118] If resistance to subsurface flow is too high for more water to be absorbed, water will be forced to the surface (exfiltration).[119]

f. As water follows the path of least resistance, it will tend to travel through materials of relatively high permeability as the "*preferential pathway*".[120] The more granular the material, the more permeable (i.e., the greater "pore spacing") it is and therefore the more likely to be a preferential pathway.[121] Gravels are typically more granular than sands, which in turn are more granular than clays. This is why gravels are typically used for drainage.[122] To give some more specific numbers for context, SMEC concluded here that the velocity of the embedment material in service trenches was approximately 10 minutes per metre travelled, whereas the natural soil (colluvium) velocity was 12 hours per metre travelled (two metres per day).[123]

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114 Exhibit CA-73, Expert Hydrogeological Report prepared by Australian Environmental Auditors, 21 July 2025, [MSC.5087.0001.0001 at .0013].

115 Exhibit CA-73, Expert Hydrogeological Report prepared by Australian Environmental Auditors, 21 July 2025, [MSC.5087.0001.0001 at .0013, .0034]; Public Hearing Transcript, Darren Paul, 7 May 2025, 46.

116 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0093].

117 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0093].

118 Exhibit CA-73, Expert Hydrogeological Report prepared by Australian Environmental Auditors, 21 July 2025, [MSC.5087.0001.0001 at .0013].

119 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0107].

120 Exhibit CA-73, Expert Hydrogeological Report prepared by Australian Environmental Auditors, 21 July 2025, [MSC.5087.0001.0001 at .0013].

121 Public Hearing Transcript, Darren Paul, 7 May 2025, 42.

122 Public Hearing Transcript, Darren Paul, 7 May 2025, 42.

123 Exhibit CA-68, Multidisciplinary Expert Supplementary Report prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0010].

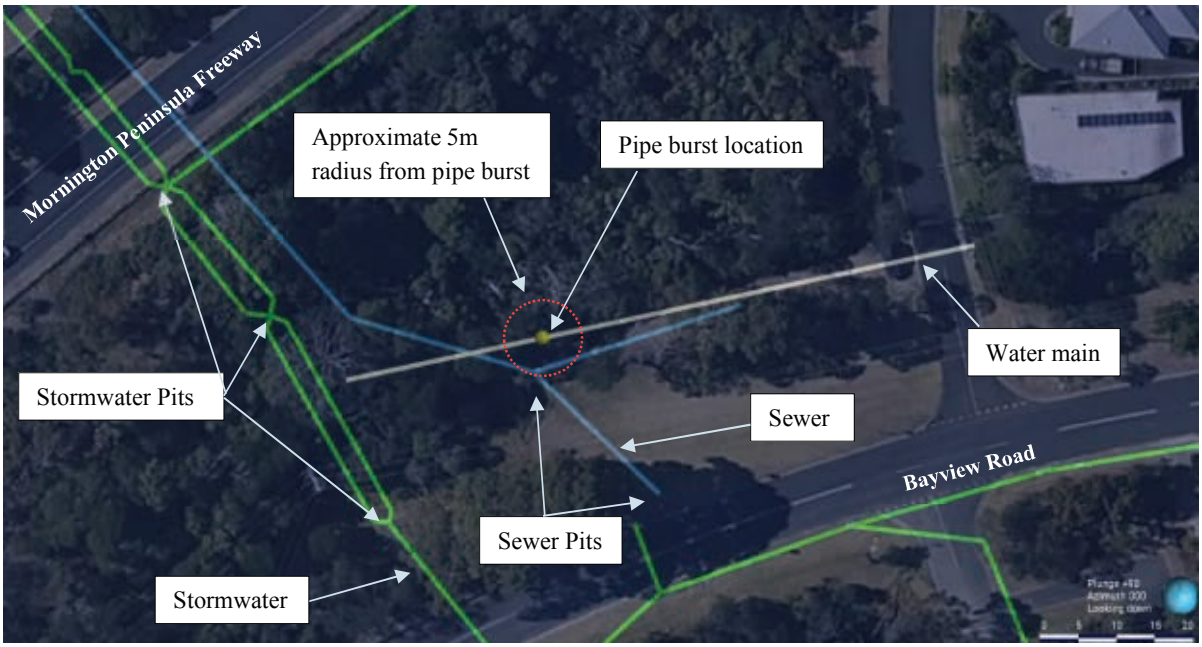
122 In order to understand whether water could have travelled the hypothesised paths to the landslide site, it is first necessary to start with the site of the burst. That is where water was immediately discharged and, therefore, the immediate surrounds of the water main are of relevance to the question of where water would have migrated. It is also necessary to provide a broad overview of the flow paths considered by the experts before descending into the detail.

Burst water main site

123 The burst occurred in dense bushland located between Bayview Road and the Mornington Peninsula Freeway.

124 The image below is an overhead photograph of the burst location, annotated to identify key features of relevance. In particular, it shows the position of the burst in relation to nearby mains water, stormwater and sewer infrastructure. The annotations show that the burst occurred several metres from a sewer trench and stormwater pipes, which run downslope under the Mornington Peninsula Freeway toward the escarpment on which the January 2025 landslides occurred.

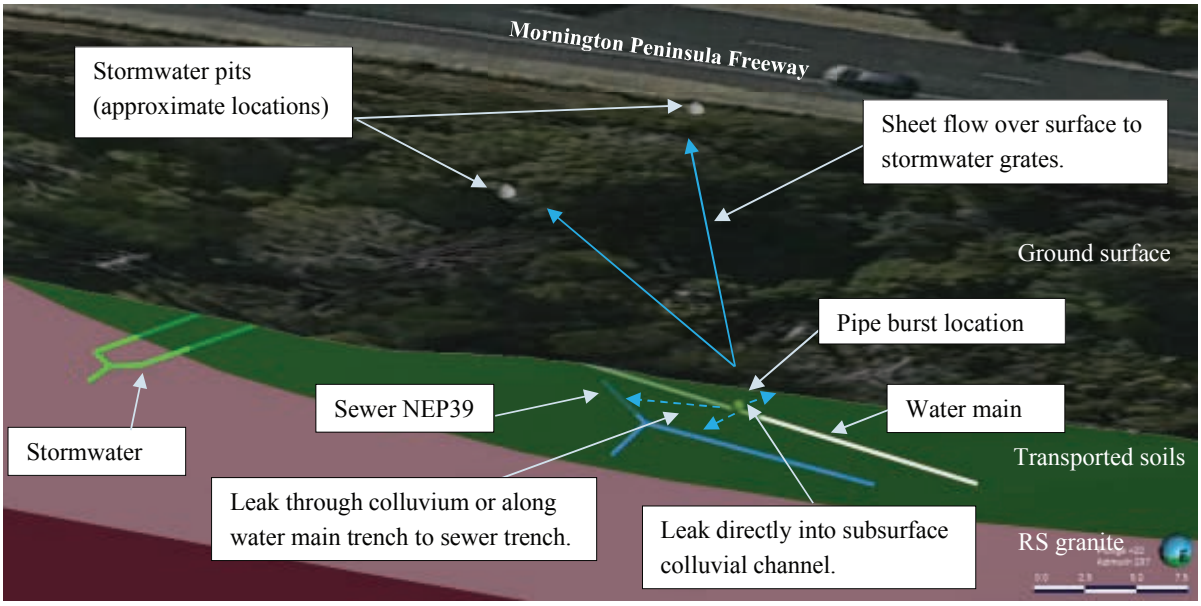
FIGURE 4.10: OVERVIEW OF THE BURST SITE SHOWING THE APPROXIMATE LOCATION OF WATER SERVICES.[124]



124 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0083].

125 The respective orientation of the burst location, sewer and stormwater trenches are shown in the image below, which is an isometric view of the burst site:

FIGURE 4.11: ISOMETRIC VIEW OF THE BURST SITE SHOWING THE APPROXIMATE LOCATION OF WATER SERVICES.[125]



126 The subsurface geological units in which the infrastructure is found are represented in different colours. The water main and sewer pipes are in the relatively permeable transported soils (green), which sit on top of residual granites (mauve). The implications of this for the extent and velocity of water flow will become apparent.

127 Having identified the locational features of the burst site, it is then necessary to briefly return to the three potential flow paths, being through:

a. sewer and water mains trenches, including through the permeable embedment or bedding materials;

b. the stormwater system; and

c. the shallow aquifer in the colluvium.

128 There was substantial agreement between the experts both as to the existence of the flow paths, and the fact that water from the burst had travelled through them. SEW's experts disagreed, however, with the other experts on where the water ultimately travelled.

129 Mr Paul concluded that some of the water from the burst reached the site of the January 2025 landslides, travelling through soils, fill, trench backfill and possibly breaches in the stormwater systems.[126]

130 He considered the burst water main was the only source capable of supplying the volume needed to trigger the landslides and to explain the post-landslide flows observed at the headscarp. He did not reach a firm view on which pathway or pathways the water followed, considering all three to be plausible.[127]

125 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0084].

126 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0107].

127 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0011–_0013].

131 Mr Pope independently reached the same conclusion as Mr Paul – that water from the burst water main triggered the 5 January 2025 landslide.[128] As to how the water travelled to that location, Mr Hitchcock initially expressed the opinion that the colluvial channel flow path (shallow aquifer) was the most likely pathway by which water would have travelled.[129] However, during the concurrent expert evidence hearing, he explained that after considering the other expert reports, which he had not seen before producing his report, he thought it was more likely that the water flowed through a combination of the colluvial channel and the stormwater and sewer bedding materials.[130]

132 SEW's expert, Mr Hartley, agreed with the presence of the flow paths *from* the burst water main, however, disagreed that water would have flowed through them to the site of the January 2025 landslides. Mr Hartley summarised his findings about flow paths as follows:

> A proportion of mains water flowing overland from the Bayview Road leak would have permeated into the surrounding soil, flowing toward the escarpment as groundwater. The two paths likely taken by the leak water to travel downslope as groundwater comprise:
>
> - Flow through the shallow soil aquifer only (i.e. through natural soil and fill soil, excluding embedment material) following groundwater flow paths; and
> - Flow through the shallow soil aquifer, then into utility trenches filled with embedment material and then flowing downhill to the sea.
>
> While these two flow paths are not mutually exclusive, and Bayview Road leak water would likely have taken both paths, we assess that the majority of the mains water derived from the leak (that didn't enter the stormwater system) will have travelled downslope within existing service trenches. This is because the utility trenches – with relatively higher permeability than natural material – intercepts and absorbs the intercepted groundwater flowing through the shallow soil aquifer.[131]

133 During the concurrent expert evidence hearing, Mr Hartley's opinion about the sewer trenches flow path was clarified, as follows:

> The idea that water flows through the sewerage trench down through - underneath the M11, Waller Place, Charlesworth, hits Coburn, is very much something that we think is a high likelihood and what we've been able to do - and it gets all geochemistry breadcrumby from thereon - is understand that there is a trend of water with similar characteristics that go down the sewerage down to Coburn Avenue, then get into the natural material and find themselves underneath the property in the agi-drain system of 7 Prospect Hill Road.[132]

134 Despite agreeing about the existence of the flow paths, SEW's experts, Mr Hartley and Mr Bolton, did not agree that water from the burst water main was the trigger for the 5 January 2025 landslide (or, for that matter, the McCrae Landslide).[133] Mr Hartley and Mr Bolton stood apart from Mr Paul, Mr Pope and Mr Hitchcock in this respect.

128 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0011].

129 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0011].

130 Public Hearing Transcript, Philip Hitchcock, 5 August 2025, 1224–1225.

131 Exhibit CA-68, Multidisciplinary Expert Supplementary Report prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0011].

132 Public Hearing Transcript, David Hartley, 5 August 2025, 1257.

133 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0011–_0012].

135 Having provided a broad overview of the available flow paths, it is necessary to consider more detailed evidence in respect of those flow paths.

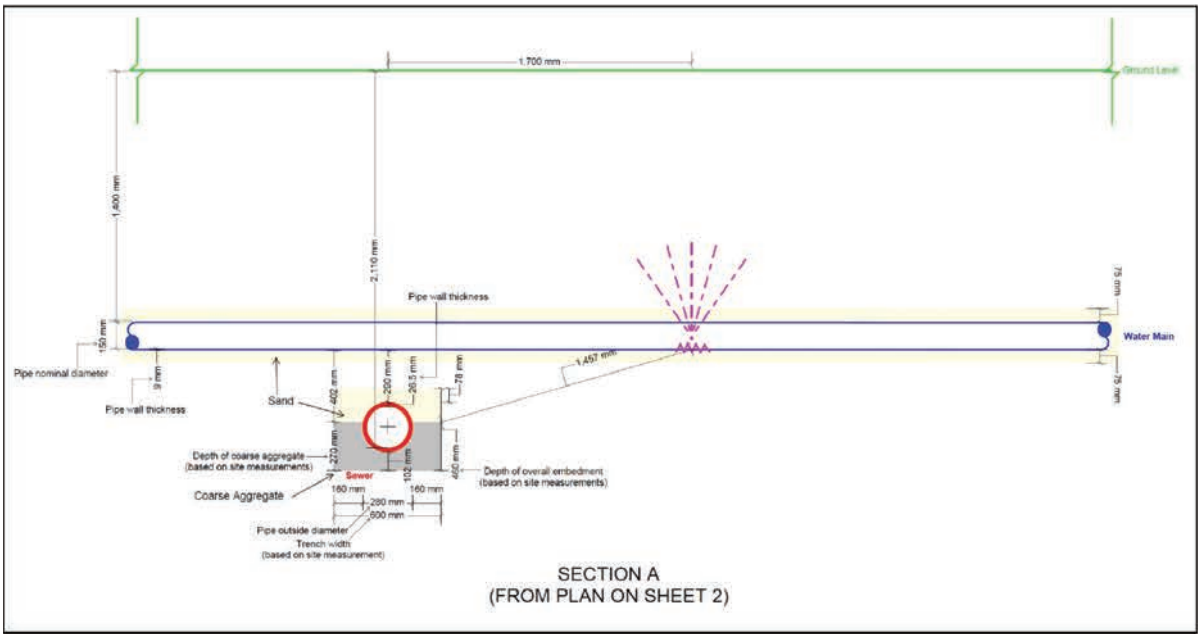
136 There is no escaping that the evidence concerning the flow paths is complex. It is therefore necessary to step through the analysis in stages. At the first stage, this Chapter examines the flow paths in the immediate vicinity of the burst water main. At the second stage, it examines the flow paths between the burst water main and the site of the January 2025 landslides.

Water infiltrating directly from the burst water main into embedment materials of the water main service trench and the nearby sewer trench

137 Turning to the first stage, at its simplest, the water, on immediately escaping from the burst water main, had two possible directional paths: upward to the surface or downward into the ground. That proposition requires some unpacking.

138 As can be seen from earlier diagrams of the burst site (Figures 4.10 and 4.11), close-by to the water main, is sewer main NEP39. That sewer main sits approximately 1.5 metres below and to the side of the water mains trench in which the burst main was located. The following cross-sectional diagram illustrates the point:

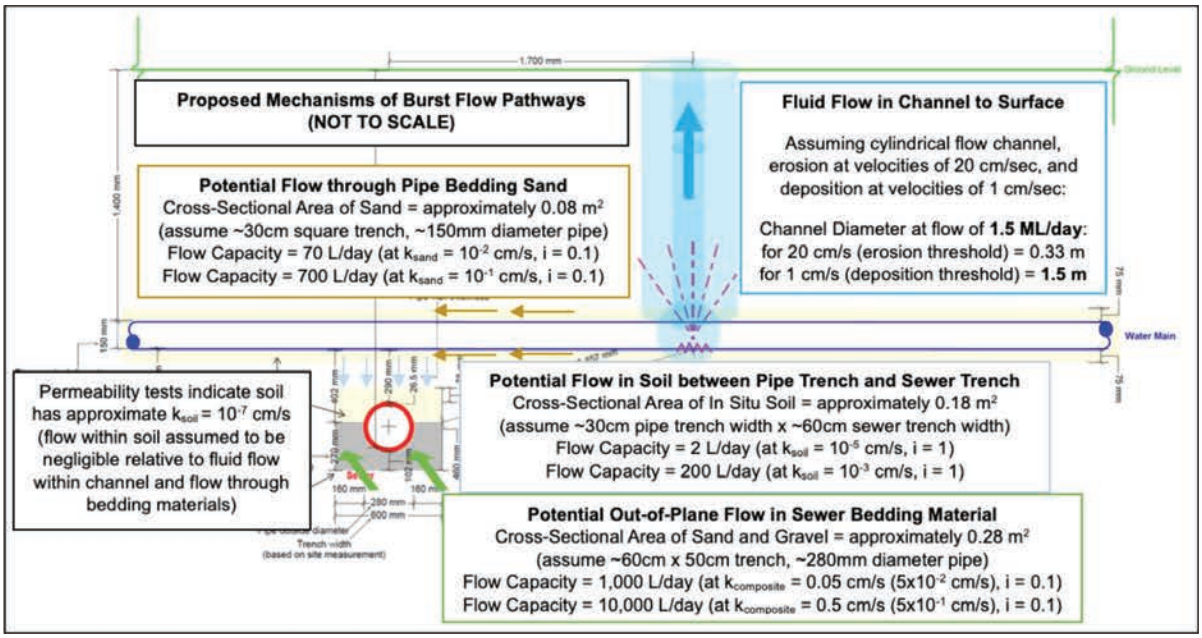
FIGURE 4.12: SUBTERRANEAN CROSS SECTION OF THE BURST SITE.[134]



134 Exhibit CA-76, Flow Rate from Longitudinal Split in PVC pipe Report prepared by Dr Jakobus van Zyl and Dr Andrew Brown, 17 July 2025, [SEW.0001.0002.4191 at _0026].

139 Professor van Zyl provided an annotated version of the above diagram showing his opinion of the multiple flow paths from the burst:

FIGURE 4.13: ANNOTATED DIAGRAM ILLUSTRATING PROF VAN ZYL'S OPINION REGARDING FLOW PATHS NEAR THE BURST SITE.[135]



140 As the diagram depicts, Professor van Zyl identified four flow pathways, one of which is vertical and three of which are lateral. As to the former, water from the burst could have travelled vertically upwards through a "Fluid Flow Channel" to the surface (**Vertical Burst Channel**). As to the latter, water from the burst could have travelled through the:

a. bedding material of the water main, which was assumed to consist of sand;

b. soil between the water main and sewer trench; or

c. sewer bedding material, which was assumed to consist of gravel below the pipe and sand above the pipe.[136]

141 Professor van Zyl's opinion was that water from the burst main would have first infiltrated the water main's sandy bedding material but, due to the relative impermeability of that material, it would also have begun to infiltrate the surrounding soils. From here, Professor van Zyl considered the water from the burst would have begun to form the Vertical Burst Channel, while, at the same time, continuing to spread through the soil and ultimately reaching the sewer service trench, which was comprised of sand and gravel. It is important to note the amount of water exiting from the burst pipe initially (i.e. in the first two months) was not enough to overcome the permeability of the mains and sewer service trenches.[137] Once the volume of water was too great to be absorbed through these paths, the Vertical Burst Channel was formed and the water began

135 Exhibit CA-76, Flow Rate from Longitudinal Split in PVC pipe Report prepared by Dr Jakobus van Zyl and Dr Andrew Brown, 17 July 2025, [SEW.0001.0002.4191 at _0027].

136 Exhibit CA-76, Flow Rate from Longitudinal Split in PVC pipe Report prepared by Dr Jakobus van Zyl and Dr Andrew Brown, 17 July 2025, [SEW.0001.0002.4191 at _0022].

137 Exhibit CA-76, Flow Rate from Longitudinal Split in PVC pipe Report prepared by Dr Jakobus van Zyl and Dr Andrew Brown, 17 July 2025, [SEW.0001.0002.4191 at _0027, _0031].

to flow to the surface.[138] As is explained below, the water that followed the Vertical Burst Channel to the surface is the source of the water for the recharge of the colluvial channel and stormwater flow paths to the site of the January 2025 landslides.

142 On the question of how much water flowed through the bedding materials, Professor van Zyl provided "sample" calculations of the expected flow rates through the water main and sewer bedding materials. His estimate was a flow rate of 11,000 litres per day, of which 10,000 litres per day travelled through the sewer bedding material, and 1,000 litres per day travelled through the surrounding water main bedding material.[139]

143 Professor van Zyl did not give oral evidence, nor did he participate in the expert conclaves. Rather, his report was sought by SEW and relied upon by Mr Hartley and Mr Bolton in forming their conclusions. Mr Hartley and Mr Bolton could not explain why Professor van Zyl referred to his calculations as a "sample", nor did they attempt to verify the professor's figures.[140]

144 There were no alternative calculations for the flow rates Professor van Zyl calculated, however, Mr Pope considered Professor van Zyl's figures to underestimate the likely permeability of the materials between the sewer and water main trenches.[141] Mr Pope estimated that "*relatively low heads (~0.5 m) flow through gravel bedding in sewer trenches may be in the order of 15 to 20 litres per minute or 21,600 to 28,800 litres per day*",[142] roughly twice to three times Professor van Zyl's 11,000 litres per day.

145 Setting aside the concerns with the accuracy of Professor van Zyl's estimate (without intending any criticism, given that he did not appear in person), the effect of his "sample" calculations – which may well be a conservative estimate – was that before the water from the burst water main reached the surface, at a minimum, approximately 11,000 litres per day would have been absorbed into the mains and sewer trenches from 11 August 2024.

146 It will be recalled that the water main and its trench is situated in transported soils (colluvium).[143] As to whether the water travelled through the colluvium – the soil between the water main and sewer trench – Professor van Zyl stated:

> [S]eepage through the in-situ soil was assumed to be negligible relative to the flow capacities of the higher permeability bedding materials and the fluid flow channel developing between the pipe burst and ground surface (the assumption of relatively low seepage flow rates through the in-situ soil is supported by the measured permeability values).[144]

147 In summary then, at least 11,000 litres per day (and possibly as high as 28,800 litres per day) of water from the burst water main was travelling directly from the burst into the surrounding water main bedding and nearby sewer main bedding. The balance reached the surface through the Vertical Burst Channel.

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138 Exhibit CA-76, Flow Rate from Longitudinal Split in PVC pipe Report prepared by Dr Jakobus van Zyl and Dr Andrew Brown, 17 July 2025, [SEW.0001.0002.4191 at _0027].

139 Exhibit CA-76, Flow Rate from Longitudinal Split in PVC pipe Report prepared by Dr Jakobus van Zyl and Dr Andrew Brown, 17 July 2025, [SEW.0001.0002.4191 at _0029].

140 Public Hearing Transcript, David Hartley and Hugo Bolton, 5 August 2025, 1230–1231.

141 Public Hearing Transcript, Dane Pope, 5 August 2025, 1233.

142 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0224].

143 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0084].

144 Exhibit CA-76, Flow Rate from Longitudinal Split in PVC pipe Report prepared by Dr Jakobus van Zyl and Dr Andrew Brown, 17 July 2025, [SEW.0001.0002.4191 at _0029].

148 What happened to the balance of the water that reached the surface via the Vertical Burst Channel?

Colluvium and stormwater flow paths

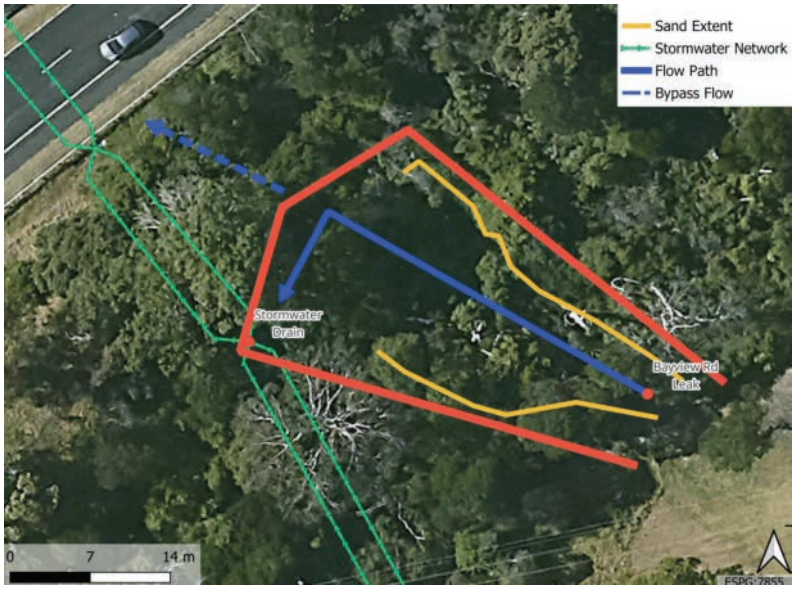
149 As noted above, on Professor van Zyl's analysis, the water from the burst main took about two months to reach the surface via the Vertical Burst Channel. Prior to this, the majority of the water was infiltrating the service trenches. That the water from the burst did not reach the surface until approximately 6 October 2024, was due to flow capacity for the service trench materials not being overwhelmed until that point.[145]

150 What happened to the water once it reached the surface was considered by Tim Rhodes, Technical Principal of SMEC.[146] He prepared a two-dimensional hydraulic model that simulated flows across the terrain between the burst location near Bayview Road and the nearby stormwater drains.[147]

151 Mr Rhodes explained that as the volume of water reaching the surface increased, it began to fan out over the surface of the ground, flowing downhill toward the stormwater drain located about 30 metres from the burst site.[148]

152 The extent of the surface water flow was estimated to be delineated by the extent of sandy materials deposited across the surface downslope of the burst site.[149]

153 The diagram below illustrates the observed sand flow (delineated by the red lines) fanning out from the burst location towards the stormwater drain, and inferred to have been transported there by the surface water flow.[150]



145 Exhibit CA-76, Flow Rate from Longitudinal Split in PVC pipe Report prepared by Dr Jakobus van Zyl and Dr Andrew Brown, 17 July 2025, [SEW.0001.0002.4191 at _0031].

146 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0338–_0352].

147 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0345].

148 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0345].

149 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0345].

150 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0061, _0345].

154 Mr Rhodes estimated the surface area inundated by the surface flow to be around 400 square metres.[151]

155 Once the water surfaced, it followed one of two pathways: a portion infiltrated (back) into the ground as it travelled downslope, while the residual made its way into the stormwater system via the stormwater drain.

156 Mr Rhodes provided the Board of Inquiry with evidence of the proportion of water that infiltrated the ground. He estimated that by applying an infiltration rate (based on the surface permeability) of 50 millimetres per hour, at peak flow of 1.4 million litres per day, approximately five litres per second would have been reabsorbed into the ground in that area.[152] Expressed as a daily rate, at peak flow, SMEC estimated that between 400,000 and 500,000 litres of water per day could infiltrate – that is effectively, be reabsorbed into – the ground between the burst water main and the stormwater pit.[153] During the concurrent expert evidence, Mr Bolton accepted that this volume of water would follow the path of least resistance underground, being either through sewer bedding materials or colluvial channels.[154]

157 It should be noted that neither SMEC nor Mr Rhodes performed any analysis of the progressive absorption rate as the burst rate increased towards the maximum volume.[155] Put another way, the absorption rate was only calculated in respect of "*the worst day*" of the burst, that being 31 December 2024.[156]

158 Notwithstanding that, the experts accepted that, as a general ratio, approximately one third of the surface water flow would be reabsorbed into the ground as it progressed towards the stormwater drains, with the balance entering the stormwater system.[157]

159 Accordingly, returning to the immediate facts, once water began reaching the surface (at a burst volume of around 11,000 to 28,800 litres per day), approximately one third of the total volume that reached the surface was reabsorbed into the ground, while the balance travelled to the stormwater drain and into the stormwater system under the Mornington Peninsula Freeway.

Conclusion regarding the flow paths

160 In summary then, the experts agreed that water from the burst water main could follow three pathways in its immediate vicinity:

a. first, along channels in the nearby service trenches (mains and sewer);

b. second, vertically to the surface once the flow rate exceeded the absorption capacity of the embedment material, with a portion of that surface water subsequently infiltrating (back) into the ground as it fanned out towards the stormwater drain; and

c. third, into the stormwater system via the drain, such water comprised of the residual surface water not reabsorbed into the ground.

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151 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0349].

152 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0062, _0349]; Public Hearing Transcript, David Hartley, 5 August 2025, 1237.

153 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0062].

154 Public Hearing Transcript, David Hartley, 5 August 2025, 1247.

155 Public Hearing Transcript, David Hartley, Hugo Bolton, 5 August 2025, 1240–1242.

156 Public Hearing Transcript, David Hartley, 5 August 2025, 1242.

157 Public Hearing Transcript, Darren Paul, Stephen Makin, Philip Hitchcock, 5 August 2025, 1244–1245.

161 Turning then to the next question: of the water that entered each of the flow paths, where did it go?

Potential flow paths between the Bayview Road burst site and January 2025 landslides site

162 In this section, being the second stage of the analysis, the Report examines the flow paths between the burst water main and the site of the January 2025 landslides. Each of the three potential flow paths – service trenches, colluvial channels, and the stormwater system – are explained in turn, and the evidence of water flowing through them is considered.

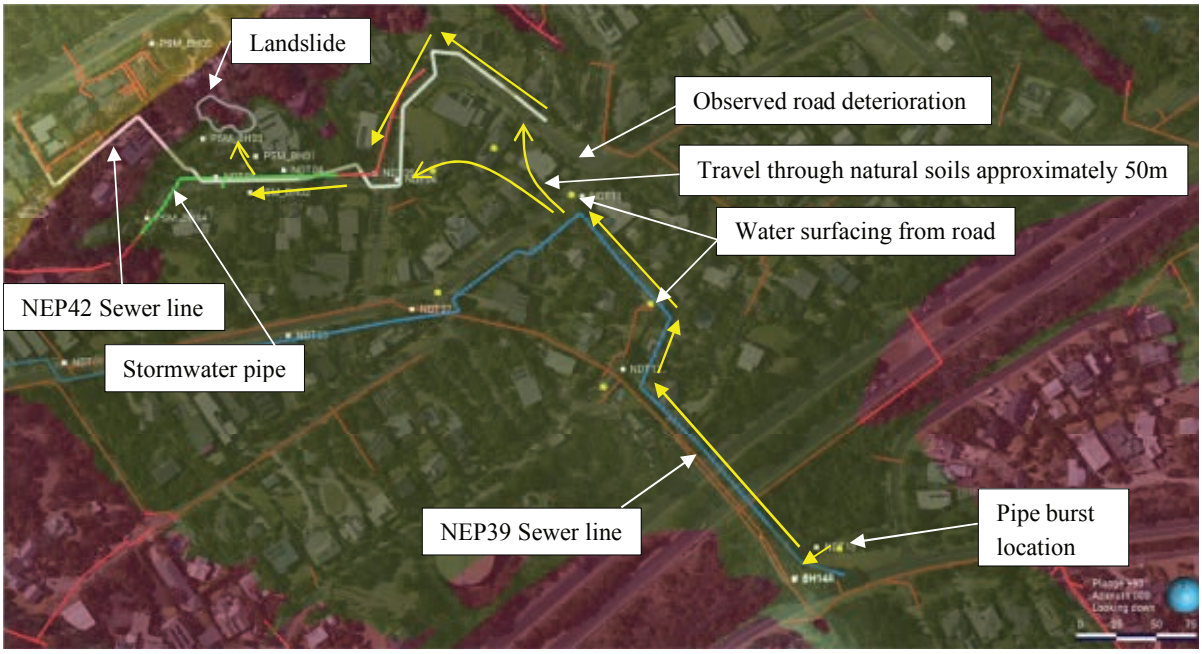
163 To aid the analysis, reference will be made to the graphical representations of the three flow paths from the burst water main to the site of the January 2025 landslides prepared by Mr Paul in his expert report.

The service trench flow path

164 Expressed in a single sentence, the service trench flow path describes the flow of water from the burst site towards the site of the January 2025 landslides through the trenches of the water main and sewer networks – that is, through the permeable materials that are used to backfill trenches in which the pipes have been laid.

165 The service trench flow path is depicted as follows by the yellow lines so far as it concerns the sewer trenches:

FIGURE 4.14: MR PAUL'S DEPICITION OF THE SERVICE TRENCH FLOW PATH.[158]

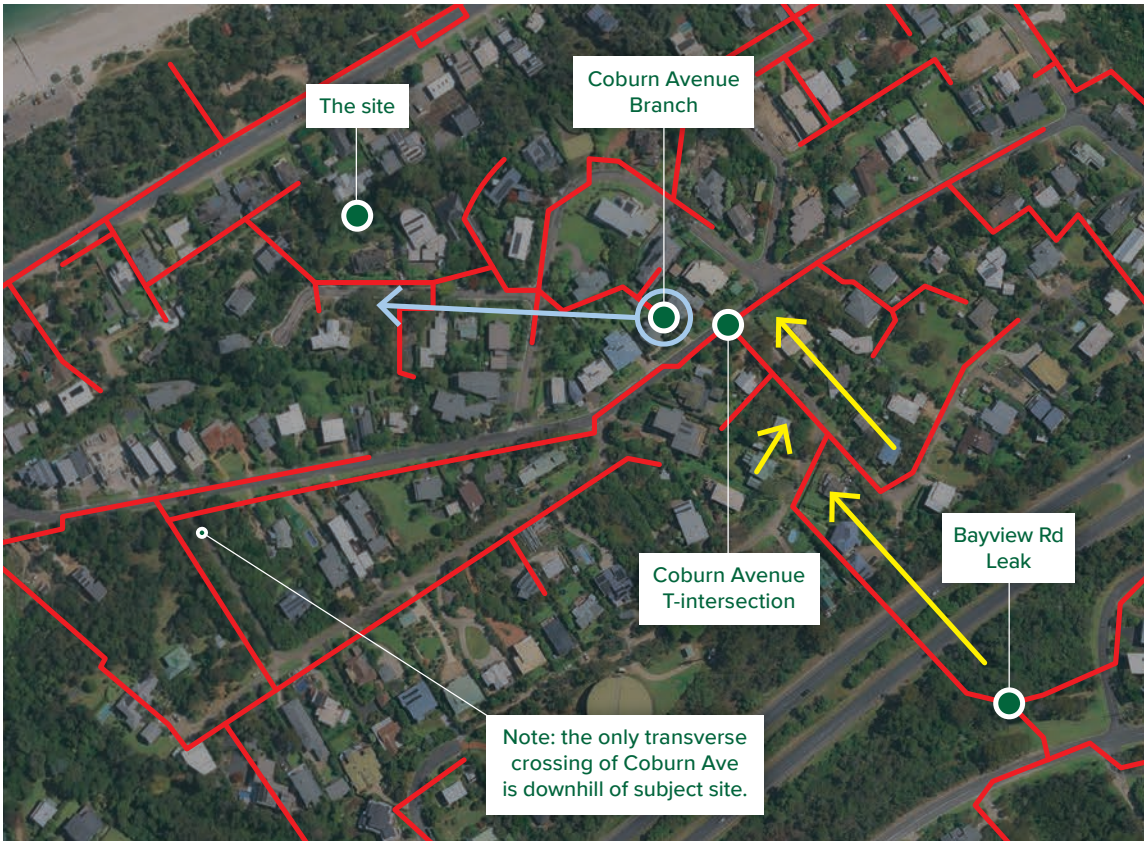


166 As can be seen from the above, the sewer service trench flow path follows the blue NEP39 sewer line downhill under the Mornington Peninsula Freeway, to Waller Place, to Charlesworth Street, then down to Coburn Avenue. The service trench flow path then follows the sewer *and* water infrastructure downhill to the site of the January 2025 landslides.

158 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0093].

167 A simplified version of the sewer service trench flow path is depicted below. As overlayed in yellow over the SEW sewer map, the flow path follows the sewer main that runs under the Mornington Peninsula Freeway from Bayview Road, turns right at Waller Place, then runs down Charlesworth Street, before turning down Coburn Avenue:

FIGURE 4.15: SEWER NETWORK (INCLUDING DEPICTION OF POTENTIAL FLOW PATH).[159]



168 As can be seen from the above, there is a constant run of sewer mains between the burst site and the corner of Charlesworth Street and Coburn Avenue (**Coburn Avenue T-Intersection**).

169 A new branch of another sewer (between 31 and 31A Coburn Avenue, circled in blue (**Coburn Avenue Branch**) picks up across Coburn Avenue and then runs from under the homes directly opposite the Coburn Avenue T-Intersection downhill to View Point Road (blue arrow). The distance between the Coburn Avenue Branch and the sewer main that runs down Coburn Avenue is approximately 10 metres.[160]

170 From the Coburn Avenue Branch, the sewer runs down to Prospect Hill Road, and then runs down View Point Road past numbers 6 and 10–12. Those properties are at the end of the blue arrow.

171 The sewer main alone does not, however, show a complete picture of the subterranean connectivity between the burst site and View Point Road. Also present is the mains water network. Relevantly, that network runs in line with the length of Coburn Avenue, Prospect Hill Road and View Point Road. This can be observed in the following diagram:

159 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0039].

160 Public Hearing Transcript, David Hartley, 5 August 2025, 1257–1258.

FIGURE 4.16: WATER MAINS NETWORK.[161]



172 All of that demonstrates that water mains run directly from the Coburn Avenue T-Intersection down to View Point Road.

173 There is only a relatively small distance of unconnected mains between the Coburn Avenue T-Intersection (where the sewer main diverts) and the Coburn Avenue Branch (which also runs down View Point Road).

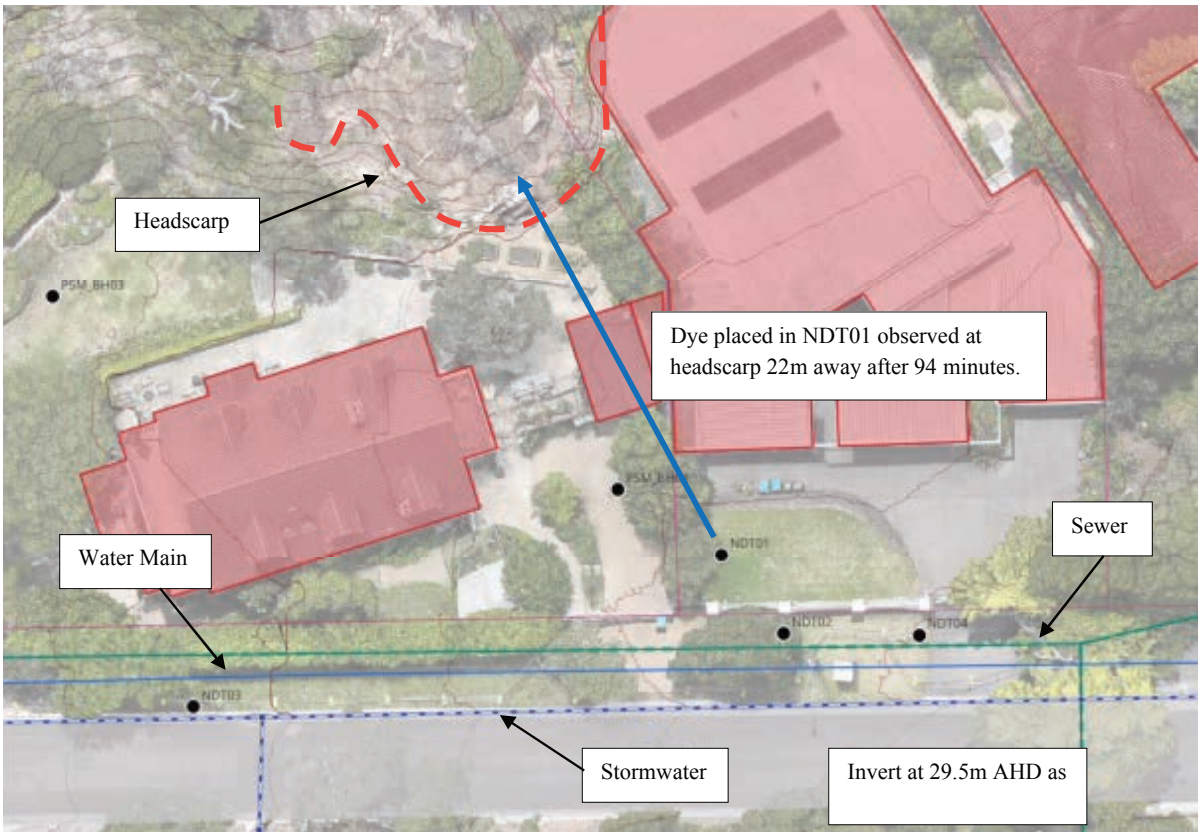
174 Put another way, mains or sewer infrastructure effectively runs the entire way from the burst site to View Point Road, with one gap across Coburn Avenue for sewer only.

Could water have travelled from the sewer and mains infrastructure on View Point Road to the landslide site?

175 Focussing then on the infrastructure on View Point Road, the following annotated map shows the water main, sewer and stormwater networks or systems in proximity to the top of the slope's east gully.

161 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0040].

FIGURE 4.17: WATER INFRASTRUCTURE IN THE VICINITY OF THE MCCRAE LANDSLIDE SITE.[162]



176 As can be seen from the annotations, all three run down the northern side of View Point Road, with the sewer and stormwater systems being under the nature strip. It is approximately 25 to 30 metres from the sewer and water mains on View Point Road to the headscarp. It follows that the water that managed to reach the Coburn Avenue Branch would have had a direct path through the sewer embedment materials to within 25 to 30 metres of the landslide site.

177 Bringing the above analysis of service trench connectivity together to analyse the extent of connectedness of the sewer and water mains running down View Point Road to the burst water main, it is apparent that:

a. the burst occurred in a water main, with the adjacent sewer main located within **1.5 metres** of the burst site;

b. from there, both systems run directly to the Coburn Avenue T-Intersection (sewer main on the south-side, and water main crossing to the north);

c. approximately **10 metres away**, the sewer main picks up again at the Coburn Avenue Branch which runs down to View Point Road, and the water mains run around Prospect Hill Road and Coburn Avenue down to View Point Road; and

d. there is approximately **25 to 30 metres** from the View Point Road service trenches to the headscarp.

178 In total, therefore, service trenches run for a significant proportion of the service trench flow path between the burst water main and 10–12 View Point Road.

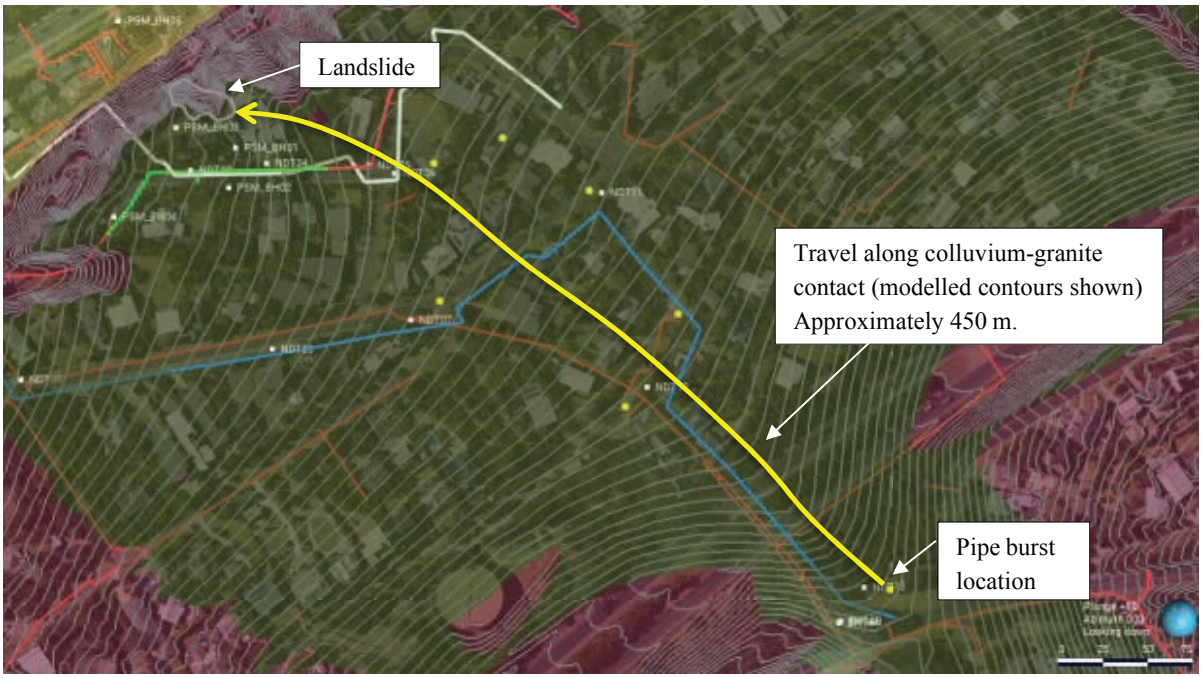
162 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _ 0060].

Colluvium flow path (shallow aquifer)

179 Turning then to the colluvium flow path, which describes the flow of water from the burst site towards the site of the January 2025 landslides through natural soils and the shallow aquifer.

180 Mr Paul depicted that path as follows:

FIGURE 4.18: MR PAUL'S DEPICTION OF THE COLLUVIUM FLOW PATH.[163]



181 As the regional cross section model extracted above shows,[164] the weathered granite is overlayed by a layer of colluvium. This is also visible in Figure 8.19 from Mr Paul's report reproduced earlier in this Chapter, as Figure 4.11, with the colluvium, which is coloured green and labelled, "Transported soils".

182 Mr Hartley explained the interaction of the colluvial layer with the shallow aquifer as follows:[165]

> Prior to the landslide, the preferred path for groundwater was at or above the interface between the shallow aquifer and clay/bedrock until it reached the crest of the escarpment, where it permeated into the soil material covering the slope (colluvium). This colluvium forms a thin layer of soil over the underlying granite bedrock over a large area in which groundwater can permeate and disperse over an area of ground.

183 The relative impermeability of the granite under the colluvium causes water that infiltrates from the surface to stop traveling vertically downward, and to instead start travelling downhill laterally along the boundary between the materials (in the "shallow aquifer").[166]

163 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0091].

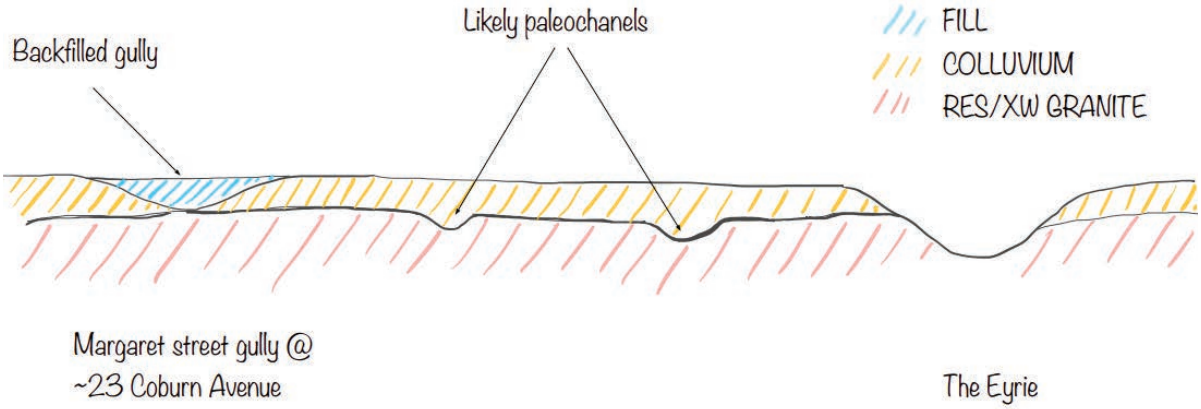
164 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0147].

165 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0012].

166 Exhibit CA-73, Expert Hydrogeological Report prepared by Australian Environmental Auditors, 21 July 2025, [MSC.5087.0001.0001 at .0013, .0034].

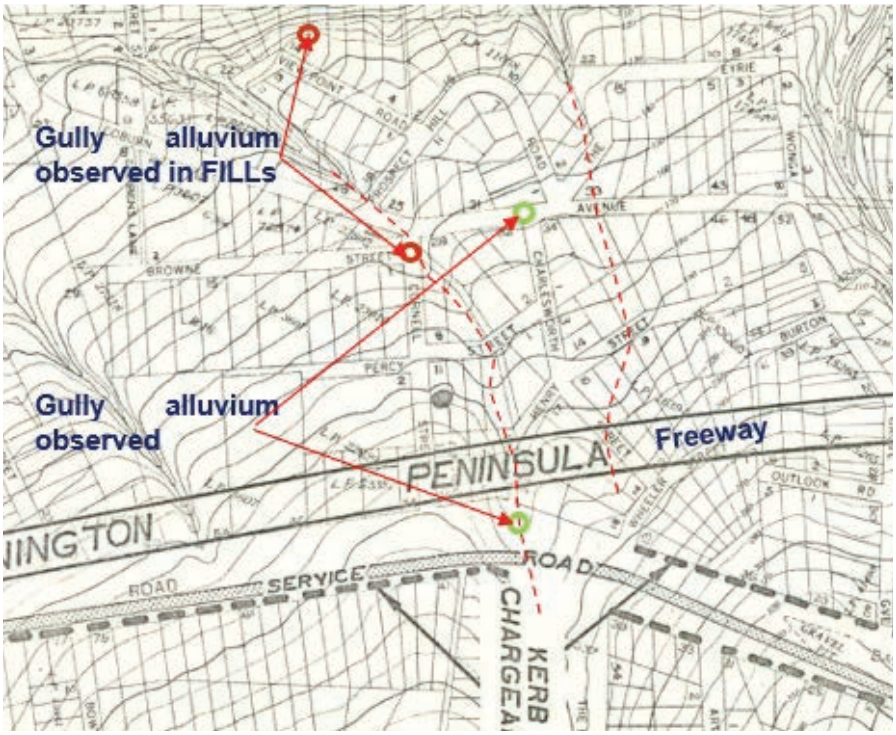
184 Within that colluvial layer, changes in topography create preferential pathways for water in the form of "paleochanels". These are areas which are relatively lower than the surrounding colluvium, as depicted by Mr Pope in the following section diagram, with the section running across the slope looking downhill:

FIGURE 4.19: CROSS SECTION OF THE GULLY AT MARGARET STREET.[167]



185 Mr Pope's interpretation of the natural channels that follow the topography from the Boulevard Reserve on Bayview Road down to the gully formerly running to the north of Coburn Avenue, are graphically represented at Inset 41 of his report (reproduced as Figure 4.20 below). The topographical lines on this figure show how there are natural low spots forming gullies. The left hand red dotted line is the Margaret Street Gully as labelled in Figure 4.19 above, and the right hand red dotted line is The Eyrie.

FIGURE 4.20: TOPOGRAPHICAL MAP OF THE MCCRAE AREA.[168]



167 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0205].

168 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0204].

186 There is significant evidence of colluvium and paleochannels at various locations between the headscarp and the burst site. Mr Pope explains that borehole log reports of the Dromana Sewer Tunnel indicate that *"Ligniteous Clays and Silts"* were buried by surficial soils at approximately 4.3 metres from surface level, which in his opinion is direct evidence of buried paleochannels.[169] More recent borehole testing has shown similar results.[170]

187 Photographs taken by Mr Pope identify the colluvium layer at the bottom of the eastern gully at 10–12 View Point Road.[171] That water flowed from the colluvium layer after the 5 January 2025 landslide evidences connectivity of that site to the shallow aquifer.[172]

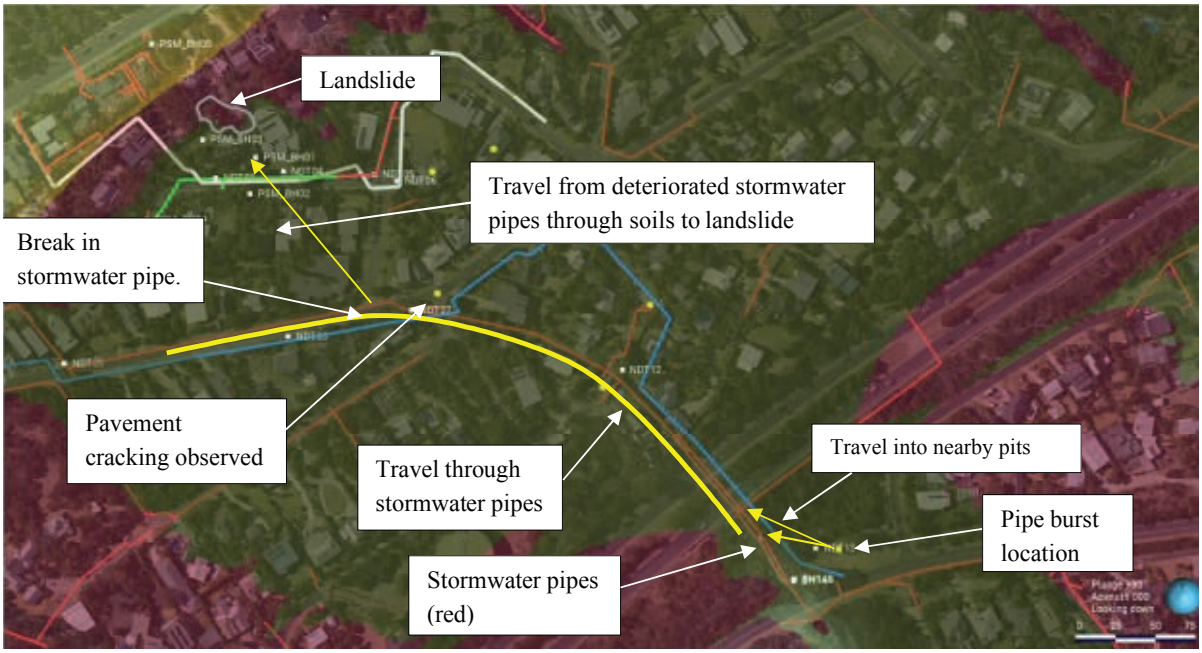
188 Mr Pope concludes, based on the evidence, that there are buried paleochannels within the colluvial layer, which vary in width between 10 and 20 metres, and which are approximately one metre in depth.[173] He estimates that it would take approximately 5.4 million litres of water to saturate those channels.[174]

Stormwater flow path

189 Turning to the last potential flow path – the stormwater flow path – which describes the flow of water from the burst site towards the site of the January 2025 landslides via the stormwater system and any breaches or defects within it.

190 Mr Paul depicted that path as follows:

FIGURE 4.21: MR PAUL'S DEPICTION OF THE STORMWATER FLOW PATH.[175]



169 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0203].
170 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0202].
171 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0442–.0443].
172 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025,[DPA.0004.0001.0001 at _0088].
173 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0225].
174 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0226].
175 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0092].

191 The yellow line running from the burst water main to the left of the image is the 600 millimetre concrete stormwater pipe along which the burst water would have flowed after fanning around from the Vertical Burst Channel and running downslope into the stormwater drain. As can be seen, that pipe runs down to Coburn Avenue near the corner of Prospect Hill Road, then follows Coburn Avenue down toward the beach.

192 Mr Paul hypothesised that water may have escaped through breaches or defects in the stormwater pipes, recharging the shallow aquifer and potentially reaching the landslide site.[176]

193 There is evidence of breaches in the 600 millimetre stormwater pipe.[177] Closed-circuit television cameras were fed through the stormwater pipe to inspect the condition of the pipe.[178] Various defects were identified, ranging from holes to displaced joints through which soil and voids were visible.

194 Mr Pope provided an annotated map showing the locations of these defects indicated by numbers one through to seven, a portion of which is extracted and annotated with arrows and comments below:

FIGURE 4.22: ANNOTATED MAP DEPICTING THE LOCATIONS OF VARIOUS STORMWATER DEFECTS.[179]



176 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0088].

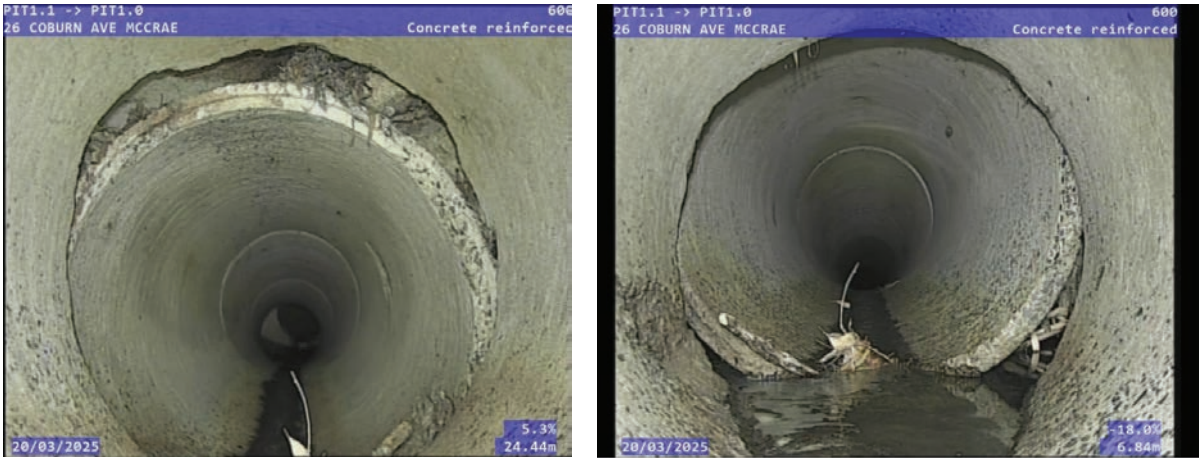
177 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0418–.0422].

178 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0191].

179 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0247].

195 The stormwater defects identified by Mr Pope are depicted by the numerals. Extracted below are the images of defect numbers 1 and 4 referred to at Figure 4.22, showing the extent of damage to the stormwater pipe located at Browne Street:

FIGURE 4.23: BREACHES IN THE STORMWATER PIPE LOCATED AT BROWNE STREET.[180]



196 The extent of the damage is significant. Plainly, water could, and did, exit the stormwater system through those cracks and holes in the stormwater pipe. Mr Pope estimated that the total leakage volume from the damage at the intersection of Browne Street and Coburn Avenue was in the order of 75 to 1,200 litres per day.[181] In oral evidence, Mr Pope explained that he had not conducted a complete analysis of the entire stormwater channel, rather his focus was on two of the defects at the Browne Street corner.[182] It follows that Mr Pope's estimate is conservative and at least reasonably likely to underestimate the total water loss through the stormwater defects.

Where did water from the burst main, captured by the defective stormwater pipe, go?

197 The experts were unable to give a definitive answer to that question. As can be seen from the annotations on the map of stormwater defects above in Figure 4.22, the majority of the defects are close to the location of the 23 Coburn Avenue burst considered in respect of the November 2022 landslides. As previously noted, Mr Paul was unable to give an opinion about the relative contribution of the 23 Coburn Avenue burst to the November 2022 landslides.[183] Similarly, although the joint expert conclave report regarded the stormwater flow path to be plausible, none of Mr Paul, Mr Pope or Mr Hitchcock were able to give an opinion about whether water from the breaches in stormwater did in fact contribute to the water that triggered the January 2025 landslides.[184]

Did water flow through the service trench flow path, the colluvium flow path or the stormwater flow path to the site of the January 2025 landslides?

198 Having described the three flow paths, it is now time to examine the evidence about the extent to which water travelled along those paths.

180 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0418–.0419].

181 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0223].

182 Public Hearing Transcript, Dane Pope, 5 August 2025, 1266–1267.

183 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0010].

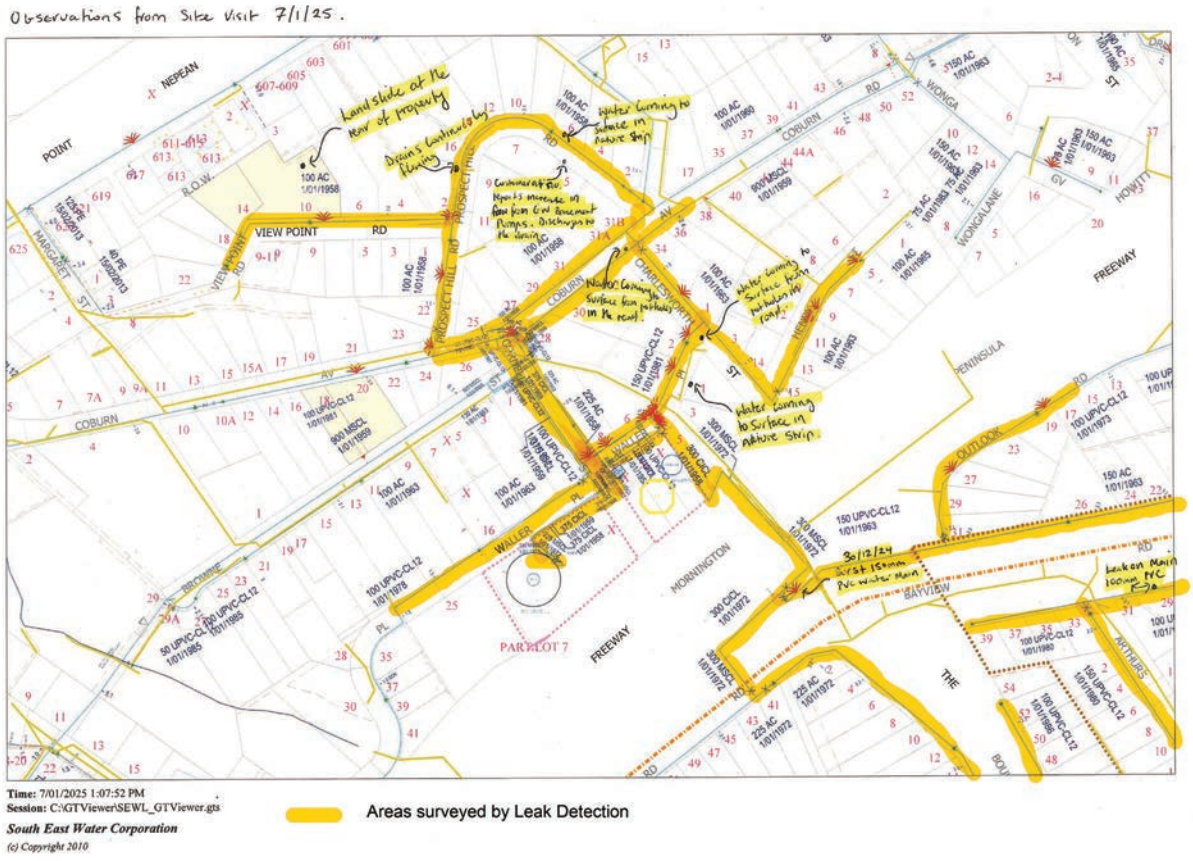
184 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0013–_0014].

199 There is substantial contemporaneous evidence of significant quantities of water having flowed along the three flow paths.

200 The extensive evidence received by the Board of Inquiry of complaints from residents about excess water down Waller Place, Charlesworth Street, Coburn Avenue, Prospect Hill Road and View Point Road has already been set out in Part 3.5 of Chapter 3. Contemporaneous photographs and other documents put beyond doubt that excess water was present in an identifiable portion of the area between the burst water main and View Point Road, causing damage to roads and saturation of nature strips – particularly at the Coburn Avenue T-Intersection where the water would have crossed to the Coburn Avenue Branch.

201 Both the timing and location of these observations is also important. Mr Pope provided an annotated map at Figure 5 of his report showing observations made by PSM staff from site-walks on various dates between 6 January and 16 June 2025.[185] Similarly, a SEW staff member, who conducted a site visit on 7 January 2025, prepared a hand-annotated map of his observations, which also track the service trench flow path. The map is shown below.

FIGURE 4.24: ANNOTATED MAP DEPICTING AREAS SURVEYED BY LEAK DETECTION.[186]

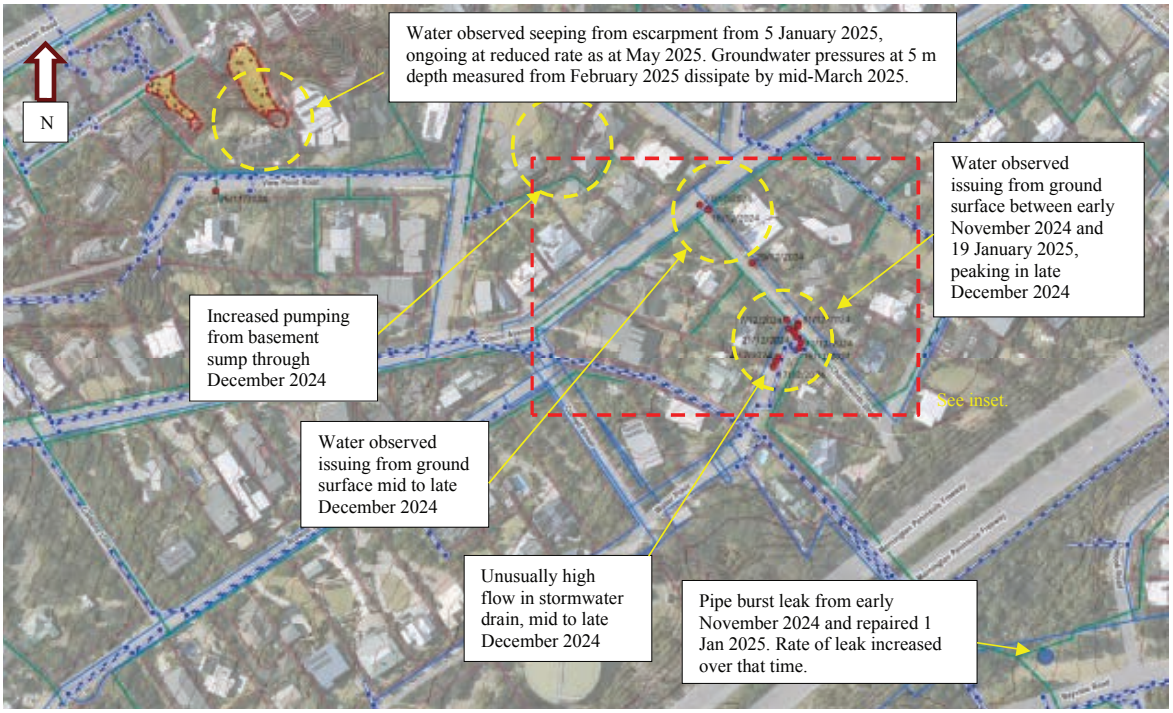


185 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0246]. SMEC personnel also attended at various times from March 2025, though did not prepare a similar map. For their observations, see Exhibit CA-27, Multidisciplinary Expert Report on McCrae Landslip Project prepared by SMEC, 5 May 2025, [SEW.0001.0001.0142 at _0025].

186 Exhibit CA-36, Schematic of the water network in the McCrae area annotated by Charles Swain, 14 January 2025, [SEW.0001.0001.0027].

202 Mr Paul set out a chronology of the instances of excessive water in his report.[187] He then showed how the water progressed downslope over time in the following Figure:

FIGURE 4.25: MR PAUL'S CHRONOLOGY OF SURFACE WATER OBSERVATIONS.[188]



203 Drawing from Mr Paul's observations recorded in the Figure above, the following timeline becomes apparent:

a. The first observation depicted in Figure 4.25 at the corner of Waller Place and Coburn Avenue was made at the top of the hill in around November 2024 (around the time the flow rate markedly increased).

b. Water in the stormwater pipe running through Waller Place was observed flowing at an unusually high rate a few weeks later, from mid to late December 2024 (around the time the flow rate had increased further).

c. The ground started upswelling at the Coburn Avenue T-Intersection at a similar time, also in mid-December 2024.

d. By late December 2024, the water observed rising from the ground on the corner of Coburn Avenue and Waller Place peaked, when the flow rate from the burst water main was also peaking.

e. On 5 January 2025, after the landslide, and also after the burst water main had been repaired, water was seen seeping from the escarpment in significant volumes.

f. By 19 January 2025, water ceased surfacing at Waller Place and Coburn Avenue, however, down the hill, groundwater monitoring still showed groundwater which in turn dissipated by mid-March 2025.[189]

187 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0084–_0086].

188 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0087].

189 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0072].

204 Bringing the foregoing together, the observations of water surfacing downhill from the burst site chronologically match the progression of water from the burst water main, escalating in mid-October 2024, and then progressively receding after the burst water main was fixed on 1 January 2025.[190]

205 Focusing on the landslide site itself, as has already been noted, on 6 January 2025, Mr Pope measured the flow rate from the escarpment as between 13,000 and 17,000 litres per day.[191] Aside from domestic irrigation (which is considered below), there was no alternative explanation for the volume of water other than the burst water main.

206 In any event, there is other evidence of hydraulic conductivity from the area around View Point Road to the escarpment. Figure 4.17 referred to earlier shows the results of a dye test conducted on 12 February 2025.[192] Dye was placed by Mr Pope into a borehole labelled NDT01, located within the private sewer trench at 6 View Point Road.[193] After 94 minutes, the dye appeared in the headscarp, demonstrating at least one connective path between the services infrastructure and the observed seepage in the colluvium at the headscarp.

Conclusion: water from the Bayview Road burst made it to the slope

207 In summary, it is the opinion of both Mr Paul and Mr Pope that water from the burst water main did travel to the steep slope on which the 5 January 2025 landslide, and subsequently the McCrae Landslide, occurred.

208 The above analysis demonstrates that:

a. in excess of 40 million litres of water escaped from the burst water main;

b. there were three flow paths for the escaped water;

c. one of those paths (services trenches) covers a significant proportion of the distance from the burst to the escarpment; and

d. water likely travelled along each of the three flow paths.

209 It is the expert opinion of both Mr Paul and Mr Pope that those flow paths support a plausible hypothesis that water originating from the burst water main can account for the observations of water surfacing in McCrae throughout November and December 2024, and the water flowing from the headscarp at the site of the January 2025 landslides.

210 SEW's experts, Mr Hartley and Mr Bolton, disagreed. Though they agreed that water from SEW's burst water main reached as far as 7 Prospect Hill Road,[194] they did not consider it likely that water from the burst main contributed to the January 2025 landslides. They relied on four matters to support their view about the causal contribution of the burst water main to the landslides as insignificant to minor:

a. first, most of the water would have flowed into the stormwater system;

b. second, the velocities at which water would have travelled along the flow paths to the headscarp meant the water would not have reached the headscarp even by 5 January 2025;

190 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0087].

191 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0207].

192 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0196].

193 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0196].

194 Public Hearing Transcript, David Hartley, 5 August 2025, 1257.

c. third, chemical testing of water from the headscarp indicated that it was not mains water; and

d. fourth, given the small volume of water estimated to be required to cause the 5 January 2025 landslide, there are other plausible sources of water.[195]

211 Each of those matters is now considered. As the only alternative source of water identified by Mr Hartley and Mr Bolton was domestic irrigation, it is convenient to defer consideration of that final matter until domestic irrigation is considered more generally.

The basis for SEW's position that the burst water main did not cause the McCrae Landslide

Stormwater system

212 As has already been identified, there were breaches in the Shire's stormwater system through which water would inevitably have exited. The full extent of those breaches would only become apparent if a full video inspection was conducted of all relevant stormwater pipes. But it is beyond doubt that even on the more limited inspection undertaken, there were sizable ruptures in the pipes.

213 While the exact volume of water that discharged through those breaches is unknown, it is probable that such outflows contributed to recharging the shallow aquifer.

214 Whether water travelled through the shallow aquifer to the headscarp at 10–12 View Point Road is a different question. The Board of Inquiry has already considered the potential contribution of the 23 Coburn Avenue burst to the November 2022 landslides. The limitations identified there apply equally here and limit the confidence with which any conclusion about the contribution of stormwater leakages to the January 2025 landslides can be drawn.

215 It is certainly possible that water from the burst that exited through breaches in the stormwater system recharged the shallow aquifer, reaching the headscarp. The Board of Inquiry does not accept Mr Hartley's and Mr Bolton's view that the fact that most of the water discharging from the burst main travelled through the stormwater systems establishes that none of that water entered the headscarp.

Velocity

216 Mr Hartley and Mr Bolton also relied on water velocity as invalidating the hypothesis that water from the burst water main contributed to the January 2025 landslides. Mr Hartley and Mr Bolton's opinion was that it would take 230 days for water travelling through the colluvium to reach the headscarp.[196] That being so, as the burst began in August 2024, around 157 days prior to 5 January 2025, they did not consider that water from the burst could have reached the headscarp.[197] This 230-day figure was explained to be based on a rough, but conservative, estimated average transmission speed of two metres per day.[198]

217 Mr Hartley and Mr Bolton's estimate rested on a large assumption: that water travelled exclusively through the colluvium,[199] which stands or falls depending on its reasonableness.

195 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0011–_0012].

196 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0063].

197 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0063].

198 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0062]. No workings were initially provided for this figure, though ultimately it is not consequential.

199 Public Hearing Transcript, David Hartley, 5 August 2025, 1258; Exhibit CA-68, Multidisciplinary Expert Supplementary Report prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0010].

218 Mr Makin was the first expert to expose a flaw in the assumption. He used the same underlying equation as Mr Hartley and Mr Bolton,[200] but provided alternative assumptions about the soil composition. His analysis demonstrated that, if the material consisted entirely of sand, the estimated travel time from Bayview Road to the headscarp would be 1465 days, whereas if the path was entirely consisted of gravel, the travel time would reduce to only 12 days.[201] This analysis highlights how sensitive the velocity calculation is to assumptions about the soil composition.

219 Next, Mr Hitchcock emphasised the inherent variability of assumptions about soil composition in his explanation during the public hearings.[202] In his view, the 230-day figure was in "*the same ballpark*" as 150 days.[203] That is, the inherent variability of soil types and the effect on velocity meant that any estimate was unlikely to be sufficiently precise to rule the burst water main in, or out, as a water source.

220 Even assuming the accuracy of Mr Hartley and Mr Bolton's assessment of the velocity of two metres per day through the colluvium, if the total non-trench flow travel distance from the burst water main to the landslide site is only about 40 metres, that part of the water's journey to the headscarp would take about 20 days. This was in substance accepted by Mr Hartley in examination, where he stated:[204]

> If you're going through natural material – if you're going through natural material, based on [Mr Bolton's] site works and computations, no. If you're going through … an entire manmade trenched pathway you're going to get there earlier. And if you're going through … the preferred line of going through the trenches, getting to Coburn Avenue, sitting there because the velocity goes to zip and going through the natural material underneath the houses, including number 5 Prospect Hill, getting into the agi-drains or the sewer trench situation of 7 Prospect Hill Road, and then going down there, you're looking in the region of about 30 days. And so, yes, it could get there on the 5th, but if it's going to get there on the 5th it's going to get there beforehand.

221 Relatedly, Mr Hartley accepted in oral evidence that the flow time from the sewer T-junction at the corner of Coburn Avenue and Charlesworth Street and the sewer between 31 and 31A Coburn Avenue (as explained earlier) would take approximately five days.[205]

222 The fundamental flaw in SEW relying on the 230-day estimate to try to invalidate the hypothesis that water from the burst water main contributed to the January 2025 landslides is that it assumes water travelled exclusively through the shallow aquifer.[206] If that assumption is falsified, that is, if water could have reached the headscarp through the shallow aquifer *and* the service trenches, then the estimate is unreliable.

223 No expert considered a travel path of colluvium alone to be realistic. Mr Pope referred to the "*blatant disconnect*" between the 230-day estimate and the surface water observations in the community.[207] The Board of Inquiry agrees with that obvious disconnect.

200 Public Hearing Transcript, David Hartley and Stephen Makin, 5 August 2025, 1253.

201 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0095].

202 Public Hearing Transcript, Phillip Hitchcock, 5 August 2025, 1254–1255.

203 Public Hearing Transcript, Phillip Hitchcock, 5 August 2025, 1254–1255.

204 Public Hearing Transcript, David Hartley, 5 August 2025, 1288.

205 Public Hearing Transcript, David Hartley, 5 August 2025, 1258.

206 Public Hearing Transcript, David Hartley, 5 August 2025, 1251–1253.

207 Public Hearing Transcript, David Hartley, 5 August 2025, 1258–1259.

224 SEW subsequently provided further information about velocity modelling. That material does not alter the above conclusions. All of the experts accept that water from the burst main made it to at least Prospect Hill Road, as reflected in saturated nature strips and water bubbling up through the roads.[208] From there it had tens of metres more before it hit further sewer trenches taking it to the headscarp. Even with very low velocity, the water could have made it in time to trigger the 5 January 2025 landslide.

225 The Board of Inquiry accepts the opinions of Mr Paul, Mr Makin, Mr Pope and Mr Hitchcock on this issue. SEW's velocity argument is untenable – it artificially assumes that water would flow through one flow path to the exclusion of the others. Even if the Board of Inquiry were to assume, for the sake of analysis, that water travelled exclusively through colluvium, it still does not follow that the journey from the burst site to the headscarp would have taken 230 days. The colluvium consists of a heterogeneous mix of soils, which, in turn, introduces variability in flow velocity. Because the precise composition of the colluvium flow path is unknown, any estimate of velocity is inherently imprecise. Accordingly, the 230-day figure, even on Mr Hartley and Mr Bolton's theory, is neither fixed nor reliable.

Water chemistry

226 Next, SEW's experts, Mr Hartley and Mr Bolton, relied on the chemical analysis of water samples taken both before and after the January 2025 landslides to support their view that water from the burst water main had not triggered the landslides.

227 Water samples were taken from various locations, including the landslide site itself, upwelling within potholes on Charlesworth Street and surrounds, from stormwater drains, and from groundwater in boreholes. Annexure E to the SMEC report shows testing locations for the majority of those tests.[209]

228 Of those samples, only two were taken of the water seeping from the escarpment in the days after the January 2025 landslides (**Seepage Samples**). The main questions in dispute between the hydrochemist and hydrogeologists were:

a. whether the electrical conductivity and chloride of the Seepage Samples could have been achieved by a mixing of mains and groundwater; and

b. whether the tested electrical conductivity and chloride levels was a consequence of the water's path of travel through the geological structures between the burst water main and the headscarp.[210]

229 In Mr Hartley and Mr Bolton's view, the answers to those two questions are "no". They opined that the electrical conductivity (or salinity) of the Seepage Samples taken between 6 January and late January 2025 were too high to be mains water.[211] Moreover, they opined that the chemistry

208 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0272].

209 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025 [SEW.0001.0002.4187 at _0252–_0254].

210 Exhibit CA-75, Joint report about geochemistry prepared by expert conclave, 1 August 2025 ,[INQ.0010.0001.0001]; Submission of Mornington Peninsula Shire Council about the causes of the McCrae Landslide, 13 August 2025, [MSC.5095.0001.0001 at .0007]; Submission of South East Water about the causes of the McCrae Landslide, 8 August 2025, [SEW.0001.0002.4201 at _0007–_0008]; Reply Submission of South East Water about the causes of the McCrae Landslide, 8 August 2025, [SEW.0001.0002.4202 at _0007–_0008].

211 Exhibit CA-27, Multidisciplinary Expert Report on McCrae Landslip Project prepared by SMEC, 5 May 2025, [SEW.0001.0001.0142 at _0075]; Public Hearing Transcript, Hugo Bolton and Chris Jewell, 5 August 2025, 1332–1333.

of the Seepage Samples did not indicate a dilution of mains water with groundwater from the shallow aquifer.[212] It followed, in their view, that the water in the Seepage Samples had not originated from the burst water main.

230 While Mr Hartley and Mr Bolton accepted that a portion of water from the burst site migrated toward 7 Prospect Hill Road via Waller Place, Charlesworth Street, and the intersection of Charlesworth Street and Coburn Avenue,[213] they concluded that the water did not progress toward the escarpment on which the January 2025 landslides occurred.

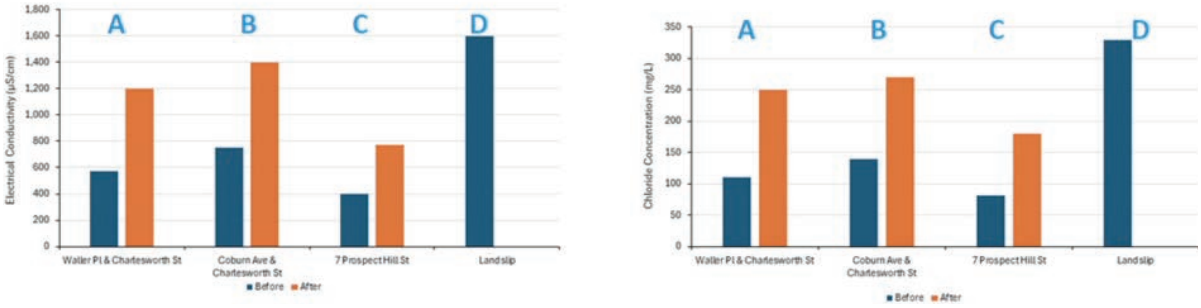
231 The reasoning underpinning that conclusion requires some explanation. It turned on an analysis of the chemical properties of water tested both before and after the burst water main was repaired from two potholes: the Waller Place/Charlesworth Street pothole and the Coburn Avenue/Charlesworth Street pothole. The short point is that both the salinity and chloride levels of water in those potholes jumped up after the burst water main was repaired.

232 What was the significance of this jump? Mr Bolton thought it spoke to the extent to which the water travelled.

233 Mr Bolton's theory was that water from the burst entered the permeable embedment material and then travelled to the Waller Place/Charlesworth Street pothole site (Column A in the graphs below). Testing in December 2024 and early January 2025 showed that water in that pothole initially had a lower electrical conductivity level, which is more consistent with mains water.[214] Then, after the burst main was repaired, "*the [electrical conductivity] level jumps back up again*", which, on Mr Bolton's theory, indicated that the mains water had stopped reaching that location and diluting the groundwater.[215] Mr Bolton gave similar evidence in relation to the Coburn Avenue/Charlesworth Street pothole (Column B in the graphs below).[216]

234 The water testing results for electrical conductivity and chloride levels for those potholes, as well as water collected at 7 Prospect Hill Road and the landslide site, are depicted in the graphs below:

FIGURE 4.26: GRAPHS DEPICTING THE ELECTRICAL CONDUCTIVITY AND CHLORIDE CONCENTRATION IN WATER SAMPLES.[217]



212 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025 [SEW.0001.0002.4187 at _0272].

213 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0272].

214 Public Hearing Transcript, Dr Hong Vu and Hugo Bolton, 5 August 2025, 1323; Exhibit CA-27, Multidisciplinary Expert Report on McCrae Landslip Project prepared by SMEC, 5 May 2025, [SEW.0001.0001.0142 at _0075].

215 Public Hearing Transcript, Dr Hong Vu and Hugo Bolton, 5 August 2025, 1323–1324; Exhibit CA-27, Multidisciplinary Expert Report on McCrae Landslip Project prepared by SMEC, 5 May 2025, [SEW.0001.0001.0142 at _0075].

216 Public Hearing Transcript, Dr Hong Vu and Hugo Bolton, 5 August 2025, 1329–1331.

217 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0272].

235 The Board of Inquiry does not accept Mr Bolton's theory. It draws unsteady distinctions. It considers only a limited selection of water samples. On closer examination, it does not withstand scrutiny.

236 First, Mr Bolton's theory attributes entirely opposite interpretations to similar electrical conductivity and chloride levels. On the one hand, his theory accepts that the water sampled on 16 January 2025 from the Waller Place/Charlesworth Street pothole – which had an electrical conductivity of 1200 MicroSiemens per centimetre and chloride concentration of 250 milligrams per litre – was connected to the burst water main. On the other hand, his theory *rejects* that the Seepage Sample taken on 6 January 2025 – which had an electrical conductivity of 1,600 MicroSiemens per centimetre and chloride concentration of 330 milligrams per litre – was connected to the burst water main.[218] During examination, the tension between these interpretations was exposed. Mr Bolton accepted that the electrical conductivity and chloride figures were "*similar*" for those water samples.[219] He conceded that based on those similar readings, it was open to conclude that the water seeping from the escarpment was also connected to the burst water main.[220]

237 Second, Mr Bolton's theory does not apply consistently across all the water samples taken. For example, water sampled on 22 January 2025 from the Coburn Avenue/Waller Place pothole had an electrical conductivity of 1000 MicroSiemens per centimetre, when, on the same day, water sampled *uphill* of that location at the "*verge opposite 5 Waller Place*" had an electrical conductivity of 600 MicroSiemens per centimetre.[221] If Mr Bolton's theory was correct, the electrical conductivity should have been higher uphill as that area had returned to groundwater levels of electrical conductivity and chloride following the repair of the water main. Mr Bolton could not explain this inconsistency – he accepted the results did not sit well with his theory.[222]

238 It follows that even on his own evidence, Mr Bolton's theory does not fit all of the data. Without a robust justification for the inclusion and exclusion of the other samples, the theory is also incomplete. It does not invalidate the hypothesis that water from the burst water main reached the headscarp.

239 Third, there are plausible alternative explanations, beyond Mr Bolton's theory, for the elevated levels of electrical conductivity and chloride in the water samples taken after the repair of the burst water main. An expert engaged by the Board of Inquiry, Dr Vu, explained that the higher electrical conductivity readings in those later samples could be a product of either the water spending a longer time travelling, and therefore dissolving more salts, or the water travelling through a different, less permeable, pathway on which it picked up more ions.[223]

240 In view of the above, Mr Bolton's theory does not preclude the possibility of water from the burst reaching the escarpment. Having rejected his theory, it is now necessary to consider the views of the other experts in relation to the Seepage Samples taken from the escarpment.

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218 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0272].

219 Public Hearing Transcript, Hugo Bolton, 5 August 2025, 1340.

220 Public Hearing Transcript, Hugo Bolton, 5 August 2025, 1340–1341.

221 Exhibit CA-27, Multidisciplinary Expert Report on McCrae Landslip Project prepared by SMEC, 5 May 2025, [SEW.0001.0001.0142 at _0075]; Public Hearing Transcript, Hugo Bolton, 5 August 2025, 1332–1333.

222 Public Hearing Transcript, Hugo Bolton and Chris Jewell, 5 August 2025, 1333.

223 Public Hearing Transcript, Hugo Bolton and Dr Hong Vu, 5 August 2025, 1324.

241 Mr Hitchcock and Dr Vu considered that the Seepage Samples were potentially a combination of mains water and groundwater, and that there was a plausible flow path from the burst water main to the headscarp (i.e., that the chemical composition of the Seepage Samples did not rule out that they were partly derived from mains water).[224]

242 Similarly, an expert engaged by SEW, Mr Jewell, concluded with a high degree of confidence that the water emanating from the headscarp after the 5 January 2025 landslide was comprised of a mixture of mains water and groundwater.[225]

243 Under cross-examination, Mr Hartley accepted that his conclusion that the burst water main was not the source of water in the slope hinged on questions of velocity and water chemistry.[226] As to velocity, the conclusion, as already explained, is founded on unrealistic assumptions. As to water chemistry, Mr Hartley appeared to concede that the likelihood that water from the burst was not present in the slope was "*low*".[227]

244 After the experts gave concurrent evidence at the hearings, SEW produced an expert report prepared by Mr Jewell dated 8 August 2025.[228] Mr Jewell opined that it is "*unlikely*" that the water flow at the escarpment originated from the burst water main having regard to, among other things, the geochemical nature of the water.[229] That is, while he accepts that mains water was seeping out of the headscarp, he does not accept the origin of that water to be the burst. Mr Hitchcock, Mr Pope and Mr Paul confirmed that Mr Jewell's report did not cause them to change their opinions.[230]

245 The Board of Inquiry does not accept that Mr Jewell's revised analysis disproves that the Seepage Samples were derived substantially from water from the burst. His analysis is defective.

246 Notably, in assessing the geochemical nature of the water, Mr Jewell used a chloride concentration for deep groundwater (480 milligrams per litre),[231] which is not representative of the interface groundwater but that of deeper aquifer groundwater.[232] This assumption is critical, as the imputed groundwater/mains water ratio depends directly on the assumed chloride level in groundwater. In this regard, the Shire stated:

> Both Mr Hitchcock and Mr Paul opined that a more appropriate chloride concentration of groundwater for the water balance analysis is between 100 mg/L and 170 mg/L as observed in SMEC BH03 and BH04, being representative of interface groundwater. If this concentration is adopted (even assuming other aspects of Mr Jewell's approach are sound), it has a material impact, [on the analysis]).[233]

224 Public Hearing Transcript, Philip Hitchcock, 5 August 2025, 1318.

225 Public Hearing Transcript, Christopher Jewell, 5 August 2025, 1333–1334.

226 Public Hearing Transcript, David Hartley, 5 August 2025, 1349–1350.

227 Public Hearing Transcript, David Hartley, 5 August 2025, 1350.

228 Exhibit CA-84, McCrae Landslide Geochemistry Report prepared by C.M. Jewell & Associates, 8 August 2025, [SEW.0001.0002.4199].

229 Exhibit CA-84, McCrae Landslide Geochemistry Report prepared by C.M. Jewell & Associates, 8 August 2025, [SEW.0001.0002.4199 at _0006].

230 Exhibit CA-85, Expert Hydrogeological Report Addendum on McCrae Landslide prepared by Australian Environmental Auditors,11 August 2025, [MSC.5088.0001.0001 at .0006]; Exhibit CA-89, Response to SMEC Submissions prepared by PSM, 13 August 2025, [MSC.5090.0001.0001 at .0006]; Exhibit CA-88, Assessment of additional information provided by South East Water between 21 July 2025 and 8 August 2025 prepared by WSP, 13 August 2025, [DPA.0006.0001.0001 at _0006].

231 Exhibit CA-85, Expert Hydrogeological Report Addendum on McCrae Landslide prepared by Australian Environmental Auditors, 11 August 2025, [MSC.5088.0001.0001 at .0004]; Exhibit CA-88, Assessment of additional information provided by South East Water between 21 July 2025 and 8 August 2025 prepared by WSP, 13 August 2025, [DPA.0006.0001.0001 at _0005].

232 Exhibit CA-85, Expert Hydrogeological Report Addendum on McCrae Landslide prepared by Australian Environmental Auditors, 11 August 2025, [MSC.5088.0001.0001 at .0004].

233 Submission of Mornington Peninsula Shire Council about the causes of the McCrae Landslide, 13 August 2025, [MSC.5095.0001.0001 at .0009].

Domestic irrigation as a source

247 The first three bases relied on by Mr Hartley to found his opinion that the burst water main did not contribute to the January 2025 landslides have now been considered and dismissed as not invalidating that causal hypothesis. The final matter pointed to by Mr Hartley and Mr Bolton in support of their contention that the burst main was not the source was an alternative hypothesis that domestic irrigation was the or a source.

248 This thesis hinged largely on a hypothesis that only 2,000 litres of water was required to enter the headscarp in order for a landslide to occur. That is, the volume of water required to trigger the 5 January 2025 landslide was so small that other sources of water could be plausible triggers.[234] The only alternative source of water identified by Mr Hartley was domestic irrigation, and it was asserted that this was a possible source of the seepage flow visible after the 5 January 2025 landslide.[235]

249 This theory depends upon two matters:

a. whether the volume of water required to trigger the 5 January 2025 landslide is indeed only 2,000 litres; and

b. whether it is plausible that domestic irrigation could explain a substantial part of the seepage seen after the 5 January 2025 landslide.

250 Both matters can be dealt with in short order.

251 The suggestion that only 2,000 litres of water was required to cause the 5 January 2025 landslide is untenable. The following matters are referred to:

a. The video taken of the moment the McCrae Landslide occurred shows the soil pouring downhill as a liquid.[236] Approximately 300 cubic metres was evacuated in this debris flow. Evidently a great amount more than 2,000 litres was contained in that soil.[237] It is unexplained how such an amount of water could have built up to cause the McCrae Landslide debris flow while only 2,000 litres was apparently required to trigger the 5 January 2025 landslide only nine days prior.

b. The area which suffered the landslides in 2025 did not fail during the significant 80 millimeter rain event in November 2022. If so little water could trigger the January 2025 landslides as is now asserted by SEW, the fact that the area did not fail after the historic rainfall in 2022 would need to be explained. No convincing explanation was given. As Mr Pope said, the 2,000 litre theory is not calibrated against historic slope performance.[238] Mr Hartley accepted (1) that he had not undertaken analysis to compare how the slope could have withstood the rain in 2022 despite his estimated 2,000 litre trigger volume;[239] and (2) that he did not take the 2022 rain event into account to test his model.[240]

234 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0012].

235 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187 at _0063–_0064]; Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001 at _0012–_0014].

236 Exhibit CA-24, Video recording of soil falling down escarpment and 3 Penny Lane debris taken by Gerrard Borghesi on 14 January 2025, [RES.0001.0004.0194]; Exhibit CA-24, Video recording of soil and mud flowing down the escarpment taken by Gerrard Borghesi on 14 January 2025, [RES.0001.0004.0195].

237 Public Hearing Transcript, Darren Paul and Dane Pope, 5 August 2025, 1295.

238 Public Hearing Transcript, Dane Pope, 5 August 2025, 1295.

239 Public Hearing Transcript, David Hartley, 5 August 2025, 1296–1299.

240 Public Hearing Transcript, David Hartley, 5 August 2025, 1296–1299.

c. The flow rate of water measured seeping from the headscarp on 6 January 2025 by Mr Pope was between 13,000 and 17,000 litres per day.[241] If the headscarp was so vulnerable to landslide from only 2,000 litres, it would have failed much earlier.

d. The significant and continued flow rate from the headscarp post 5 January 2025 cannot possibly be accounted for by domestic irrigation alone.

252 Mr Makin provided an analysis of the volume of water required to trigger the McCrae Landslide. He estimated that approximately 36,000 litres of water would be required to trigger the 300 cubic metres of material that evacuated during the McCrae Landslide.[242] During examination by Counsel for SEW, Mr Hartley explained that his estimate of 2,000 to 2,300 litres to trigger the 5 January 2025 landslide was roughly equivalent to the figure given by Mr Makin, when the relative volumes of the landslides (20 cubic metres and 300 cubic metres) were taken into account.[243] The Board of Inquiry does not accept Mr Hartley's analysis.

253 Mr Paul's failure mechanism theory is that water infiltrated via the colluvium between 5 and 14 January 2025, saturating the surrounding soil and then further spreading outwards. It is not a matter of simply dividing the volume of soil that was displaced, but of understanding how increasing water flow through that soil from the colluvium progressively filled pores until failure. Mr Paul explained that the equivalent to this "*would be like getting a bowl of flour and putting a thimble of water in it and expecting it to turn into batter*".[244]

254 Ultimately, during cross-examination, Mr Hartley accepted that it was "*fair*" to describe this theory as "*speculation about a possible alternative*".[245] The Board of Inquiry does not accept the 2,000 litre thesis. At a minimum, it is contrary to the observed facts. Even accepting that it is theoretically possible domestic irrigation contributed to the observed water from the headscarp after 5 January 2025, this analysis still does not explain the source of the significant volume of water exiting for a lengthy period thereafter, nor what happened to the water that was accepted by SEW's experts to have reached at least 7 Prospect Hill Road. Moreover, if so little water was required, and domestic irrigation was a plausible source, it would have been necessary to explain how the level of irrigation had varied over time so as to identify why the slope failed in 2025 and not before.

255 SEW's 2,000 litre theory is speculative and does not create any doubt that the January 2025 landslides were caused by the burst water main.

Conclusion – the burst water main caused the McCrae Landslide

256 In summary, from early August 2024 to 1 January 2025, SEW's burst water main caused approximately 40.3 million litres of water to be discharged. A large portion of that water was captured by the stormwater system, with the balance travelling downhill through colluvium and in service trenches. In a temporally staggered way, that water flowed downhill, breaking through roads, saturating kerbs, and causing sump pumps to run. All experts agreed that water from the burst water main reached at least Prospect Hill Road, within less than 100 metres of the landslide site.

241 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0207].

242 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0096].

243 Public Hearing Transcript, David Hartley, 5 August 2025, 1293.

244 Public Hearing Transcript, Darren Paul, 5 August 2025, 1295.

245 Public Hearing Transcript, David Hartley, 5 August 2025, 1347–1348.

257 After the 5 January 2025 landslide, a significant volume of water continually flowed from the headscarp down the slope. This was also not disputed.

258 The Shire submitted that the water main burst should be found to be the cause of the January 2025 landslides.[246] SEW submitted "*there is no empirical evidence that proves the Bayview Burst triggered the landslide*."[247] Its submissions point to the various inferences drawn by the experts in forming their conclusions, the lack of certain geophysical tests undertaken, and the slight inconsistencies between other tests.[248]

259 The Board of Inquiry considers there is simply no plausible hypothesis that explains the water progressing down the slope, the landslide, then the significant water continuing to flow from the headscarp other than the burst water main at Bayview Road. There were multiple available flow paths for the water to travel along. Neither water chemistry nor theories as to water velocity cast doubt on the ability of water to travel via one or more of those paths to reach the slope in sufficient time to saturate it before the 5 January 2025 landslide.

260 Water was the trigger of the 5 January 2025 landslide and the McCrae Landslide. The source of that water was the burst water main at Bayview Road.

Finding

Water from the burst water main owned by SEW caused the 5 January 2025 landslide and the McCrae Landslide.

Delays in detecting the burst water main

261 The Shire's submissions urge the Board of Inquiry to make a finding that SEW's delay in locating the burst water main was itself a cause of the McCrae Landslide. They state (omitting footnotes):

> ***Delay of South East Water in detecting the burst water main***: If the Board accepts, as the Shire submits, that the Bayview Leak was the cause or trigger of the McCrae Landslide, it follows that SEW's failure to detect the burst for (according to expert evidence) over 150 days, despite numerous reports made to SEW of upwelling from at least late November 2024, contributed to the McCrae Landslide. Had SEW adequately responded to the concerns of residents and detected the Bayview Leak earlier, less water would have been lost from it, and less water would have travelled to the landslide site.[249]

262 While the Board of Inquiry has found that water from the burst water main was the cause of the trigger of the January 2025 landslides, it does not follow that the Board of Inquiry can make a finding about whether delay in identification of the burst was also causal. Such a finding would depend upon further evidence and analysis of counterfactuals. The evidence does not establish the critical threshold or timing at which intervention would have averted the landslides.

246 Submission of the Mornington Peninsula Shire Council about the causes of the McCrae Landslide, 13 August 2025, [MSC.5095.0001.0001].

247 Submission of South East Water about the causes of the McCrae Landslide, 29 July 2025, [SEW.0001.0002.4201 at _0003].

248 Submission of South East Water about the causes of the McCrae Landslide, 29 July 2025, [SEW.0001.0002.4201 at _0004–_0006].

249 Submission of the Mornington Peninsula Shire Council about the causes of the McCrae Landslide, 13 August 2025, [MSC.5095.0001.0001 at .0011].

4.6 What were the preparatory factors that contributed to the 5 January 2025 landslide and the McCrae Landslide?

263 The next area of focus is preparatory factors. There was some disagreement between the experts as to the contribution of preparatory factors, including erosion, the impact of fill on the escarpment, and the retaining walls in the east gully on 10–12 View Point Road, to the January 2025 landslides.

264 Each of these preparatory factors is addressed in turn below.

Erosion of the escarpment

265 All experts agreed, with a very high level of confidence, that erosion was a significant preparatory factor for the 5 January 2025 landslide.[250] They did not consider erosion as a preparatory factor for the McCrae Landslide, but they did express views on its contribution as a cause of the McCrae Landslide.

266 Mr Paul considered the contribution of erosion as a triggering factor for the McCrae Landslide to be minor.[251] He considered the continued infiltration of water into the headscarp from the burst water main to be the significant trigger. While Mr Pope agreed that the water was a trigger, he also considered erosion caused by the 5 January 2025 landslide to have a significant contribution to the McCrae Landslide.[252]

267 Mr Pope was of the view that the loss of material following the 5 January 2025 landslide destabilised the "*slopes at the eastern extent of the gully where there was significant filling and no effective retaining wall*". He described this as "*regression by landsliding*".[253]

268 Mr Hartley considered:

> [T]he removal of soil [consequent to] the 5 January 2025 [landslide] to be significant in destabilising the gully to the extent where the ravelling back of material between 5 January and 13 January, and [the McCrae Landslide on] 14 January were a direct consequence of the 5 January event.[254]

269 There is no doubt that the continued infiltration of water from the burst water main was, at the very least, a major trigger of the McCrae Landslide. To the extent that it matters, the Board of Inquiry considers it probable that erosion caused by the 5 January 2025 landslide had some destabilising effect on the headscarp and aided the subsequent McCrae Landslide.

250 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0004].
251 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0005].
252 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0005].
253 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0012].
254 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0012].

The impact of fill

270 The experts disagreed about the effect of fill, in particular "old" fill, as a preparatory factor for the January 2025 landslides. Mr Pope described "old" fill as fill that was likely end dumped over the escarpment no later than the 1970s.[255]

271 Mr Paul's view, expressed with a moderate degree of confidence, was that old fill was a minor contributing factor to the instability of the escarpment, whereas Mr Pope considered, with high confidence, that it was a major contributing factor.[256] Mr Hartley's view was in between the two opinions. He considered old fill to be a medium contributing factor to the instability of the escarpment, and expressed that view with a moderate degree of confidence.[257]

Mr Paul's assessment of fill

272 On Mr Paul's analysis of the data available to him, the presence of fill on the escarpment was of little to no consequence to the cause of the 5 January 2025 landslide and the McCrae Landslide.

273 Mr Paul explained that:

a. Normally, water flows through the colluvium and is discharged at a spring, along the escarpment.[258] The finer soils above the colluvial channels are ordinarily dry, and their cohesion is a consequence of high soil suction, otherwise known as negative pore water pressure.[259]

b. As a result of the burst water main, the increased volume of water travelling through the colluvium meant the natural ability for the water to emanate from the spring was overwhelmed.[260] This forced the water to travel up into the finer soils, causing those soils to become saturated and ultimately, to slide.[261]

274 Mr Paul considered that the escarpment included some fill, because fill was exposed in the headscarp following the landslides in January 2025. He could not dismiss the possibility that the displaced material was at least partially comprised of fill, but stated that he had not seen any physical evidence to indicate that a large volume of fill was placed on the escarpment. Rather, he noted that most of the exposed headscarp and side scarps were comprised of natural materials.[262]

255 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0201].

256 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0005].

257 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0005].

258 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0008].

259 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0008–_0009].

260 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0008].

261 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0008].

262 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0009].

275 In any case, Mr Paul concluded that:

> … because of progressive wetting of fine grained soils (fill or natural) the landslides of 5 January and 14 January 2025 **would have occurred irrespective of whether the soils that became wet were natural or fill materials**.[263] (emphasis added)

Mr Pope's assessment of fill

276 Mr Pope disagreed with Mr Paul's assessment of the volume of fill on the escarpment and the contribution of that fill as a preparatory factor for the McCrae Landslide. Based on his visual observations of the headscarp following the McCrae Landslide, he considered there to be a volume of fill at the top of the escarpment that was at least two metres deep.[264] Mr Pope also considered borehole samples, LiDAR, and survey information to conclude that the gully where the McCrae Landslide occurred was asymmetrical prior to the McCrae Landslide.[265] He stated:

> Fundamentally the gully is out of balance when viewed in elevation cut parallel to the escarpment … i.e. it is not broadly symmetrical along the plunge of the gully line as most gullies along the escarpment are.[266]

277 Mr Pope noted that the nearby gullies at The Eyrie, Coburn Creek, and the downstream section of Margaret Street, are not asymmetrical. Given the presence of fill at the top of the escarpment, and the unique profile of the gully where the McCrae Landslide occurred, he concluded that the explanation for the asymmetry of the gully was the presence of anthropogenic fill.[267]

278 Mr Pope identified the LiDAR relied upon by Mr Paul was not as fulsome as the LiDAR and survey materials he had considered.[268] The Board of Inquiry notes this could provide an explanation for the differences in the models generated by those experts with respect to the volume of fill on the escarpment.

279 In any event, on the basis of Mr Pope's analysis, he considered the presence of fill on the escarpment to be a "*fundamental cause of the 2025 landslides*".[269] He stated that:

> [At] some stage in its life, [the escarpment] would be expected to fail in this manner once appropriate triggers occurred. In my opinion if the Old Fill was not placed into the gully, the 2025 Landslides [would] not [have] occur[ed].[270] (emphasis added)

Mr Hartley's assessment of fill

280 Mr Hartley gave limited evidence about the presence of fill on the escarpment, though his views aligned most closely with Mr Pope's.

263 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0009].
264 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0008].
265 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0009].
266 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0009].
267 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0009].
268 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0009].
269 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0234].
270 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0234].

281 He explained that, ordinarily, he would expect water to exfiltrate from a spring in the centre of a gully, but that did not occur in the aftermath of the 5 January 2025 landslide. Rather, the water emanated to the side of the gully's centre line. Like Mr Pope, Mr Hartley considered a plausible explanation for this to be the presence of fill on the escarpment.[271] He made no further comments as to the impact of fill in respect of the McCrae Landslide.

Conclusion on whether fill was a preparatory factor for the McCrae Landslide

282 Having regard to the varying views of the experts, it is apparent to the Board of Inquiry that the key matters of contention between them were the composition of the material that slid down the escarpment as a result of the January 2025 landslides, and to the extent that the material was compromised of fill, the volume of it.

283 The Board of Inquiry makes no finding as to the volume of fill that may have been placed on the escarpment many decades ago. There is insufficient evidence about that matter for a finding to be made.

284 The Board of Inquiry finds for the reasons given by Mr Paul, that irrespective of the volume of fill, the 5 January 2025 landslide and the McCrae Landslide would have occurred as a result of the water from the burst water main. It considers the significance of fill as a preparatory factor to the January 2025 landslides to be minor. It is possible that the unknown volume of fill contributed to the size of the McCrae Landslide but the evidence does not enable findings to be made about different counterfactual circumstances.

Retaining walls at 10–12 View Point Road

285 As detailed in Chapter 3 of this Report, two retaining walls were erected on the Borghesis' property between 2022 and 2024 in the east gully, above the site of the McCrae Landslide.

286 The experts disagreed about the significance of the preparatory effect of the retaining walls. Mr Paul considered the retaining walls to be a minor (1% – <10%) contributing factor to both the 5 January 2025 landslide and the McCrae Landslide, and expressed his view with a medium degree of confidence. In contrast, Mr Pope considered the retaining walls to be a major (30% – <80%) contributing factor, with a high degree of confidence. Mr Hartley agreed with Mr Pope, that the retaining walls were a major contributing factor to the McCrae Landslide, with a high degree of confidence, and a medium contributing factor to the 5 January 2025 landslide, with a low degree of confidence.[272]

Mr Paul's assessment of the retaining walls

287 Mr Paul's overall view of the contribution of the retaining walls to the 5 January 2025 landslide was that the surcharge load behind the retaining walls was significantly outweighed by the volume of water infiltrating the escarpment prior to the landslide. His view remained the same in respect of the McCrae Landslide.

271 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0008].

272 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0004–_0005].

288 Turning first to the 5 January 2025 landslide, Mr Paul noted the location of the top of the zone of depletion was approximately two and a half metres below the base of the retaining wall. This was too far away from the zone of influence of the retaining wall (or the passive wedge), which indicated "*the retaining wall could not have applied load to the soil that [was] displaced [by] the 5 January 2025 [landslide]*".[273]

289 Further, Mr Paul observed that, instead of the soil that was being retained developing cracks or showing signs of subsistence, it was the soil in front of the retaining wall that developed cracks and showed signs of subsistence on 6 January 2025. He stated "*the observed tension cracks indicate[d] soil moving away from the [toe of the] retaining wall and [were] an indicator that* ***the 14 January 2025 landslide was developing at that time***".[274] (emphasis added)

290 Mr Paul concluded the retaining walls were a minor preparatory factor for the McCrae Landslide. He considered the failure of the retaining wall to be a part of the McCrae Landslide. This was on the basis that the infiltration of water into the escarpment from the burst water main which caused the landslide also undermined the retaining wall and caused it to fail.[275] In contrast to Mr Pope's view, Mr Paul did not consider the surcharge load of the soil retained by the wall to have contributed to the McCrae Landslide.[276]

291 This Report now turns to Mr Pope's analysis.

Mr Pope's assessment of the retaining walls

292 Mr Pope considered the retaining walls did place a surcharge load on the escarpment. He discussed this, and the consequent contribution of the retaining walls to the January 2025 landslides, having regard to elements of the design of the walls, and the use of the land retained by them.

293 First, Mr Pope expressed the view that "*it would be grossly unconservative to ignore the buried geometry at the retaining wall and the 40kPa surcharge especially where there is no pile socket*".[277] He explained the retaining wall having been built on an incline plain, should have been piled into the granite because without that, it would not be able to overcome the driving forces of the active side of the retaining wall.[278]

294 Second, Mr Pope identified that the retaining wall had not been tied back and did not extend across the entirety of the fill, pursuant to his model.[279]

295 Further, in addition to these design issues, Mr Pope pointed to the loading of the area retained by the walls. He thought that, by virtue of the retaining walls' construction, the effective slope angle of the escarpment had increased from 32 to 37 degrees.[280] Together, the loading and the

273 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0007].

274 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0007].

275 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0007].

276 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0006].

277 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0006].

278 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0006–_0008].

279 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0234].

280 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0234]; Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0008].

slope angle, had the effect of increasing the load on the active side of the retaining wall, without making any provision for any corresponding increase in the resisting forces on the passive side of the retaining wall.[281]

296 In those circumstances, any increase in groundwater would have reduced "*the effective stresses on the resisting side*" of the retaining wall erected in 2024, such that the "*resisting forces must also be reduced*".[282] Mr Pope stated:

> In my opinion, my facts on which I rely support that there have been multiple instances of increased loading associated with the [retaining wall] on multiple inclined plains immediately beneath and within influence of the [retaining wall] and with a decrease in sheer strength on the passive side of the wall due to the increase in groundwater levels.[283]

297 In support of his view, Mr Pope referred to his observation of a significant crack beneath the retaining walls at 10–12 View Point Road on 6 January 2025. He opined that the crack was in line with the area where maximum fill had been placed behind the retaining wall, and that this placed pressure on the passive wedge causing it to crack.[284] As opposed to Mr Paul, who considered the crack at the toe of the retaining wall to evidence the slope moving away from the wall, Mr Pope stated:

> My view is that that's the toe of the passive wedge failing. **So it's moved at the base of the wall**. So the displacement is at the base of the wall. It's well within the zone of influence of the wall. It's literally under the wall.[285] (emphasis added)

298 Mr Pope concluded:

> Analysis of the [retaining walls] and the loading on the passive wedge must consider the unfavorable influence of the inclined plains on the passive side of the [retaining wall]. I have not observed any facts or interpretation from either geotechnical expert regarding zone of influence of the [retaining wall] on a steep slope and with inclined plains immediately beneath the [retaining wall]. **In my experience this is a common hazard associated with any amount of fill built over an escarpment or steep slope**.[286] (emphasis added)

299 He expressed the view that "*if the 2022 and 2024 [retaining walls] were never built it is **possible** that the 2025 Landslides [would] not [have] occur[ed]*".[287] (emphasis added)

Mr Hartley's assessment of the retaining walls

300 Mr Hartley simply noted in the joint expert conclave report regarding causation, that the Borghesis' observation of settlement of the soils behind the retaining wall erected in 2022 was indicative of the slope experiencing destabilising forces. This indicated a potential for the soil downslope to experience movement at that point in time. Importantly, Mr Hartley recognised that his opinion was based on "*photos[,] witness statements[,] and analysis by others*".[288]

281 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0007–_0008].

282 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0008].

283 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0008].

284 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0006].

285 Public Hearing Transcript, Dane Pope, 5 August 2025, 1189.

286 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0008].

287 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157 at .0221].

288 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0006].

Conclusion on the contribution of the retaining walls to the McCrae Landslide

301 The Shire submitted that the retaining walls were a major preparatory factor for the McCrae Landslide.[289] The Board of Inquiry does not accept that submission.

302 The Board of Inquiry considers the cracking at the base of the retaining wall observed by Mr Pope on 6 January 2025 is explained by Mr Paul's conclusion that the slope was sliding due to significant water infiltration, rather than pressure from the retaining wall. The Board of Inquiry accepts Mr Paul's opinion about the top of the zone of depletion being too far below the retaining wall for the wall to be a meaningful preparatory factor for the 5 January 2025 landslide.

Loss and removal of vegetation

303 All experts recognised that loss of vegetation can be destabilising to an escarpment. This is because vegetation stabilises the surrounding soils via its root systems by providing a level of suction that reduces moisture in the soil.

304 They also accepted that there had been some loss of vegetation on the east gully of the escarpment. The divergence in their opinions concerned whether the roots of any removed vegetation could have affected the suction of moisture from the colluvial channel through which water passed. Mr Paul was of the opinion that, given the depth of the colluvium, it could not. Mr Pope and Mr Hartley had a contrary view.

305 Mr Paul considered the removal of vegetation to be a minor preparatory factor to the January 2025 landslides, but expressed that view with low confidence.[290] He considered the loss of vegetation on the escarpment in the years prior to the January 2025 landslides made it more susceptible to landslide. However, given the depth of the colluvial channel, he did not think any of the roots removed would have penetrated down to that level so as to impact suction. He noted that, irrespective of the removal of vegetation, the soil had been infiltrated by water to the extent that it flowed down the escarpment.[291]

306 Mr Pope, on the other hand, expressed with a very high degree of confidence, that the removal of vegetation was a medium preparatory factor for the January 2025 landslides.[292] He acknowledged that it is well established that trees can influence suction, and as a consequence, groundwater levels. He observed the presence of root systems in the colluvium and fill, reflective of trees and vegetation that were previously removed from the escarpment and surmised that the "*zone of influence from suction related to those trees must [have] extend[ed] to the soils immediately adjacent*" to them.[293] The inference is that the loss of suction power as a result of the removal of trees made the escarpment more susceptible to landslide.

289 Submission of the Mornington Peninsula Shire Council about the causes of the McCrae Landslide, 13 August 2025, [MSC.5095.0001.0001 at .0011].

290 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0003–_0004].

291 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0013–_0014].

292 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0003–_0004].

293 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0013–_0014].

307 Mr Hartley formed different views in respect of the 5 January 2025 landslide and the McCrae Landslide. He considered the loss of vegetation to be a medium preparatory factor for the 5 January 2025 landslide and a minor preparatory factor for the McCrae Landslide. He expressed those views with a high degree of confidence.[294] He noted the historic lushness of the gully and its surrounds, and the progressive removal of vegetation from it. He proffered that previously vegetated areas had either been replaced by "*hardstanding [or] juvenile plants*".[295] He concluded:

> The impact of the change in vegetation character, is as relevant as structural work, and on balance, is probable to have a negative impact on: the ability of near surface materials to maintain strength with varying moisture content (such as elevated groundwater levels), [and] the ability of the vegetation to remove elevated moisture from the near surface.[296]

Conclusion on vegetation as a preparatory factor

308 The Board of Inquiry accepts that the loss of vegetation on the escarpment over time probably increased its susceptibility to landslide. However, given the generalised nature of the evidence of vegetation removal and the absence of expert evidence about the effect of removal of specific types and volumes of vegetation on the escarpment, the Board of Inquiry is not able to determine the significance of the removal of vegetation as a preparatory factor for the January 2025 landslides.

Other sources of water

309 The experts identified, during the conclave on causation, that there were three water sources which could each have been a preparatory factor for the January 2025 landslides. These were groundwater from an aquifer, stormwater leakage, and domestic water usage. All three relate to the pre-saturation of the east gully by ingress of water.

Groundwater from an aquifer

310 The experts considered groundwater from an aquifer in two respects – first, the "moisture condition" and second, as a "pathway". At a high level, these elements refer to the effect of groundwater on the baseline moisture level in soil (the "moisture condition") and the existence of a pathway for water to reach the escarpment (the "pathway").

311 Mr Paul considered – with a high level of confidence – that the moisture condition was a medium preparatory factor to both the 5 January 2025 landslide and the McCrae Landslide, whilst the pathway was a significant contributing factor to both landslides.[297] He explained:

> There are natural flow paths with some water. Flow is intermittent. This could be a preparatory factor for landslide because it introduces some water into the soil and provides a flow path for the water.[298]

294 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0003–_0004].

295 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0013–_0014].

296 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0013–_0014].

297 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0004–_0005].

298 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _00011, _0013].

312 Mr Pope did not proffer any view as to the contribution of groundwater from an aquifer because he considered this to be an "*erosion control factor*".[299] His comments on erosion are set out above. Mr Hitchcock, on the other hand, agreed with Mr Paul's comments as to groundwater being a pathway, and considered the moisture condition to be a major preparatory factor to the January 2025 landslides. He expressed that view with a high degree of confidence.[300]

313 In respect of both the 5 January 2025 landslide and the McCrae Landslide, Mr Hartley considered – with a high degree of confidence – that the moisture condition was a major preparatory factor, and the pathway was a significant contributing factor.[301] He explained that shallow perched water tables exist in the McCrae area, and that these feed springs, some of which are on the escarpment in the vicinity of the McCrae Landslide site. He considered that:

a. obstruction of those springs by debris or fill would increase groundwater pressure in the aquifer; and

b. the increased groundwater pressure would have the effect of causing a larger area of the escarpment to become wet.[302]

Stormwater leakage

314 Stormwater leakage as a preparatory factor refers to the infiltration of water into the surrounding soil, from defects in the stormwater system.[303]

315 Mr Paul formed the view that stormwater leakage was a medium preparatory factor to the January 2025 landslides, but expressed that view with a low level of confidence.[304] His reasoning was that:

> Whilst stormwater breaches have been observed, at Browne Street and 23 Coburn, there is no information on how much water leaked from the stormwater during the Bayview Road leak event and no evidence of a flow path from the breaches down to the landslide.[305]

316 Notwithstanding, he still considered stormwater leakage to be a plausible pathway for the water that reached the escarpment.[306]

299 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0004–_0005, _00011, _013].

300 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0004–_0005].

301 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0004–_0005].

302 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0011, _0013].

303 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0011, _0013].

304 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0004–_0005].

305 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0011, _0013].

306 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0011, _0013].

317 Whilst Mr Pope and Mr Hitchcock considered stormwater leakage to be a minor preparatory factor to the January 2025 landslides, they too had low confidence in their views.[307] Mr Pope agreed with Mr Paul's comments on stormwater leakage, whereas Mr Hitchcock said:

> Leakage from stormwater infrastructure is a plausible source and some breaches have been documented but there is no information available about their magnitude. In addition, the flow in stormwater should be closely linked to rainfall events and rainfall precedent to the landslide was not considered to be more than normal.[308]

318 Mr Hartley thought the contribution of stormwater leakage was a minor to medium preparatory factor to the January 2025 landslides.[309] He noted that PSM had identified through on-site analysis, the condition and leak potential of the stormwater infrastructure in the McCrae area. He thought that due to the condition of the stormwater pipes, it was possible for leaks to contribute to the "*charging of the shallow perched aquifer*".[310] He commented that he had observed, during site visits, a steady stream of water flowing through the stormwater drains and pits. He considered this to be indicative of there being a "*consistent source of perched groundwater*".[311]

Leakage from domestic water services

319 The experts all had regard to leakage from domestic water services, being stormwater pipes, agricultural drains, sewerage systems, and mains water pipes located on private land, as a preparatory factor for the 5 January 2025 landslide and the McCrae Landslide.

320 Mr Paul considered, with high confidence, that such leakage was a minor contributing factor to both landslides.[312] He recognised there is a higher frequency of leaks in the vicinity of the McCrae Landslide, as compared to other parts of McCrae, and concluded that:

> Leaking water from mains or domestic pipes could be a source of water that wets material at the escarpment, but is part of background flows and could not have caused the significant increase in water observed in Jan 2025.[313]

321 Mr Pope expressed the same confidence rating as Mr Paul to domestic water usage being a minor preparatory factor to the January 2025 landslides.[314] Mr Pope observed there was "*very limited information available regarding how long these [domestic] water main leaks [were] occurring before they [were] identified and repaired*". He expected that, where dwellings are occupied, leaks would be identified quickly, because of the resultant pressure loss to those

307 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0004–_0005].

308 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0013–_0014].

309 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0004–_0005].

310 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0013–_0014].

311 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0013–_0014].

312 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0004–_0005].

313 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0012–_0014].

314 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0004 – _0005].

dwellings.[315] Ultimately, Mr Pope concluded that it was not of any consequence that there were private leaks in the McCrae area. His concern was with leaks from services feeding broader areas, or leaks located in "*difficult access terrain*". He drew a comparison here, to the Bayview Road Reserve, where the burst water main was located.[316]

322 Conversely, Mr Hitchcock deemed the contribution of domestic leakage to the January 2025 landslides to be medium. In respect of the 5 January 2025 landslide, he expressed this view with a high degree of confidence, whereas for the McCrae Landslide, he expressed a moderate level of confidence.[317] Leakage from domestic pipes was, in Mr Hitchcock's opinion, known to occur regularly in the vicinity of the McCrae Landslide. Notwithstanding that Mr Hitchcock did not consider water from leaking domestic services to be a cause of a "*sudden increase in soil moisture*".[318]

323 Like Mr Hitchcock, Mr Hartley expressed, with a high degree of confidence, that domestic water leakage was a medium contributing factor to the 5 January 2025 landslide and the McCrae Landslide.[319] He explained that he would expect water from leaks in the area surrounding the site of the landslides which was not directed into stormwater drainage, to enter groundwater systems, thereby "*supplying a background source of elevation*".[320]

Conclusion on other sources of water as preparatory factors

324 The Board of Inquiry considers that the three other sources of water are possible preparatory factors for the January 2025 landslides but that it is impossible, on the evidence, to determine the extent to which those sources may have contributed to moisture in the slope. The Board of Inquiry does find on the evidence, that other water sources were not material to the landslide events of 5 and 14 January 2025.

315 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0012 – _0014].

316 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0012 – _0014].

317 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0004 – _0005].

318 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0012 – _0014].

319 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0004 – _0005].

320 Exhibit CA-74, Joint Report arising from expert conclave in relation to causation, 31 July 2025, [INQ.0009.0001.0001 at _0012 – _0013].

CHAPTER 5

Mitigation measures

05

5.1 Introduction

1 Having identified the cause of the McCrae Landslide, it is now time to consider the measures required to mitigate the risk of similar landslide events occurring along the escarpment at 6 and 10–12 View Point Road, and more broadly across McCrae.

2 The Board of Inquiry has been assisted in relation to the first aspect by expert witnesses, Mr Paul and Mr Pope. They independently provided design concepts to the process of the Board of Inquiry at mitigation and/or remediation. The Board of Inquiry also had the benefit of a report from CivilTest, provided by Mr and Mrs Borghesi, and a report from AS James, provided by Mr and Mrs Willigenburg, in relation to the November 2022 landslides.

3 In addition to considering steps that could be taken along the escarpment to mitigate further landslides, Mr Paul also considered infrastructure changes that could be implemented in McCrae more broadly to reduce the risk of landslides.

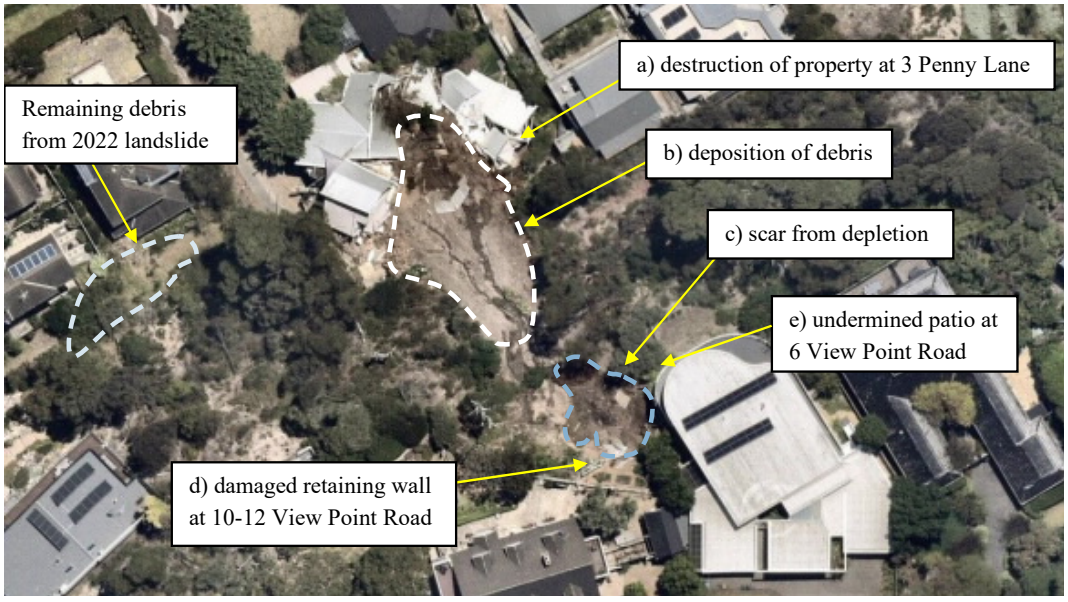
5.2 The escarpment at 6 and 10–12 View Point Road

The location of the landslides and the state of the escarpment

4 It is convenient only to begin by briefly identifying the location of the landslides in 2022 and 2025. The November 2022 landslides occurred in the west gully of 10–12 View Point Road, while the 5 January 2025 landslide and the McCrae Landslide occurred in the east gully overlapping 6 and 10–12 View Point Road.

5 This aerial photograph usefully depicts the location of the landslides:

FIGURE 5.1: IMAGE DEPICTING THE IMPACT OF THE LANDSLIDES AT 10–12 VIEW POINT ROAD.[1]



1 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0007].

6 The remaining debris from the November 2022 landslides can be observed to the rear of Mr and Mrs Willigenburg's home at the toe of the escarpment. The debris flow from those landslides as depicted in the photograph, was confined to the west gully, and it ran across what was formerly the continuation of Penny Lane.

7 The extent and location of the January 2025 landslides, as well as their impact on Mr and Mrs Moran's home at 3 Penny Lane, are readily apparent in the photograph. Debris from the landslide is scattered throughout the building rubble. Approximately 300 cubic metres of soil was evacuated downhill.[2] The home was propelled downward to the rear of 607-609 Point Nepean Road.

8 Mr Paul and Mr Pope have considered the current condition of the landside site and separately developed design concepts to mitigate the risk of further landslides. A common element in both designs is the initial step of clearing debris from 3 Penny Lane before any work proceeds.[3] Where the two concepts differ is in their approach to remediation. Mr Paul's design is more sophisticated, as it seeks not only to mitigate the risk of future landslides but also to repair the damage to the escarpment caused by the landslides.

9 The difference between mitigation and remediation should be briefly explained.

Mitigation and remediation

10 Mr Paul and Mr Pope agree that mitigation works are aimed at placing the slope in a condition where the prospect of a further landslide is reduced to an acceptable level.[4] The risk of another landslide can never be eliminated altogether, but mitigation works aim to make the prospect of such an event less likely. For example, Mr Paul and Mr Pope consider that their proposed designs, if implemented, would mean that a rainfall event of the kind that occurred in November 2022 would not result in either another landslide (Mr Pope) or the same level of destruction as was caused by the November 2022 landslide (Mr Paul).[5]

11 Mr Paul explained that remediation works return the slope, as close as possible, to its pre-landslide condition.[6] He explained that, unlike mitigation – which is entirely outcome driven – remediation takes into account the aesthetic character of the area and seeks to restore the landslide affected area to something approximating its prior condition.[7]

12 While Mr Paul's proposed concept was predominantly designed to mitigate future risk, he also incorporated remediation into the design.[8] He explained in his evidence that had his design been concerned solely with mitigation, he would still have utilised the same primary element in the design: engineered rockfill.[9]

2 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0016].

3 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0025–.0031]; Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0009, _0012].

4 Public Hearing Transcript, Darren Paul and Dane Pope, 18 August 2025, 1357–1358.

5 Public Hearing Transcript, Darren Paul and Dane Pope, 18 August 2025, 1355–1356.

6 Public Hearing Transcript, Darren Paul, 18 August 2025, 1357.

7 Public Hearing Transcript, Darren Paul, 18 August 2025, 1389.

8 Public Hearing Transcript, Darren Paul, 18 August 2025, 1390–1391.

9 Public Hearing Transcript, Darren Paul and Dane Pope, 18 August 2025, 1408.

13 In contrast, Mr Pope's proposed concept is concerned solely with mitigation, while keeping the slope as close as possible to his view of its original landform.[10] In this context, 'original' does not mean its condition before the landslides, but rather its natural geological formation before human intervention,[11] in particular, before the placement of fill.[12]

14 Turning now to the two proposed concept designs.

Mr Paul's proposal

The design concept

15 Mr Paul began his analysis by identifying a range of measures which, in some combination, could be implemented to reinstate the slope to its pre–McCrae Landslide form, and mitigate future risk to life and property from landslides. They comprised:

a. the use of soil nails, potentially with shotcrete facing, to support the headscarp;[13]

b. reinstatement of the material that detached from the landslide using "*engineered fill*", namely rockfill;[14]

c. reinstatement of the slope using a gabion wall or similar system like a crib wall;[15]

d. the retroactive implementation of planning controls that would likely have been in place had an EMO been applied to the area;[16]

e. the installation of debris flow barriers along the Penny Lane road reserve;[17]

f. installation of groundwater extraction wells to facilitate 'dewatering' should that become necessary in the future;[18]

g. the upgrading of aging vitreous clay sewer pipes and asbestos cement water mains in the McCrae area to prevent and reduce the likelihood of future leaks;[19] and

h. the use of impermeable backfill or trench stops to force water flowing along trench lines to the surface.[20]

16 Mr Paul then prepared a design concept which sought to remediate the land and mitigate the risk of further landslides. He explained that the remediation objectives addressed in his design concept are:

10 Public Hearing Transcript, Dane Pope, 18 August 2025, 1358.
11 Public Hearing Transcript, Dane Pope, 18 August 2025, 1393.
12 Public Hearing Transcript, Dane Pope, 18 August 2025, 1373.
13 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0114].
14 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0114–_0116].
15 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0116].
16 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0117–_0118].
17 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0118–_0119].
18 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0119–_0120].
19 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0120–_0121].
20 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0120–_0121].

a. reinstatement of the zone of depletion arising from the January 2025 landslides and the return of the landform as far as practical back to the state it was in prior to the landslides;

b. reinstatement of the zone of depletion with materials less susceptible to landslide and debris flow compared to those that detached in the January 2025 landslides;

c. provision for groundwater to drain freely from the landslide scarp and be directed to the municipal stormwater system; and

d. achievement of a similar level of risk to life and property to that prior to the January 2025 landslides.[21]

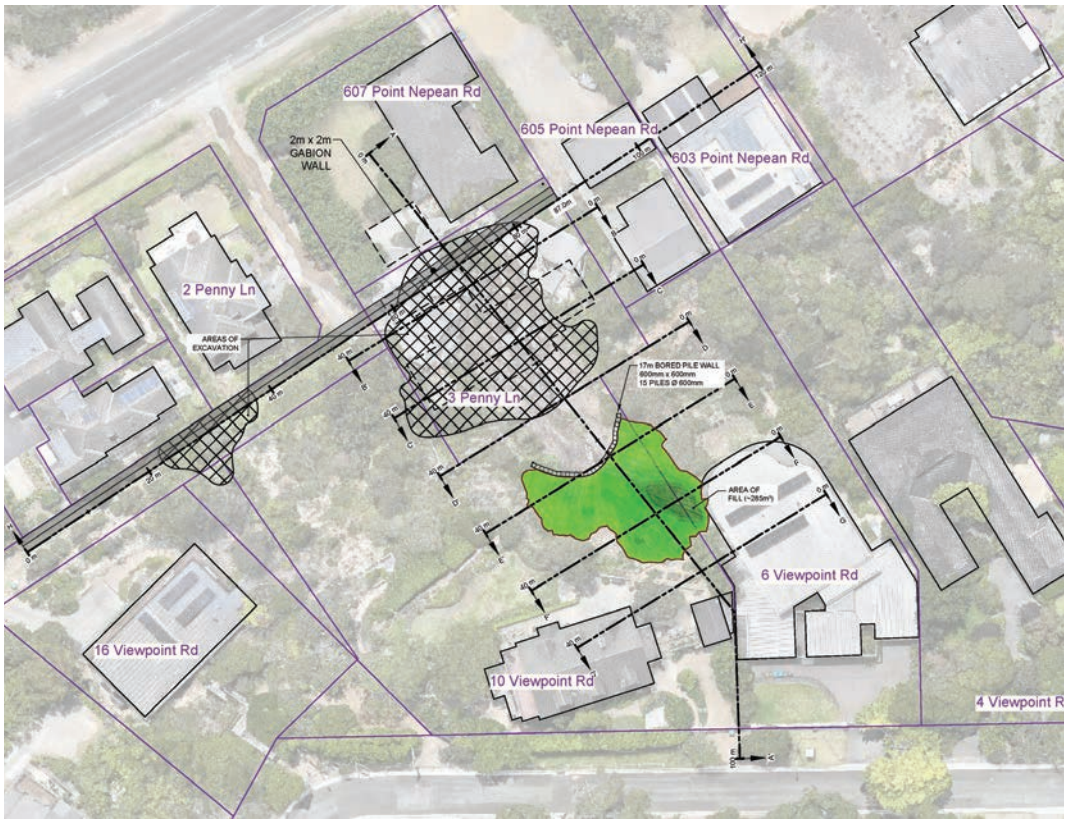
17 He also explained that the two mitigation objectives addressed in the design concept are:

a. the reduction of the likelihood of further landslides to a level that is as low as reasonably practical; and

b. the reduction of the consequences from further landslides to a level that is as low as reasonably practical.[22]

18 Mr Paul's design concept is shown below:

FIGURE 5.2: WSP REMEDIATION DESIGN SHOWING ROCKFILL, PILED GROUND BEAM, AND GABION WALL.[23]



21 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0008].

22 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0008].

23 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0019].

19 This design concept includes several key features.

20 With respect to the eastern gully (the location of the 2025 landslides), Mr Paul proposes:

a. The use of engineered rockfill to in-fill the depleted parts of the slope to create a rockfill buttress. This appears in light green in the design image. The rockfill buttress would be comprised of angular, interlocking, high strength crushed quarried rock through which water can permeate.[24] The rockfill could be reinforced using geogrid,[25] a geosynthetic material used to reinforce soils and other granular materials. Mr Paul suggested the use of Dromana granite to match the appearance of the underlying natural rock.[26] He said that, over time, vegetation would grow over the rockfill,[27] and that, subject to appropriate engineering and design, provision could be made for the planting of trees.[28] The engineered rockfill is intended to be installed from the bottom upwards until the light green area identified in the design image is covered.

b. The installation of a piled ground beam at the base of the engineered rockfill.[29] This is depicted at the base of the light green area in the design image. The piled ground beam is effectively a short retaining wall, of around 600 millimetres in height, that would be installed at the base of the rockfill to restrain the mass and prevent it from sliding down the slope.[30]

21 As to the western gully (the location of the 2022 landslides), we understand that Mr Paul does not consider that any engineering work is presently necessary in respect of the hillside itself, because the area is returning to a more heavily vegetated state. Vegetation is a natural mitigation measure.[31]

22 However, the design concept also includes the erection of a gabion wall in Penny Lane, which is intended to be a mitigation measure in respect of both the western and eastern gullies. As marked on the design image above, the gabion wall, a wall comprising cages or baskets made from steel wire and filled with stones rocks,[32] would run across the southern edge of Penny Lane parallel to Point Nepean Road.[33] The purpose of the gabion wall is to act as a barrier to absorb the impact of any further landslide that might occur.[34]

24 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0009–_0010].

25 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0010].

26 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0009–_0010].

27 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0114–_0116].

28 Public Hearing Transcript, Darren Paul, 18 August 2025, 1365.

29 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0009].

30 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0009].

31 Public Hearing Transcript, Darren Paul, 18 August 2025, 1361.

32 Public Hearing Transcript, Darren Paul, 18 August 2025, 1361.

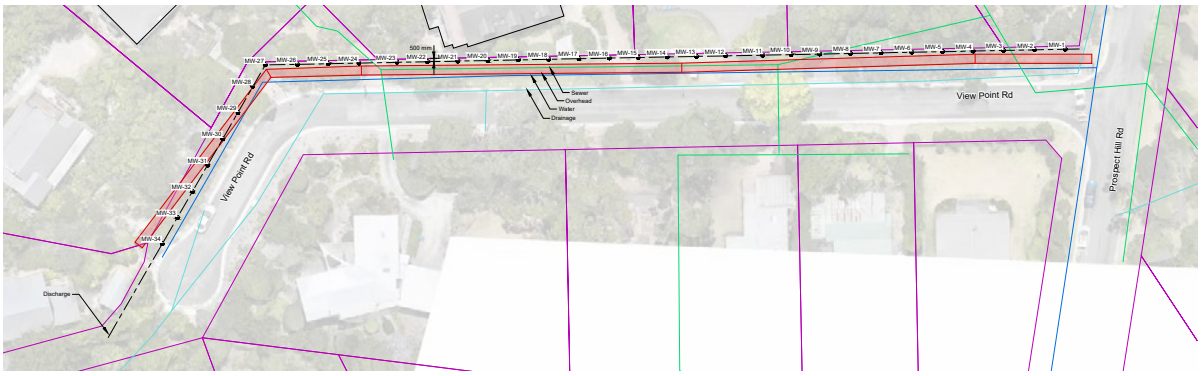
33 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0011]; Public Hearing Transcript, Darren Paul, 18 August 2025, 1361.

34 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0011].

23 As for View Point Road, Mr Paul's concept provides for the installation of 34 groundwater wells down the length of the road.[35] The wells would allow for the monitoring of groundwater levels behind the slope, and provide access to dewater the slope (by the insertion of pumps) in the event that groundwater levels were elevated.[36]

24 The groundwater wells are numbered MW-1 to MW-34 in Mr Paul's image below:

FIGURE 5.3: WSP GROUNDWATER EXTRACTION MONITORING WELLS.[37]



25 As shown, the groundwater wells run from the intersection of Prospect Hill Road and View Point Road down the length of View Point Road on the northern side. The design does not provide for permanent pumps, but it does incorporate water monitoring devices and, therefore, power to the area would be required.[38]

Cost and timing

26 As to the cost of Mr Paul's design, Tim Whelan, Director of Major Projects and Engineering at Whelans Group, a firm specialising in the construction of civil infrastructure, was asked to estimate the overall construction cost, assuming full implementation of the design.

27 Mr Whelan provided an estimate of $11.5 million exclusive of GST.[39] This includes direct costs of approximately $745,000 for the construction of the gabion wall and direct costs of $1.2 million for the installation of the rockfill and construction of the associated pile wall.[40]

35 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0010 –_0011, _0023].

36 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0010].

37 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0023].

38 Public Hearing Transcript, Darren Paul, 18 August 2025, 1362–1363.

39 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0013].

40 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0013, _0029].

28 Mr Paul has estimated the cost of the installation of the 34 groundwater wells down View Point Road to be $200,000 exclusive of GST.[41]

29 These costings are necessarily indicative, only given the design is at a concept stage. Mr Paul considered it possible that the total cost would be less.[42]

30 Mr Whelan also, helpfully, provided a construction program for the works, estimating the approximate time for each stage of construction.[43] The estimated timeline is as follows:

a. Removal of debris at 3 Penny Lane and two trees at 607–609 Point Nepean Road to allow access to the site – 30 days.[44]

b. Once the site is accessible, construction of the gabion wall at the toe of the escarpment along Penny Lane – 25 days.[45]

c. During the construction of the gabion wall, earthworks would begin in the area of the McCrae Landslide, to remove debris and to build a temporary access road. The access road would allow both the debris further uphill to be removed and enable the rockfill and geofabric separator to be installed. The piled wall and ground beam at the toe would also be constructed. This part of the project is estimated to take 108 days.[46]

d. Works to remove left over debris and equipment, and the placement of hydromulch over the rockfill to allow for landscaping and revegetation – 23 days.[47]

31 Mr Paul explained in his oral evidence to the Board of Inquiry that the overall construction schedule put together by Whelans "*nominated a nine-month construction period*", but that, once procurement and the time to design were factored in, an additional three months would be added to the overall timeframe of the project.[48] The effect of his evidence was that the works would take about 12 months from procurement.

41 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0013].

42 Public Hearing Transcript, Darren Paul, 18 August 2025, 1384.

43 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0026].

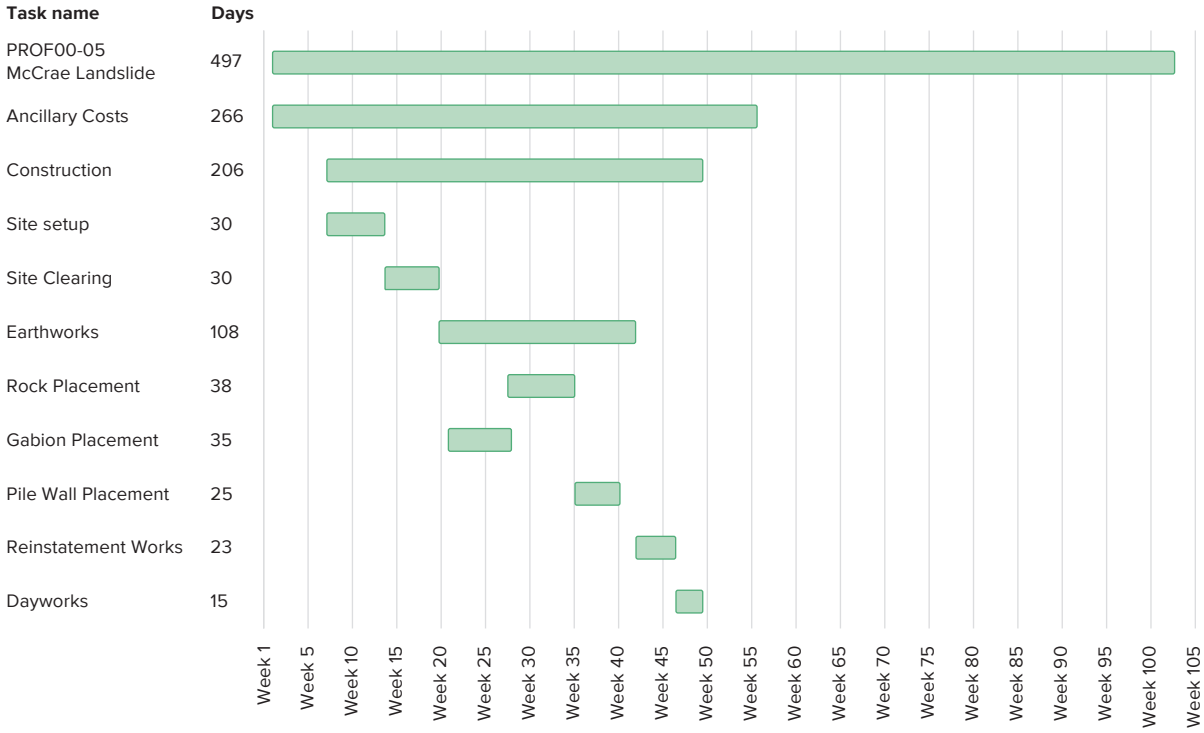
44 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0012, _0026, _0031].

45 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0012, _0027, _0031].

46 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0012, _0026 –_0027, _0031].

47 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0012, _0027, _0031].

48 Public Hearing Transcript, Darren Paul, 18 August 2025, 1383.



32 After the hearing, Mr Paul, thoughtfully, wrote to the Board of Inquiry to explain that he considered that affected residents would be able to return to their homes before the completion of all works.[49] His view is that:

a. Based on the proposed program, the gabion wall would be completed about 21 weeks (four to five months) after the commencement of the project, and that once the gabion wall is in place, the houses at the toe of the slope could be re-occupied while the remaining works are undertaken.

b. The houses at the top of the slope, 6 and 10 –12 View Point Road, could be re-occupied about seven weeks later once the rockfill has been installed.

33 Mr Paul's view in relation to the two houses at the top of the slope is now relevant only to 6 View Point Road as the Shire's MBS has since removed the Emergency Order which restricted occupation of 10 –12 View Point Road.[50] Mr and Mrs Borghesi have now returned to their home.

34 Mr Paul also noted in his correspondence to the Board of Inquiry that the program proposed by Mr Whelan commenced with the removal of debris from 3 Penny Lane and Penny Lane more generally. Mr Paul stated that this work could commence earlier, pursuant to a separate contract, while design documentation is finalised for the works on the east and west gullies.[51]

35 Such an approach would enable residents to return home sooner.

49 Email from Darren Paul to Solicitors Assisting the Board of Inquiry about construction schedule, 18 August 2025, [DPA.0008.0001.0001].

50 Email from Mornington Peninsula Shire Council's solicitors to Solicitors Assisting the Board of Inquiry about reoccupation of 10–12 View Point Road, 12 August 2025, [INQ.0015.0001.0001].

51 Email from Darren Paul to Solicitors Assisting the Board of Inquiry about construction schedule, 18 August 2025, [DPA.0008.0001.0001].

Mr Pope's proposal

The design concept

36 Turning now to Mr Pope's proposed design, a key feature of his proposal is maintaining the west and east gullies in their post-landslide state, being a state that he considers to be more consistent with their landform pre-subdivision.[52]

37 Mr Pope's design for the west gully is, in substance, unchanged from his prior proposal examined by the Board of Inquiry in the first hearing block. That proposal, being the use of soil nails with netting, was prepared by Mr Pope following the 2022 landslides in the context of negotiations between the Shire and Mr and Mrs Borghesi about works required in response to those landslides.[53]

38 Mr Pope also now proposes the use of soil nails and netting for the east gully. He proposes either a micro piled wall and capping beam (referred to as option 1),[54] or a wall made of soil nails and shotcrete (referred to as option 2),[55] at the boundary of 6 and 10–12 View Point Road. Mr Pope prefers option 2 because he considers that it is likely to be more constructable, less costly, safer to build, and that there are at least two contractors in the market available to undertake the work.[56]

39 With respect to drainage at the site, Mr Pope's concept provides for the installation of horizontal drains in the colluvium, in a bid to control groundwater and pore pressure.[57]

40 Mr Pope's design concepts are shown below. The image on the left side incorporates option 1 at the boundary of 6 and 10–12 View Point Road and the image to the right incorporates option 2 at the boundary.

FIGURE 5.4: COMPARE OF OPTION 1 AND OPTION 2 FOR THE EAST GULLY OF 6 AND 10–12 VIEW POINT ROAD.[58]



52 Public Hearing Transcript, Dane Pope, 18 August 2025, 1393.

53 Public Hearing Transcript, Dane Pope, 4 May 2025, 148–149, 151–153; Public Hearing Transcript, Dane Pope, 18 August 2025, 1368.

54 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0052–.0053].

55 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0054].

56 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0054].

57 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0053–.0054].

58 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0061–.0063].

41 More will be said about the features of Mr Pope's preferred design concept shortly. It is important to first set out matters that informed his design and the preparatory works required before the soil nails, netting and the boundary wall can be installed.

42 As to the matters that informed the design, Mr Pope had regard to development objectives that he considered typically apply to hillside work at residential properties, including the design objectives of the Shire and a design life of 50 years.[59] It is important to note that he did not have regard to the design objectives of the land owners on whose land the works are to be undertaken.

43 The design was also informed by a number of assumptions, specifically that:

a. the design ought to allow for the construction of a new dwelling at 3 Penny Lane;

b. the landform pre the McCrae Landslide was **not** to be reinstated;

c. at a minimum, the design had to result in a Factor of Safety rating of 1.5;

d. the design would be consistent with the most onerous of the Australian Standards and good first principles of engineering; and

e. the works were to be owned and maintained by the property owners.[60]

44 As to the preparatory works required before the soil nails and netting and the boundary wall can be installed, Mr Pope has identified three stages of works.[61] Those stages are as follows:

a. **Landslide head initial works**: this involves works at the top of the escarpment to remove materials which may become hazardous, such as parts of the existing retaining wall and plantar boxes located directly above the site of the McCrae Landslide. It also involves work to flatten and trim the headscarp to achieve a target angle of 35 degrees. Mr Pope explains that the rainwater tank at 6 View Point Road may need to be removed as part of the flattening of the area.[62] The Board of Inquiry understands that the owners are exploring the removal of those tanks in any event, due to recent deterioration.

b. **Slope toe works**: this involves demolition of the building debris on 3 Penny Lane and repair work at 607–609 Point Nepean Road.

c. **Mid-slope works**: this last stage involves the removal of loose debris deposited down slope from the McCrae Landslide.[63]

59 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0047].

60 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0048].

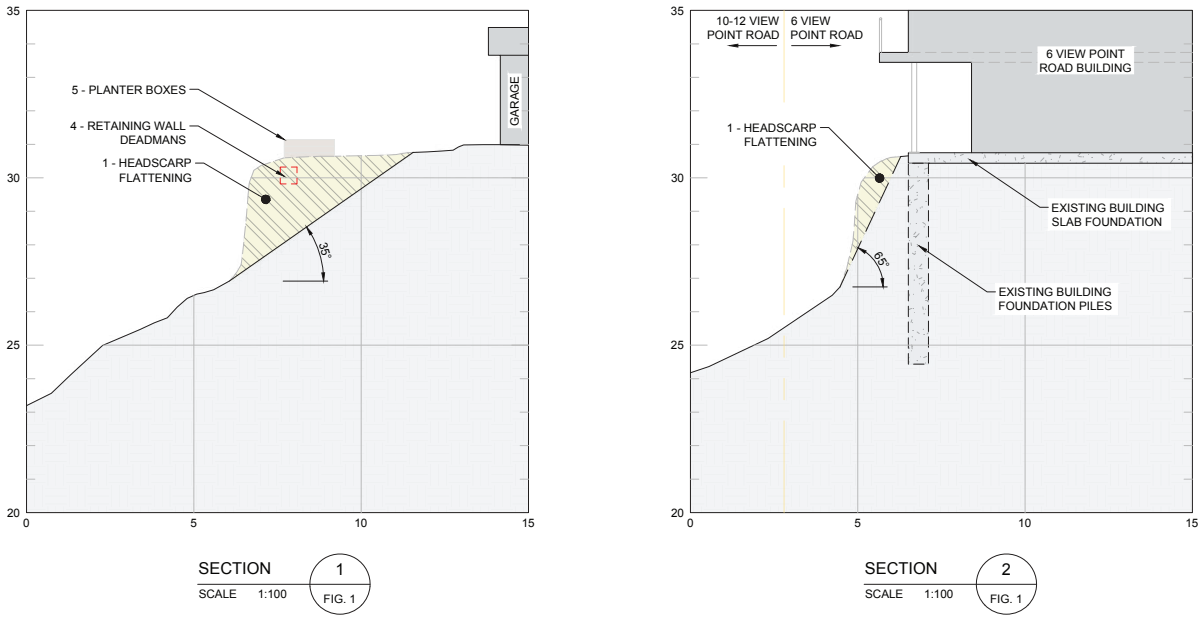
61 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0034–.0035, .0037–.0038]. Note that, while not expressly referred to, the Board of Inquiry understands the mitigation works to be stage 4 of PSM's temporary works advice.

62 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0035].

63 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0034–.0035].

45 The second and third stages are self-explanatory. The first stage, the flattening of the headscarp, is best visualised in the following section drawings:

FIGURE 5.5: PSM LANDSLIDE INITIAL WORKS SECTION DRAWINGS.[64]



46 As can be seen, the east gully is to be flattened, to the extent possible, to reduce the slope angle to 35 degrees. Mr Pope considers that the eastern edge of the east gully cannot be flattened to the same extent, as doing so would undermine the house foundations at 6 View Point Road.[65] He proposes flattening that area to 65 degrees. The result of these flattening works would be to reduce the size of the level garden areas at both 6 and 10–12 View Point Road. It would also require the installation of a handrail along the boundary of 6 View Point Road to account for the steep slope along the top of the shotcrete retaining wall.[66]

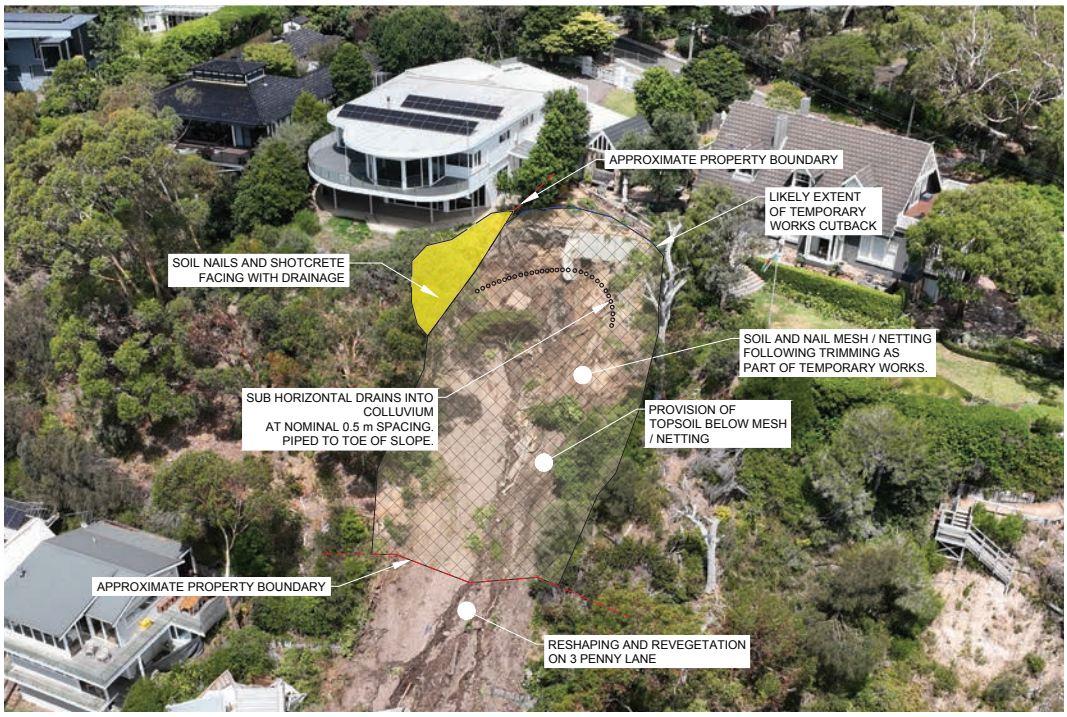
64 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0041].

65 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0034].

66 Exhibit CA-90, Joint Report on remediation and mitigation prepared by expert conclave, 14 August 2025, [INQ.0012.0001.0001 at _0002].

47 To assist the discussion that now follows about the features of design concept option 2, the image of the design is shown again below.

FIGURE 5.6: PSM DESIGN OPTION 2 FOR THE EAST GULLY OF 10–12 VIEW POINT ROAD.[67]



48 The image shows the three distinct proposed engineered structures discussed earlier:

a. The yellow area in the image represents the wall constructed of soil nails and shotcrete at the boundary of 6 and 10–12 View Point Road. Mr Pope explained that the soil nails would be nominally spaced every 1.5 square metres and they would be six metres long. The shotcrete is proposed to be 150 millimetres thick. This design does not permit trees to be planted near the wall, as they may adversely affect the structure.[68]

b. The crescent of small black circles in the image represents the horizontal drains proposed to be installed along the base of the colluvium, 0.5 metres apart. The drains are to assist in draining water that travels to the east gully through the shallow aquifer. They are to be piped to the base of the slope to direct the water into a legal point of discharge.[69]

c. The hatching in the image represents the stainless steel mesh held in place with fiberglass soil nails.[70] This is to be placed across the face of the east gully, with soil nails of four to six metres in length spaced every two or three square metres.[71] Low shrubs and other vegetation, though not trees, could be grown over the area.[72]

67 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0063].

68 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0054].

69 Exhibit CA-90, Joint Report on remediation and mitigation prepared by expert conclave, 14 August 2025, [INQ.0012.0001.0001 at _0002].

70 Public Hearing Transcript, Dane Pope, 18 August 2025, 1372; Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0053]; Exhibit CA-90, Joint Report on remediation and mitigation prepared by expert conclave, 14 August 2025, [INQ.0012.0001.0001].

71 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0053].

72 Public Hearing Transcript, Dane Pope, 18 August 2025, 1372; Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0054].

49 The same type of concept is proposed for the west gully. It is shown below.

FIGURE 5.7: OBLIQUE VIEW OF SOIL NET DESIGN FOR WEST GULLY OF 10–12 VIEW POINT ROAD.[73]



50 The effect of Mr Pope's concept is that a large part of the escarpment at 10–12 View Point Road would be covered with stainless steel mesh.

51 It reflects a design approach commonly adopted for public road embankments.[74]

73 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0059].

74 Public Hearing Transcript, Dane Pope, 8 May 2025, 151.

52 A photograph of the soil nails and mesh design used on the Hamilton Highway is produced below:

FIGURE 5.8: COMPLETED SLOPE MITIGATION WORKS ALONG THE HAMILTON HIGHWAY USING SOIL NAILS AND MESH.[75]



53 This design approach requires ongoing maintenance. It would be necessary to clear materials that have built up behind the mesh about every five years, in addition to cleaning the slope drains.[76] Any trees that start to grow would also need to be removed.[77]

Cost and timing

54 While Mr Pope's design will involve ongoing costs associated with the required maintenance, it is likely to be much less costly at the outset than Mr Paul's proposal.

55 Mr Pope's concept has not been costed by a contractor. However, he gave an estimate of the total cost of the stainless-steel mesh and soil nails to be installed across the west and east gullies. His estimate was based on a rate of $1,300 per square metre,[78] with a total area of approximately 1,000 square meters to be covered.[79] He estimated a total cost of $1.3 million.[80]

75 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0066].

76 Exhibit CA-90, Joint Report on remediation and mitigation prepared by expert conclave, 14 August 2025, [INQ.0012.0001.0001 at _0002].

77 Exhibit CA-90, Joint Report on remediation and mitigation prepared by expert conclave, 14 August 2025, [INQ.0012.0001.0001 at _0002].

78 Public Hearing Transcript, Dane Pope, 18 August 2025, 1385.

79 Exhibit CA-90, Joint Report on remediation and mitigation prepared by expert conclave, 14 August 2025, [INQ.0012.0001.0001].

80 Public Hearing Transcript, Dane Pope, 18 August 2025, 1385.

56 The installation of the stainless-steel mesh and soil nails is, of course, only one part of the project. There are also the costs of the three stages of preparatory work, the installation of the wall at the boundary and the installation of the horizontal drains.[81]

57 The overall cost of Mr Pope's concept will likely be considerably more than $1.3 million.

58 As to the installation process, Mr Pope proposes that the works initially be undertaken by small-scale excavation using hand tools, with access to the slope obtained via abseiling.[82] He recommended that the slope be monitored during the works,[83] by, for example, a grid of tilt sensors.[84]

59 Unlike Mr Paul's proposal, the work is to be undertaken, at least initially, from the top of the slope downward. Mr Pope considered that method to be safer.[85] Mr Paul considers that working from the base of the slope to the top can be performed with safety measures in place.[86]

Both designs adequately mitigate risk at the site of the landslides

60 Having described both Mr Paul and Mr Pope's concept designs, the next and most important matter to address is whether those concepts would adequately mitigate the risks in relation to further landslides at the site of the 2022 and 2025 landslide events.

61 Given the evidence of Mr Paul and Mr Pope, this matter can be dealt with very briefly. Their evidence was that both designs would adequately do so.[87]

Finding

The concept designs provided by geotechnical engineering experts, Darren Paul and Dane Pope, would adequately mitigate the risks in relation to further landslides at the site of the 2022 and 2025 events.

62 Mr Paul explained that there are many considerations relevant to the selection of an appropriate concept.[88] Both experts agreed that there is no one single correct answer as to what mitigation works should be undertaken.[89]

63 Advice will also need to be sought as to whether any additional mitigation works are required on other parts of the escarpment at 6 and 10–12 View Point Road because Mr Paul and Mr Pope have focussed only on the locations of the 2022 and 2025 landslides.

81 Public Hearing Transcript, Dane Pope, 18 August 2025, 1385.
82 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0035].
83 Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007 at .0036].
84 Public Hearing Transcript, Dane Pope, 18 August 2025, 1380.
85 Public Hearing Transcript, Dane Pope, 18 August 2025, 1380.
86 Public Hearing Transcript, Darren Paul, 18 August 2025, 1380–1381.
87 Public Hearing Transcript, Darren Paul and Dane Pope, 18 August 2025, 1377–1378.
88 Public Hearing Transcript, Darren Paul, 18 August 2025, 1357.
89 Public Hearing Transcript, Darren Paul and Dane Pope, 18 August 2025, 1356–1357.

64 The ultimate selection of the concept is a matter to be resolved between the affected residents and those who are to be responsible for the cost of the works. The concept will, of course, require the consent of each affected landowner.[90] Aesthetics, cost, future maintenance and timing are all matters that will need to be considered.

65 The owners of 6 and 10–12 View Point Road have made it clear to the Board of Inquiry that they strongly prefer Mr Paul's concept design over Mr Pope's suggested mesh design.

66 Following a public hearing at which the two concepts were examined, a written submission was made on behalf of the owner of 6 View Point Road. The submission explained that Mr Paul's concept was preferred because it was a permanent, self-sustained remedy, that, once implemented, would require minimal to no future maintenance by the Shire or any other party. The submission also expressed concern that Mr Pope's proposal of removing soil from the headscarp may undermine the foundations of the house.[91]

67 Mr and Mrs Borghesi, the owners of 10–12 View Point Road, made a submission in which they:

a. rejected Mr Pope's design for the west gully;

b. considered the escarpment should be returned as close as possible to its pre-landslide condition;

c. supported Mr Paul's proposal for the east gully, if trees which were present on the boundary between his property and 6 View Point Road are restored; and

d. supported the construction of a gabion wall as proposed by Mr Paul.[92]

68 While the selection of a design concept is ultimately a matter for others, some brief observations are made below about the competing concepts.

69 First, while Mr Pope's mesh and soil nail design is more cost effective, it is not in keeping with the surrounding area. The design will restrict the growth of trees and larger plants in an area surrounded by coastal vegetation. [93] Mr Paul's design uses natural products and allows for the regrowth of vegetation.[94]

70 Second, the use of soil nails could restrict the future use of properties around the escarpment, as future building works could require footings that intersect with the soil nails.[95]

71 Third, Mr Pope's design requires ongoing maintenance, entailing inspection of the nails and meshing, and tensioning, within two to five years of installation, in addition to further inspections every five years and the flushing of drains.[96] Vegetation will also need to be maintained and trimmed where required.[97] An agreement will need to be reached as to who will bear responsibility for the ongoing maintenance and associated costs.[98]

90 Public Hearing Transcript, Darren Paul and Dane Pope, 18 August 2025, 1358.

91 Public Submission of McCrae Resident, 19 August 2025, [RES.0011.0002.0001].

92 Public Submission of Gerrard and Bronwyn Borghesi, 19 August 2025, [RES.0001.0006.0004 at _0001–_0002].

93 Public Hearing Transcript, Dane Pope, 18 August 2025, 1372.

94 Public Hearing Transcript, Darren Paul, 18 August 2025, 1365.

95 Public Hearing Transcript, Darren Paul, 18 August 2025, 1389.

96 Public Hearing Transcript, Dane Pope, 18 August 2025, 1375–1376.

97 Public Hearing Transcript, Dane Pope, 18 August 2025, 1376.

98 Public Hearing Transcript, Darren Paul, 18 August 2025, 1378.

72 Fourth, Mr Paul's concept can be implemented from the bottom of the escarpment (with appropriate safety measures in place), reducing disruption to the owners of 6 and 10–12 View Point Road.[99]

73 Fifth, while Mr Pope's concept is aimed at restraining the slope, Mr Paul's concept is aimed at reducing the risk of further landslides and preventing damage to houses at the toe of the escarpment. The gabion wall is to protect the houses at the toe of the slope. It would require the use of space within Penny Lane and may have visual impacts, particularly at the ground level. However, the structure is straightforward to construct and would involve only minimal ongoing maintenance.[100] One complication is that the consent of the owners of 3 Penny Lane will be required if the wall is to be built into their boundary.

74 Lastly, there are the different approaches to water management. Both proposals - horizontal drains in the east gully (Mr Pope) and groundwater wells along View Point Road (Mr Paul) – would require ongoing maintenance. Both proposals raise questions as to who would be responsible for the maintenance. SEW submitted to the Board of Inquiry that the primary water likely to be captured by groundwater wells is groundwater,[101] which is itself, neither the responsibility of the Shire nor SEW.[102]

75 In light of the causation findings set out in Chapter 4, the complexity of the matters to be resolved in relation to the mitigation and remediation works, the number of parties with an interest in those matters, and the imperative of advancing the works with sufficient urgency to enable the return of displaced residents, the Board of Inquiry has given consideration to the establishment of an appropriate mechanism to facilitate the resolution of these issues. It makes the following recommendation.

Recommendation 1: Appointment of a mediator

The Board of Inquiry recommends a Victorian Government Minister appoint an experienced mediator to engage in a structured process with the Shire, SEW, affected landowners and any other necessary parties, with a view to reaching agreement in relation to appropriate landslide mitigation and remediation works at and around the site of the McCrae Landslide.

Recommendation 2: Participation in the mediation process

The Board of Inquiry recommends the Shire and SEW appoint or engage a suitably experienced individual to lead and oversee their participation in the mediation process (Recommendation 1), with a view to bringing a fresh and pragmatic perspective to the issues.

99 Email from Darren Paul to Solicitors Assisting the Board of Inquiry about construction schedule, 18 August 2025, [DPA.0008.0001.0001].

100 Public Hearing Transcript, Darren Paul, 18 August 2025, 1366.

101 Submission of South East Water about measures to reduce or prevent the risk of another landslide, 22 August 2025, [SEW.0001.0002.4205 at _0007].

102 Submission of Mornington Peninsula Shire Council about mitigation of further landslides, 22 August 2025, [MSC.5094.0001.0050 at .0052]; South East Water, Response to first set of potential adverse findings, 21 August 2025, [SEW.0001.0002.4203 at _0009].

5.3 Broader mitigation measures in McCrae

76 The final matter for consideration concerns specific mitigation measures in McCrae.

77 Little further needs to be said, as many of the recommendations set out in Chapter 8 already address this issue.

78 Smart water meters are one mitigation measure now, pleasingly, being used in McCrae. By the time of the first hearing block, SEW had committed to replacing analogue meters in the McCrae area with smart (or "digital") water meters.[103] The roll out started in April 2025 and was scheduled to be completed in June 2025.[104] The benefit of smart meters is that they enable household water usage to be monitored on a daily basis.[105] They also provide an alert when usage is outside of the ordinary range, enabling SEW to make further inquiries to determine whether there is a water leak,[106] and allowing for the quicker identification of bursts to mains in some situations.[107]

79 The implementation of smart meters in landslide-prone areas such as McCrae is a prudent and practical measure. To the extent that the rollout in the McCrae area has not yet been completed, it should be completed as a matter of priority.

80 Trench stops are another measure that may be useful in the McCrae area. They were raised by Mr Paul for consideration.[108]

81 Trench stops are hydraulicly impervious barriers installed in trenches to prevent them becoming long conduits for water. They operate by creating an impervious barrier that forces water to accumulate in the trench, so that it either migrates through the walls of the trench (more slowly than it would through the bedding material), or it is pushed to the surface, where it is detected or diverted to stormwater via a kerb or stormwater pit.[109] Examples of trench stops are shown below.

103 Public Hearing Transcript, Lara Olsen, 16 May 2025, 565.

104 Public Hearing Transcript, Lara Olsen, 16 May 2025, 565.

105 Public Hearing Transcript, Andrew Forster-Knight, 24 June 2025, 1011.

106 Public Hearing Transcript, Lara Olsen, 16 May 2025, 567.

107 Public Hearing Transcript, Andrew Forster-Knight, 24 June 2025, 1012.

108 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0120]; Public Hearing Transcript, Darren Paul, 18 August 2025, 1366–1367.

109 Public Hearing Transcript, Darren Paul, 18 August 2025, 1399.

FIGURE 5.9: EXAMPLES OF TRENCH STOPS.[110]



82 SEW submitted to the Board of Inquiry that trench stops are unnecessary because "*burst water generally flows to the surface in any event*".[111] No supporting source was provided. Counsel for SEW questioned Mr Paul about the utility of trench stops. He was asked about the potential for trench stops to be "*a nuisance to residents, [as the water diverted to the surface can cause] damage to roads, to gardens, soggy soil*".[112] In response, Mr Paul stated:

> Groundwater coming to the surface, damage to pavement and wet areas, yeah, that can mean inconvenience, but I'd say not as inconvenient as a landslide.[113]

83 Mr Paul also explained that trench stops can be positioned so that any surface water runs into the stormwater system and not towards an area prone to landslides.[114]

84 Mr Paul also raised for consideration the use of carrier pipes.

85 Carrier pipes are a sleeve that is placed around the water main such that, in the event of a rupture, water is captured by the carrier pipe and is then diverted through the carrier pipe to a pit.[115] They also assist to protect the water main as they make the main more resistant to ground movements which are absorbed by the carrier pipe.[116]

110 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0121].

111 Submission of South East Water about measures to reduce or prevent the risk of another landslide, 22 August 2025, [SEW.0001.0002.4205 at _0005].

112 Public Hearing Transcript, Darren Paul, 18 August 2025, 1398.

113 Public Hearing Transcript, Darren Paul, 18 August 2025, 1399.

114 Public Hearing Transcript, Darren Paul, 18 August 2025, 1399–1400.

115 Public Hearing Transcript, Darren Paul, 18 August 2025, 1403.

116 Public Hearing Transcript, Darren Paul, 18 August 2025, 1403.

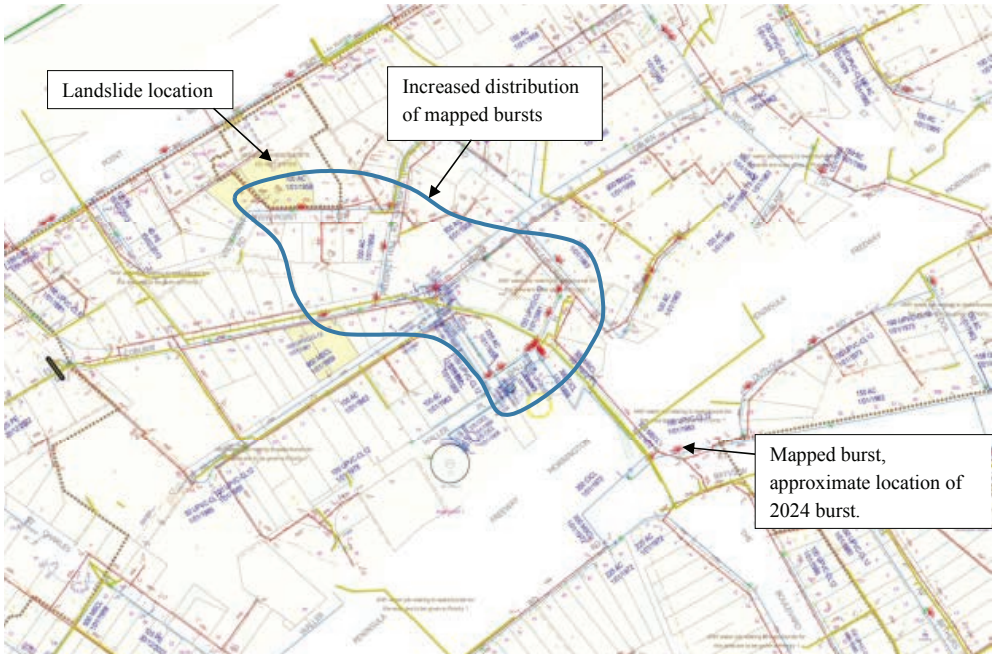
Recommendation 3: Trench stops and carrier pipes

The Board of Inquiry recommends the Shire and SEW obtain expert advice about the use of trench stops and carrier pipes in parts of McCrae to mitigate the risk of landslides, including the use of such measures in more remote locations where water leaks may be less readily detected.

86 Next, Mr Paul suggested that consideration be given to the replacement of aged vitreous clay sewer pipes and asbestos cement water mains.[117]

87 This map indicates a zone in the McCrae area where there were an anomalous number of failures:

FIGURE 5.10: SOUTH EAST WATER PLAN SHOWING FREQUENCY OF WATER LEAKS WITHIN WATER MAINS IN THE MCCRAE AREA WITH ANNOTATIONS.[118]



88 Mr Paul considered that the asbestos pipes in the area outlined above were aging, brittle, and prone to cracking,[119] and had a higher rate of leakage compared to other areas in McCrae.[120]

117 Public Hearing Transcript, Darren Paul, 18 August 2025, 1367.

118 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0080].

119 Public Hearing Transcript, Darren Paul, 18 August 2025, 1394.

120 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001 at _0011].

89 Finally, SEW has informed the Board of Inquiry that the burst water main that has been found by the Board of Inquiry to have caused the 5 January 2025 landslide and McCrae Landslide may have contained a manufacturing defect.[121] SEW is presently examining whether this issue may affect other pipes in the area.[122] Such investigations should proceed without delay.

Recommendation 4: Assessment of infrastructure

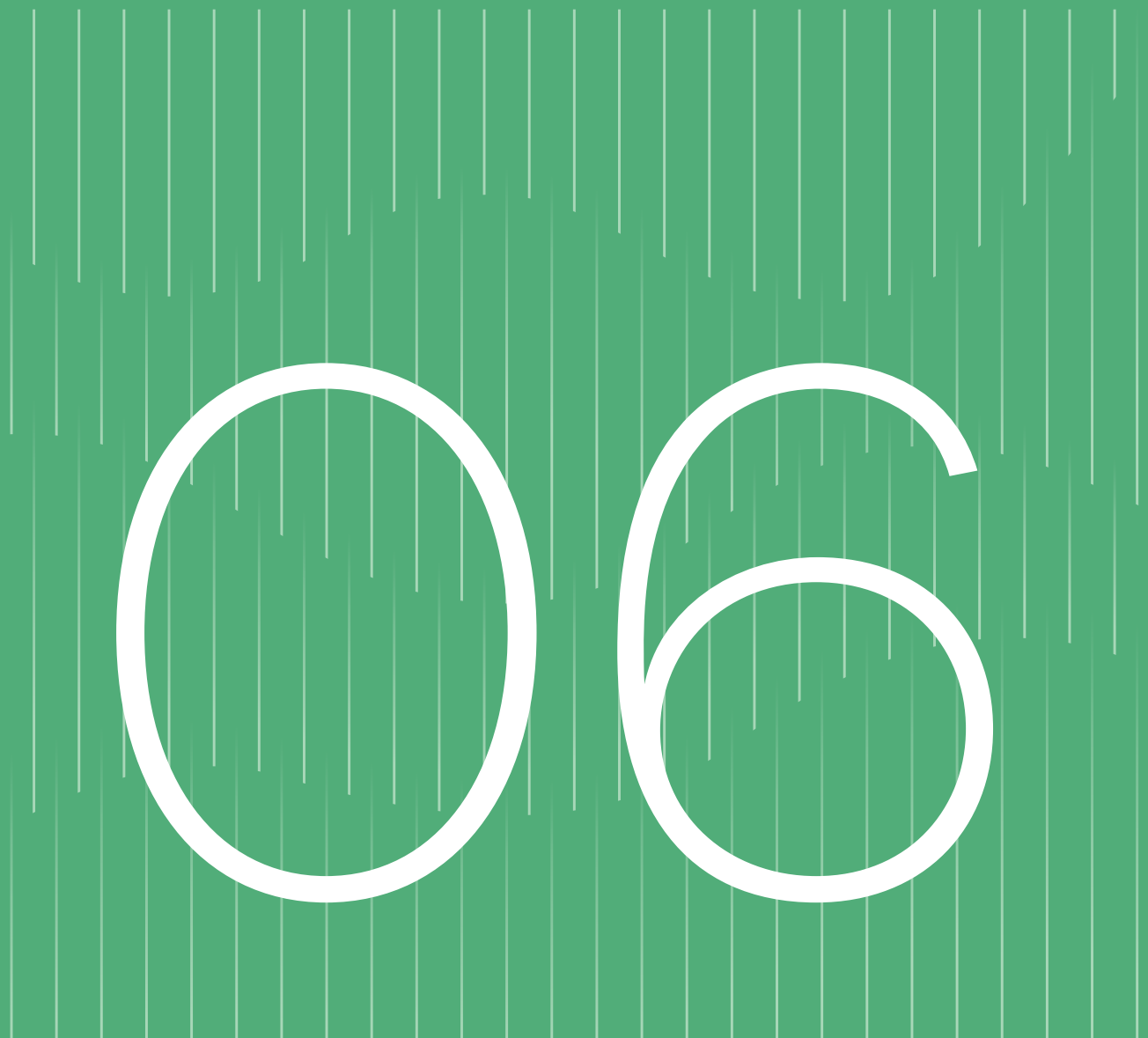
The Board of Inquiry recommends the Shire and SEW thoroughly assess their water infrastructure in McCrae to identify any need for repair or replacement works to mitigate landslide risk. SEW should also adopt this measure in relation to its sewer system.

121 Yvonne Wu and John Scheirs, ExcelPlas Expert Report – Condition Monitoring of a PVC Pipe, 13 June 2025, [SEW.0001.0001.5467].

122 Exhibit CA-65, Second Witness Statement of Julian Tully, 2 July 2025, 4 –5 [22]–[23].

CHAPTER 6

Conduct of the Mornington Peninsula Shire Council and South East Water



6.1 Introduction

1 Having found that the cause of the McCrae Landslide was water from the burst water main, it is now time to examine the conduct of the Shire and SEW in the lead up to the landslide.

2 Their conduct is assessed across two dimensions:

a. actions and decisions taken (or the absence thereof) to prevent or mitigate landslides in McCrae; and

b. actions and decisions taken (or the absence thereof) that may have contributed to causing the McCrae Landslide.

3 Three key observations emerge from that assessment:

a. first, the Shire and SEW were not passive bystanders in the lead up to the McCrae Landslide. Both organisations took steps in an attempt to respond to the issues of water surfacing in McCrae and to locate the source of water flowing from the headscarp of the 5 January 2025 landslide;

b. second, while each organisation invested resources and time in those efforts, they operated in siloes, missing valuable opportunities for collaboration and co-ordination; and

c. third, their respective approaches demonstrate that neither fully appreciated the seriousness of the landslide risk in McCrae and, as a result, they did not respond with the urgency and appropriate lens that the situation demanded.

4 The analysis that follows throws into sharp focus that, prior to the McCrae Landslide, neither the Shire nor SEW prioritised the management and mitigation of landslide risk in McCrae. That appears to be changing.

6.2 Mornington Peninsula Shire Council

5 The Shire's engagement with the Board of Inquiry was for the most part positive and constructive.

6 The Shire now needs to adopt that same approach in rebuilding its relationship with the residents of McCrae and in assisting to provide practical and timely solutions for residents. This requires strong leadership and commitment from the Mayor, Councillors and the Chief Executive Officer. Unless this occurs, the Board of Inquiry fears that the residents who have already been displaced from their homes for far too long will remain displaced for many years to come. That is not a situation that the Shire should accept or tolerate within its community.

7 The Shire states publicly that it is committed to the highest standards of performance, behaviour and service.[1] The Shire has five core values which it says guide it in the delivery of exceptional community outcomes, being:

a. integrity;

b. openness;

c. courage;

d. respect; and

e. excellence.

8 These core values are said to set the framework for how the Shire works together to achieve outstanding outcomes for the community. They are said to guide the Shire in defining and communicating how it does things, how it makes decisions in the best interests of the community that it serves, and how Shire officers hold themselves accountable to the highest standards of performance and conduct.

9 It is evident from the analysis that follows that the Shire has fallen short of its commitment to the highest standards of performance, behaviour and service, in relation to the events the subject of this Board of Inquiry. Residents have lost trust and confidence in the Shire. They are frustrated by the approach taken by the Shire to the 2022 and 2025 landslides.

10 The Mayor, Councillors and Chief Executive Officer must lead the Shire in learning from these shortcomings and in fulfilling the public commitment that it has given to its community.

Recommendation 5: Shire's McCrae Landslide Incident Group

The Board of Inquiry recommends the Chief Executive Officer of the Shire review and improve the approach that has been and is being taken by the Shire's McCrae Landslide Incident Group, with the assistance of a suitably experienced external independent consultant.

Inaction prior to the November 2022 landslides

11 It is evident from the chronological outline of the evidence in Chapter 3 that, prior to the McCrae Landslide, the Shire did not fully comprehend the risk of landslides in McCrae which impacted the Shire's approach to managing the risk and in preparing for landslide events.

1 Mornington Peninsula Shire Council, 'Our Organisational Values', *About Our Organisation* (Web Page) <https://www.mornpen.vic.gov.au/About-Us/About-Our-Organisation/Our-Organisational-Values>.

The Shire could have, but did not, promptly commission work to classify the entire Mornington Peninsula into areas of high, medium and low landslide susceptibility after receiving geotechnical advice in March 2002

12 The fact that the Shire did not fully comprehend the risk of landslides in McCrae can be observed from at least 2002.

13 In March of that year, the Shire received an initial assessment by geotechnical experts of "*landslide hazards*" across the entire Mornington Peninsula.[2] That assessment included preparation of the following parameter maps for inclusion in a geographical information system (**GIS**): a geological map, cadastre map and digital terrain model.

14 The geotechnical experts recommended that those maps be combined with a field mapping exercise to enable the development of a map that classified the Shire into areas of high, medium and low susceptibility with regard to landslides.[3]

15 The zoning of the Mornington Peninsula into areas of landslide susceptibility was said to serve several purposes, including:

a. enabling prospective residents, developers and the Shire to assess the risks associated with building and developing in certain areas;

b. assisting the Shire's personnel to make more informed decisions on whether to approve a development or require further geotechnical investigation;

c. allowing the Shire to assess the vulnerability of its own assets to landslides; and

d. providing developers with information designed to promote responsible development.[4]

16 Despite these clear benefits, the Shire did not commission Lane Piper to undertake the zoning until April 2007 – more than five years after the recommendation was made.

17 The Shire has provided no explanation for the delay.

18 It is acknowledged that between 2002 and 2007, significant advancements were made in GIS data and computer processing capabilities. These developments enabled computer-based analysis of landslide susceptibility, thereby reducing the need for engineers or geologists to spend time in the field.[5] However, the Shire has not sought to justify its delay by reference to awaiting those technological advancements.

19 There is otherwise no evidence before the Board of Inquiry accounting for the Shire's inaction for five years. That inaction is difficult to square with the fact that the Shire and its residents had, for decades, "*experienced difficulties and expense as a result of slope stability issues throughout the [Mornington Peninsula area]*" and were confronting increasingly serious consequences from slope instabilities.[6]

2 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4452].

3 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4452].

4 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4454].

5 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4452].

6 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4453].

Finding

The Shire could have, but did not, promptly commission work to classify the entire Mornington Peninsula into areas of high, medium and low landslide susceptibility after receiving geotechnical advice in March 2002.

This was a missed opportunity to promptly identify and mitigate landslide risk.

The Shire could have, but did not, obtain appropriate landslide risk assessments prior to issuing planning permits for a residential development in 2003

20 The fact the Shire did not fully comprehend the risk of landslides in McCrae can also be observed in 2003, when the Shire considered the application from the owners of 611–613 Point Nepean Road to develop that land by building multiple residential properties.

21 As set out in Chapter 3, in response to the public exhibition of those applications, the Shire's Planning Department was told by the Mornington Peninsula Ratepayers' & Residents' Association and by local community members that:

a. there had been landslides nearby,[7] including just above and to the east of 611–613 Point Nepean Road;[8]

b. the topographic features of the land imposed constraints on "*safe habitation in the area*";[9] and

c. increasing housing density below a steep and unstable cliff face was careless.[10]

22 This information from local people should have prompted the Shire's Planning Department to request from the applicants information concerning the risk to the site from landslide. Instead, the Shire referred the applications to Planning Panels Victoria,[11] where it supported the development.

23 Despite the efforts of residents who attended the Planning Panel hearing to voice their concerns, and despite the Planning Panel not being able to make a finding on the risk of landslide, the Shire still did not act on the landslide concerns raised beyond simply checking for any relevant information in the Shire's records.[12]

24 The Shire ultimately issued planning permits allowing the subdivision and the construction of the residential properties at the toe of the escarpment at 611–613 Point Nepean Road.[13] It did so without seeking to properly comprehend the landslide risk to those properties from the escarpment above.

7 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.

8 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.1.

9 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.1.

10 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.

11 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 2.3.

12 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.

13 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(8) [MSC.5014.0001.1302].

25 Two decades on and those properties (being 1–4/613 Point Nepean Road and 2 Penny Lane) were all impacted by the November 2022 landslides and the McCrae Landslide.

26 Following the November 2022 landslides, the Willigenburgs in 3/613 Point Nepean Road were ordered out of their home by an Emergency Order.[14] So were the owners of 1, 2 and 4/613 Point Nepean Road together with the owners of 2 Penny Lane.[15]

27 Following the McCrae Landslide, the owners of 1–4/613 Point Nepean Road and the owners of 2 Penny Lane were ordered out of their homes again by Emergency Orders.[16] The Willigenburgs and the residents of 2 Penny Lane had not been permitted back since the earlier landslides.[17] They are still not back in their homes.

28 Had a risk assessment been undertaken two decades ago, it is not possible to know whether the planning permits would have been issued or whether they would have been issued subject to conditions such as a requirement that a gabion wall be built to protect the properties in the event of a landslide. What is certain, however, is that the planning permits would not be issued today based on PSM's risk assessment provided to the Shire this year.[18]

Finding

The Shire could have, but did not, request from the applicants or itself obtain a landslide risk assessment prior to issuing planning permits for the subdivision and development of 611–613 Point Nepean Road, in circumstances where landslide risk was identified in public submissions as one of the issues bearing on the site's suitability for development.

This was another missed opportunity to identify and mitigate landslide risk.

29 In addition to not obtaining a risk assessment, the Shire also did not take steps in response to the following observation made by the Planning Panel:

> [E]ffective management of stormwater drainage and other infiltration on the properties above the site would be likely to reduce any hazard that may exist and that such management is desirable regardless of the type or density of development that may occur on the subject land.[19]

30 There is a body of evidence, addressed in Chapter 3, that drainage above the site on View Point Road was sub-standard for many years following the construction of the properties. In addition, there is evidence of a history of excess water being observed at the toe of the escarpment in and around Penny Lane.[20]

14 Exhibit CA-21, Witness Statement of Paul Willigenburg, 14 May 2025, Exhibit PW-3 [RES.0010.0001.0003].

15 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(81) [MSC.5003.0001.0030 at .0034].

16 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 50–51 [138].

17 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 51 [140].

18 Exhibit CA-77, Revised McCrae Landslide Risk Assessment for Evacuation Area prepared by PSM, 28 May 2025, [MSC.5056.0001.0003].

19 *Mornington Peninsula C52 (PSA)* [2003] PPV 115 at Section 4.2.

20 Public Submission of Dr Joseph Radcliffe, 8 May 2025, [SUB.0036.0001.0001].

Finding

The Shire could have, but did not, assess whether the stormwater drainage system above 611–613 Point Nepean Road was being effectively managed to mitigate landslide risk along the escarpment. For example, the Shire could have, but did not, obtain an expert opinion in relation to the condition and effectiveness of the stormwater system prior to issuing the planning permits for the subdivision and development of the subject site.

This was another missed opportunity to identify and mitigate landslide risk.

The Shire could have, but did not, promptly undertake works to stabilise the gully located between The Eyrie and Point Nepean Road

31 Shortly after the site at 611–613 Point Nepean Road was developed, in September 2007, the Shire received geotechnical advice from Lane Piper that most of the slopes in the gully located between The Eyrie and Point Nepean Road were only marginally stable.[21] That gully is approximately 200 metres away from 611–613 Point Nepean Road and 150 metres away from the site of the McCrae Landslide.

32 Increased runoff in previous years had resulted in erosion of the gully bed and subsequent instability of the surrounding steep gully banks and the walking path. The instability was so great that it resulted in the collapse of a walking path and its subsequent closure.[22]

33 Lane Piper recommended that works be undertaken to stabilise the gully.

34 The works were not completed until 2014 – some seven years after the risk was identified. The stabilisation works included: installing underground drainage pipes, culverts and pits; earthworks and rock placement; and revegetation and landscaping.[23]

35 The Shire has provided no explanation as to why it took so long for the stabilisation works to be completed. The lapse of time suggests that the matter was not treated with urgency and indicates that the mitigation of landslide risk was not a high priority for the Shire.

Finding

The Shire could have, but did not, promptly undertake works to stabilise the gully located between The Eyrie and Point Nepean Road after receiving geotechnical advice in September 2007.

This was another missed opportunity to mitigate landslide risk.

21 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(117) [MSC.5012.0001.0123 at .0140].

22 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(117) [MSC.5012.0001.0123 at .0127].

23 Email from Chloe Patching to Infrastructure Asset Notification at Mornington Peninsula Shire Council about completion of The Eyrie Gully Stabilisation Project, 10 November 2014, [MSC.5092.0001.0001].

The Shire could have, but did not, seek to update the EMO schedules in the Mornington Peninsula Planning Scheme after receiving the 2012 Cardno Report

36 By February 2012, the Shire knew that geotechnical experts, Cardno, had classified the McCrae escarpment in the vicinity of 10–12 View Point Road, as well as other areas in the Mornington Peninsula, as exhibiting high landslide susceptibility.[24] It bears repeating that the 2012 Cardno report stated: "*[t]he cliffs at McCrae have been shown to be unstable in the past due to both natural and man-made causes*".[25]

37 Yet, the Shire did not seek to extend its EMO schedules to those susceptible areas, despite its own acknowledgement that the EMO is the "*primary and most effective control to prevent or mitigate landslides and erosion*".[26] This omission is difficult to justify.

38 The Shire's inaction gives rise to several key questions:

a. Why is the EMO important for protecting areas susceptible to landslides?

b. Why did the Shire decide not to update the EMO schedules to include areas identified as being susceptible to landslides?

c. What actions did the Shire take?

d. Was the Shire's response adequate?

39 Each of these questions will be considered in turn.

Why is the EMO important in protecting areas susceptible to landslides?

40 The EMO is part of the Victorian Planning Scheme.

41 In general terms, the Victorian Planning Scheme is as follows. Each local government area has a unique planning scheme, which is prepared and approved under the *Planning and Environment Act*. That planning scheme regulates the use and development of land by, amongst other things, classifying land into zones and overlays. Every parcel of land falls within a zone – such as a residential, commercial or industrial zone. In addition to a zone, land with special characteristics may be subject to one or more overlays. Overlays set out additional requirements for subdivision, buildings and works, beyond those specified by the zone.[27]

42 The EMO is applied to "*protect areas prone to erosion, landslip, other land degradation or coastal processes by minimising land disturbance and inappropriate development*".[28] In broad terms, if an EMO applies to land by a local EMO schedule, it ordinarily triggers the requirement for a planning permit to be obtained for building and works, including for types of development that are ordinarily exempt from planning permits under statewide controls in cl 62.02 of the Mornington Peninsula Planning Scheme.[29]

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24 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(3) [MSC.5014.0001.0010], Exhibit CA-11(4) [MSC.5014.0001.0068].

25 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4514].

26 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 6–7 [29]; Public Hearing Transcript, Bulent Oz, 8 May 2025, 188–189.

27 Department of Transport and Planning, *Using Victoria's Planning System* (Guide, March 2024) <https://www.planning.vic.gov.au/__data/assets/pdf_file/0033/629349/Using-Victorias-Planning-System-March-2024.pdf>.

28 Exhibit CA-1(2), Mornington Peninsula Planning Scheme (in force prior to 5 January 2025), [INQ.0003.0001.0001 at _0755].

29 Exhibit CA-1(2), Mornington Peninsula Planning Scheme (in force prior to 5 January 2025), [INQ.0003.0001.0001 at _0755–_0769, _1210]; Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 6–7 [29].

43 The EMO, therefore, operates *prospectively*. Landslide risk is assessed in the context of assessing proposed use and development under the planning permit application. The EMO cannot be applied retrospectively to a use of land or development that was lawful before it came into operation.

44 At the time the Shire received the 2012 Cardno Report, there were five EMO schedules in the Mornington Peninsula Planning Scheme (contained in cl 44.01, Schedules 1–5).[30] The evidence of Mr Simon, current Acting Director Planning and Environment of the Shire, is that those EMO schedules came into existence "*by evolution, not design*".[31]

45 None of those EMO schedules applied, or currently apply, to the McCrae escarpment. Moreover, Mr Simon accepted that the Shire's EMO schedules did not, and do not, cover all land that is within the red zone of high landslide susceptibility as reflected in the GIS generated using Cardno's assessment.[32]

46 To understand the practical effects of that omission, it is necessary to explain in greater detail how an EMO schedule within the Mornington Peninsula Planning Scheme works. It is sufficient to refer to EMO4 and EMO5 as they are the most prescriptive EMO schedules in the Mornington Peninsula Planning Scheme. Those EMO schedules were introduced in January 2011 and apply to land in the vicinity of Tanti Creek and Flinders township, northeast of McCrae.[33]

47 The objectives of EMO4 and EMO5 are said to be "*[t]o ensure land in areas susceptible to landslide is developed with proper regard to geotechnical hazard and risk assessment, including appropriate risk mitigation*".[34]

48 The statement of risk in those EMO schedules is as follows:

> Areas susceptible to landslide have been identified to occur along the coastline, creeks and steeper sloped inland parts of the Mornington Peninsula. Inappropriate use and development, including vegetation removal, can exacerbate the risks of landslide to life, property and environment associated with these areas. Problems may include restricted usability; structural stability, cracking and rising damp. Changes in drainage patterns or the water table could also contribute to further instability with associated risks to water quality and the protection of indigenous flora and fauna.[35]

49 Under EMO4 and EMO5, a planning permit is required for all subdivisions and most building and other works, including the removal of vegetation.[36] There are some exemptions to that requirement – for example, if there is no increase in building height, no ground disturbance *and* no change to stormwater runoff as a result of the proposed development.[37]

30 Exhibit CA-1(2), Mornington Peninsula Planning Scheme (in force prior to 5 January 2025), [INQ.0003.0001.0001 at _0755–_0769].

31 Public Hearing Transcript, David Simon, 9 May 2025, 229.

32 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, 19 [47].

33 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, 18–19 [44].

34 Exhibit CA-1(2), Mornington Peninsula Planning Scheme (in force prior to 5 January 2025), [INQ.0003.0001.0001 at _0764, _0767].

35 Exhibit CA-1(2), Mornington Peninsula Planning Scheme (in force prior to 5 January 2025), [INQ.0003.0001.0001 at _0764].

36 Exhibit CA-1(2), Mornington Peninsula Planning Scheme (in force prior to 5 January 2025), [INQ.0003.0001.0001 at _0755, _0764, _0767].

37 Exhibit CA-1(2), Mornington Peninsula Planning Scheme (in force prior to 5 January 2025), [INQ.0003.0001.0001 at _0764, _0767].

50 Where a planning permit is required for the proposed building or works, the application must be accompanied by information concerning landslide risk to the satisfaction of the Shire. Notably, such information includes:

a. a site-specific geotechnical hazard and risk assessment report prepared by a suitably qualified geotechnical engineer or engineering geologist with experience in landslide risk assessment;

b. a quantitative risk assessment of the site in accordance with the AGS guidelines for loss of life and either a quantitative or qualitative risk assessment for property loss, where EMO5 applies to the land (alone or in combination with EMO4);

c. a discussion and recommendation about whether the site is suitable for the proposed development, including whether or not conditions should be imposed in relation to a monitoring, inspection and maintenance regime conducted by a suitably qualified geotechnical engineer or engineering geologist who is experienced in slope stability assessments and other risk mitigation measures; and

d. a peer review of the above reports by an independent and suitably qualified geotechnical engineer or engineering geologist.[38]

51 The upshot is that, where EMO4 and EMO5 apply, proposed uses and developments undergo *specific* scrutiny for landslide risk. Decisions and actions on such use and developments can therefore be guided by considerations directly aimed at mitigating that risk.

52 As the McCrae escarpment is not covered by EMO4 and EMO5 – indeed any EMO schedules – the Mornington Peninsula Planning Scheme provides no mechanism to require a planning permit application to be made for proposed use and developments on that land that specifically addresses landslide risk.

53 Without an EMO, development in areas highly susceptible to landslide, for example, can proceed without proper and specific regard to how such development may exacerbate the landslide risks to life and property. Further, residents living in an area without an EMO are unlikely to maintain their properties in a way that reduces landslide risk or make themselves aware of how extreme weather can affect landslide conditions.[39] Both consequences are demonstrably problematic.

54 The Shire is not utilising its "*primary and most effective control to prevent or mitigate landslides and erosion*" in areas of high landslide susceptibility.[40] This begs the obvious question: why?

38 Exhibit CA-1(2), Mornington Peninsula Planning Scheme (in force prior to 5 January 2025), [INQ.0003.0001.0001 at _0764–_0765, _0767–_0768].

39 Yarra Ranges Council, 'Erosion Management Overlay Mapping Review (Planning Scheme Amendment C225)', *Amendment C225 Erosion Management Overlay Mapping Review* (Fact Sheet, August 2025) <https://www.yarraranges.vic.gov.au/Our-services/Planning-building-and-development/Planning/Amendments-to-the-planning-scheme/Amendment-C225-Erosion-Management-Overlay-Mapping-Review>.

40 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 6–7 [29]; Public Hearing Transcript, Bulent Oz, 8 May 2025, 188–189.

Why did the Shire decide not to update the EMO schedules to include areas identified as being susceptible to landslides?

55 It is unclear why the Shire did not promptly update the EMO schedules to at least include areas identified in the 2012 Cardno report as having high landslide susceptibility (shaded in red in the GIS).

56 Mr Oz, Acting CEO of the Shire prior to 16 April 2025, had no specific knowledge as to why the Shire did not update its EMO schedules at the relevant time.[41] Similarly, Katanya Barlow, the Shire's Manager - Strategic & Infrastructure Planning, was not aware of any information that would indicate why the EMO was not applied by the Shire in or around 2012. She also was not aware of anything in the 2012 Cardno report which indicated that McCrae ought not to have had the EMO applied.[42]

57 Mr Simon added that it would not simply have been a matter of extending EMO4 and EMO5 to the areas of high landslide susceptibility, primarily because those EMO schedules were premised on more location specific studies.[43]

58 The question of whether to update the EMO schedules to reflect the 2012 Cardno report appears to have simply lain dormant for six years, until 2018. In the meantime, the Shire made use of the 2012 Cardno report through implementing an informal practice, which is outlined in the next section.

59 In 2018, as noted in Chapter 3 of this Report, pursuant to s 12B of the *Planning and Environment Act*, the Shire reviewed provisions of the Mornington Peninsula Planning Scheme. Relevantly, the 2018 Review considered the then five EMO schedules which applied to ridgelines and escarpments throughout the Shire.[44]

60 At the outset of the 2018 Review, it was acknowledged that "*landslide susceptibility modelling has been completed [for the whole of the Mornington Peninsula] and now needs to be integrated into the scheme via review and amendment of the Erosion Management Overlay*".[45]

61 The Shire's review led to two relevant recommendations:

a. **Recommendation 210**: Merge the application requirements of EMO3 into EMO1, delete the schedules for EMO2 and EMO3, and renumber mapping of EMO2 and EMO3 to EMO1.

b. **Recommendation 211**: Complete the comprehensive review and update of the Shire's landslip susceptibility data and modelling and update the ordinance and mapping of the Shire's EMO schedules.[46]

41 Public Hearing Transcript, Bulent Oz, 8 May 2025, 201.

42 Public Hearing Transcript, Katanya Barlow, 20 June 2025, 791.

43 Public Hearing Transcript, David Simon, 9 May 2025, 232.

44 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(65) [MSC.5014.0001.0182 at .0386].

45 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(65) [MSC.5014.0001.0182 at .0205].

46 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025 19 [48]–[49]; Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(65) [MSC.5014.0001.0182 at .0387].

62 Mr Simon justified Recommendation 211 on the basis that the 2012 Cardno report had the following limitations,[47] which Cardno itself accepted:

a. it was primarily a desktop review that relied on existing literature, available data, reports and aerial photography. Very little fieldwork had been carried out by Cardno;

b. it was not an assessment of landslide hazard or risk. Such assessments still had to be carried out on an individual site basis using intrusive investigations and site-specific field observations. Consequently, the report was *not* a substitute for such investigations and only served as a "*guide as to the expected landslide susceptibility*"; and

c. the landslide susceptibility modelling was primarily based on the geology and slopes. Other important factors such as the depth of groundwater, the presence of perched water, vegetation and the depth to the rock were not considered in Cardno's assessment.[48]

63 Given those limitations, Cardno advised that it was "*essential that findings of this assessment be followed up with an appropriately detailed geotechnical investigation on a site by site basis in order to appropriately assess each site*".[49]

64 Mr Simon also gave evidence that Cardno's mapping needs to be treated with a level of caution as areas of "*red [high landslide susceptibility] don't always necessarily align with the steepness of the land or, like, a cliff edge*". He thought this imprecision was a product of the underlying geological maps that Cardno used which can have a scale of 1:63,000, such that a miniscule millimetre movement on the map could translate to a difference of several metres in the real world.[50]

65 The foregoing limitations explain why the 2012 Cardno report was not the most reliable dataset for updating the Shire's EMO schedules in 2018. They highlighted the need to implement Recommendation 211 before making any such updates – a step the Shire then did not take. Why?

66 Mr Simon did not have firsthand knowledge in relation to why Recommendation 211 was not implemented. However, he understands that there may have been other priorities for the Shire at the relevant time. For example, there were various recommendations regarding a neighbourhood character study and heritage review that were already underway, and which were prioritised by the Shire ahead of Recommendation 211. He said that this was ordinary practice in the Shire: existing amendments are prioritised ahead of any new recommendations, as any amendments need to be seen through to completion due to the pressure on Shire resources.[51]

67 While the Shire did not take steps to update its EMO schedules after receiving the 2012 Cardno report, it is not the case that it did nothing with the landslide susceptibility modelling. The next question is, therefore, what did the Shire do instead to prevent and manage the risk of landslides?

47 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 37 [76].

48 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4531–.4532].

49 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(110) [MSC.5012.0001.4440 at .4532].

50 Public Hearing Transcript, David Simon, 9 May 2025, 237.

51 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 37 [77].

What actions did the Shire take?

68 At some point after receiving the 2012 Cardno report but prior to 2019, the Shire adopted a practice of imposing additional planning requirements on properties that were mapped by Cardno as falling within the high landslide susceptibility areas.[52]

69 That practice was set out in Chapter 3 of this Report but should be repeated here. Those additional requirements were, and currently are, as follows:

a. first, any planning permit applications for the development of land clearly in high landslide susceptibility (red) areas must be accompanied by a peer reviewed geotechnical report which complies with the AGS Guidelines 2007;[53]

b. second, prior to the commencement of any works for the development, a *Form B Structural/ Civil/Geotechnical Engineering Declaration* must be completed in compliance with the AGS Guidelines 2007 by both a registered structural or civil engineer (endorsed by the Victorian Business Licensing Authority) and a specialist geotechnical engineer or a specialist engineering geologist as defined by the AGS;[54] and

c. finally, upon completion of the works, but prior to occupation of the site, a *Final Geotechnical Certificate* must be completed by a specialist geotechnical engineer or a specialist engineering geologist as defined by the AGS.[55]

70 Mr Simon accepted that this practice was not formally documented until March 2025 by the Shire's Development Engineering team.[56] Prior to this, the practice was said to be guided by a series of internal documents and on-the-job training.[57]

71 The formally documented process essentially guides a statutory planner within the Shire as to when a planning permit application should be referred to the Development Engineering team. The formalised process applies to proposed developments that are to occur in or near areas subject to EMO2 to EMO5.[58] A separate process is followed for developments in areas in or near EMO1, which was not explored in evidence.

52 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 9 [43]; Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 35 [63].

53 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 9 [44].

54 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 9 [45].

55 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 9 [46].

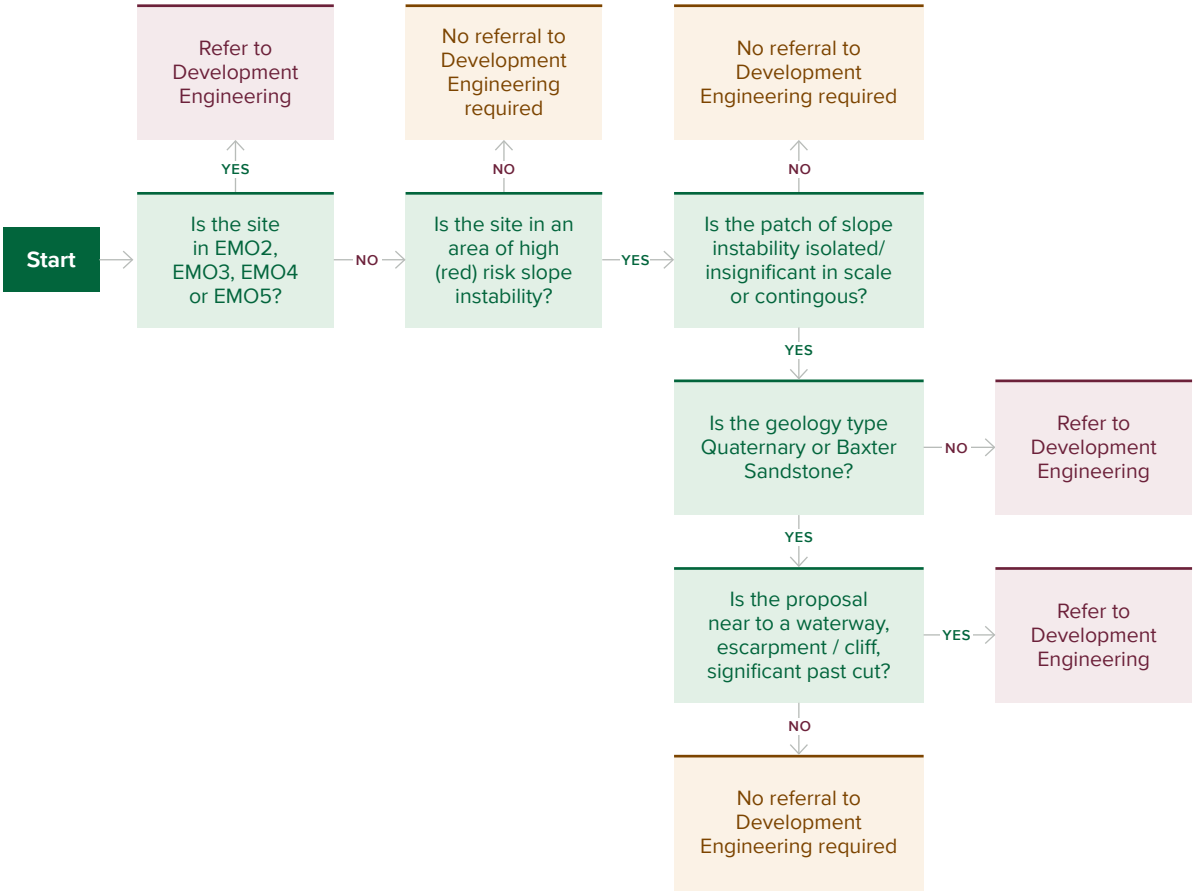
56 Public Hearing Transcript, David Simon, 9 May 2025, 244.

57 Public Hearing Transcript, David Simon, 9 May 2025, 243.

58 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(111) [MSC.5005.0044.5961].

72 The Shire's formalised process can be depicted as follows:

FIGURE 6.1: FLOWCHART DEPICTING THE SHIRE'S INFORMAL PROCESS FOR ASSESSING PLANNING PERMIT APPLICATIONS FOR LANDSLIDE RISK.[59]



73 If an application is referred to the Development Engineering team, the engineer assesses the proposal and provides recommendations as to site-specific conditions.[60] Those conditions might include:

a. before any works associated with the development start, a geotechnical investigation of the property is to be undertaken in accordance with the AGS Guidelines 2007 by a geotechnical consultant with expertise in slope stability, and a copy of the geotechnical report lodged with the Shire;

b. before any works associated with the development start, a peer review of the slope stability investigation report must be undertaken by an independent geotechnical consultant with expertise in slope stability, and a copy of the peer review report lodged with the Shire;

c. prior to occupation of the development, a *Form F Geotechnical Declaration Final Structural / Civil Certificate*, along with "as constructed" documents in accordance with the AGS Guidelines 2007 must be completed by a structural engineer registered as a Civil or Structural Endorsed Building Engineer with the Victorian Business Licensing Authority, and copies lodged with the Shire;

59 Adapted from Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(66), [MSC.5005.0044.5961 at .5964].

60 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(111) [MSC.5005.0044.5961 at .5963].

d. all retaining walls must be designed by a qualified structural engineer in accordance with the recommendations of the geotechnical report; and

e. all stormwater and subsoil drainage must be directed to a legal point of discharge in accordance with the recommendations of the geotechnical report and to the satisfaction of the Shire.[61]

74 The Shire's Statutory Planning team retains ultimate authority over the conditions to be imposed. However, according to Mr Simon, in the "*vast majority of instances*", the Statutory Planning team follows a recommendation from the Development Engineering team to obtain a geotechnical report and have it peer reviewed before making any determination on the planning permit application.[62]

75 Stepping back, the Shire's process can be viewed as a proxy for having the EMO in place over areas of high landslide susceptibility. But is that proxy adequate?

Was the Shire's response adequate?

76 There are several reasons why the Shire's process is not an adequate substitute for having an EMO in place:

a. first, the Shire's process for assessing landslide risk is triggered only when a planning permit application is submitted. The Shire's process itself cannot compel a planning permit application in areas of high landslide susceptibility. Viewed in this way, the Shire's process is reactive rather than proactive. By contrast, where an EMO applies, it requires a planning permit application to be made before any subdivision or other specified types of proposed developments are undertaken;

b. second, adherence to the Shire's process, unlike adherence to the requirements of EMO schedules, is not mandated by law. Mr Oz accepted that the additional requirements imposed by the Shire are not required by any legislation or regulation.[63] Mr Simon accepted that EMO schedules, by contrast, are mandatory and have statutory force, and do not turn on the discretionary request of a statutory planner; [64]

c. third, and relatedly, without statutory force, the Shire's process is vulnerable to being frustrated by applicants resisting requests for geotechnical reports or quantitative landslide risk assessments. Mr Simon accepted that such assessments lie at the higher end of the scale in terms of burden and cost, making resistance a more likely response.[65] In the face of objections, and absent another source of authority to compel production,[66] the Shire may be left without any landslide risk assessments at all; and

61 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(111) [MSC.5005.0044.5961 at .5965].

62 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 35–36 [67].

63 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 9 [44].

64 Public Hearing Transcript, David Simon, 9 May 2025, 253.

65 Public Hearing Transcript, David Simon, 9 May 2025, 229.

66 Public Hearing Transcript, David Simon, 9 May 2025, 224–226.

d. fourth, the Shire's process is not visible to the public at large. Until an application is lodged and assessed, there is no clear indication of which areas in the Mornington Peninsula are classified as having high landslide susceptibility, nor of what landslide risk assessments are required before proposed works can begin in those areas. Conversely, the scope and requirements of an EMO schedule are readily and openly available online – both to owners and to third parties with an interest in identifying landslide prone areas.

77 Having regard to those limitations, the Shire could have updated or taken steps to update its EMO schedules after receiving the 2012 Cardno report. The informal process it adopted may have been adequate as a short-term solution, but it should not have been *the* solution.

78 In oral evidence, Mr Simon suggested that the absence of an EMO schedule may be attenuated by the presence of another overlay which might trigger the need for a planning permit application for the proposed development. It was said that in considering that application, the planner might have regard to erosion risk and by extension landslide risk.[67] That is an impoverished version of a control to prevent or mitigate landslides. It is no substitute for an EMO schedule. The Shire can do better.

79 At the time of the November 2022 landslides, more than a decade had passed since the 2012 Cardno report was issued. By any measure, it was unsatisfactory that the Shire had not even commenced updating its EMO schedules to incorporate areas identified as having high landslide susceptibility. Such areas included the McCrae escarpment on which the November 2022 landslides occurred.

Finding

The Shire could have, but did not, update the EMO schedules in the Mornington Peninsula Planning Scheme after receiving the 2012 Cardno report to incorporate areas identified as having high landslide susceptibility.

This was another missed opportunity to mitigate landslide risk.

The Shire could have, but did not, upgrade the stormwater drainage system on View Point Road prior to the November 2022 landslides

80 It is uncontroversial that, prior to May 2023, the kerbs on View Point Road were in very poor condition due to stormwater drainage issues. Indeed, the Shire knew this for several years.

81 In November 2017, DM Roads, a contractor of the Shire, surveyed the kerb and channel along the stretch of road from Prospect Hill Road to the end of View Point Road.[68]

82 More than a year later, in 2019, the Shire used the survey data as the basis for a desktop condition assessment. The 2019 assessment identified the kerb and channel on View Point Road as needing renewal within the following five years.[69]

67 Public Hearing Transcript, David Simon, 9 May 2025, 225–226.

68 Exhibit CA-31, Third Witness Statement of David Smith, 11 June 2025, 9 [39].

69 Exhibit CA-31, Third Witness Statement of David Smith, 11 June 2025, 9 [39].

83 David Smith, Director - Assets and Infrastructure of the Shire, gave evidence that the "*condition of the kerb and channel [on View Point Road] was in very poor condition, which flagged that it needed to be renewed*".[70]

84 In amplification, he explained:

> During the 2019 assessment of the View Point Road kerb and channel, it was also identified that the existing drainage infrastructure in the area did not provide a continuous flow through a connected stormwater network. This was because the underground piped drainage systems from upstream terminated adjacent to 4 View Point Road, and stormwater was surcharged to the surface and directed to flow along the kerb and channel and into the next section of the underground drainage network adjacent to 22 View Point Road. It was observed that water was pooling in the kerb and channel along View Point Road, causing the growth of algae and accelerated deterioration of the kerb and channel.[71]

85 The renewal of the kerb and channel was proposed for delivery in the 2020–2021 financial year. This did not occur. Mr Smith understood that the project was delayed as a result of adjusting scheduling to meet annual budgets and as a result of the effects of the COVID-19 pandemic. However, he acknowledged that he does not have a complete understanding of why the project was not completed in 2021 as he was not directly involved at the time.[72]

86 In May 2023, approximately six months after the November 2022 landslides at 10–12 View Point Road, the renewal works on the kerb and channel on View Point Road commenced.[73]

87 Counsel Assisting asked Mr Smith whether the lag between the identification of the need for renewal in 2019 and commencement of the works was typical. Mr Smith replied "*Yes, I'd certainly say it's not unusual*".[74] He stated:

> [W]e generally need to be able to adjust the program because we do try and align our kerb and channel renewal program with our resurfacing program, so when you resurface a road, because it's very poor practice to go and resurface a road and then come back the next year and dig out all the edges and put [a] new kerb and channel down. So quite often we do have to sort of adjust and tweak the program as we go to really make sure we get the best value for [the] community and the outcome.[75]

88 It is undeniable that the Shire must balance competing considerations when determining the timing of a renewal project. However, in circumstances where the kerb and channel were in "*very poor condition*" immediately adjacent to a steep escarpment – one that the Shire knew had high susceptibility to landslides – it is reasonable to query why the project was not approached with greater urgency.

70 Public Hearing Transcript, David Smith, 20 June 2025, 704.

71 Exhibit CA-31, Third Witness Statement of David Smith, 11 June 2025, 10 [40].

72 Exhibit CA-31, Third Witness Statement of David Smith, 11 June 2025, 10 [42].

73 Exhibit CA-31, Third Witness Statement of David Smith, 11 June 2025, 10 [43].

74 Public Hearing Transcript, David Smith, 20 June 2025, 719.

75 Public Hearing Transcript, David Smith, 20 June 2025, 719–720.

89 Mr Smith initially seemed not to understand the need for a quicker response. He said:

> If the water's not causing – like, it's not actually – like, it's only a small amount of water flowing down a kerb and channel it certainly is wearing down a kerb and channel quicker. It's not great from an aesthetic and visual point of view.[76]

90 Mr Smith, however, later accepted that the Shire's system and maintenance program should account for the risk of water continually seeping through cracks in the kerb and channel, thereby saturating an area highly susceptible to landslides. He said: "*I think that would make sense … yes, if there's evidence that something is a problem or a challenge or an issue we should absolutely be addressing it, yes*".[77]

91 The stormwater drainage issues on View Point Road cannot be swept aside as merely being "*not great from an aesthetic and visual point of view*". Plainly, constant seepage of water through cracks in the kerb and channel into a steep escarpment carries risk – it can render the affected landscape more susceptible to landslides. That risk should have been addressed in a timely manner.

Finding

The Shire could have, but did not, upgrade the stormwater drainage system on View Point Road prior to the November 2022 landslides on 10–12 View Point Road.

This was another missed opportunity to mitigate landslide risk.

Inaction between the November 2022 landslides and the 5 January 2025 landslide

The Shire could have, but did not, update the EMO schedules in the Mornington Peninsula Planning Scheme following the November 2022 landslides

92 Following the November 2022 landslides, the Shire did not consider extending EMO4 and EMO5 – whether on an interim or emergency basis – to the areas identified in the 2012 Cardno Report as having high landslide susceptibility. It likewise did not consider applying those EMO schedules to 10–12 View Point Road and neighbouring properties, nor did it seek the Minister for Planning's authorisation to do so.[78]

93 Mr Simon stated that the Shire did not consider taking such steps because:

> the Shire considered its existing practice was adequate to guard against further landslide risk in that area. Further, the Shire was taking advice from experts and following that advice in relation to the steps to be taken in relation to the properties involved in the 15 November 2022 landslide.[79]

76 Public Hearing Transcript, David Smith, 20 June 2025, 721.

77 Public Hearing Transcript, David Smith, 20 June 2025, 722.

78 Exhibit CA-80, Fifth Witness Statement of David Simon, 11 June 2025, 2–3 [1]–[2].

79 Exhibit CA-79, Fourth Witness Statement of David Simon, 11 June 2025, 4 [11].

94 Mr Simon also said that, since the November 2022 landslides were likely triggered by water, applying an EMO schedule to 10–12 View Point Road and neighbouring properties would have involved "*applying the wrong tool to cure the wrong problem*".[80] Relatedly, he said that, even if an EMO schedule had been in place over those areas, "*then the chances are the landslide still would have happened*".[81]

95 It may be accepted that the presence of an EMO may not have prevented the November 2022 landslides. However, it does not naturally follow that the Shire should not have applied an EMO schedule to 10–12 View Point Road and neighbouring properties following those landslides.

96 The essential facts are simple:

a. in 2012, Cardno characterised the escarpment at 10–12 View Point Road and neighboring properties as having high landslide susceptibility;

b. about 10 years later, on 14 and 15 November 2022, landslides occurred at 10–12 View Point Road which caused damage to two properties at 2 Penny Lane and 3/613 Point Nepean Road;

c. on 15 November 2022, the Shire issued Emergency Orders to prohibit occupation of those properties on the basis that there were "*immediate safety concerns relating to landslip impact to building/s*" and soil stabilisation measures were required;[82] and

d. on 28 November 2022, the Shire issued an Emergency Order on Mr and Mrs Borghesi to engage a geotechnical engineer to undertake an assessment of 10–12 View Point Road and provide recommendations to undertake make safe works to stabilise the land.[83] Mr Flores, then a Senior Building Surveyor at the Shire, gave evidence that this direction was aimed at preventing a further landslide in the area of the November 2022 landslides.[84]

97 Plainly, the Shire knew that the area in the vicinity of 10–12 View Point Road was susceptible to landslides. By its own admission, the EMO is the best planning tool the Shire has to prevent or mitigate landslides.[85] It follows that the Shire should have, minimally, considered whether to apply the EMO to that area after the November 2022 landslides.

98 The following year, in 2023, the Strategic Planning team at the Shire conducted a subsequent review of the Mornington Peninsula Planning Scheme.[86] Amongst other items, the following was noted as a key area of work that remained outstanding from the 2018 Review: "*Strengthening the mitigation of landslip risk through the review of susceptibility data and modelling and associated application of the Erosion Management Overlay*".[87]

80 Public Hearing Transcript, David Simon, 9 May 2025, 255.

81 Public Hearing Transcript, David Simon, 9 May 2025, 255.

82 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(96) [MSC.5007.0003.0088], Exhibit CA-12(92) [MSC.5007.0003.0815].

83 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, Exhibit CA-32(6) [MSC.5007.0003.0804].

84 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 5 [21].

85 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 6 [29].

86 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, 19 [51]; Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(66) [MSC.5014.0001.0532 at .0545].

87 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(66) [MSC.5014.0001.0532 at .0541].

99 The point was reiterated later in the review report:[88]

Issue	Status	Recommendation
Landslip susceptibility and outdated Erosion Management Overlay mapping	Strategic work is required to undertake a comprehensive review and update of the Shire's inland landslip susceptibility data and modelling. Following this review, an update of the ordinance and mapping of the Environmental Management Overlays will likely be required. This work is yet to be funded, resourced and programmed.	Complete the comprehensive review and update of the Shire's landslip susceptibility data and modelling and update the ordinance and mapping of the Environmental Management Overlays.

100 Counsel Assisting asked Mr Simon whether the Strategic Planning team, as part of the 2023 Review, gave any consideration to the November 2022 landslides. He did not know. Mr Simon was also asked if the Strategic Planning team considered whether to seek an interim or emergency extension to the EMO to cover all the high landslide susceptibility area identified in the 2012 Cardno Report. He also did not know.[89]

101 The 2023 Review identified that the implementation of Recommendations 210 and 211 of the 2018 Review had not yet started. It assigned Recommendation 211 a priority rating of "*Medium*", notwithstanding that five years had elapsed since the recommendation was first made and that landslides had occurred just the year before.[90]

102 Again, Mr Simon was unable to explain why Recommendation 211 was not implemented by the Shire following the 2023 Review. He was only able to point to the Shire's limited resources and other competing priorities.[91]

103 It may be accepted that the Shire operates within resource and budget constraints. It may also be accepted that imposing the EMO is a multi-phased process that takes considerable time and State Government approval. However, doing nothing to review and update landslide susceptibility data – despite being on notice for over a decade of the risk, and having direct knowledge of a destructive landslide impacting multiple residents – was unacceptable. This inaction fell well short of the Shire's own current stated commitment "*to the highest standards of performance, behaviour and service*".[92]

88 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(66) [MSC.5014.0001.0532 at .0627].

89 Public Hearing Transcript, David Simon, 9 May 2025, 240–241.

90 Exhibit CA-12, First Witness Statement of David Simon, 11 April 2025, Exhibit CA-12(66) [MSC.5014.0001.0532 at .0664].

91 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 38 [79].

92 Mornington Peninsula Shire, 'Our Organisational Values', *About Our Organisation* (Web Page) <https://www.mornpen.vic.gov.au/About-Us/About-Our-Organisation/Our-Organisational-Values>.

104 The Shire accepts, on reflection, that it could have fully implemented Recommendation 211 more expeditiously. The Board of Inquiry was informed by the Shire that it is presently actively procuring updated modelling and ordinance mapping in accordance with that recommendation.[93] However, the Board of Inquiry was also recently informed by letter dated 2 September 2025 that the Shire has not yet engaged a geotechnical engineer to update the landslide susceptibility data and that it expects that the engineer may take almost two years to complete the assessment.[94] No explanation was provided by the Shire for not yet having engaged a geotechnical engineer.

Finding

The Shire could have, but did not, make an application to the Minister for Planning to update the EMO schedules in the Mornington Peninsula Planning Scheme following the November 2022 landslides to incorporate areas identified as having high landslide susceptibility.

This was another missed opportunity to mitigate landslide risk.

Finding

The Shire is not utilising its "*primary and most effective control to prevent or mitigate landslide and erosion*" in areas of high landslide susceptibility being the EMO.

Recommendation 6: EMO

The Board of Inquiry recommends the Shire progress the work that is currently underway to amend the existing EMO schedules, or add a new schedule, to the Mornington Peninsula Planning Scheme, which has the effect of applying an EMO to at least those areas of the Shire that are highly susceptible to landslides. The Shire should take advice from a geotechnical engineer as to the appropriate scope of the schedule(s).

93 Mornington Peninsula Shire Council, Response to first set of potential adverse findings, 21 August 2025, [MSC.5094.0001.0020].

94 Letter from Mornington Peninsula Shire Council's solicitors to Solicitors Assisting the Board of Inquiry about requests for further information from July 2025, 2 September 2025, [INQ.0014.0001.0001 at _0002].

The Shire could have, but did not, assess landslide risk in McCrae with a view to formulating a plan to mitigate the risk of further landslides following the November 2022 landslides

105 It is natural to query what the Shire did following the November 2022 landslides to mitigate landslide risk in McCrae. Cardno's assessment of the escarpment having high susceptibility to landslide had proven real. Properties had been damaged and multiple residents had been displaced.

106 In view of this, did the Shire, for example, undertake or commission risk assessments to determine the likelihood and severity of further landslides in McCrae?

107 The short answer to that question is "no". As Mr Simon explained, while landslide risk assessments were obtained in respect of properties in the immediate vicinity of 10–12 View Point Road, the Shire did not obtain any wider risk assessments to determine the likelihood and severity of landslides in McCrae.[95]

108 The Shire submitted to the Board of Inquiry that it was under no obligation to do so. It said that its actions after the November 2022 landslides were appropriate and reasonable in the context of the advice received from geotechnical experts relating to the cause of the landslides and magnitude of any further landslide and cohered with the Shire's statutory responsibilities.[96]

109 It bears repeating the actions the Shire, through the office of the Municipal Building Surveyor (**MBS**), took following the November 2022 landslides, namely it:

a. sought geotechnical advice on the causes of those landslides;[97]

b. issued Emergency Orders for the evacuation of affected properties;[98]

c. liaised with the owners of 10–12 View Point Road, the Borghesis, to develop a plan for stabilisation works to be undertaken by them;[99] and

d. issued Emergency Orders and Building Orders directing the carrying out of stabilisation works at 10–12 View Point Road.[100]

110 It can readily be observed that the first steps were not principally directed to understanding the risk of or preventing the occurrence of further landslides in McCrae. As Mr Flores properly accepted, the second step could not itself prevent the occurrence of a further landslide; it was a step he took in an attempt to protect the owners and occupiers of those properties.[101]

111 The last two steps were directed to understanding the risk of or preventing the occurrence of a further landslide on the Borghesis' property but, as it has recently been determined, the Shire did not have the jurisdiction to issue those orders.[102]

95 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, 44 [114]–[117].

96 Mornington Peninsula Shire Council, Response to second set of potential adverse findings, 25 August 2025, [MSC.5094.0001.0029].

97 Public Hearing Transcript, Claudio Flores, 20 June 2025, 752–756, 758.

98 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 3 [7(a)].

99 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 3 [7(b)].

100 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 3 [7(c)].

101 Exhibit CA-32, Witness Statement of Claudio Flores, 22 May 2025, 3 [7(a)].

102 *Borghesi v Municipal Building Surveyor for the Shire of Mornington Peninsula* [2025] VBAB 60.

112 The Shire further submitted that any responsibility to obtain risk assessments to determine the likelihood and severity of further landslides in McCrae must be worked out through the State Emergency Management Plan (**SEMP**). It emphasised that the VicSES – not the Shire – is the "*control agency*" for a landslide event under the SEMP, and it is the VicSES that maintains the State Landslide Hazard Plan.[103]

113 True it is that the VicSES is the control agency for landslides in the "response" phase under the SEMP – that is, the agency "*primarily responsible for managing the response to an emergency*" and for "*establishing the management arrangements for an integrated response to the emergency*".[104] However, that says nothing about what the Shire can or cannot do to contribute to the *mitigation* of landslides.

114 There was, and is, nothing in the SEMP that precluded the Shire from taking steps to gain a better understanding of landslide risk in McCrae with a view to mitigating such risk. Indeed, the SEMP states "*[e]ven when not required by law, departments, agencies, businesses and the community are key actors to take actions to mitigate and reduce risk to emergency shocks and stresses*".[105]

115 Following the November 2022 landslides, the Shire could have, for example, worked with the Mornington Peninsula Municipal Emergency Management Planning Committee to assess landslide risk in McCrae. As explained in greater detail in Chapter 8 of the Report, that committee is chaired by a representative of the Shire and comprises representatives from various agencies such as Victoria Police, the VicSES and the Department of Transport and Planning.[106] The committee serves several functions, including to identify and evaluate risks that could impact the municipality and to implement measures to reduce the likelihood of them materialising.[107]

116 It is noted that the 'role statement' for councils on the Emergency Management Victoria website expressly states that a council's mitigation activities include working with the Municipal and/or Regional Emergency Management Planning Committee to: identify and assess hazards/risks; implement/coordinate specific risk treatments for identified risks; and provide community awareness and information.[108]

117 Had the Shire engaged with the Mornington Peninsula Municipal Emergency Management Planning Committee following the November 2022 landslides, this may have led to the development of a mitigation plan that entailed:

a. a review of the adequacy of the Shire's informal practice of imposing additional planning requirements on properties falling within the high landslide susceptibility areas mapped by Cardno;

b. a review of the Shire's policies and procedures for maintaining stormwater infrastructure in those susceptible areas to account for landslide risk;

103 Mornington Peninsula Shire Council, Response to second set of potential adverse findings, 25 August 2025, [MSC.5094.0001.0029].

104 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(9) [MSC.5007.0001.1278 at _1328].

105 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(9) [MSC.5007.0001.1278 at _1291].

106 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 10 [49], [51].

107 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(6) [MSC.5006.0001.1021 at .1027].

108 Emergency Management Victoria, 'Role statement – Councils', *Councils* (Web Page, 29 November 2024) <https://www.emv.vic.gov.au/responsibilities/state-emergency-management-plan-semp/roles-and-responsibilities/role-statements/role-statement-councils>.

c. implementing policies and procedures for responding to reports of water leaks or excess water in those susceptible areas; and

d. informing relevant Shire staff, SEW and residents about the susceptible areas so they could take appropriate mitigation steps.

118 The Shire appeared to defend the absence of such a mitigation plan in submissions to the Board of Inquiry on the basis that, even if one had been in place, it would not have prevented the 5 January 2025 landslide or the McCrae Landslide from occurring.[109] Even if that is so, it cannot be said that such a plan would have been bereft of utility.

119 In fact, today, the Shire is currently working towards improving its systems and processes, including by:

a. planning a strategic assessment of landslide risk patterns across the full escarpment area, involving a systematic evaluation of geological conditions, historical landslide frequency, building characteristics, and the adequacy of Shire infrastructure in the vicinity of the escarpment;[110]

b. amending the existing EMO schedules to apply to those areas of the Shire falling within the high landslide susceptibility areas mapped by Cardno;[111]

c. reviewing its existing stormwater infrastructure to identify potential seepage points, as well as updating its Asset Management Strategy and Stormwater Asset Management Plan, and incorporating more specific information relating to landslide susceptibility and risk into those documents and the planning of the maintenance and renewal of stormwater assets in general;[112]

d. planning improved data collection and notification processes so that the Shire can identify more readily when multiple customer requests/complaints are made to the Shire (or identified by its contractors) in the same or similar areas;[113] and

e. engaging in conversations with SEW about improved processes for the notification of water main bursts.[114]

120 Further, the Shire acknowledges that the community and other statutory agencies/authorities could benefit from the sharing of information held by the Shire about landslide susceptibility across the municipality so that they can take steps to mitigate against the risk of landslide.[115] The Board of Inquiry agrees.

121 The symmetry between what the Board of Inquiry has identified as the mitigation steps that could have been taken following the November 2022 landslides and what the Shire is currently doing following the 5 January 2025 landslide and the McCrae Landslide is striking.

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109 Mornington Peninsula Shire Council, Response to second set of potential adverse findings, 25 August 2025, [MSC.5094.0001.0029].

110 Exhibit CA-55, Witness Statement of Mark Stoermer, 13 June 2025, 5 [11]–[12].

111 Public Hearing Transcript, Katanya Barlow, 20 June 2025, 792–798; Exhibit CA-55, Witness Statement of Mark Stoermer, 13 June 2025, 8–9 [19(b)].

112 Public Hearing Transcript, David Smith, 20 June 2025, 701–702, 711, 713–715.

113 Public Hearing Transcript, David Smith, 20 June 2025, 734–736.

114 Public Hearing Transcript, David Smith, 20 June 2025, 729–730.

115 Mornington Peninsula Shire Council, Response to second set of potential adverse findings, 25 August 2025, [MSC.5094.0001.0029].

122 There is nothing before the Board of Inquiry to justify why these initiatives could not have been prioritised and implemented before a landslide in the order of 300 cubic metres destroyed the Morans' house.

123 As formally recommended later in this Chapter, the Shire should promptly progress these initiatives.

Finding

The Shire could have, but did not, assess landslide risk in McCrae with a view to formulating a plan to mitigate the risk of further landslides following the November 2022 landslides.

This was another missed opportunity to identify and mitigate landslide risk.

The Shire could have, but did not, prepare a comprehensive plan for responding to another landslide event following the November 2022 landslides

124 Another question that arises is whether the Shire prepared a comprehensive plan for responding to another landslide event following the November 2022 landslides.[116]

125 According to the Shire, it did have a plan. Namely, a municipal-level plan for various kinds of emergencies, being the Municipal Emergency Management Plan (**MEMP**). The MEMP was prepared and reviewed by the Municipal Emergency Management Planning Committee.[117]

126 In simple terms, the MEMP contains provisions that provide for the mitigation of, response to, and recovery from emergencies in the Mornington Peninsula municipality.[118]

127 The problem with the MEMP, however, is that it did not, and does not, identify landslide as a standalone risk. Instead, the MEMP assumes that a landslide is a *secondary* event that occurs following a significant weather event, such as intense rainfall or an earthquake.[119] But as the McCrae Landslide has demonstrated, it is not invariably the case that a landslide is a secondary event.

128 The MEMP by its own terms exposes that it is not a comprehensive plan for responding to another landslide event.

116 For the avoidance of doubt, the term "response" in this section is used in its ordinary sense. It is not intended to bear the particular meaning it has under the SEMP, unless otherwise indicated.

117 Mornington Peninsula Shire Council, Response to second set of potential adverse findings, 25 August 2025, [MSC.5094.0001.0029].

118 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 10 [52].

119 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 11 [58].

129 The Shire implicitly recognised as much as, in late 2021, it developed a flow chart setting out the process it would follow upon being notified of a landslide. This flow chart was subsequently updated in 2023.[120] In summary, the response process reflected in the flow chart involves notification procedures, safety assessments, stakeholder engagement, geotechnical investigation, and project management steps for remediation.[121]

130 While the flow chart appears to be elaborate on its face, with multiple layers and processes, there are notable omissions. For example, the response process makes no provision for how the Shire should engage with water entities such as SEW where a landslide appears to be triggered by water. It also lacks protocols for the timely sharing of information in circumstances where the cause of a landslide is unclear and warrants immediate investigation. Most critically, the process makes no provision for urgent stabilisation or other mitigation works to be undertaken where there is a risk of a further landslide.

131 This gap leaves the Shire without a structured means of responding to a landslide event decisively, thereby increasing the risk that a relatively minor landslide will escalate into a more destructive landslide.

132 Had a dynamic and coordinated response process been in place, incorporating the features identified above, the Shire's approach in the aftermath of the 5 January 2025 landslide could have been different – it could have been better. Adherence to such a process would likely have encouraged more effective co-ordination between the Shire and SEW. While it may not have prevented the McCrae Landslide, it could certainly have reduced inefficiencies, avoided unnecessary diversion of resources, and minimised information asymmetries.

133 It bears repeating that the Board of Inquiry is acutely aware that the Shire is not designated as the relevant "control agency" for landslides in the "response" phase under the SEMP – that responsibility rests with the VicSES. Nothing in the foregoing analysis is intended to superimpose obligations on the Shire contrary to the SEMP. However, this does not diminish the need for the Shire to have its own response process. The absence of a formal obligation in the SEMP does not absolve the Shire from ensuring that it can respond in a timely, coordinated and informed manner when a landslide occurs. In fact, over the nine days that followed the 5 January 2025 landslide, the Shire's MBS was looking for the source of the water and taking other steps to try to mitigate the risk of a further landslide. However, in the absence of the Shire having a proper process or plan, the response was ad hoc and limited.

134 Having regard to the history of landslides and ongoing landslide susceptibility in its municipality, the Shire needs a comprehensive and thoughtfully designed plan for responding to landslide events.

Finding

The Shire could have, but did not, prepare a comprehensive plan for responding to another landslide event following the November 2022 landslides.

This was another missed opportunity to mitigate landslide risk.

120 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 15–16 [82]–[87].

121 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(14) [MSC.5004.0001.0059].

Recommendation 7: Process for responding to landslide incidents

The Board of Inquiry recommends the Shire review and improve its processes for responding to landslide incidents with a view to including, amongst other things:

a. protocols for timely information sharing with relevant entities, agencies and individuals; and

b. mechanisms for urgent steps to be taken to mitigate the risk of a subsequent landslide, such as contacting the VicSES when there is a threat of a subsequent landslide, and using equipment on Shire or private land (with permission) to try to divert hazardous water flow.

The Shire could have, but did not, take effective measures to address the water that was surfacing on Charlesworth Street, Coburn Avenue and Waller Place

135 Water upwelled on the streets uphill of Penny Lane from at least November 2024. As outlined in Chapter 3, the water bubbled up through the roads, damaged bitumen, created potholes and flowed down the streets.

136 Residents of McCrae raised their concerns with the Shire. The complaints were numerous.

137 The Shire attended in response to those complaints. It did so relatively quickly. But the actions taken by the Shire to address the water issues were neither effective nor optimal.

138 The Shire disagrees. It maintains its response was "*more than adequate, and very responsive*". It submits that it should not be blamed for the "*colossal failure of SEW*" and that its responsibilities begin and end at stormwater infrastructure (and even there, those responsibilities are only to a limited degree, with stormwater assets being managed by several different agencies other than the Shire, including VicRoads, Melbourne Water and private persons).[122]

139 Obviously, no blame can be assigned to the Shire for the burst water main. However, it remains the case that the Shire's responses to the water issues throughout November and December 2024 were not "*more than adequate*".

140 By way of illustration, on 20 December 2024, the Shire's Roads Corridor and Drainage team attended Charlesworth Street and placed bollards and tape up around the area where water was "*streaming out of the road*".[123] Fulton Hogan also noted that a "*make safe for [the] pothole with water ingress [had been] installed*".[124] There is no evidence before the Board of Inquiry that suggests such make safe works involved more than erecting bollards and tape.

141 On any view, those actions were not "*more than adequate*" – indeed far from it.

122 Mornington Peninsula Shire Council, Response to second set of potential adverse findings, 25 August 2025, [MSC.5094.0001.0029] referring to Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, 2–3 [4]–[7].

123 Exhibit CA-31, First Witness Statement of David Smith, 17 April 2025, 9.

124 Exhibit CA-31, First Witness Statement of David Smith, 17 April 2025, Exhibit CA-31(13) [MSC.5018.0001.0021 at .0022].

142 A survey of the chronology in Chapter 3 shows that the water issues were addressed through largely superficial measures. Hazard signs were erected, bollards and tape were put up, and, on occasion, potholes were (temporarily) repaired. Nothing was done to address the subsurface flow of water, notwithstanding that water had been flowing out of the ground for weeks and it was evident to one local resident that a "*massive washout*" was imminent.[125]

143 It was not until on or about 16 January 2025, after the McCrae Landslide, that the Shire instructed Fulton Hogan to undertake works at the intersection of Waller Place and Charlesworth Street. Mr Smith gave evidence that the works were "*required due to saturation causing potholes on Charlesworth Street that were unable to be repaired from the surface … it is my belief that the [works] involved excavating the road base and laying Agi pipes to collect water and drain the pavement into the adjacent drainage pit*".[126]

144 Mr Cooper was present when those works were undertaken. The first thing he said to one of the Shire representatives was "*[i]t took a house falling down the hill for you to address these water issues*".[127] He told the Board of Inquiry that his comment was prompted by the following sentiment:

> [I]t just felt like we had been walking around in circles for weeks and weeks, handballing whose fault and problem this was, and no one wanted to dig a hole in the ground and look or do anything until something bad had happened.
>
> [The Shire and SEW] would talk amongst themselves about who's owning the water now, and if it … entered the stormwater pipe it was the council's, if it was a spring, it's like no one seemed to know.[128]

145 Mr Cooper thought the unwillingness to take responsibility for the water issues was "*the biggest stumbling block to the whole affair*".[129]

146 The Board of Inquiry agrees.

147 It appears that the Shire did not take any serious measures throughout November and December 2024 to address the water issues – such as trying to divert the water into the stormwater system – for a multitude of reasons, chief among them that it did not consider the surfacing water to be its responsibility. Added to that, the Shire did not fully appreciate how the water issues had a bearing on landslide risk.

148 Had the Shire fully appreciated that risk, the approach to addressing the water issues would likely have been different. It is reasonable to expect that the Shire would have promptly shared with SEW that the water was surfacing in an area adjacent to a zone of high landslide susceptibility. Similarly, it is reasonable to expect that the Shire would have demanded that SEW treat the issues with urgency given the heightened risk of excess water in such an area. It is also reasonable to expect that the Shire itself would have treated the matter more seriously by, for example, diverting the subsurface water into the stormwater system much earlier.

125 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0085]; Screenshot of Facebook Post on McCrae Village Community Group page, 21 December 2024, [MSC.5035.0001.0025].

126 Exhibit CA-31, Second Witness Statement of David Smith, 30 April 2025, 13 [44].

127 Exhibit CA-17, Witness Statement of Brett Phillip Cooper, 12 May 2025, 8 [29(b)].

128 Public Hearing Transcript, Brett Phillip Cooper, 12 May 2025, 347.

129 Public Hearing Transcript, Brett Phillip Cooper, 12 May 2025, 347.

149 It is difficult to imagine that the Shire, properly informed about landslide risk, would have been satisfied with the installation of bollards and tape as the predominant solution to the water issues. Such measures were inadequate at the time and they are inadequate moving forward. The Shire can do better and it should do better.

Finding

The Shire could have, but did not, take effective measures to address the water that was surfacing on Charlesworth Street, Coburn Avenue and Waller Place. It did not, for example, seek to divert the subsurface water flow into the stormwater system prior to the 5 January 2025 landslide.

This was another missed opportunity to mitigate landslide risk.

Recommendation 8: Process for responding to water incidents

The Board of Inquiry recommends the Shire review and improve its processes for responding to incidents of water upwelling in and around areas highly susceptible to landslides.

Inaction between 5 and 14 January 2025

150 The 5 January 2025 landslide occurred on a Sunday evening. The McCrae Landslide occurred nine days later, on a Wednesday morning. Those nine days were pivotal.

151 During that period, unexplained water flowed out of the unstable headscarp of the site of the 5 January 2025 landslide. The water did not stop. It did not consistently abate. It signalled a further landslide.

152 What was done by the Shire during that critical period?

153 It is acknowledged that the Shire took multiple steps to respond to the 5 January 2025 landslide. Indeed, Shire representatives were on the scene approximately four hours after the landslide occurred to inspect the site.[130] In the days that followed, the steps they took included:

a. promptly seeking geotechnical advice from Mr Pope of PSM with a view to, amongst other things, controlling the water flowing under the Morans' house;[131]

b. inspecting the escarpment at 10–12 View Point Road daily during the working week;[132]

130 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 3 [6].

131 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 3 [8].

132 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0032–_0036]; Public Hearing Transcript, Claudio Flores, 20 June 2025, 773–774; Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2288].

c. examining the building works that had been carried out at 10–12 View Point Road, as well as considering building permits and historical subdivision documents issued for the property;[133]

d. reviewing the Shire's customer complaint system to identify any reports concerning water in the vicinity of Prospect Hill Road and View Point Road;[134]

e. investigating the source of the water infiltrating the headscarp, including:

   i. conducting dye testing in the Shire's stormwater assets from Prospect Hill Road to View Point Road to determine whether the water running out of the escarpment had originated from those assets;

   ii. inspecting water meters of properties near 10–12 View Point Road;

   iii. inspecting hydrant groundballs for leaks;

   iv. undertaking water sampling and testing of surface water from the landslide site and uphill streets;[135]

f. preparing an 'Actions Items' document to provide to the Morans, Borghesis and Willigenburgs, setting out steps for the former two families to, amongst other things, divert surface water away from the headscarp and 3 Penny Lane;[136]

g. overseeing the installation of the water diversion plan at the Morans' house, namely the installation of a pipe under the house to divert the water under the Morans' deck to reduce the hydrostatic load;[137] and

h. liaising with the Morans' insurer about whether ballasted shipping containers could be brought on-site and installed in the northern most section of the lawn, to act as a temporary debris barrier in the event of a further landslide.[138]

154 In view of the above, the Shire was actively involved – specifically through the MBS, Mr Glover, and the Office of the MBS – in responding to the 5 January 2025 landslide. It is accepted that the response was, to use Mr Glover's words, *"both labour and time intensive"*.[139] However, due to an absence of executive leadership and emergency preparation, the Shire did not take the more critical steps.

133 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, 8–9 [27].

134 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 3 [10].

135 Public Hearing Transcript, Claudio Flores, 20 June 2025, 773–774; Email from Claudio Flores to Dane Pope and Mathew Hopwood-Glover about use of plumber's dye in stormwater pits near 10–12 View Point Road, 7 January 2025, [MSC.5001.0001.1553]; Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 6–7 [23].

136 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, 12–13 [42]; Exhibit CA-15, First Witness Statement of Kellie Anne Moran, 12 May 2025, Exhibit KM-3 [RES.0009.0001.0005].

137 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 5 [18]; Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 12 [59].

138 RACV file notes relating to claim of Nicholas Moran at 3 Penny Lane, 5 January 2025–4 March 2025, [IMA.0001.0001.0188 at _0013].

139 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, 14 [52].

155 There are three key actions the Shire did not take in the period between 5 and 14 January 2025:

a. it did not appropriately resource its response;

b. it did not escalate or change its response to the developing emergency as water continued to infiltrate the unstable headscarp; and

c. it did not take steps, together with SEW, to try to intercept the subsurface water flow upslope of the landslide site and to direct it away from the site.

156 Each of those inactions will be considered in detail below.

157 While it is not possible to know whether the taking of such steps would have prevented or reduced the magnitude of the McCrae Landslide, it is evident that such steps could have been taken and that they might have changed the ultimate outcome.

The Shire did not appropriately resource its response to the 5 January 2025 landslide

158 For the avoidance of doubt, the term "response" in this section is again used in its ordinary sense. It is not intended to bear the particular meaning it has under the SEMP.

159 The chronology of events following the 5 January 2025 landslide, outlined in Chapter 3, exposes two striking features of the Shire's approach to resourcing its response to that landslide:

a. first, the response was led principally by the MBS and the Office of the MBS – namely, Mr Glover, Mr Flores and Mr Jones – in consultation with Mr Pope; and

b. second, and relatedly, the Shire's executive leadership were not actively involved in managing the risks of a further landslide.

160 The Shire's approach was unduly limited. The response demanded more than reliance on the MBS, whose functions are circumscribed by the *Building Act* and the *Building Regulations 2018* (Vic) (***Building Regulations***). The response required enhanced monitoring and active oversight by the Shire's executive leaders, including the Acting CEO. The Mayor should have also requested regular detailed updates.

161 To appreciate why the response required more than just the involvement of the Office of the MBS, it is necessary to address the following questions:

a. What are the functions of the MBS and the Office of the MBS?

b. Why did the Shire allow the Office of the MBS to effectively lead the response to the 5 January 2025 landslide?

c. What steps did the Shire's executive leadership take to respond to the risk of a further landslide following the 5 January 2025 landslide?

162 The answers to those questions are set out in turn.

What are the functions of the MBS and the Office of the MBS?

163 Shortly stated, the functions of the MBS and the Office of the MBS revolve around building compliance, including issuing building permits, inspecting building work, issuing occupancy permits, and enforcing safety and building standards.

164 The **MBS** is a statutory position established under the *Building Act* and *Building Regulations*, which, together, regulate building works and standards in Victoria. Every local government must appoint an MBS to administer Parts 3, 4, 5, 7 and 8 of the *Building Act* and *Building Regulations* within its municipal district.

165 Relevantly, between 5 and 14 January 2025, Mr Glover was the Shire's MBS.[140] His functions as MBS included:

a. responding to building-related emergencies, dangerous buildings and dangerous land, including issuing emergency orders;

b. investigating suspected non-compliance with the *Building Act* and *Building Regulations*, including exercising powers of entry, seizure and testing, and to request documents; and

c. enforcing compliance with the *Building Act* and *Building Regulations*, including through issuing building notices and orders, and infringement notices.[141]

166 The **Office of the MBS** is comprised of employees at the Shire who assist the MBS in carrying out their functions under the *Building Act* or *Building Regulations*.[142] In broad terms, it is responsible for ensuring buildings and places of entertainment in the Shire are safe for people to use. In doing so, the Office of the MBS is particularly focused on compliance of building works, the safe conduct of public events, and responding to emergency events involving buildings, such as fires, floods or landslides.[143]

167 The powers of the MBS and Office of the MBS to respond to landslides are, therefore, limited – and even more limited when it comes to preventing or mitigating landslides.

168 Mr Glover explained the limitations as follows:

> [T]he Office of the MBS and the MBS did not have powers to prevent or mitigate landslides unless a building or structure was impacted, and even then, the powers were limited to directing work to be carried out in respect of the damaged building or structure.[144]

169 Mr Glover went on to say the MBS's role is "*only related to building/structural damage under the Building Act*". He also said that the Building Appeals Board decision in relation to 10–12 View Point Road dated 30 April 2025 "*demonstrates the significant limits*" of the MBS's powers.[145] In that decision, the Building Appeals Board decided, amongst other things, that the MBS can issue Building Notices and Emergency Orders to an owner of land in respect of land on which building work is being or is proposed to be carried out, but not in respect of land simpliciter.[146]

140 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, 2 [5].

141 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, 3 [6].

142 Exhibit CA-54, Witness Statement of David Kotsiakos, 13 June 2025, 5 [12].

143 Exhibit CA-54, Witness Statement of David Kotsiakos, 13 June 2025, 5 [13].

144 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, 14 [51].

145 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, 15 [55(h)].

146 *Borghesi v Municipal Building Surveyor for the Shire of Mornington Peninsula* [2025] VBAB 60.

170 Accepting the correctness of Mr Glover's evidence, and the decision of the Building Appeals Board, it is a short step then to conclude that the Office of the MBS was ill-suited to serve as the Shire's leading response body to the 5 January 2025 landslide.

171 So, how was it that the Shire's MBS (Mr Glover), Senior Building Surveyor (Mr Flores) and a Building Inspector (Mr Jones) came to be the Shire's key actors in the response effort?

Why did the Shire allow the Office of the MBS to effectively lead the response to the 5 January 2025 landslide?

172 The first matter to note is that, on 5 January 2025, the VicSES, as the control agency under the SEMP, was primarily responsible for managing the response to the landslide.[147]

173 Mr Simon gave evidence that the Shire's Emergency Management team was not activated in response to the landslide. He pointed to two factors. First, the VicSES did not, on 5 January 2025 or subsequently, ask the Shire to supply physical equipment and assets needed to undertake emergency management activities. Second, there were no displaced residents requiring temporary accommodation at that time.[148]

174 Mr Brick, Team Leader of the Shire's Emergency Management team, corroborated Mr Simon's evidence. He said that, for the reasons given by Mr Simon, the Shire's recovery responsibility was limited to the tasks of the MBS.[149]

175 On 5 January 2025, the Shire acted on the instruction of the VicSES and deployed the MBS – namely Mr Glover and Mr Jones – to the landslide site.[150] Mr Glover said that the Office of the MBS was there that night to "*provide a response and professional support to VicSES under the Building Act … for building safety*".[151]

176 The second matter to note is that, on 6 January 2025, the VicSES determined that it was no longer needed to lead and manage the response to the landslide and it deactivated its services as Incident Controller.[152]

177 Mr Glover recounted that on 6 January 2025, he met with the VicSES officers on-site who told him that there was nothing else the VicSES needed to do and that the site now fell under the *Building Act*.[153]

178 Thereafter, the Shire did not decide that Mr Glover was the appropriate person to have responsibility for the site. Rather, Mr Glover's functions as the Shire's MBS were activated by the incident because the Morans' house was impacted by the landslide and an assessment and determination regarding the occupancy of that damaged residential building was required of him.[154]

147 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, 3 [7].

148 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, 3 [7].

149 Exhibit CA-62, Witness Statement of Andrew Brick, 16 July 2025, 6 [22].

150 Exhibit CA-14, Third Witness Statement of David Simon, 7 May 2025, 4 [8].

151 Exhibit CA-63, Second Witness Statement of Mathew Hopwood-Glover, 17 July 2025, 2 [5].

152 Exhibit CA-63, Second Witness Statement of Mathew Hopwood-Glover, 17 July 2025, 2–3 [5]; Exhibit CA11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(9) [MSC.5007.0001.1278 at .1338].

153 Exhibit CA-63, Second Witness Statement of Mathew Hopwood-Glover, 17 July 2025, 3 [6(b)].

154 Exhibit CA-63, Second Witness Statement of Mathew Hopwood-Glover, 17 July 2025, 3–4 [7].

179 No other person within the Shire, other than the MBS or a delegate of the MBS, had (or has) the power under the *Building Act* (or other statute) to conduct that assessment. However, as the chronology outlined in Chapter 3 makes clear, Mr Glover and his team assumed responsibilities well beyond conducting that assessment in the days following the landslide. In effect, those individuals became the drivers of the response, taking on tasks that included investigating the source of the unexplained water.

180 Ultimately, the MBS and the Office of the MBS, assumed the lead in responding to the 5 January 2025 landslide not by deliberate choice, but through circumstance and the inaction of the Shire's other divisions.

What steps did the Shire's executive leadership take to respond to the risks following the 5 January 2025 landslide?

181 Having identified the MBS and the Office of the MBS as the Shire's key personnel involved in responding to the 5 January 2025 landslide, the next question is: to what extent was the Shire's executive leadership involved in the response?

182 The answer is short: very little.

183 The extent to which the Shire's executive leadership was involved in the response can be summarised as follows. Some of it was outlined in Chapter 3 but should be repeated here.

184 On 6 January 2025, Mr Glover first reported the landslide to two senior individuals to whom he reported within the Shire's organisational structure: Mr MacDonald, Manager – Development Services, and, Ms Littlejohn, Director - Planning and Environment.[155]

185 On 7 January 2025, he told Ms Littlejohn and Mr MacDonald, amongst other things, that the VicSES had handed over the site to the MBS, water was flowing from the headscarp at a rate of around 200 millilitres per second (equivalent to 12 litres per minute) and Mr Pope was going to provide a preliminary report regarding the possibility of the Morans' house collapsing and affecting property along Point Nepean Road. He also told them that the Office of the MBS was conducting ongoing investigations in connection with the unexplained water at the landslide site, including undertaking water tracing.[156]

186 Ms Littlejohn sent a brief update email to the Mayor and the Shire's Acting CEO, Mr Oz:

> This is a FYI regarding a landslide for 3 Penny Lane McCrae.
>
> The team, led by our MBS, have been dealing with this situation after the SES handed the site over yesterday.
>
> The affected premises has sustained structural damage to the rear and appropriate action is currently being taken to manage the site.
>
> I will keep you in the loop as things evolve.[157]

155 Email from Mathew Hopwood-Glover to Renae Littlejohn and Rory MacDonald about landslip impact at 10–12 View Point Road, 6 January 2025, [MSC.5005.0042.0892].

156 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(121) [MSC.5003.0001.7156].

157 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2291–.2292].

187 On the same day, after being forwarded Mr Pope's preliminary risk assessment by Mr Glover, Ms Littlejohn confirmed that she had put the landslide on the Mayor's "*radar*" and would follow up with him "*in case it gets out there and political*".[158]

188 On 8 January 2025, Mr Glover provided another update to Ms Littlejohn and Mr MacDonald. He assessed Mr Pope's recommended action items for the Borghesis and Morans as "*reasonable to protect the life and safety of the surrounding property*". He reported that the trace dye exercise indicated that the water at the landslide site was not coming from the Shire's drainage assets. He left it to Ms Littlejohn to brief the Mayor and the Shire's leadership about the situation and proposed actions.[159]

189 Shortly after, both the Mayor and Acting CEO briefly responded to the email Ms Littlejohn had sent the previous day. The Mayor stated:

> I know there was a legal matter on a similar issue (landslip damage to property in McCrae).
>
> Do we know of any potential legal implications/liability here?[160]

190 Mr Oz copied in Mr Rotter, Manager - Infrastructure Projects at the Shire, to ask whether he had "*any ideas on implications for us?*". Mr Rotter replied, stating that his team, Infrastructure Projects, had not been involved in this "*new landslip*". He understood that the situation was being managed by the Office of the MBS. He deferred to Ms Littlejohn to provide further information.[161]

191 On 9 January 2025, Mr Rotter drove past the landslide site. He sent an email to Mr Oz, Ms Littlejohn, Mr MacDonald and others stating that there was a significant volume of water flowing, indicating that the "*land has a significant high-risk of slipping again*".[162]

192 Notwithstanding this alarming information, Mr Oz simply asked if Mr Rotter and Ms Littlejohn could take care of the situation or suggest an "*alternative approach*". Ms Littlejohn replied that Mr Glover's team was monitoring the situation "*carefully so we can take advice from him as the need arises*".[163]

193 Later in the day, Mr Glover sent another update email to Ms Littlejohn and Mr MacDonald advising that work was commencing on-site to reduce the hydrostatic loads on the Morans' property, which would involve "*water being pumped via the surface along Penny Lane until the water source is known*". He explained that the investigations to date, including dye trace testing and water sampling, provided no evidence of the cause of the water discharging at 10–12 View Point Road.[164]

158 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(1) [MSC.5005.0042.1513].

159 Email from Mathew Hopwood-Glover to Renae Littlejohn, Rory MacDonald and Claudio Flores et al about mitigating the risk of further landslide activity, 8 January 2025, [MSC.5003.0001.7185].

160 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2291].

161 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2291].

162 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2289].

163 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2288–.2290].

164 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2288].

194 On 13 January 2025, the day before the McCrae Landslide, Mr Glover copied Ms Littlejohn and Mr MacDonald into an email update, noting that water was still discharging at around 15 litres per minute from the escarpment.[165]

195 Beyond this brief email correspondence, it does not appear that the Shire's executive leadership took any substantive role in responding to the landslide. There is no evidence of them doing anything to manage the risk of a further landslide. They deferred to Mr Glover and his team.

196 The Shire's leaders, including the Mayor and Acting CEO, appear to have trusted that enough was being done through the MBS and Office of the MBS to manage the situation. No other resources from the Shire were deployed despite Mr Rotter warning that there was a "*significant high-risk*" of a further landslide.[166] The Shire's executive leadership adopted a passive approach, leaving the Shire's response to the landslide inadequately resourced. That was unsatisfactory. The situation needed to be carefully and actively managed by a team of people with different experience and skills, including experience in emergency management. The impacted residents needed the Shire's executive leadership to be engaged and committed "*to the highest standards of performance, behaviour and service*".[167]

197 Five days after Mr Rotter's prescient warning, the McCrae Landslide occurred.

Finding

Following the 5 January 2025 landslide, the Shire did not appropriately resource its response to the landslide. The response was principally led by the MBS and Office of the MBS, in consultation with Dane Pope of PSM. Given the seriousness of the situation, the Shire's executive leadership should have exercised oversight and provided guidance. The Mayor should also, at the very least, have required regular, detailed updates.

The Shire did not appropriately escalate its response to the developing emergency as water continued to infiltrate the unstable headscarp

198 It is difficult to reconcile the Shire's response to the 5 January 2025 landslide with the evidence that water was continuously infiltrating the headscarp of the landslide and destabilising it.

165 Email from Mathew Hopwood-Glover to David Smith, Tom Haines-Sutherland, Renae Littlejohn and Rory MacDonald about OMBS preliminary assessment of leak, 13 January 2025, [MSC.5005.0042.2737].

166 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2289].

167 Mornington Peninsula Shire, 'Our Organisational Values', *About Our Organisation* (Web Page) <https://www.mornpen.vic.gov.au/About-Us/About-Our-Organisation/Our-Organisational-Values>.

199 The unexplained water started flowing out of the escarpment as soon as the landslide occurred. Mrs Moran and her daughter watched it pool inside their house,[168] and for nine days it did not stop:

a. Day 1 (the day after the landslide): water continued flowing with no sign of easing.[169]

b. Day 2: water was observed flowing from the headscarp at about 12 litres per minute,[170] causing concern to Mr Flores.[171]

c. Day 3: the flow increased to about 15 litres per minute, as observed by Mr Borghesi, who reported this to Mr Flores.[172]

d. Day 4: water was seen running from the Morans' property and down Penny Lane.[173]

e. Day 5: the water had carved a defined pathway down the escarpment.[174]

f. Day 6: despite the installation of a diversion system under the Morans' deck the previous day, the water breached their front retaining wall.[175]

g. Day 7: water was flowing constantly along the west side of the Morans' property, down Penny Lane and towards the spoon drain on Point Nepean Road.[176]

h. Day 8: the volume of water increased further, likely exacerbated by weekend rainfall.[177]

i. Day 9: the flow persisted, and the McCrae Landslide occurred.

200 It should have been very clear to the Shire as the days marched on, and water continued to flow out of the escarpment, that another emergency was unfolding. Indeed, several people identified the threat of another landslide.

201 On 7 January 2025, it was clear to the assessor who was appointed by RACV to inspect the Morans' property. He reported that the house was "*extremely unsafe and unstable*" and that "*there is a chance that further movement could occur, and more damage to the property would be immediate*".[178]

202 On 9 January 2025, it was certainly clear to Mr Rotter who thought there was a *significant* risk of a further landslide after seeing the volume of water flowing from the Morans' property.

203 It was equally clear to the Borghesis, who had the clearest vantage point of the headscarp, and who were "*absolutely, categorically*" concerned that there might be a further landslide.[179]

168 Public Hearing Transcript, Kellie Anne Moran, 12 May 2025, 269.

169 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 8 [38].

170 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, Exhibit CA-13(121) [MSC.5003.0001.7156].

171 Public Hearing Transcript, Claudio Flores, 20 June 2025, 774.

172 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0040].

173 Exhibit CA-64, Third Witness Statement of Mathew Hopwood-Glover, 23 July 2025, Exhibit CA-64(3) [MSC.5005.0042.2288 at .2289-.2290].

174 Email from Mathew Hopwood-Glover to Dane Pope attaching photos taken at 10–12 View Point Road, 10 January 2025, [MSC.5005.0042.2452 at .2463].

175 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 12 [63].

176 Exhibit CA-19, Witness Statement of John Nicholas Bolch, 14 May 2025, 4 [17].

177 Midcity, Summary of works completed by Midcity at 3 Penny Lane, 5–14 January 2025, [IMA.0001.0001.0078 at _0001].

178 Mark Finningham, Midcity, Expert Report about damage incurred at 3 Penny Lane, 7 January 2025, [IMA.0001.0001.0320 at _0001].

179 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 529.

204 On 9 January 2025, Mr Borghesi told Mr Glover that the flow of water had increased, a small landslip had occurred at the head of the scarp and cracks were appearing south of a gum tree.[180] He also sent Mr Flores a text stating, "*Claude, a small amount of soil (0.5m3) collapse from near the gum tree, the tree is at risk*".[181]

205 Over the weekend of 11 and 12 January 2025, Mr Borghesi contacted the Shire again to convey his concerns about the further degradation of the headscarp.[182]

206 On 13 January 2025, the day before the McCrae Landslide, Mr Glover exchanged text messages, including photos, with Mr Pope about the condition of the headscarp. He said that things were "*[n]ot good*". Mr Pope acknowledged that the wedge in front was "*slowly failing*".[183]

207 Faced with the threat of a further landslide, the Shire did not seek to re-engage with the VicSES to activate an emergency response.

208 Mr Brick stated that, to the extent the SEMP applied, the MBS undertook his responsibilities in accordance with Table 17 of the SEMP. Specifically, Mr Glover conducted a survey and made a determination regarding the occupancy of damaged residential buildings (when safe to do so).[184] That may be accepted.

209 There was, however, nothing in the SEMP to prevent the Shire from contacting the VicSES to seek an emergency response to the imminent occurrence of a landslide, which threatened to endanger the safety of residents and to destroy or damage property. That is the very definition of an *emergency*.[185] But the Shire did not act.

210 The Shire should have escalated – or at the very least considered escalating – the developing threat of a further landslide to the VicSES before 14 January 2025, but it did not. Again, while it is not possible to know whether such action would have prevented the McCrae Landslide, there is at least a possibility it would have done so or would have lessened the consequences of the McCrae Landslide. The VicSES may have, for example, sought to urgently remove soil from the headscarp using a long arm excavator, sought to intercept the continued water flow to the headscarp and/or placed barriers at the bottom of the escarpment to stop debris flow from impacting properties.[186]

180 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0035].

181 Exhibit CA-22, Witness Statement of Gerrard Raymond Borghesi, 14 May 2025, Exhibit GB-1 [RES.0001.0003.0001 at _0040].

182 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 529.

183 Text message chain between Mathew Hopwood-Glover and Dane Pope regarding site visit conducted at 10–12 View Point Road, 6–13 January 2025, [MSC.5031.0001.6040].

184 Exhibit CA-62, Witness Statement of Andrew Brick, 16 July 2025, 4–5 [14].

185 *Emergency Management Act 2013* (Vic) s 3; Victoria State Emergency Service, *State Landslide Hazard Plan* (Version 1, September 2018) 10.

186 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0108–_0112.

211 The reason the Shire did not consider seeking assistance from the VicSES seems to stem from the inadequate resourcing of the Shire's response to the landslide, with no one knowledgeable and experienced in emergency management involved. Mr Glover was following the advice received from geotechnical engineer Mr Pope on 7 January 2025 that "*some of the Property owners should take steps to mitigate the risk of further landslide activity while cause/repairs are investigated further, and insurers respond*".[187] He gave the owners action items provided by Mr Pope, but, in the absence of any appropriate leadership from the Shire, he did not consider whether more could and should have be done urgently.

Finding

Following the 5 January 2025 landslide, the Shire did not appropriately escalate its response to the developing emergency as water continued to infiltrate the unstable headscarp. It did not, for example, re-engage with the VicSES to seek an emergency response to the threat of a further landslide.

The Shire could have, but did not, take steps, together with SEW, to try to intercept the subsurface water flow upslope of the site and to direct it away from the landslide site

212 During those critical eight full days between the 5 January 2025 landslide and the McCrae Landslide, no one uncovered the source of the water infiltrating the headscarp.

213 Multiple theories were posited. Mr Glover initially thought the water was coming from a natural spring,[188] and later thought it may have been caused by a potential failure in the Shire's drainage system.[189] The Morans' insurer thought the water was coming out of a pipe.[190] SEW thought the water may have been leaking from its assets in the vicinity of the landslide and accordingly surveyed the area.[191]

214 In the face of this uncertainty, Mr Glover and his team were, therefore, keenly focused on locating the source of the water. They inspected various infrastructure, namely surrounding water meters, hydrant groundballs, road kerb collectors and stormwater pits. They conducted dye trace testing in stormwater lines from Prospect Hill Road and View Point Road. They tested water that had surfaced at the landslide site and neighbouring streets. Despite their best efforts, their investigations did not lead them to the source of the water.[192]

215 During those eight days between the 5 January 2025 landslide and the day of the McCrae Landslide, both the Shire and SEW were preoccupied with locating the water's source. But was that the best use of their time and resources?

187 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 3-4 [12]; Exhibit CA-61, First Witness Statement of Mathew Hopwood Glover, 27 June 2025, Exhibit CA-61(1) [MSC.5003.0001.7180].

188 Exhibit CA-16, First Witness Statement of Nicholas James Moran, 12 May 2025, 8 [39].

189 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 7–8 [27].

190 Public Hearing Transcript, Nicholas James Moran, 12 May 2025, 321.

191 Exhibit CA-38, Email from Jason Marsh to Charles Swain about inspection of landslide site and sampling, 6 January 2025, [SEW.0001.0001.0454].

192 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 6–7 [23], 7–8 [27].

216 Mr Borghesi resoundingly answered "no". In Mr and Mrs Borghesi's view, the source of the water was "*completely irrelevant*". What was relevant was that water was flowing subsurface and coming out of the headscarp. It needed to be intercepted before it triggered another landslide.[193]

217 Mr Borghesi explained:

> [O]ur point was, 'Don't worry about where it's coming from. What you need to do is intercept it before it emanates from the scarp because once gravity gets a hold of it … it will just continue to erode the scarp.'
>
> [W]e felt it was imperative that [the Shire] or South East Water undertake some urgent works to dig a trench or put spears in View Point Road to seek to intercept the water and, even if that were unsuccessful, it was critical that they do that rather than identify the source of the water.[194]

218 Similarly, in Mr Paul's expert opinion, there were measures that could have been implemented quickly after the 5 January 2025 landslide to reduce, or prevent a further increase in, pore water pressure at the site. These included:

a. drilling boreholes or auger holes on View Point Road and between View Point Road and the escarpment, and inserting sump pumps to extract water;

b. inserting dewatering spears (steel rods) to intersect subsurface water and pump it out of the ground; or

c. excavating a trench – on View Point Road, for example – to intercept groundwater and enable its removal by pumping.[195]

219 None of those measures were taken by the Shire and SEW, individually or collectively, to intercept the subsurface water flow, presumably because they did not know who was responsible for causing it. Not knowing was not a reason not to act.

220 In circumstances where neither the Shire nor SEW could be sure that the water flowing out of the escarpment was not from their assets, they could have worked together to try to intercept the subsurface water flow upslope of the site on View Point Road, and to direct it away from the landslide site.

221 While stopping the water at its source may have been seen as the ideal solution, the pursuit of that ideal should not have come at the expense of trying to prevent an imminent landslide. The water infiltrating the headscarp was plainly an acute problem, and it needed to be addressed as a priority and above ascertaining fault.

222 Mr Borghesi repeatedly told the Shire this.[196] The Shire should have listened and actively considered taking such a step. Had the Shire implemented a planned response to the 5 January 2025 landslide and assembled an appropriate team, then they may have done so.

193 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 536.

194 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 536.

195 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001 at _0111–_0112].

196 Public Hearing Transcript, Gerrard Raymond Borghesi, 15 May 2025, 536.

223 The Shire did attempt to *divert* the water running under the Morans' house.[197] However, redirecting the surface water onto the driveway and down Penny Lane was not aimed at addressing the infiltration at the headscarp by subsurface water, nor at preventing that water from destabilising the soil above the Morans' property and causing it to slide downhill.

224 The Shire should have grasped the enormity of the threat posed by the subsurface water continually *infiltrating the headscarp* day after day. The warning signs were unmistakable.

Finding

In the period between the 5 January 2025 landslide and the McCrae Landslide, the Shire and SEW could have, but did not, take steps to try to intercept the subsurface water flow upslope of the site and to direct it away from the landslide site.

This was another missed opportunity to mitigate landslide risk.

Finding

In all the circumstances, the Shire did not fully comprehend the risk of landslides in McCrae which impacted the Shire's approach to managing the risk and preparing for landslide events.

Recommendation 9: Landslide risk assessment and mitigation project

The Board of Inquiry recommends the Shire progress the work that is planned or currently underway to assess and mitigate landslide risk in McCrae, including undertaking a strategic assessment of landslide risk patterns across the full escarpment area and updating its asset management strategies and processes to account for landslide risk.

To the extent not already incorporated, the project should include:

a. obtaining external expert advice about any necessary modifications to the Shire's stormwater system in McCrae;

b. obtaining external expert advice about the presence and management of excess water around 6 and 10–12 View Point Road and Penny Lane, McCrae; and

c. consideration of the additional mitigation matters identified in section 9.3 of the PSM Landslide Risk Assessment dated 28 May 2025.

197 Exhibit CA-61, First Witness Statement of Mathew Hopwood-Glover, 27 June 2025, 2 [4]–[5].

6.3 South East Water

225 SEW's engagement with the Board of Inquiry was, at times, troubling.

226 On the first day of public hearings, the Board of Inquiry clearly set its expectations:

> This inquiry is not an opportunity for grandstanding. It is not a place for litigation type strategy. It is a place for finding answers in the public interest.[198]

227 As the work of the Board of Inquiry progressed, however, there were indications that SEW may have been preoccupied with protecting itself rather than discovering the answers. SEW formed a preliminary view in January 2025 that the McCrae Landslide was caused by no fault of its own. SEW appeared to adhere to that view unwaveringly. Put another way, SEW did not appear to approach the Board of Inquiry with a desire to understand whether the burst water main might have triggered the McCrae Landslide.

228 It is unnecessary to identify each of the matters that led to the Board of Inquiry feeling troubled. The minutes of the McCrae Strategy Group – a group of senior staff assembled to respond to the McCrae Landslide – were the most concerning. The minutes of a meeting on 28 February 2025 record this remark or discussion: *"How do we maintain the confidence of government? – that goes towards no admissions"*.[199] Those minutes also record this comment: *"Be careful of info provided to customers, because then B of I [Board of Inquiry] might question us under oath"*.[200] The minutes of a meeting on 27 March 2025 record a discussion about the approach to the Board of Inquiry: *"We need to decide on our strategic position of how we respond to the inquiry"*.[201] The minutes of a meeting on 7 April 2025 record that, in the context of a discussion about responding to a Notice to Produce issued by the Board of Inquiry, one executive leader said "*should we be cleaning up our internal notes etc before next notice to produce*".[202]

229 The Board of Inquiry has considered SEW's written response to the Board of Inquiry's concerns. While concerns subsist, no adverse finding is made against SEW in circumstances where the Board of Inquiry does not have written or oral evidence from each of the relevant representatives explaining the relevant parts of the meeting minutes and the other conduct.

230 This does not mean that these concerns should go unexamined within SEW. They should be fully explored by SEW's new Managing Director. Lack of insight and accountability in any organisation can lead to delayed and poor outcomes. The residents of McCrae need quick and responsible action.

198 Public Hearing Transcript, Chairperson, 7 May 2025, 4.

199 Minutes of McCrae Strategy Group, 28 February 2025, [SEW.0001.0001.2493].

200 Minutes of McCrae Strategy Group, 28 February 2025, [SEW.0001.0001.2493].

201 Minutes of McCrae Strategy Group, 27 March 2025 [SEW.0001.0001.2503 at _0002].

202 Minutes of McCrae Strategy Group, 7 April 2025, [SEW.0001.0001.2577].

Recommendation 10: SEW's McCrae Strategy Group

The Board of Inquiry recommends the new Managing Director of SEW review and improve the approach that has been and is being taken by SEW's McCrae Strategy Group, with the assistance of a suitably experienced external independent consultant.

231 Turning now to SEW's operational environment, before SEW can determine what could and should be done differently, it is necessary to look back, to see where it fell short in the lead up to the McCrae Landslide.

Limitations prior to the 5 January 2025 landslide

SEW was limited in its ability to detect the burst water main near the corner of Bayview Road and Outlook Road expeditiously

232 The burst water main was not located by SEW expeditiously.

233 It was located on 30 December 2024.[203] That is, nearly *five months* after it first started leaking,[204] *two months* after residents first noticed water rushing along and surfacing on streets uphill of Penny Lane,[205] and *six days* before the 5 January 2025 landslide.

234 It is acknowledged that SEW – primarily through its contractor, Service Stream – attended Waller Place, Charlesworth Street and Coburn Avenue multiple times in response to complaints of water upwelling on those streets throughout November and December 2024. Various leak detection activities were undertaken, but to no avail.

235 It is also acknowledged that the burst was not an ordinary one, not least because of its size and location in obscured bushland.

236 There was, as SEW submitted, a confluence of factors that complicated the detection of the burst. Key factors included the burst occurring during warmer months of higher water usage in a suburb known for natural springs, in a PVC pipe less suited to acoustic leak detection, and a significant distance from the locations at which water noticeably surfaced.[206]

237 Mr Lloyd, General Manager for Service Delivery of SEW, said:

> It's probably fair to say that leaks of this complexity are rare: they're not unique, but they are rare. I suspect the majority of people … in their career or short career may only see one or two that are this complex.[207]

203 Exhibit CA-28, Email chain between Charles Swain, Declan McCreesh and Gary Loudon et al about burst in Bayview Road, 3 February 2025, [SEW.0001.0001.0036 at _0002].

204 Exhibit CA-76, Report about Flow Rate from a Longitudinal Split in PVC Pipe prepared by Dr Jakobus E van Zyl and Dr Andrew Brown, 17 July 2025, [SEW.0001.0002.4191 at _0011–_0012].

205 Public Submission of McCrae Resident, 4 May 2025, [SUB.0032.0001.0001]; Exhibit CA-17, Witness Statement of Brett Phillips Cooper, 12 May 2025, 1 [4]–[5]; Public Hearing Transcript, Brett Phillips Cooper, 12 May 2025, 328–329.

206 South East Water, Response to first set of potential adverse findings, 21 August 2025, [SEW.0001.0002.4203].

207 Public Hearing Transcript, Tim Lloyd, 23 June 2025, 849.

238 Still, the delay in locating the burst water main was, in all the circumstances, as unsatisfactory as it was damaging. The delay resulted in approximately 40.3 million litres of water – the equivalent of about 16 Olympic sized swimming pools – escaping from the burst water main.[208] The delay may have contributed to a highly destructive landslide.

239 Counsel Assisting squarely asked Ms Lara Olsen, then Managing Director of SEW, whether she thought it was unacceptable that it took SEW up to eight weeks to identify the source of the leak after residents had reported the water issues uphill of Penny Lane. She was asked this question several times. She eventually conceded the point:

a. Her first answer was: "*It's certainly not what we would want to happen, so that's why we're relooking at [our standard practice for leak detection]*".[209]

b. Her second answer was: "*It was our practice at the time and we're relooking at it, and, yes, I am sorry that it took us so long*".[210]

c. Her third answer was: "*I certainly wish it was better*".[211]

d. In her final answer she accepted the obvious: "*It was our practice at the time, but, no, **I don't think it's okay that it took so long***" (emphasis added) to identify and stop the leak.[212]

Finding

SEW did not locate the burst water main near the corner of Bayview Road and Outlook Road expeditiously.

240 Ms Olsen was asked why she thought it took so long to locate the burst water main. She replied:

> I think partly because we were using our standard practices that had worked previously. When I read through the [Montage] records about what's happened you can see that there's a conclusion made using those practices or through discussions where our team members conclude that it's not our asset, that it's groundwater or something else.[213]

241 She also pointed to other factors that prevented the burst water main from being detected earlier. Namely, it was located at an asset on the edge of densely vegetated bushland between Bayview Road and the Mornington Peninsula Freeway and restricted from public access by a chain mesh fence.[214]

208 Exhibit CA-76, Report about Flow Rate from a Longitudinal Split in PVC Pipe prepared by Dr Jakobus E van Zyl and Dr Andrew Brown, 17 July 2025, [SEW.0001.0002.4191 at _0012].

209 Public Hearing Transcript, Lara Olsen, 16 May 2025, 588.

210 Public Hearing Transcript, Lara Olsen, 16 May 2025, 589.

211 Public Hearing Transcript, Lara Olsen, 16 May 2025, 589.

212 Public Hearing Transcript, Lara Olsen, 16 May 2025, 589–590.

213 Public Hearing Transcript, Lara Olsen, 16 May 2025, 590.

214 Exhibit CA-25, Witness Statement of Lara Olsen, 16 May 2025, 8 [41].

242 The most telling point that emerged from Ms Olsen's evidence was her frank acknowledgement that SEW's standard practices were inadequate at the time, such that SEW "*absolutely missed the Bayview Road Leak*".[215] She told the Board of Inquiry:

> [Our practices] were adequate within the sense that we'd used them previously to [identify] leaks … but they weren't in terms of this type of situation where the leak itself is a distance from where any water is surfacing and where … it's hard to find.[216]

243 Ms Olsen ultimately said:

> **I wish we were faster. I accept that it's a lot of water. I accept that we would have liked to have found it earlier. And so I accept it took too long for us to find it**. **But we did our standard practices at the time**.[217] (emphasis added)

244 The question that naturally presents itself is: why were SEW's standard leak detection practices at the time inadequate to detect the burst water main in a timely manner?

245 There are four notable features of SEW's practices that potentially delayed it in locating the burst water main:

a. first, it did not have systems and processes capable of promptly detecting the large volume of water that was escaping from the burst water main;

b. second, its reactive processes and procedures for detecting leaks were ill-defined, inadequately documented and not adapted for areas susceptible to landslides;

c. third, its on-site electrical conductivity testing did not account for the possibility that mains water may have travelled through the ground and undergone changes in its chemical composition; and

d. fourth, it did not have systems and processes capable of identifying the potential relationship between clusters of customer complaints.

246 Each of those features will be considered in detail below.

SEW did not have systems and processes capable of detecting, in a timely manner, the large volume of water that was being lost as a result of the burst water main

247 It might be expected that SEW, as a water corporation, would possess two important capabilities. The first is that it would know – or at least be able to readily determine – the volume of water flowing through its water mains at any given location. The second, and closely related, is that it would know – or be able to readily determine – when abnormally high volumes were flowing, suggesting the existence of a burst or leak in a water main. Yet, surprisingly, it did not have the latter capability.

248 The extent of SEW's detection and monitoring systems requires closer examination.

249 SEW did, and continues to, operate a system of various alarms that may be triggered based on pre-set thresholds, signalling a change in the performance of its water network. The changes may relate to a multitude of metrics, including water pressure, water flow, chlorine levels, turbidity

215 Public Hearing Transcript, Lara Olsen, 16 May 2025, 593.

216 Public Hearing Transcript, Lara Olsen, 16 May 2025, 596.

217 Public Hearing Transcript, Lara Olsen, 16 May 2025, 670.

and reservoir levels.[218] Such alarms were, and are, monitored by SEW's centralised control centre known as the Network Operational Control Centre.[219] When an alarm is triggered, a response may be generated if, in the judgement of the responding operator, one is deemed necessary.[220]

250 Counsel Assisting asked Mr Forster-Knight, General Manager - Digital and Transformation of SEW, which alarms could be particularly useful in the context of leak detection. He explained:

> So in leak detection, [alarms in relation to] flow can be useful. I'll say "can", because it depends on the configuration of the zone and how complex it is, and it's not a – none of it is a silver bullet. Unless you understand the complexity of that zone, other things could be happening, and **because we don't have digital meters to balance against a network flowmeter, we can't absolutely say there's a leak**. But, yes, they can be - it can be useful for inferring something is happening potentially abnormally[.][221] (emphasis added)

251 Mr Forster-Knight accepted that an alarm may trigger a body of work to investigate or follow up on whether there might be a leak in SEW's network. However, an alarm alone was, in his words, "*far from*" being able to pinpoint the exact location of a potential leak or burst.[222]

252 In December 2024, two relevant alarms were triggered in McCrae, one on 11 December 2024 and the other on 16 December 2024.[223] SEW submitted that those "*fleeting*" flow alarms triggered on one flow meter were consistent with increased water consumption during the summer months in McCrae. It further submitted that the flow rate of the burst water main on 11 December 2024 was in the order of half of the peak flow rate on 31 December 2024 so was relatively unremarkable.[224] That peak flow rate was approximately 1.4 million litres per day.[225]

253 Even if SEW's submission is accepted at its highest – that the two alarms justifiably did not trigger any follow up by SEW – it remains unexplained why no further alarms were triggered, nor attendant inquiries made, as the leakage flow rate escalated to 1.4 million litres per day. The point need not be laboured, save to say that SEW is reviewing the calibration of alarms and will set sufficiently sensitive thresholds to drive leakage investigations particularly in areas of landslide risk.[226]

254 As SEW properly admitted, SEW's alarm system was not, at the relevant time, capable of detecting with precision and in real-time the potential existence of a leak or burst by reference to abnormally high water flow, not even in Ms Olsen's assessment "*one of [SEW's] biggest bursts*".[227]

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218 Public Hearing Transcript, Andrew Forster-Knight, 24 June 2025, 1033.

219 Exhibit CA-25, Witness Statement of Lara Olsen, 16 May 2025, 3 [15]; Exhibit CA-35, Second Witness Statement of Tim Lloyd, 10 June 2025, 8 [46].

220 Public Hearing Transcript, Andrew Forster-Knight, 24 June 2025, 1013.

221 Public Hearing Transcript, Andrew Forster-Knight, 24 June 2025, 1033.

222 Public Hearing Transcript, Andrew Forster-Knight, 24 June 2025, 1033.

223 Public Hearing Transcript, Lara Olsen, 16 May 2025, 592.

224 South East Water, Response to first set of potential adverse findings, 21 August 2025, [SEW.0001.0002.4203].

225 Exhibit CA-76, Report about Flow Rate from a Longitudinal Split in PVC Pipe prepared by Dr Jakobus E van Zyl and Dr Andrew Brown, 17 July 2025, [SEW.0001.0002.4191 at _0032].

226 Exhibit CA-42, Witness Statement of Andrew Forster-Knight, 24 June 2025, 8 [42].

227 Public Hearing Transcript, Lara Olsen, 16 May 2025, 626.

255 The Board of Inquiry is otherwise not aware of any other system or process used by SEW that could have detected, in a timely manner, the large volume of water that was being lost as a result of the burst water main.

256 Indeed, determining the volume of water lost has proven to be complex.

257 During the first public hearing, four months after the McCrae Landslide, Counsel Assisting asked Ms Olsen whether SEW could readily arrive at a view about the volume of water lost from the burst water main. The answer was no. She explained:

> [SEW has] been trying to estimate what that volume of that burst is because we can't say for certain what that volume is.[228]

258 Ms Olsen further explained:

> So we don't have telemetry [i.e. remote measuring devices] that would tell us exactly what the [volume] is. So it's trying to look at the water in versus water out, and then looking over a number of years to take out other seasonal factors, et cetera, and then a range [of water loss] is come up with. That's partly because we also don't and can't know the exact date that [the leak] started.[229]

259 The water lost from the burst water main – about 40.3 million litres – was ultimately estimated through a series of multifaceted calculations, which involved assumptions concerning, amongst other things, the size of the initial split length on the burst water main, mass balance of flow meters in the area and adjustments to compensate for typical water consumption patterns.[230]

260 These complexities only underscored the limitations of SEW's monitoring and detection capabilities for leaks or bursts by reference to volumes of water flow. SEW itself acknowledged that the flow balancing algorithms required to do real-time flow balancing to detect leaks is something which it, and other water corporations, is aspiring to build.[231]

261 Overall, had SEW's systems and processes been more technologically advanced and sensitive to the large volume of water loss from the burst water main, there is a real possibility that the burst could have been detected earlier. The Board of Inquiry expresses no stronger conclusion.

Finding

At the relevant time, SEW did not have systems and processes capable of detecting, in a timely manner, the large volume of water that was being lost as a result of the burst water main.

228 Public Hearing Transcript, Lara Olsen, 16 May 2025, 569.

229 Public Hearing Transcript, Lara Olsen, 16 May 2025, 616.

230 Exhibit CA-76, Report about Flow Rate from a Longitudinal Split in PVC Pipe prepared by Dr Jakobus E van Zyl and Dr Andrew Brown, 17 July 2025, [SEW.0001.0002.4191].

231 South East Water, Response to first set of potential adverse findings, 21 August 2025, [SEW.0001.0002.4203].

Recommendation 11: Calibration of SEW alarms

The Board of Inquiry recommends SEW progress its work on calibrating its alarms in areas susceptible to landslides to drive effective and timely leak investigations.

Recommendation 12: Real-time flow balancing

The Board of Inquiry recommends SEW progress its work on developing flow balancing algorithms required for real-time flow balancing, with the objective of enhancing its ability to detect potential water leaks in a timely manner, especially in areas susceptible to landslides.

SEW's reactive processes and procedures for detecting leaks were ill-defined, inadequately documented and not adapted for areas susceptible to landslides

262 In its submissions, SEW emphasised that "*[t]he failure to detect [the] leak was not from want of trying*".[232] That may be so. But that does not cure the fact that SEW's reactive processes for detecting leaks were ill-defined, inadequately documented and insufficiently adapted for areas susceptible to landslides. To appreciate why that is the case, it is necessary to begin by setting out SEW's leak detection practices.

263 SEW used, and still uses, three methods for detecting leaks across its network:

a. **reactive leak detection**, which is triggered when potential leaks or other potential asset failures are reported by customers, or members of the public, or identified by SEW's field staff;[233]

b. **proactive leak detection**, which involves scheduled inspections of SEW's water network to identify leaks which cannot be identified by network monitoring and are generally not visible to the public (and, therefore, typically unreported);[234] and

c. **remote network monitoring techniques**, which involves the use of telemetry and digital meter sensors. Telemetry refers to the remote collection and transmission of data from sensors and monitoring devices located throughout SEW's water network to and from SEW's Network Operational Control Centre.[235] Digital meters measure the volume of water used by customers on domestic properties and can help identify a private property leak.[236]

232 South East Water, Response to first set of potential adverse findings, 21 August 2025, [SEW.0001.0002.4203].

233 Exhibit CA-35, Second Witness Statement of Tim Lloyd, 10 June 2025, 2 [6]–[7].

234 Exhibit CA-35, Second Witness Statement of Tim Lloyd, 10 June 2025, 6 [36].

235 Exhibit CA-35, Second Witness Statement of Tim Lloyd, 10 June 2025, 8 [46].

236 Exhibit CA-35, Second Witness Statement of Tim Lloyd, 10 June 2025, 8–9 [52]–[54].

264 To locate the burst water main, SEW relied on the first of the three methods described above: reactive leak detection. The following analysis is therefore focused on that method.

265 Broadly speaking, SEW's reactive leak detection practices can be categorised into two distinct phases:

a. basic leak detection, which is exclusively conducted by SEW's maintenance contractors, namely Service Stream and Downer, as the first step in investigating the source of a leak;[237] and

b. specialised leak detection, which is conducted by Detection Services or specialist leak detection technicians from SEW, in the event that the maintenance contractor is unable to determine the source of the leak.[238]

266 Mr Lloyd explained those approaches to leak detection.

267 As to **basic leak detection**, he said that it:

> involves examining the surrounding area, tracking the source of any visible water, checking valves and other fittings and examining domestic meters, lifting pit lids of other utilities and attempting to follow any water sources to their origin. The maintenance contractors also use basic acoustic detection equipment (probes and 'listening sticks') to test fittings for sounds indicating the possible presence of a leak.
>
> [The maintenance contractors] test the [visible] water using an electrical conductivity or total dissolved solids pen (an electronic device with a probe / sensor at the end) and, where available, chlorine reagent test kits.[239]

268 Electrical conductivity testing of water warrants some explanation. Simply stated, electrical conductivity measures how well water (or any other material) can conduct an electrical current. The higher the concentration of salts (or dissolved ions) in the water, the greater the electrical conductivity of the water.[240] Drinking (or potable) water should contain low levels of salts and exhibit relatively low electrical conductivity.[241] The electrical conductivity of SEW's mains water is 83 MicroSiemens per centimetre on average,[242] and ranges between 50 MicroSiemens per centimetre and 200 MicroSiemens per centimetre.[243] As is evident from the chronology outlined in Chapter 3, electrical conductivity readings outside that range are typically interpreted as indicating that the water has not originated from SEW's water mains. This is flawed reasoning, to which this Report will return.

237 Exhibit CA-35, Second Witness Statement of Tim Lloyd, 10 June 2025, 3 [13]–[15].

238 Exhibit CA-35, Second Witness Statement of Tim Lloyd, 10 June 2025, 4 [18]–[19].

239 Exhibit CA-35, Second Witness Statement of Tim Lloyd, 10 June 2025, 4–5 [23]–[24].

240 Public Hearing Transcript, Darren Paul, 7 May 2025, 94.

241 Exhibit CA-35, First Witness Statement of Tim Lloyd, 4 June 2025, Exhibit 2, [SEW.0001.0001.4896].

242 Public Hearing Transcript, Lara Olsen, 15 May 2025, 580.

243 Exhibit CA-9, South East Water Submission to the Board of Inquiry into the McCrae Landslide, April 2025, [SEW.0001.0001.0111 at _0006].

269 Next, as to **specialised leak detection**, Mr Lloyd explained that it involves more advanced equipment. He explained:

> Specialised leak detection technicians walk the alignment of the water main and service pipes and use a range of more sophisticated equipment … to test all available fittings along the alignment to locate noise. Technicians might also use [a correlator device] to pin-point the leak or, if required, 'lift and shift' acoustic devices such as the Enigma or Von-Roll Sensor, which can be used in sequence and for longer duration i.e. overnight when there is less background noise.[244]

270 Neither basic leak detection nor specialised leak detection processes were clearly or comprehensively documented by SEW. As Mr Lloyd acknowledged:

> SEW previously did not have a formal document that outlined the range of field and laboratory testing for the chemical composition of water and how those results could be interpreted.[245]

271 SEW relied on two matters to justify that state of affairs. First, SEW explained that each step of the basic leak detection process that SEW expected its maintenance contractors to follow were not set out in its contracts with them because it had engaged them on the basis of their experience.[246] Second, SEW's specialised leak detection technicians receive on-the-job training under the supervision of a more experienced colleague for a six-month period, including in relation to acoustic leak detection and electrical conductivity testing.[247]

272 As to the latter, Mr Marsh – a retired leak detection technician at SEW who, it will be recalled, was involved in leak detection activities both in the lead up to and aftermath of the 5 January 2025 landslide – gave evidence that he had not been trained in accordance with any standard leak detection manual or guideline published by SEW.[248] He insisted that it is "*very hard to write up a procedure*",[249] and said:

> Leak detection is not a science. Rather, there may be a bunch of clues you have to interpret. So leak detection is not easily taught.[250]

273 That may be so but it is not a reason for not clearly and comprehensively documenting processes.

274 A process that relies on experience or the interpretation of multiple "clues" does not cease to be a process. The fact that judgement, pattern recognition, deductive reasoning, or intuition based on experience is involved in reactive leak detection does not mean that the process cannot, or should not, be well-defined and documented. Documentation serves important functions, including to provide structure to the process and to reduce errors and variability in performance.

244 Exhibit CA-35, Second Witness Statement of Tim Lloyd, 10 June 2025, 5 [27].

245 Exhibit CA-35, First Witness Statement of Tim Lloyd, 4 June 2025, 4 [19].

246 Exhibit CA-35, Second Witness Statement of Tim Lloyd, 10 June 2025, 4 [22].

247 Exhibit CA-35, Second Witness Statement of Tim Lloyd, 10 June 2025, 6 [30].

248 Public Hearing Transcript, Jason Marsh, 23 June 2025, 909.

249 Public Hearing Transcript, Jason Marsh, 23 June 2025, 909.

250 Exhibit CA-37, Witness Statement of Jason Marsh, 4 June 2025, 2 [5].

275 SEW submitted that had its processes and procedures been further documented, it would have made no difference – what SEW's maintenance contractors and employees did on the ground at the relevant time in McCrae would have remained unchanged.[251] That might be true, but that does not deny the benefits of documentation including ensuring transparency, repeatability and reliability of the process.

276 Indeed, Mr Lloyd told the Board of Inquiry:

> One of the key learnings from the McCrae Landslide has been the need to ensure that leak detection procedures are clearly documented for the benefit of SEW's staff and contractors, including the procedure for undertaking [electrical conductivity] tests. To date the reactive leak detection tasks have primarily been undertaken on the basis of 'on the job' training.
>
> [SEW] is in the process of drafting a procedure for investigating unknown sources of water and an accompanying work instruction to outline steps for leak detection for the benefit of both SEW employees and SEW's maintenance contractors. This willbecome a minimum standard / expectation for our future leakage detection and maintenance contracts.[252]

277 Mr Lloyd was right to identify that key learning and it is proper that SEW has taken steps in view of it.

Finding

At the relevant time, SEW's reactive processes and procedures for detecting leaks were illdefined and inadequately documented.

Recommendation 13: Documentation of leak detection processes and procedures

The Board of Inquiry recommends SEW clearly document its leak detection processes and procedures to:

a. outline training requirements to ensure employees and contractors apply procedures consistently;

b. set out the systematic steps that employees and contractors must take when investigating unknown sources of water;

c. provide guidance on the interpretation of field test results;

251 South East Water, Response to first set of potential adverse findings, 21 August 2025, [SEW.0001.0002.4203].

252 Exhibit CA-35, Second Witness Statement of Tim Lloyd, 10 June 2025, 7 [44].

d. require employees and contractors, in more complex cases, to assess whether the unknown water may be originating from a SEW asset located uphill or at a more distant location;

e. set out roles, responsibilities, and escalation pathways for decision-making; and

f. include provisions for periodic review and updating of the processes and procedures to account for any lessons learnt, new technology, or changes in risk profile.

278 It remains to say something about SEW's reactive leak detection practices not being adapted for landslide prone areas.

279 The short point is that they were not specifically tailored to address the particular risks associated with landslide prone areas.

280 Counsel Assisting asked Mr Lloyd whether he was aware of SEW's Faults and Emergency team, which assigns priority ratings to reported issues potentially involving SEW's assets, having regard to whether the location of the report lies within an area that is historically susceptible to landslides or subject to an EMO. He replied, "*No, that wouldn't be part of the decision-making process*".[253] Mr Lloyd was also asked whether the team gave any consideration to whether the reported issue was in the vicinity of an escarpment or a hill. He replied, "*No, I don't believe they do*".[254]

281 This goes some way to explaining why SEW consistently assigned a **priority rating of 5** – a rating assigned to non-urgent faults – to the water issues reported throughout November and December 2024 on Waller Place, Charlesworth Street and Coburn Avenue, even as they multiplied (as outlined in Chapter 3).

282 Mr Lloyd acknowledged that SEW, together with a range of other organisations, is still in the process of coming to terms with landslide risks. He explained:

> [T]he water industry bases a lot of its risk assessment and planning on the water sector resilience plans, and we also do work with the community emergency risk assessment process, which is a process between ourselves, other agencies, Mornington Peninsula Shire and the SES. To date, none of those consider landslide as a potential risk.
>
> ... landslide is probably - is something that many of our organisations that collaborate on these things are really starting to learn more about.[255]

283 SEW submitted that, prior to 5 January 2025, it had no knowledge that McCrae was an area of high landslide susceptibility.

284 SEW highlighted that no EMO was in place and landslides were not identified in the State or Regional plans or the MEMP as a significant risk nor identified on Emergency Management Victoria's list of top threats.[256] That is true. However, the factors on which SEW relies do not change the fact that its leak detection practices did not have regard to landslide risk.

253 Public Hearing Transcript, Tim Lloyd, 23 June 2025, 813.

254 Public Hearing Transcript, Tim Lloyd, 23 June 2025, 823.

255 Public Hearing Transcript, Tim Lloyd, 23 June 2025, 826.

256 South East Water, Response to first set of potential adverse findings, 21 August 2025, [SEW.0001.0002.4203].

285 SEW submitted that had it known at the relevant time what it now knows, it would have taken a different approach.[257] Indeed, since the McCrae Landslide, it has taken a different approach.

286 Christopher Smith, Network Performance Integrated Planning Manager of SEW, gave evidence that SEW has improved its approach to managing landslide risk through a range of initiatives. Two developments are of particular significance.

287 First, prior to 2025, SEW's asset management framework did not expressly address landslide susceptibility. That position has since changed. From April 2025, SEW's Strategic Asset Management Plan expressly recognises landslides both as a factor in assessing whether SEW's assets could exacerbate landslide risk, and in determining whether those assets may themselves be rendered vulnerable by a landslide.[258]

288 Second, SEW is in the process of incorporating all relevant EMO schedules within its service area into its GIS to enable the mapping of areas potentially susceptible to landslides. This information will guide SEW's approach to asset management and risk control measures, including decisions regarding asset renewal in those areas.[259] It should not, however, be the only information that SEW relies upon to identify areas susceptible to landslide because, as is the case on the Mornington Peninsula, EMO schedules do not always capture all such areas.

289 Again, while it is not possible to know whether such practices that are more attune to landslide risk would have prevented the McCrae Landslide, there is at least a real possibility that SEW would have treated the reported water issues in November and December 2024 with greater urgency. This may have expedited the discovery of the burst water main.

290 SEW's recent initiatives are pleasing. They represent a necessary and important step toward giving proper regard to the risks posed by excess water in areas susceptible to landslides.

Finding

At the relevant time, SEW's reactive leak detection practices were not specifically tailored to address the particular risks associated with landslide prone areas.

Recommendation 14: Adapting leak detection practices and processes

The Board of Inquiry recommends SEW review its leak detection practices and processes to ensure they are appropriately adapted to address the heightened risk of excess water accumulating or surfacing in areas susceptible to landslides.

257 South East Water, Response to first set of potential adverse findings, 21 August 2025, [SEW.0001.0002.4203].

258 Exhibit CA-51, Witness Statement of Christopher Smith, 6 June 2025, 3 [13].

259 Exhibit CA-51, Witness Statement of Christopher Smith, 6 June 2025, 3–4 [18]–[20].

SEW's on-site electrical conductivity testing did not account for the possibility that mains water may have travelled through the ground and undergone changes in its chemical composition

291 As has already been said, SEW's contractors, Service Stream, and its employees attended Waller Place, Charlesworth Street and Coburn Avenue on multiple occasions to respond to complaints of water upwelling on those streets, including through potholes, throughout November and December 2024. On each of those occasions, the water was dismissed as not originating from one of SEW's assets. Why?

292 SEW submitted that this was not a product of overreliance on electrical conductivity testing of water to determine whether or not water surfacing on Waller Place, Charlesworth Street and Coburn Avenue was from its assets. It further submitted that electrical conductivity testing formed part of a "*package of tools including visual observation, acoustic leak detection, and information from residents*".[260]

293 In a similar vein, Mr Lloyd said:

> To be clear, water testing alone is not a deciding factor as to whether the source is or is not from a SEW asset. There would generally be other clues to suggest whether the water was from SEW assets, for example, sounds on fittings, or perhaps other evidence like poor pressure. It is a combination of things that build up a picture.[261]

294 A survey of SEW's Montage records reveals that SEW's contractors and employees did use a range of tools to try to identify the source of the surfacing water. However, the survey also reveals that the interpretation of electrical conductivity testing results was flawed. The overwhelming practice was that any reading outside the range of 50 MicroSiemens per centimetre to 200 MicroSiemens per centimetre was treated as strongly or conclusively indicating that the water had *not* originated from SEW's water mains. That was wrong.

295 SEW itself now recognises:

> [i]f water has travelled through soil before it surfaces, it may absorb any salts present on its journey. Consideration of this must be taken in reaching a conclusion that a leak is not from the water network or private plumbing when looking only at EC levels.[262]

296 But such consideration was not demonstrated in the leak detection activities undertaken throughout November and December 2024.

260 South East Water, Response to first set of potential adverse findings, 21 August 2025, [SEW.0001.0002.4203].

261 Exhibit CA-35, Second Witness Statement of Tim Lloyd, 10 June 2025, 3 [16].

262 Exhibit CA-35, Second Witness Statement of Tim Lloyd, 10 June 2025, Exhibit 2 [SEW.0001.0001.4896 at _0002].

297 A few examples make the point sufficiently:

a. on 28 November 2024, a contractor recorded "*I tested the water a few times & got readings of over 1350 which is well out of mains range. I sounded nearby services & picked up no sounds & the water main is in the n/strip. Looks to be a drainage issue*";[263]

b. on 1 December 2024, a contractor recorded "*I tested the water a few times [at Waller Place] & the reading is over 3700. This is a council issue*";[264]

c. on 16 December 2024, a contractor recorded "*water sitting [in front yard] tested at 225 … raining on-site no indication of sew asset leak storm water*" (errors in original);[265] and

d. on 17 December 2024, a contractor recorded "*on-site [at Waller Place] tested water in gutter 352 storm water*".[266]

298 Nowhere in those examples is there any evidence that the contractor considered the possibility that the elevated electrical conductivity reading was caused by SEW's mains water travelling through the ground from a different location. Instead, once a reading beyond 200 MicroSiemens per centimetre was obtained, the contractor appears to have invariably concluded that the source of the water was stormwater.

299 Counsel Assisting asked Ms Olsen whether an electrical conductivity reading of 225 MicroSiemens per centimetre obtained on 16 December 2024 would at least be a cause of concern given its proximity to the upper bound of the electrical conductivity of SEW's mains water. She replied "*Yes, I agree so; yes*".[267] She was right to make that acknowledgement.

300 In its submissions, SEW said that the laboratory results from the potholes showed that the samples were not within the typical range of drinking water, a finding reinforced by the on-site electrical conductivity tests.[268] Of course that was the case. It is no revelation. The photographs of the potholes alone – showing murky water in the potholes – made it clear that the water bore no resemblance to drinking water.

301 SEW's submission ultimately misses the point.

302 Even though SEW's contractors and employees used information obtained through visual observations, acoustic testing and discussions with local residents, in addition to the electrical conductivity testing, it is still the case that no one appeared to seriously entertain the possibility that the electrical conductivity reading was misleading and did not in fact establish that the water was stormwater.

263 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0085].

264 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0085 at _0013].

265 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076].

266 Exhibit SEW-2, South East Water Montage Records, 1 November 2024–31 January 2025, [SEW.0001.0001.0076 at _0010].

267 Public Hearing Transcript, Lara Olsen, 16 May 2025, 593.

268 South East Water, Response to first set of potential adverse findings, 21 August 2025, [SEW.0001.0002.4203].

303 As it has turned out, Mr Bolton, a hydrogeologist of SMEC (engaged by SEW), accepted that water from the burst water main had made its way to Waller Place, along Charlesworth Street and to the intersection of Charlesworth Street and Coburn Avenue.[269] And that was so even though the electrical conductivity reading of the upwelled water within the pothole at the corner of Waller Place and Charlesworth Street was 670 MicroSiemens per centimetre, well above SEW's mains range of 50 MicroSiemens per centimetre to 200 MicroSiemens per centimetre.[270]

304 Had the interpretation of the electrical conductivity testing been more nuanced at the relevant time – that is, in November and December 2024 – SEW might not have so readily and repeatedly dismissed the possibility that the water had originated from one of its assets. It might have moved swiftly to trace the source of the water across the Mornington Peninsula Freeway. SEW's failure to recognise the unreliability of the electrical conductivity testing may have contributed to the delay in the detection of the burst water main.

Finding

SEW's on-site electrical conductivity testing did not account for the possibility that mains water may have travelled through the ground and undergone changes in its chemical composition.

Recommendation 15: Interpreting on-site electrical conductivity readings

The Board of Inquiry recommends SEW ensure that on-site electrical conductivity readings outside mains water range are not taken as conclusive evidence that leaking water has not originated from its assets. Appropriate processes and procedures should be developed to account for the possibility that the water may have travelled through the ground and changed in its chemical composition.

SEW did not have systems and processes capable of identifying the potential relationship between clusters of customer complaints throughout November and December 2024

305 The multiple complaints of water surfacing on Waller Place, Charlesworth Street and Coburn Avenue throughout November and December 2024 have been laid bare in Chapter 3.

306 A question arises as to whether SEW had systems and processes in place to escalate the leak detection investigation in such circumstances. The answer is: no.

269 Exhibit CA-69, Revised Multidisciplinary Expert Supplementary Report about McCrae Landslide prepared by SMEC, 30 July 2025, [SME.0001.0001.0501 at _0297].

270 Exhibit CA-27, Multidisciplinary Expert Report about McCrae Landslide Project prepared by SMEC, 5 May 2025, [SEW.0001.0001.0142 at _0075].

307 Counsel Assisting asked Mr Lloyd whether he thought the frequency of reports in an area should bear on the priority to be assigned to a reported issue. He replied:

> At the moment, it's not … [I]t's certainly one of the things that we are looking to do, is to try and identify if we have a cluster of calls.
>
> … leaks tend to get reported in over a series of days. So being able to – our current systems don't draw that correlation. I know one of my colleagues is looking at developing a mechanism to be able to analyse a particular geography and a series of calls to determine if – to create a – you know, if there is a pattern to understand if there's a pattern.[271]

308 Relatedly, Mr Lloyd was asked whether, in circumstances where there had been a number of issues within relatively close proximity, SEW would likely revise the priority rating assigned to reported issues. He said he did not know.[272]

309 Mr Forster-Knight is the colleague to whom Mr Lloyd referred. Consistent with Mr Lloyd's evidence, Mr Forster-Knight said that SEW's systems are "*built in isolation*" so are unable to recognise clusters of complaints or recognise correlations between multiple complaints. He also accepted that SEW's contractors and employees do not have an easy means of determining potential interrelationships between multiple customer complaints.[273]

310 Mr Forster-Knight explained that SEW was in the process of developing software that would extract data from various systems to facilitate cluster detection. He was unable to say when the software would go live but hoped it would occur in the coming months.[274]

311 Notwithstanding this clear evidence, in its submissions, SEW resisted the proposition that it does not have systems and processes capable of identifying the potential relationship between clusters of customer complaints. It submitted:

> [T]he water events in adjacent streets in McCrae were captured in SEW's Montage system. For example, the task story of Montage record 1298016… specifically mentions Montage record 1295094[,] which demonstrates that there was no lack of awareness of the various customer complaints at the time. As a result, leak detection activities were being undertaken in the 'cluster' of Prospect Hill Road, Coburn Av, Charlesworth St, View Point Road and surrounds.[275]

312 Leaving aside that SEW's submission conflicts with the evidence of its own employees, there are at least two difficulties with its submission.

313 First, the example given does no more than demonstrate that, on 29 December 2024, one of SEW's customer contact representatives recognised that there were also reported water issues at 4 Waller Place. This does not demonstrate that SEW had a system or process to identify potential links between complaints, such as recognising that multiple water issues might stem from a single major burst.

271 Public Hearing Transcript, Tim Lloyd, 23 June 2025, 846–867.

272 Public Hearing Transcript, Tim Lloyd, 23 June 2025, 813.

273 Public Hearing Transcript, Andrew Forster-Knight, 24 June 2025, 1037.

274 Public Hearing Transcript, Andrew Forster-Knight, 24 June 2025, 1038.

275 South East Water, Response to first set of potential adverse findings, 21 August 2025, [SEW.0001.0002.4203].

314 Second, the fact that leak detection activities were undertaken in streets in close proximity says nothing about whether SEW was able to identify potential links between a cluster of complaints.

315 SEW further submitted that having the ability to identify the potential relationship between clusters of customer complaints in McCrae does not necessarily mean the leak would have been easier to identify given the "*rare confluence of factors*" that complicated its detection.[276]

316 That is open to doubt.

317 Counsel Assisting put to Mr Lloyd that it would have been useful if SEW's systems were able to ascertain the fact that there had been a number of unresolved callouts in a particular area so that someone within SEW could look at the whole suite of information to determine whether or not there was a potential underlying problem. Mr Lloyd accepted the utility of that capability, saying: "*And I think this is why we're actually looking at this particular opportunity now to identify when there has been a cluster of those complaints. That is directly one of the reasons why we're looking at it*".[277]

318 Mr Lloyd also accepted that the Montage system is currently limited to being a record of things that have occurred. Consequently, SEW is trying to harness that information to "*come up with a means to identify when we get a series of those clusters together*".[278]

319 Significantly, when asked whether he thought the burst water main ought to have been detected sooner, Mr Lloyd replied:

> [W]ithout a doubt, we would have wanted it to have been found far quicker, without a shadow of a doubt. Nobody wants to have a leak that runs that long.
>
> But I can put myself in [the position of those who undertook leak detection activities], and based on the tools they've got, the information they've got, I can see how it led to those conclusions. **It's only when you eventually piece together that wider source of information that it draws out to you what was actually happening on the other side of the freeway**.[279] (emphasis added)

320 There are evident advantages, as Mr Lloyd rightly recognised, in identifying clusters of customer complaints within close proximity. One important advantage is that it facilitates the early detection of systemic or recurring issues that may not be evident when complaints are considered in isolation.

321 Where multiple customers report similar concerns in close proximity, this may signify that the complaints share a common cause. That was certainly the case in McCrae.

322 In the absence of systems and processes capable of identifying the potential relationship between the cluster of customer complaints throughout November and December 2024, SEW was unable to identify expeditiously the possibility that the issues may have stemmed from the same underlying cause. This too may have contributed to the delay in detecting the burst water main.

276 South East Water, Response to first set of potential adverse findings, 21 August 2025, [SEW.0001.0002.4203].

277 Public Hearing Transcript, Tim Lloyd, 23 June 2025, 851.

278 Public Hearing Transcript, Tim Lloyd, 23 June 2025, 851.

279 Public Hearing Transcript, Tim Lloyd, 23 June 2025, 851–852.

Finding

SEW did not have systems and processes capable of identifying the potential relationship between clusters of customer complaints throughout November and December 2024.

Recommendation 16: Identifying clusters of complaints

The Board of Inquiry recommends SEW progress its work to develop systems and processes capable of identifying the potential relationship between clusters of complaints in relation to potential water leaks, particularly in areas that are susceptible to landslides.

Inaction between 5 and 14 January 2025

323 The burst water main was discovered on 30 December 2024. It was repaired in the early hours of New Year's Day. Four days later, the 5 January 2025 landslide occurred.

324 What was done by SEW following that landslide?

325 In the period between 5 January 2025 and the McCrae Landslide, it is acknowledged that SEW took multiple steps which included:

a. attending the site within hours of the landslide to conduct an inspection, and informing the VicSES that there was potentially "*a burst water main up top*" but they were unsure where it was located;[280]

b. inspecting the landslide site and taking a water sample from "*the embankment*" for laboratory testing after observing, on 6 January 2025, that water was "*running down the washed away embankment*" and that the Borghesis were "*having issues with retaining walls leaning, etc*";[281]

c. instructing Detection Services, its specialist leak detection provider, to survey the area for leaks;[282]

d. conducting leak detection activities at and around 10–12 View Point Road, including electrical conductivity testing and sounding nearby fittings with acoustic leak detection devices;[283]

280 State Emergency Service, Emergency call log in relation to 3 Penny Lane, 5–6 January 2025, [SES.0001.0002.0009 at _0011]; South East Water, Task Summary of Planned Maintenance Repair at 3 Penny Lane, 5 January 2025, [SEW.0001.0001.0127].

281 Exhibit CA-38, Email from Jason Marsh to Charles Swain about inspection of landslide site and sampling, 6 January 2025, [SEW.0001.0001.0454].

282 Exhibit CA-38, Email from Jason Marsh to Charles Swain about inspection of landslide site and sampling, 6 January 2025, [SEW.0001.0001.0454].

283 South East Water, Task Summary of Planned Maintenance Repair at 3 Penny Lane, 5 January 2025, [SEW.0001.0001.0127].

e. liaising with the VicSES about its leak detection investigations on 6 January 2025;[284] and

f. sending Mr Swain (Water Maintenance Manager) and Mr Marsh (Leak Detection Technician) to survey streets uphill of the landslide site for potential sources of water, including Prospect Hill Road, Waller Place and Bayview Road.[285]

g. SEW's leak detection investigations in the days following the 5 January 2025 landslide covered significant territory, as demonstrated in the schematic prepared by Mr Swain:

FIGURE 6.2: SCHEMATIC OF THE WATER NETWORK IN THE MCCRAE AREA ANNOTATED BY MR SWAIN.[286]



326 It is obvious that in the period between 5 and 14 January 2025, SEW was actively looking for the source of water that was seen emanating from the headscarp. No criticism can be levelled against SEW for trying in that respect. But should they have done more?

284 South East Water, Task Summary of Planned Maintenance Repair at 3 Penny Lane, 5 January 2025, [SEW.0001.0001.0127].

285 Comments from Charles Swain of South East Water about site visit to 10–12 View Point Road, 7 January 2025, [SEW.0001.0001.0731]; Email from Jason Marsh to Charles Swain et al about monitoring of storm drains and sounding services around Waller Place and Bayview Road, 9 January 2025, [SEW.0001.0001.0438].

286 Exhibit CA-36, Schematic of the water network in the McCrae area annotated by Charles Swain, 14 January 2025, [SEW.0001.0001.0027].

327 With the benefit of hindsight, reasonable minds could differ as to what approach SEW could or should have taken after the 5 January 2025 landslide. It would not be possible to interrogate all the courses of action available to SEW during those critical eight days between the landslides. However, three questions present themselves as deserving further consideration:

a. Should SEW have conducted further tests and investigations to determine whether the water flowing out of the 5 January 2025 landslide site may have originated from the burst water main?

b. Should SEW have informed the Shire's MBS, and/or other appropriate representatives of the Shire, in the days between the 5 January 2025 landslide and the McCrae Landslide, about the burst water main?

c. Should SEW have taken steps, together with the Shire, to try to intercept the subsurface water flow upslope of the site and to direct it away from the landslide site?

328 The third question can be addressed in relatively short order. It will be dealt with first.

329 SEW submitted that it could not have been expected to take steps, together with the Shire, to intercept the subsurface water flow upslope of the site. It relied on two matters. First, it submitted that, in the period between 5 and 14 January 2025, it held the reasonable view that the water had not originated from a water main given that the electrical conductivity of the water sample taken at the headscarp on 6 January 2025 was 1600 MicroSiemens per centimetre, the area was well-known for natural springs, and the burst water main was located 465 metres uphill from the headscarp. Second, it submitted that there is a 'regulatory gap' as no organisation is tasked with the responsibility for managing the negative consequences of groundwater, including diverting it.[287]

330 SEW's submission seems to begin with the premise that SEW categorically knew that the water flowing out of the escarpment was not mains water but groundwater. Such an absolute position is difficult to reconcile with the ongoing investigations conducted by SEW to locate the source of the water, even in the aftermath of the McCrae Landslide.

331 The following email sent by Mr Swain to Mr Lloyd on 14 January 2025 demonstrates that final conclusions about the source and nature of the water had not yet been reached:

> Over the last 10 days [that is, since the 5 January 2025 landslide] we have been working with the customers and Morn Pen Council to investigate the source of water coming out of the ground at multiple locations that has caused a land slip at 10 Viewpoint Rd, McCrae. This included leak detection of the whole area, review of pressure and flow data from trends at the zone pump station and water quality sampling of 3 of the points where water has been surfacing. **We have yet to conclude these investigations, as further leak detection is currently being undertaken further north, however at this stage our investigations are concluding that the water is not from the SEW Water Network**.
>
> We did identify 2 leaks across the highway which have now been repaired but these were overflowing into the stormwater drain and not going into the ground. **Once our investigations have been concluded I will be preparing a summary report of our activities and findings**.[288] (emphasis added)

287 South East Water, Response to first set of potential adverse findings, 21 August 2025, [SEW.0001.0002.4203].

288 Exhibit CA-35, First Witness Statement of Tim Lloyd, 4 June 2025, Exhibit 4 [SEW.0001.0001.4907].

332 Again, as explained above, in circumstances where neither SEW nor the Shire could be sure that the water flowing out of the escarpment was not from their assets, they could have worked together between 5 and 14 January 2025 to try to intercept the subsurface water flow upslope of the site on View Point Road, and to direct it away from the landslide site.

333 Suffice to say that had the Shire developed and implemented a comprehensive landslide response plan, it is reasonable to expect that there would have been some engagement with SEW about such an option in order to mitigate the risk of a further landslide in circumstances where neither SEW nor the Shire could be sure that the water was not coming from their assets.

334 Turning now to the first and second questions. The answers to those questions depend on the state of SEW's knowledge concerning the burst water main in the period between 5 and 14 January 2025.

335 SEW submitted that during that period it did not draw a clear connection between the water flowing out of the headscarp and the burst water main which had been repaired on New Year's Day. At that stage, SEW had no knowledge of the volume and duration of the leak.[289]

336 What does the evidence suggest?

337 It is uncontroversial that by 5 January 2025, SEW knew three things: large volumes of water had been surfacing on the streets of McCrae since November 2024; a burst water main had been located and repaired in the lead up to and on New Year's Day; and water was flowing from the headscarp of the landslide at 10–12 View Point Road.

338 Recognising each of those facts individually is one thing, but fully appreciating their interrelationship is quite another.

339 Mr Marsh gave evidence that, on 6 January 2025, he did not consider that there was a link between the burst water main, the water surfacing around Waller Place and the 5 January 2025 landslide. However, he recognised that the sequence of factors did not "*look good*", such that there might be a "*misconception*" that the landslide had been triggered by the burst water main.[290]

340 Mr Lloyd gave evidence that, on the day of the McCrae Landslide, he had not drawn a potential link between the burst water main and the McCrae Landslide. He explained that the burst water main was "*too far*" away from the landslide site, both geographically and temporally. He recounted his state of mind on 14 January 2025 as follows:

> The fact water was still surfacing weeks after the Burst Water Main was fixed caused me to believe the two issues [the burst water main and the cause of the McCrae Landslide] were unrelated and the focus for me and my team was on the ongoing water surfacing at various locations near the McCrae Landslide site.[291]

341 Mr Lloyd also said:

> I'm not correlating the two together at this point … my focus was on the here and now and the fact that there was water emerging at that time.[292]

289 South East Water, Response to first set of potential adverse findings, 21 August 2025, [SEW.0001.0002.4203].

290 Public Hearing Transcript, Jason Marsh, 23 June 2025, 936.

291 Exhibit CA-35, First Witness Statement of Tim Lloyd, 4 June 2025, 6 [26].

292 Public Hearing Transcript, Tim Lloyd, 23 June 2025, 866.

342 He emphasised that his "*genuine concern*" was whether SEW had an issue in one of its pipes in the vicinity of the landslide site.[293]

343 The contemporaneous documentary evidence does not contradict that oral evidence.

344 The state of the evidence, therefore, supports a finding that, in the intervening period between the landslides, SEW did not know or strongly suspect that the burst water main was the source of the water emanating from the headscarp.

345 In view of that state of knowledge, and in the absence of a Shire-led plan to respond to landslides, it is understandable why SEW did not, in the days between the 5 January 2025 landslide and the McCrae Landslide, take the following steps:

a. conduct further tests and investigations to determine whether water flowing out of the 5 January 2025 landslide site may have originated from the burst water main; and

b. inform the Shire's MBS, who was leading the Shire's response to the 5 January 2025 landslide, about the burst water main.With the benefit of hindsight, and especially with the benefit of the expert evidence, it would be easy enough to say that SEW should have taken such steps. But that would be to ignore the reality that SEW, at the relevant time, did not fully grasp the significance of the burst water main. Nor was SEW privy to the concerns of Mr Glover, Mr Rotter and Mr Pope that there was a growing risk of another landslide over the days that followed the 5 January 2025 landslide.

346 Had the Shire developed and implemented a comprehensive landslide response plan, it is reasonable to expect that the level of co-ordination and information sharing between SEW and the Shire, as well as the VicSES, during those critical eight days between the landslides would have been markedly improved. While it cannot be said with certainty that such measures would have prevented the McCrae Landslide, there was a missed opportunity to lessen the likelihood of it occurring.

293 Public Hearing Transcript, Tim Lloyd, 23 June 2025, 866.

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Part B

CHAPTER 7

Lessons we could have learnt from other landslides

07

7.1 Landslides in Victoria

1 Landslides that result in injury and property damage of the kind experienced in McCrae in January 2025 are not common in Victoria, but they are also not unprecedented.

2 Landslides have been a natural occurrence in the evolution of Victoria's landscape over millions of years. A range of factors have minimised their frequency, severity and impact. These include lower population density in mountainous and erosion-prone areas and the use of land planning controls.

3 Prior to 2000, some of the most notable impacts from landslides in Victoria included:

a. loss of a house and animals, and damage to a road at the now Dandenong Ranges National Park (1891);[1]

b. road damage at Narracan in Gippsland (1934);[2]

c. destruction of critical infrastructure and agricultural lands, and disruption to the East Barwon River for 14 months resulting in the formation of a new lake – Lake Elizabeth in the Otway Ranges (1952);[3]

d. loss of a house at Calignee and the isolation of the farming township of Le Roy in South Gippsland (1952);[4]

e. destruction of bridges, the town pool and construction work in Walhalla in Gippsland (1952);[5]

f. hiatus of the Puffing Billy railway for nine years at Gembrook (1953);[6]

g. damage to housing, property, roads and infrastructure at Wye River on the Great Ocean Road (1964);[7] and

h. loss of two lives and several injured at Lal Lal Falls Reserve Ballarat (1990).[8]

Details about historical landslides in McCrae are set out in Chapter 3 of this Report.

4 Over the last two decades, urban growth and infrastructure development, coupled with a changing climate, have added new complexities to landslide management in Victoria.

1 Museums Victoria, 'Item BA 1657 Lantern Slide – Landslip, Dandenongs, Victoria Jul 1891', *Museums Victoria Collections* (Web Page) <https://collections.museumsvictoria.com.au/items/1449178>.

2 Public Record Office Victoria, '34_00059_B Allambee-Childers Road: landslide caused by heavy rainfall', *Photographic Collection, Master Negatives and Digitised Images (VPRS17684)* (Record) <https://prov.vic.gov.au/archive/A1D63F94-FAC7-11EA-BE8C-AB441AA0DA39/content>.

3 'Big Victorian Landslide Forms Lake, Endangers Four Towns', *Sydney Morning Herald* (New South Wales, 23 June 1952) 1 <https://trove.nla.gov.au/newspaper/article/18269952>.

4 'Victorian Landslides', *Border Watch* (Mount Gambier, 26 June 1952) <https://trove.nla.gov.au/newspaper/article/78668744>.

5 'Walhalla hit again by landslides, flood', *The Sun News* (Melbourne, 13 December 1952) 11 <https://trove.nla.gov.au/newspaper/article/279919417>.

6 Victoria, *Parliamentary Debates,* Legislative Council, 5 April 2022 (Cindy McLeish VLA, Member for Eildon).

7 P G Dahlhaus, A S Miner, W Feltham and T D Clarkson, 'The impact of Landslides and erosion in the Corangamite Region Victoria, Australia', (Paper number 479, IAEG2006, Centre for eResearch and Digital Innovation) 8 <https://www.ccmaknowledgebase.vic.gov.au/kb_resource_details.php?resource_id=3019>.

8 P G Dahlhaus, A S Miner, W Feltham and T D Clarkson, 'The impact of Landslides and erosion in the Corangamite Region Victoria, Australia', (Paper number 479, IAEG2006, Centre for eResearch and Digital Innovation) 8 <https://www.ccmaknowledgebase.vic.gov.au/kb_resource_details.php?resource_id=3019>.

5 Three recent Victorian landslides stand out for their significant economic, social and/or environmental impacts: the Yallourn Mine landslide in 2007, the Grampians landslides in 2011 and the Great Ocean Road landslides in 2016.

6 Reviews and Inquiries into those emergencies found common challenges and opportunities for policy, regulatory and planning reform. Due to funding, time and/or circumstance, many of those challenges still exist today and the opportunities for reform remain unaddressed. These are discussed further below but largely relate to the:

a. importance of collating better data, modelling and monitoring in respect of landslide risk in Victoria;

b. need to share information about landslide risk with stakeholders and communities to support informed decision-making, and to strengthen preparedness for landslides;

c. need to better manage the landslide risk associated with water management including the management of groundwater and stormwater, particularly given the compounding impacts of climate change and severe weather;

d. importance of applying land use planning controls to manage landslide risk; and

e. importance of retaining corporate knowledge, capability and insights about landslide risk, from lived experience and lessons learnt, through to historical decisions about risk management in service and infrastructure design and delivery.

Yallourn Mine landslide in 2007

7 In 2007, electricity supply was disrupted across Victoria when a landslide occurred at the Yallourn East Field Mine. The landslide led to six million cubic metres of coal and soil, spanning over 500 metres in length, travelling down an 80 metre slope, causing the Latrobe River to flood the mine.[9] The State of Victoria appointed a Mining Warden to lead the Yallourn Mine Batter Failure Inquiry in order to establish the circumstances surrounding, and causes of, the landslide, and to examine any mine safety issues and make recommendations to prevent or minimise the risk of similar events occurring in the future.

8 As in McCrae, water played a key role in the Yallourn landslide. The Yallourn Mine Batter Inquiry identified the principal cause of the landslide as water pressure in a naturally occurring joint connected with the Latrobe River, and water pressure in interseam clays underlying the block of coal. Water pressures created a buoyancy effect on the block of coal, reducing resistance to sliding along its base.[10] There were also early signs of an impending slope failure at Yallourn, including visible cracking and subsidence, as well as monitoring data indicating imminent failure. However, unlike in McCrae where there was expert advice ahead of the 2022 landslides that the area was susceptible to landslides, the signs were not interpreted correctly at Yallourn and external consulting advice was provided that a catastrophic failure was unlikely on the day of the Yallourn landslide.[11]

9 Parliament of Victoria, *Mining Warden – Yallourn Mine Batter Failure Inquiry* (Final Report, 30 June 2008) i.

10 Parliament of Victoria, *Mining Warden – Yallourn Mine Batter Failure Inquiry* (Final Report, 30 June 2008) i.

11 Parliament of Victoria, *Mining Warden – Yallourn Mine Batter Failure Inquiry* (Final Report, 30 June 2008) 96.

9 Importantly, the Yallourn Inquiry found that *"this failure was not new or unusual and is the principal mechanism of batter failure in the Latrobe Valley Mines".*[12] It noted that changes to the Yallourn East Field Mine's layout over time and the implementation of new mining methods had also resulted in key components of the mine's slope design (which ensured its stability) no longer being applied. It found that technical expertise and corporate knowledge about risks had been lost over time or were no longer properly appreciated in the years prior to the failure, and that strategies were needed to better capture knowledge and historical experience in new and evolving models of risk management.[13]

10 Many of the Yallourn Inquiry's recommendations are still relevant to landslide management more generally. The Yallourn Inquiry recommended coal mines improve groundwater and surface water control, as well as hydrogeological and geotechnical models, and their application in planning and system design. A multidisciplinary approach to planning was deemed necessary to address the many competing demands at play in managing risk and mining operations.[14]

Grampians (Gariwerd) National Park landslides in 2011

11 In January 2011, an intense rainfall event in Western Victoria triggered over 200 landslides in the Grampians (Gariwerd) National Park and caused widespread regional flooding. Three arterial roads were closed for several months, urban and agricultural water supplies were impacted, and there was damage to cultural heritage sites, pavements, culverts, drains and bridges. Public and private property was damaged by boulders, trees, debris and mud.[15] Given the significance of the landslides, the Northern Grampians Shire and partners, including the Victorian Department of Justice, commissioned Federation University Australia to research the social, economic and environmental impacts of the disaster, with a specific focus on addressing landslide risk and the community's resilience to it.[16]

12 The Federation University Report, *Understanding the 2011 Grampians Natural Disaster, addressing the risk and resilience*, found the disaster had a deep and enduring impact on the local community. While no lives were lost, stress and anxiety were ongoing issues within the community. The region also experienced substantial economic losses, particularly loss of income through reduced tourist activity and disruption to normal trading. The cost of reconstruction for the State was considerable. It involved rebuilding and restoring structures and assets across private and public land, at an estimated cost of approximately $140 million.[17]

13 Much like McCrae, the areas impacted in the Grampians were not covered by the Council's existing EMO despite past recognition by the Council of the need for the EMO to cover those areas. It was recommended that the EMO be extended to ensure statutory planning controls were applied to the landslide susceptible regions of the Grampians Shires, adopting the methods of the Australian Geomechanics Society National Landslide Risk Management Framework.[18]

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12 Parliament of Victoria, *Mining Warden – Yallourn Mine Batter Failure Inquiry* (Final Report, 30 June 2008) i.

13 Parliament of Victoria, *Mining Warden – Yallourn Mine Batter Failure Inquiry* (Final Report, 30 June 2008) 95, 104.

14 Parliament of Victoria, *Mining Warden – Yallourn Mine Batter Failure Inquiry* (Final Report, 30 June 2008) 103–104.

15 Federation University Australia, Centre for eCommerce and Communications, *Understanding the 2011 Grampians Natural Disaster, addressing the risk and resilience* (Final Report, 31 March 2014) 38.

16 Federation University Australia, Centre for eCommerce and Communications, *Understanding the 2011 Grampians Natural Disaster, addressing the risk and resilience* (Final Report, 31 March 2014) iii.

17 Federation University Australia, Centre for eCommerce and Communications, *Understanding the 2011 Grampians Natural Disaster, addressing the risk and resilience* (Final Report, 31 March 2014) 34.

18 Victoria State Emergency Service, *State Landslide Hazard Plan* (Version 1, September 2018) 6.

14 The Federation University Report also highlighted challenges and opportunities for reform, including improvements in maintaining landslide risk data and planning in landslide management.[19] It contained important insights in respect of public education programs for all hazards.

Great Ocean Road landslides in 2016

15 Similar to the Grampians, where floods and landslides became part of a complex emergency event, communities along the Great Ocean Road between Separation Creek and Wye River experienced extensive landslides following bushfires in 2015. The VicSES estimates that over 180 landslides occurred in that area.[20]

16 The *Review of the Wye River and Separation Creek Fire Recovery,* commissioned by Emergency Management Victoria, and led by Nous Group, considered management of the landslides during the recovery efforts. The Review found that there were extensive challenges to and breakdowns in communications between local and state government agencies, including but not limited to the Country Fire Authority, Emergency Management Victoria, the Environment Protection Authority and VicRoads, and with the community during the landslides which *"left the community feeling poorly informed, anxious and overlooked"*.[21] It recommended that agencies involved in the management of landslides develop a more flexible approach to community engagement and consider their governance and culture to ensure their organisational structures could accommodate the concurrent demands of response and recovery.

17 The Great Ocean Road Taskforce Report, *Protecting our Iconic Coast and Parks*, also emphasised the need for action in relation to landslide management. It identified the challenges of land instability and subsidence, cliff regression, undercutting and coastal erosion as critical issues for the region. It noted that these were likely to be further exacerbated by climate change and increasingly frequent, severe and complex weather events.[22] The result would be wide-reaching, with impacts on infrastructure, the economy and the environment. The Victorian Government went on to commit $53 million *"to safeguarding the geotechnical future of the road following the 2016 floods and landslides at Separation Creek and Wye River"*.[23]

18 The Great Ocean Road landslides reaffirmed the importance of strong planning and mitigation measures where underlying geological, engineering and topographical characteristics can lead to landslides. Climate change creates an imperative for planning and mitigation, when underlying contributing factors can be compounded by extreme weather events.

19 Federation University Australia, Centre for eCommerce and Communications, *Understanding the 2011 Grampians Natural Disaster, addressing the risk and resilience* (Final Report, 31 March 2014) vii–viii.

20 Victoria State Government – Great Ocean Road Taskforce, *Protecting Our Iconic Coasts and Parks: Governance of the Great Ocean Road, its land and seascapes* (Final Report, August 2018) 33–34.

21 Nous Group, *Review of the Wye River and Separation Creek Fire Recovery* (Review, 2 June 2017) 38–39.

22 Victoria State Government – Great Ocean Road Taskforce, *Protecting Our Iconic Coasts and Parks: Governance of the Great Ocean Road, its land and seascapes* (Final Report, August 2018) 33–34.

23 Victoria State Government – Great Ocean Road Taskforce, *Protecting Our Iconic Coasts and Parks: Governance of the Great Ocean Road, its land and seascapes* (Final Report, August 2018) 13.

7.2 Lessons from interstate and overseas

19 Landslides causing widespread social, economic and environmental consequences have been infrequent in Australia but when they have occurred, they have had an enduring impact on local communities and provided long-term lessons for disaster risk management. Between 2000 and 2011, 24 people died and 100 people were injured in Australia as a result of landslides.[24]

20 While every context is different, past events both interstate, and overseas, have offered important insights into managing landslide risk that are relevant to this Board of Inquiry. Coronial findings and recommendations aimed at strengthening regulatory responsibility, mitigation policy and planning have been considered by this Board of Inquiry and have been instrumental in framing its work. Insights include the significance of water management and infrastructure maintenance, the importance of emergency management planning, and failings in accountability and leadership.

21 Failings in water management and infrastructure maintenance were identified as either a primary or secondary cause in the:

a. deaths of two people in their home following the collapse of the Coledale rail embankment in 1988;[25]

b. cliff collapse at Gracetown, Western Australia in 1996 where rainfall was found to be the cause of a saturated cliff overhang collapsing above school students and staff who were sheltering underneath, leading to the deaths of nine people;[26] and

c. deaths of five people in a landslide at the Old Pacific Highway in Somersby, which the Coroner found to have been caused by the local Council's inadequate road maintenance which led to a collapsed water culvert.[27]

22 Water management and infrastructure maintenance were also critical factors in the tragic landslide at Thredbo Village in Alpine New South Wales in July 1997. This event caused 18 deaths and the destruction of two ski lodges. As with the events in Coledale and Somersby, water saturation, maintenance, building and planning failures were identified as factors or causes of the landslide. Notwithstanding geotechnical, planning and engineering failures, the New South Wales State Coroner investigating the Thredbo Village landslide – Coroner Hand – found the primary causes of the landslide to be:

a. the failure of any government authority responsible for the care, control and management of Kosciusko National Park and the maintenance of the Alpine Way to take any steps to ensure Thredbo Village was rendered safe from exposure to the marginally stable embankment;

24 Marion Leiba, 'Impact of Landslides in Australia to December 2011' (2013) 28(1) *Australian Journal of Emergency Management* 28, 30.

25 Derrick Hand (New South Wales State Coroner), *Report of the inquest into the deaths arising from the Thredbo landslide* (Report, 29 June 2000) 51 [219].

26 Australian Institute for Disaster Resilience, 'Landslide – Gracetown, Western Australia', *Australian Disaster Resilience Knowledge Hub* (Web Page) <https://knowledge.aidr.org.au/resources/landslide-gracetown-western-australia/>.

27 'Inquest Found Council Responsible For Family's Death', *Government News* (online, 19 September 2008) <https://www.governmentnews.com.au/inquest-found-council-responsible-for-familys-death/>.

b. the approval and construction of a water main made of materials which could not withstand the conditions (movement taking place in the Alpine Way embankment); and

c. leakage from that water main that saturated the soil.[28]

23 Importantly for this Board of Inquiry, Coroner Hand also made a range of recommendations to strengthen landslide risk management in relation to land use planning, building controls and emergency management.

24 With respect to emergency management, Coroner Hand found that the local disaster plan did not take into account the risk of landslides in the Alpine area. He recommended that *"both District and Local Disaster Plans (DISPLANs) be revised, taking into account the risk of landslides in the area and their management"*.[29]

25 Coroner Hand also recommended the Building Code of Australia and any local code dealing with planning, development and building approval procedures be reviewed and amended to require relevant authorities to take into account and apply proper hillside building practices and geotechnical considerations when assessing and planning urban communities in hillside environments.[30] At the time, Coroner Hand noted there was no detailed system requiring the submission and consideration of geotechnical or other engineering reports that took into account the difficulties of building in a steep alpine environment.

26 The Thredbo Coronial Inquest otherwise led to widespread national reform of landslide management.

27 In 1998, Engineers Australia and the AGS formed a Taskforce on the Review of Landslides and Hillside Construction Standards, which concluded that existing codes and standards were inadequate. It recommended creating four new guidelines for:

a. landslide hazard zoning for urban areas, roads and railways;

b. slope management;

c. site investigations, design, construction and maintenance; and

d. landslide risk assessment.[31]

28 Further improvements were made to the guidelines in 2000 and 2002.[32]

28 Derrick Hand (New South Wales State Coroner), *Report of the inquest into the deaths arising from the Thredbo landslide* (Report, 29 June 2000) 5 [5].

29 Derrick Hand (New South Wales State Coroner), *Report of the inquest into the deaths arising from the Thredbo landslide* (Report, 29 June 2000) 192 [929].

30 Derrick Hand (New South Wales State Coroner), *Report of the inquest into the deaths arising from the Thredbo landslide* (Report, 29 June 2000) 190 [919].

31 Australian Geomechanics Society Landslide Zoning Working Group, 'Guideline for landslide susceptibility, hazard and risk zoning for land use planning' (2007) 42(1) *Australian Geomechanics Journal* 13, 13. <https://australiangeomechanics.org/admin/wp-content/uploads/2010/11/LRM2007-a.pdf>

32 Australian Geomechanics Society Landslide Zoning Working Group, 'Guideline for landslide susceptibility, hazard and risk zoning for land use planning' (2007) 42(1) *Australian Geomechanics Journal* 13, 13.

29 In 2003, the Commonwealth Government introduced the National Disaster Mitigation Program, which funded the AGS and local governments to undertake further research into the likelihood of landslides, and to develop zoning and slope management guidelines as well as a Practice Note.[33] These were peer reviewed and completed in 2007.[34]

30 In addition, other government entities, the subject of findings in the Thredbo Coronial Inquest, developed tools to manage landslide risks. New South Wales Transport, Roads & Maritime Services produced guidelines for slope asset management and natural disaster slope damage restoration requirements which have continued to be updated over time.[35]

The international experience

31 There are many countries and regions with far more extensive experience with significant landslides than Australia. However, many of the challenges in managing landslide risk are similar.

32 A review of significant landslides internationally highlights that water management, road maintenance, planning and development in mountainous and coastal areas are critical factors in managing vulnerability and exposure to landslides, and are relevant elements in landslide risk management.

33 Further, climate change presents new, complex challenges leading to increased risk through the greater frequency and/or magnitude of heavy rainfall and shifts in the location and periodicity of heavy rainfall.[36]

34 Individual country efforts to better understand the risks and design mitigations, and develop and implement engineering approaches, are being pursued through a range of cooperative arrangements such as the Kyoto 2020 Commitment for Global Promotion of Understanding and Reducing Landslide Disaster Risk.[37] The Kyoto 2020 Commitment sets out that:

> Human intervention can make a greater impact on exposure and vulnerability through… land use and urban planning, building codes, risk assessments, early warning systems, legal and policy development, integrated research, insurance, and, above all, substantive educational and awareness-raising efforts by relevant stakeholders.
>
> Kyoto 2020 Commitment for Global Promotion of Understanding and Reducing Landslide Disaster Risk.[38]

35 These international partnerships offer important insights into understanding how we can mitigate the risk of landslides into the future and have assisted to inform the Board of Inquiry's findings and recommendations.

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33 Bruce Walker, Warwick Davies and Grahame Wilson, 'Practice Note Guidelines for Landslide Risk Management' (2007) 42(1) *Australian Geomechanics Journal* 69.

34 Australian Geomechanics Society Landslide Zoning Working Group, 'Guideline for landslide susceptibility, hazard and risk zoning for land use planning' (2007) 42(1) *Australian Geomechanics Journal* 13, 14.

35 New South Wales Transport Roads & Maritime Services, *AM21 Guidelines for slope asset management* (Guidelines, Version 4.0, 1 July 2019); Transport for New South Wales, *Guide for Natural disaster slope damage restoration requirements* (Guidelines, September 2023).

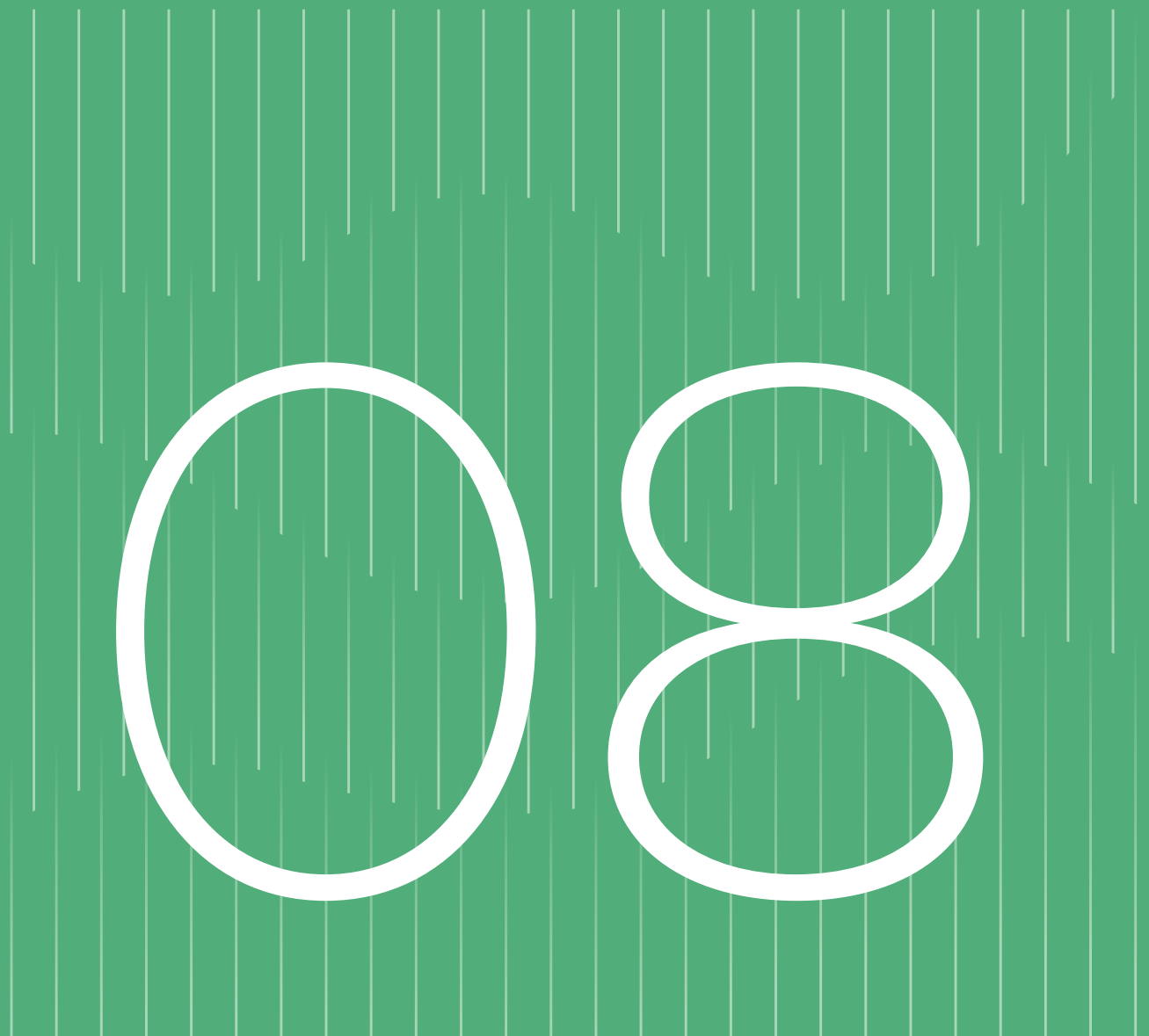
36 International Consortium on Landslides, 'The Kyoto Landslide Commitment 2020', *International Programme on Landslides* (Web Page) <https://www.landslides.org/ipl-info/the-kyoto-landslide-commitment-2020/>.

37 International Consortium on Landslides, 'The Kyoto Landslide Commitment 2020', *International Programme on Landslides* (Web Page) <https://www.landslides.org/ipl-info/the-kyoto-landslide-commitment-2020/>.

38 International Consortium on Landslides, 'The Kyoto Landslide Commitment 2020', *International Programme on Landslides* (Web Page) <https://www.landslides.org/ipl-info/the-kyoto-landslide-commitment-2020/>.

CHAPTER 8

Improving landslide management in Victoria



8.1 Lessons learnt from McCrae

1 This Chapter addresses the regulatory framework in relation to the prevention and management of landslides in Victoria.

2 Landslides are one of many hazard types managed within Victoria's emergency management system. However, they do not receive the same level of attention within the system as other natural hazards, such as bushfires and floods. This is likely because, historically, landslides have not affected Victorians as often or as severely as these other events.

3 The recent landslides in McCrae have underscored the significant impact that landslides can have on a community, and have revealed opportunities for system-wide improvements in both emergency management and land planning.

8.2 Emergency management

An overview of Victoria's emergency management system

4 Victoria's emergency management system seeks to create safer and more resilient communities by:

a. minimising the likelihood, effect and consequence of emergencies, such as landslides, on communities and the environment;

b. establishing efficient governance arrangements that create accountability, enable cooperation and foster community and industry participation; and

c. delivering people-centred programs and services that support communities to be prepared and recover well after emergencies such as landslides.[1]

5 Emergency Management Victoria is a central body for emergency management in Victoria.[2] It is established under the *Emergency Management Act 2013* (Vic) (***Emergency Management Act***) and is responsible for the governance and coordination of emergency management arrangements.[3]

6 Emergency Management Victoria consists of a Chief Executive and the Emergency Management Commissioner. The Commissioner has the function of preparing the SEMP, which outlines the framework for Victoria's emergency management system.[4]

7 The SEMP provides for an emergency management system that uses common management arrangements to respond to all forms of emergency.[5] This approach, known as the "all-emergencies" or "all-hazards" approach, is the result of a decade of reform and learnings from a diverse range of events such as the Black Saturday Bushfires in 2009, thunderstorm asthma events and the COVID-19 pandemic.

1 See, *Emergency Management Act 2013* (Vic) s 5; State of Victoria (Emergency Management Victoria), *Safer and More Resilient Communities: Emergency Management Strategic Roadmap 2022-28* (July 2022).

2 Submission of the State of Victoria, Response to second list of questions for the State of Victoria, 30 April 2025, [DGS.0001.0004.0001 at .0021].

3 Submission of the State of Victoria, Response to second list of questions for the State of Victoria, 30 April 2025, [DGS.0001.0004.0001 at .0022].

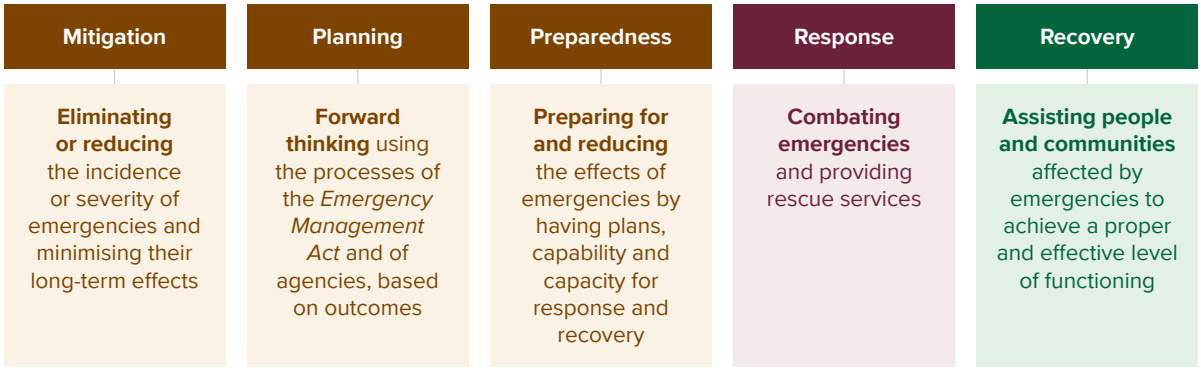
4 *Emergency Management Act 2013* (Vic) s 60AD.

5 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(9) [MSC.5007.0001.1278 at .1282].

8 The SEMP provides for the mitigation of, response to and recovery from emergencies (before, during and after), and specifies government agencies' roles and responsibilities for emergency management.

9 As shown in the diagram below (Figure 8.1), there are five phases in emergency management.[6]

FIGURE 8.1



10 The first phase is **mitigation**, this concerns the elimination or reduction of the incidence or severity of emergencies and the minimisation of their effects.[7] The SEMP provides that both within and outside the emergency management sector, government agencies contribute to the mitigation of emergencies as part of their business-as-usual functions. For example, they mitigate emergencies by:

a. formulating and implementing policy and regulation (such as land-use planning and building regulations); and

b. building, operating and maintaining infrastructure.[8]

11 The second phase is **planning**, this concerns the documentation of emergency management at state, regional and municipal level.[9]

12 The third phase is **preparedness**. This includes the activities of government agencies to prepare for and reduce the effects of emergencies by having plans, capability and capacity for response and recovery.[10]

13 Once an emergency or hazard has eventuated, it triggers the **response** and **recovery** phases respectively. According to the SEMP, response is the action taken during, and in the first period after, an emergency to reduce the effects and consequences of the emergency on people, their livelihoods, wellbeing and property; on the environment; and to meet basic human needs.[11] Recovery is the assisting of persons and communities affected by emergencies to achieve a proper and effective level of functioning.[12]

6 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(9) [MSC.5007.0001.1278 at .1291].
7 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(9) [MSC.5007.0001.1278 at .1291].
8 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(9) [MSC.5007.0001.1278 at .1291].
9 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(9) [MSC.5007.0001.1278 at .1291].
10 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(9) [MSC.5007.0001.1278 at .1293].
11 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(9) [MSC.5007.0001.1278 at .1293].
12 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(9) [MSC.5007.0001.1278 at .1308].

14 The SEMP outlines government agencies' roles and responsibilities in the different phases of emergency management.

15 In the mitigation phase, the agencies are responsible for their business-as-usual activities such as maintaining infrastructure and mitigation activities for specific emergency risks.[13] Specific emergency risks are those assessed as significant for the State in the Emergency Risks in Victoria Report (2023). Under each emergency risk, the report identifies relevant mitigation activities and the agencies involved.

16 In relation to the response phase, the SEMP nominates a control agency for specified forms of emergency. Control agencies are responsible for coordinating actions for a specific emergency and establishing management arrangements for an integrated response to the emergency.[14] Agencies are also nominated to participate in a supporting role in response activities.[15]

17 Finally, in addition to providing for the SEMP, the *Emergency Management Act* also provides for the preparation of emergency management plans at regional and municipal level.[16] All emergency management plans must contain provisions for the mitigation of, response to, and recovery from, emergencies and specify the roles and responsibilities of agencies in relation to emergency management.[17]

How are landslides managed in the emergency management system?

SEMP

18 The first observation to make is that the SEMP currently gives less attention to landslides than it does to other hazards, such as bushfires, earthquakes, floods and storms.

19 The following key features are noted:

a. the control agency nominated in the SEMP for managing the emergency response to landslide events is the VicSES;[18]

b. no participating agency is nominated for mitigation activities because landslides were not assessed as a significant state emergency risk in the Emergency Risks in Victoria Report (2023);[19]

c. the VicSES's table of mitigation activities for emergencies in the SEMP contains one reference to landslides. It is as follows:

13 State of Victoria (Emergency Management Victoria), 'Victorian State Emergency Management Plan: Roles and Responsibilities', *Mitigation* (Web Page, October 2024) Table 8 <https://www.emv.vic.gov.au/responsibilities/state-emergency-management-plan-semp/roles-and-responsibilities/mitigation>.

14 State of Victoria (Emergency Management Victoria), 'Victorian State Emergency Management Plan: Roles and Responsibilities', *Response* (Web Page, October 2024) Table 9 <https://www.emv.vic.gov.au/responsibilities/state-emergency-management-plan-semp/roles-and-responsibilities/response>.

15 State of Victoria (Emergency Management Victoria), 'Victorian State Emergency Management Plan: Roles and Responsibilities', *Response* (Web Page, October 2024) Table 10 <https://www.emv.vic.gov.au/responsibilities/state-emergency-management-plan-semp/roles-and-responsibilities/response>.

16 *Emergency Management Act 2013* (Vic) pt 6A.

17 *Emergency Management Act 2013* (Vic) s 60AE.

18 State of Victoria (Emergency Management Victoria), 'Victorian State Emergency Management Plan: Roles and Responsibilities', *Response* (Web Page, October 2024) Table 9 <https://www.emv.vic.gov.au/responsibilities/state-emergency-management-plan-semp/roles-and-responsibilities/response>.

19 Submission of the State of Victoria, Response to second list of questions for the State of Victoria, 30 April 2025, [DGS.0001.0004.0001 at .0025–.0026].

> Increase individual capacity and capability of the community to prepare and respond by engaging with communities providing storm, flood, earthquake, tsunami and landslide risk information, community education and engagement.[20]

d. similarly, the VicSES's table of recovery activities for emergencies in the SEMP contains a single reference to landslides. It is as follows:

> Support the Controller by providing assistance and advice to individuals, families and communities who have been affected by flood, storm, tsunami, earthquake of landslide.[21]

20 There are no other specific references to roles and responsibilities for landslides in the SEMP.

21 It is, however, important to note that under the SEMP a range of agencies, including municipal councils and water authorities, have general roles and responsibilities for emergency management. These range from providing community warnings and developing municipal emergency plans, to infrastructure maintenance, and providing relief and recovery services. The SEMP provides that:

> shared responsibility in emergency management is everyone's business. Individuals, communities, organisations, businesses, all levels of government and the not-for-profit sector all have a role to play in planning for, responding to and recovering from emergencies.[22]

22 The most striking feature of those noted above, and which requires further discussion, is that landslides were not assessed as a significant state emergency risk in the Emergency Risks in Victoria Report (2023), which had consequences for the SEMP. Landslides were also not identified in the earlier version of the Report published in 2020.[23]

20 State of Victoria (Emergency Management Victoria), 'Victorian State Emergency Management Plan: Roles and Responsibilities', *Role statement – Victoria State Emergency Services* (Web Page, October 2024) <https://www.emv.vic.gov.au/responsibilities/emergency-management-planning/emergency-management-planning-resource-library-0/emergency-management-plans/state-emergency-management-plan-semp/roles-and-responsibilities/role/role-44>.

21 State of Victoria (Emergency Management Victoria), 'Victorian State Emergency Management Plan: Roles and Responsibilities', *Role statement – Victoria State Emergency Services* (Web Page, October 2024) <https://www.emv.vic.gov.au/responsibilities/emergency-management-planning/emergency-management-planning-resource-library-0/emergency-management-plans/state-emergency-management-plan-semp/roles-and-responsibilities/role/role-44>.

22 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(9) [MSC.5007.0001.1278 at .1287].

23 Submission of the State of Victoria, Response to second list of questions for the State of Victoria, 30 April 2025, [DGS.0001.0004.0001 at .0026].

23 The 2023 Emergency Risks in Victoria Report (2023) identifies 18 state-level emergency risks.[24] They are identified below:

Bushfire	**Cyber security emergency**	**Earthquake**	**Electricity supply disruption**	**Emergency animal disease (foot-and-mouth disease)**
Emergency plant pest (Xylella fastidiosa)	**Flood**	**Hazardous materials incident**	**Health emergency (thunderstorm asthma)**	**Heat event**
Maritime emergency	**Mine emergency**	**Space weather incident**	**Storm**	**Tsunami**
	Viral (respiratory) pandemic	**Water supply disruption**	**Gas supply disruption**	

24 These 18 state-level emergency risks were identified using the Victorian Emergency Risk Assessment methodology adopted from the National Emergency Risk Assessment Guidelines.[25]

25 Using that methodology, landslide risks did not meet the criteria for inclusion.[26]

26 This is surprising given Victoria's landslide history over the past decade, as detailed in Chapter 7, and considering the other risks identified above. It is notable that landslide is included in the Queensland State Disaster Risk Report (2023),[27] and in New South Wales' State Disaster Mitigation Plan.[28]

27 Though the reason for its omission in Victoria is unclear, the Board of Inquiry understands that steps have now been taken to address the issue. These steps are described below.

28 Emergency Management Victoria recently engaged the VicSES to coordinate a risk identification and scoping workshop.[29] Workshops were held on 24 June 2025 and 12 August 2025.[30] Following those workshops, landslide has now been given an overall risk rating of extreme.[31]

24 Submission of the State of Victoria, Response to second list of questions for the State of Victoria, 30 April 2025, [DGS.0001.0004.0001 at .0025].

25 Submission of the State of Victoria, Response to second list of questions for the State of Victoria, 30 April 2025, [DGS.0001.0004.0001 at .0025].

26 Submission of the State of Victoria, Response to second list of questions for the State of Victoria, 30 April 2025, [DGS.0001.0004.0001 at .0026].

27 See, State of Queensland (Queensland Fire and Emergency Service), *Queensland 2023 State Disaster Risk Report* (2023).

28 See, New South Wales Government (NSW Reconstruction Authority), *State Disaster Mitigation Plan: 2024–2026* (February 2024).

29 Submission of the State of Victoria, Response to second list of questions for the State of Victoria, 30 April 2025, [DGS.0001.0004.0001 at .0026].

30 Letter from State Government's solicitors to the Solicitors Assisting the Board of Inquiry about regulatory framework in relation to prevention and management of landslides in Victoria, 20 August 2025, [INQ.0014.0001.0001].

31 Letter from State Government's solicitors to the Solicitors Assisting the Board of Inquiry about regulatory framework in relation to prevention and management of landslides in Victoria, 20 August 2025, [INQ.0014.0001.0001].

29 As a result, the VicSES is now set to develop a landslide sub-plan to the SEMP, which includes articulating roles and responsibilities and outlining the emergency management arrangements for mitigation, response (including relief) and recovery.[32]

Recommendation 17: The SEMP and the landslide sub-plan to the SEMP

The Board of Inquiry recommends the Victoria State Emergency Service (the **VicSES**) progress the development of a landslide sub-plan to the SEMP.

In this context, it is also recommended the Emergency Management Commissioner consider consequential amendments to the SEMP, including making water corporations and local councils participating agencies for landslide mitigation activities, such activities should include the:

a. identification of landslide risk;

b. development of operational and maintenance plans and processes for water assets; and

c. sharing of information between water corporations and local councils to assist in the identification of landslide risk and the management of water assets.

Recommendation 18: Landslide training and education programs

The Board of Inquiry recommends Emergency Management Victoria, the VicSES, and the Inspector-General for Emergency Management update existing training and education programs to incorporate and reflect the development of the landslide sub-plan and any related amendments made to the SEMP.

Regional and municipal emergency management plans

30 As noted earlier, in addition to the SEMP, there are emergency management plans at the regional and municipal level.

31 McCrae is captured by the Southern Metro Regional Emergency Management Plan.[33] Like the state plan, it does not currently recognise landslides as a significant risk.

32 Letter from State Government's solicitors to the Solicitors Assisting the Board of Inquiry about regulatory framework in relation to prevention and management of landslides in Victoria, 20 August 2025, [INQ.0014.0001.0001].

33 Submission of the State of Victoria, Response to second list of questions for the State of Victoria, 30 April 2025, [DGS.0001.0004.0001 at .0025].

32 At a municipal level, the council of each municipal district must establish a municipal emergency management planning committee.[34] It is that committee which prepares the emergency management plan for the municipality.[35]

33 The Mornington Peninsula Municipal Emergency Management Planning Committee is the committee relevant to McCrae. It currently comprises representatives from the Shire, Victoria Police, the VicSES, Fire Rescue Victoria, the Country Fire Authority, the Australian Red Cross, the Department of Families, Fairness and Housing, Department of Health, Forest Fire Management Victoria, the Mornington Community Support Centre, Focus Life Disability Services and Ambulance Victoria.[36] The Committee is chaired by a representative of the Shire.[37]

34 The aim of the Mornington Peninsula Municipal Emergency Management Plan prepared by the Committee:

> is to capture municipal level multi-agency emergency management arrangements for the mitigation of, response to and recovery from all emergencies, as well as capture arrangements for specific emergency risks, where arrangements differ at the municipal level from those already captured in state and regional level plans.[38]

35 Notably, aside from listing several landslides in an appendix of incidents since 2012, there are no other references in the Mornington Peninsula Municipal Emergency Management Plan to landslide hazard and risk.[39] In his evidence, former acting CEO of the Shire, Mr Oz, said that the Mornington Peninsula Municipal Emergency Management Plan did not assess landslide as a stand-alone hazard because:

> it is generally assumed that a landslide is a secondary event that occurs following a significant weather event, such as large rainfall within a short period or earthquake.[40]

36 This assumption does not have regard to the broader range of preparatory risk factors that may need to be considered and managed in landslide management, including geomorphological and anthropogenic factors.

37 In a municipality that has known areas highly susceptible to landslide and that has a history of landslides impacting the community, the omission of landslide as a standalone hazard in the emergency plan needs to be examined by the Mornington Peninsula Municipal Emergency Management Planning Committee.

Finding

The Mornington Peninsula Municipal Emergency Management Plan does not identify landslide as a standalone hazard.

34 *Emergency Management Act 2013* (Vic) s 59.

35 *Emergency Management Act 2013* (Vic) s 59D(a).

36 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(6) [MSC.5006.0001.1021 at .1035].

37 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(6) [MSC.5006.0001.1021 at .1035].

38 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(6) [MSC.5006.0001.1021 at .1027].

39 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(6) [MSC.5006.0001.1021 at .1077–.1080].

40 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 11 [58].

38 The approach in the Shire stands in contrast to the approach taken in other local government areas in Victoria. Many other municipal committees have specifically identified landslide or landslip as a key risk in their municipal emergency management plans. This includes the municipal emergency management plans in the Alpine Shire, East Gippsland Shire, South Gippsland Shire, Yarra Ranges Shire, Frankston Shire, Murrindindi Shire, Baw Baw Shire, Indigo Shire and Colac Otway Shire. While the Surf Coast Shire's Municipal Emergency Management Plan 2023-26 does not identify landslide as one of its six highest risks across the municipality, the plan does identify landslide as a key risk for its communities of Aireys Inlet, Anglesea, Lorne and Torquay.[41]

Recommendation 19: Emergency management plans

The Board of Inquiry recommends Victorian regional and municipal emergency management planning committees, including the Southern Metropolitan and Mornington Peninsula Committees, review their emergency management plans to ensure that landslide risk management is appropriately addressed. This includes reviewing and updating previous risk assessments, and where landslide risk is identified, water corporations should be represented on the committee.

The VicSES landslide plans

39 In its coordination role to facilitate the development of emergency plans, the VicSES prepared a State Landslide Hazard Plan in 2018.[42]

40 In 2019, the VicSES released the Central Region Emergency Response Plan – Landslide Sub-Plan, which is adapted from the State Plan and covers the Mornington Peninsula.

41 These plans are emergency response plans only.

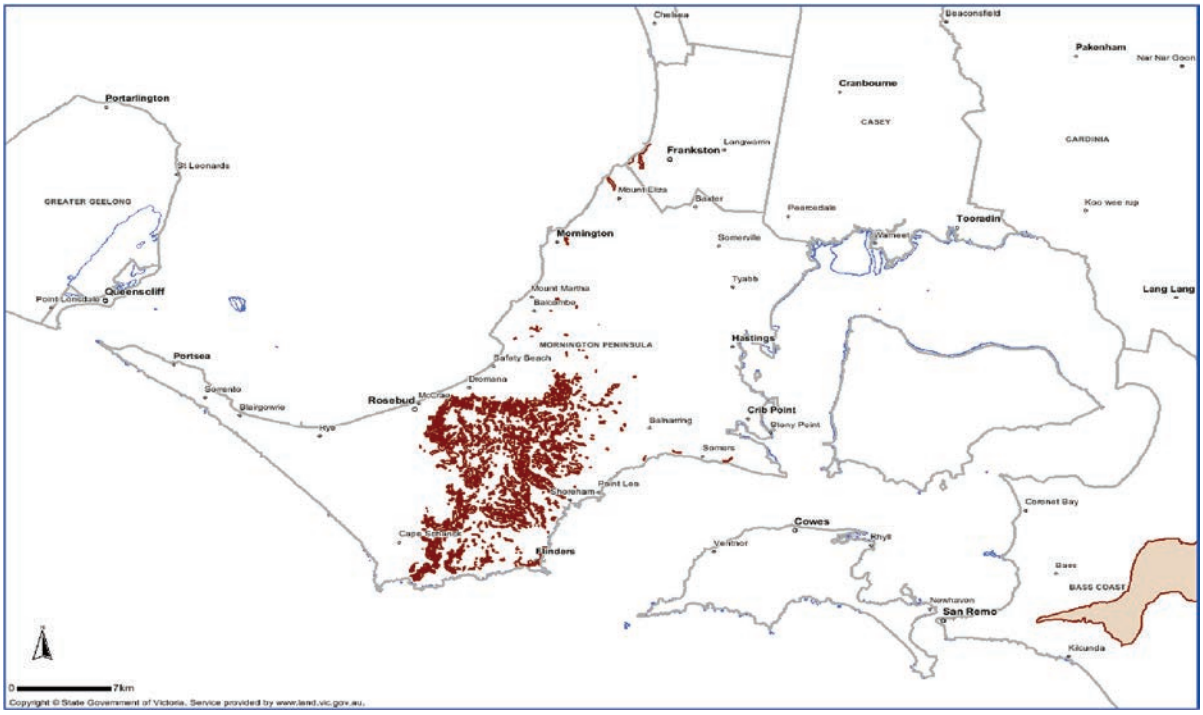
42 Problematically, the Central Region Response Plan identifies "areas of concern" for landslide risk management as those areas identified in the EMO schedules of municipal planning schemes.[43] As set out in Figure 8.2, it includes the following for the Mornington Peninsula:

41 Surf Coast Shire Municipal Emergency Management Planning Committee, *Surf Coast Shire Municipal Emergency Management Plan 2023-26* (Version 1.1, April 2023) 51–54.

42 Submission of the State of Victoria, Response to second list of questions for the State of Victoria, 30 April 2025, [DGS.0001.0004.0001 at .0028]; Victorian State Emergency Service, *State Landslide Hazard Plan* (Version 1, September 2018) [SES.0001.0001.0146].

43 Victorian State Emergency Service, *Central Region Emergency Response Plan: Landslide Sub Plan* (August 2019) [SES.0001.0001.0001 at .0009].

FIGURE 8.2: THE MAP OF SOUTHERN METRO REGION – SHIRE OF MORNINGTON PENINSULA AND CITY OF FRANKSTON COUNCIL DETAILS EMO LOCATIONS, WITH AREAS OF CONCERN HIGHLIGHTED IN RED.[44]



43 As can be observed in the map, areas in the Shire that had known landslide susceptibility (including the location of the McCrae Landslide and the November 2022 landslides) are not highlighted in red. This is because those areas are not included in the EMO schedules in the Mornington Peninsula Planning Scheme.

Finding

The VicSES Central Regional Emergency Response Plan – Landslide Sub Plan does not identify areas in the Shire with known landslide susceptibility.

44 The Board of Inquiry was informed that the VicSES Central Regional Emergency Response Plan – Landslide Sub Plan is to be reviewed following the review of the State Landslide Hazard Plan.[45] As noted earlier, the latter review is now complete and the VicSES is developing a statewide landslide sub-plan to the SEMP.

44 Victorian State Emergency Service, *Central Region Emergency Response Plan: Landslide Sub Plan* (August 2019) [SES.0001.0001.0001 at .0009].

45 Submission of the State of Victoria, Response to second list of questions for the State of Victoria, 30 April 2025, [DGS.0001.0004.0001 at .0028].

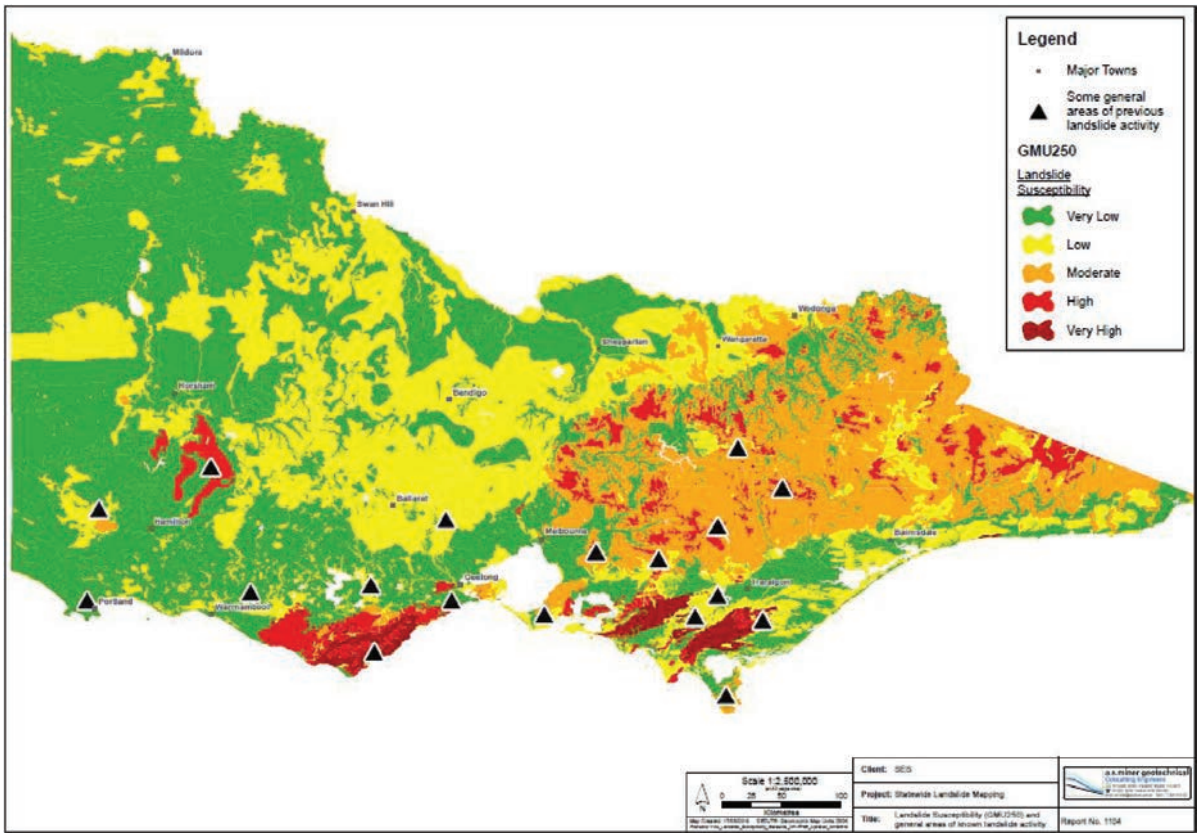
Identifying landslide susceptibility and assessing risk

45 Information plays a critical role in the identification of risk. Once risk is identified, it can then be managed.

46 There is no detailed statewide data of landslide susceptibility in Victoria.

47 In 2018, the former Victorian Department of Economic Development, Jobs, Transport and Resources developed a high-level overview of landslide susceptibility across Victoria using a spatial dataset of the geomorphology of Victoria (see Figure 8.3) for the purpose of highlighting potential landslide risk in the VicSES's State Landslide Hazard Plan (2018).[46] The map, however, is general and does not contain sufficient data to properly understand landslide risk and design responses to it.

FIGURE 8.3: VICTORIA'S LANDSLIDE SUSCEPTIBILITY.[47]



48 Additional work has also been undertaken by government agencies where landslide impacts the management of other hazards. For example, the Board of Inquiry was provided with research commissioned by the former Department of Environment, Land, Water and Planning, which included heat maps of landslide risk following bushfires as part of a project known as *Mitigating extreme post-fire hydro-geomorphic risk in Victoria*.[48]

46 Victorian State Emergency Service, *State Landslide Hazard Plan* (Version 1, September 2018) [SES.0001.0001.0146 at .0153].

47 Victorian State Emergency Service, *State Landslide Hazard Plan* (Version 1, September 2018) [SES.0001.0001.0146 at .0153].

48 Philip Noske, Christopher Lyell and Gary Sheridan, *Mitigating extreme post-fire hydro-geomorphic risk in Victoria-Stage 3, Part 1: A Technical Report for the Department of Environment Land Water and Planning* (20 December 2021) [DEE.0001.0003.0222].

49 The Board of Inquiry requested information from a range of local councils about landslide risk mapping. The responses revealed that a small number of local councils have procured geotechnical mapping of landslide susceptibility in their area. Of the 21 councils who provided information to the Board of Inquiry, six indicated that they had procured comprehensive mapping of landslide risk in their local government area to assist in designing and implementing EMO schedules. These are Colac Otway Shire Council, Frankston City Council, Greater Geelong City Council, Manningham City Council, Northern Grampians Shire Council and Surf Coast Shire Council. A further two — Casey City Council and Whittlesea City Council — have completed site-specific assessments. Councils responded that the most significant barriers to undertaking mapping, were funding (62%), competing priorities (43%), complexity (19%), lack of technical expertise (19%).

Finding

There is no complete statewide mapping of landslide susceptibility available in Victoria.

50 Victoria is not unique in this regard. Within Australia, Tasmania is the only state to have undertaken statewide mapping.[49]

51 The New South Wales State Disaster Mitigation Plan notes that there is no consolidated statewide understanding of future landslide risk and commits New South Wales to "*a data roadmap and research plan to continuously update data gaps on landslide risk*".[50]

52 There is limited data of different kinds available in relation to landslide susceptibility across Australia.

53 Commonwealth agency Geoscience Australia provides an online inventory of landslide incidents across Australia. However, updates to the inventory ceased in June 2018.[51]

54 Research institutions have also sought to examine landslide data and model susceptibility. There is, for example, the University of Wollongong's geographic information system-based Landslide Inventory and Landslide Susceptibility Modelling across the Sydney Basin.[52] However, this is very localised data.

55 With EMOs being one of very few publicly available sources of information about landslide susceptibility in Victoria, the Board of Inquiry was told that some agencies have turned to EMOs to inform their asset and service planning. For example, and as set out earlier, the Central Region Emergency Response Plan – Landslide Sub-Plan, which covers the Mornington Peninsula, used the EMO schedules in the region to identify areas of landslide concern.[53] Similarly, SEW informed the Board of Inquiry that it uses EMO to inform capital works planning.[54]

49 Tasmanian Government, 'Tasmanian Landslide Map Series', *Mineral Resources Tasmania* (Web Page) <https://www.mrt.tas.gov.au/products/geoscience_maps/tasmanian_landslide_map_series >.

50 New South Wales Government (NSW Reconstruction Authority), *State Disaster Mitigation Plan: 2024–2026* (February 2024) 16.

51 Geoscience Australia, 'Landslide Search' (Web Page, 1 June 2018) <https://ecat.ga.gov.au/geonetwork/srv/api/records/c1f01610-e359-330f-e044-00144fdd4fa6>.

52 University of Wollongong Australia, 'Landslide Research', *University of Wollongong Australia* (Web Page) <https://www.uow.edu.au/engineering-information-sciences/research/landslide-research/>.

53 Victorian State Emergency Service, *Central Region Emergency Response Plan: Landslide Sub Plan* (August 2019) [SES.0001.0001.0001 at .0009].

54 Exhibit CA-51, Witness Statement of Christopher Smith, 6 June 2025, 5 [26]–[28].

56 The problem with this approach is that not all areas susceptible to landslide are subject to an EMO. This was the case in relation to the location of the McCrae Landslide and the earlier landslides in November 2022.

57 It is further noted that there is no requirement to regularly review the data that underpins an EMO. Underlying data can be decades old and in some cases it may not even be available. One council informed the Board of Inquiry that the risk assessment underlying an EMO was not available because it had not been transferred during the amalgamation of councils.[55]

58 An additional problem with using EMO schedules as an indicator of landslide risk is that there is no agreed risk threshold, which means that some councils may use a higher threshold than others when identifying areas to be the subject of an EMO.

59 However, there are alternatives to statewide mapping of landslide susceptibility. New Zealand has an online geotechnical database which was designed by several organisations. It contains geotechnical testing data uploaded by researchers, councils, engineers and developers in New Zealand. The estimated value of the database is more than NZD$500 million and has more than 7,000 users.[56]

60 Sharing data will support a more comprehensive understanding of landslide susceptibility and thereby assists in decision making about the management of landslide risk.

61 In addition to data about landslide susceptibility, risk assessments also have a critical role to play. While data may highlight landslide susceptibility, risk assessments explicitly involve identifying exposure and vulnerability. Thus, risk assessments will assist decision-makers to understand priorities and the steps required to mitigate the risk of landslides.

Recommendation 20: Addressing data gaps on landslide risk

The Board of Inquiry recommends the Victorian Government develop and implement a project that addresses data gaps on landslide risk. As part of the project, the Victorian Government should explore options for how landslide risk data can be shared and made broadly accessible, including by those living in areas with landslide risk for use in mitigating and managing the risk.

Consideration should be given to all options, including:

a. the creation of an online data resource;

b. engaging with Geoscience Australia, to explore opportunities, such as a partnership, aimed at resuming online data collection of Victorian landslides which was ceased in 2018;

c. the provision of technical or financial assistance to local government authorities where necessary; and

d. statewide mapping of landslide susceptibility, in coordination with relevant government departments.

55 Letter from a local council to the Board of Inquiry about management of landslide risk, 26 June 2025.

56 Natural Hazards Commission Toka Tu Ake, 'New Zealand Geotechnical Database', *Data and modelling* (Web Page) <https://www.naturalhazards.govt.nz/resilience-and-research/data-and-modelling/new-zealand-geotechnical-database/>.

Improving preparedness for landslides

62 Emergency Management Victoria's Preparedness Framework addresses how to mitigate, plan, prepare, respond to, and recover from, emergencies. Under that framework, emergency preparedness includes training, community education, information sharing and early warnings.

63 Throughout the Board of Inquiry's investigations, it was clear that there was little to no focus on strengthening preparedness for landslides following the landslides in McCrae in November 2022.

64 The Board of Inquiry did not see any evidence of residents, businesses or service providers in the McCrae area receiving any support to be better informed or prepared in relation to the risks from landslides.

65 Victoria's emergency management arrangements centre around the principle that disaster risk reduction and resilience are shared responsibilities. The Australian Government's National Disaster Risk Reduction Framework observes that shared responsibilities can only be effective where information about risk is also shared.[57]

66 In the case of McCrae, risk information was not shared by relevant parties. The lack of information sharing and learning following the 2022 landslides led to limited local preparedness for the further landslide events of 2025.

67 The recommendations below reflect the Board of Inquiry's view that there is significant scope for improvement in that respect.

Recommendation 21: Shire landslide training and guidelines

The Board of Inquiry recommends the Shire arrange appropriate training and develop guidelines for relevant staff about local landslide risk, mitigation and management.

Recommendation 22: Community information events

The Board of Inquiry recommends the Shire arrange appropriate community information events to educate residents, business owners and service providers about local landslide risk, mitigation and management in order to support them in identifying and reducing risks on their land.

68 Unlike the range of tools available to engineers and builders to support them in advising, designing and implementing mitigations for landslide risk,[58] there are limited materials and information currently available to support the community, or those working in emergency management and essential service delivery.

57 See, Commonwealth Department of Home Affairs, *National Disaster Risk Reduction Framework* (2018), 9.

58 Australian Geomechanics Society Landslide Taskforce, Landslide Practice Note Working Group, 'Practice Note guidelines for landslide risk management' (2007) 42(1) *Journal and News of the Australian Geomechanics Society* [DTP.0001.0016.0006 at .0086]; Australian Building Codes Board, *Landslide Hazards: Handbook non-mandatory document* (Second Edition, 2015).

69 In the case of residents, limited information is currently published by the Victorian Government about steps residents can take before a landslide. Community advice broadly focuses on what happens once a landslide is happening or has occurred.[59]

70 Comparatively, other states such as Tasmania and Queensland provide information about types of landslides, warning signs that residents should look out for, and how residents can alert authorities before an event takes place.[60]

71 The Shire informed the Board of Inquiry that it considers community education should include:

a. information about the causes of landslides and landslips;

b. how to mitigate and manage the causes of landslides and landslips, including:

   i. appropriate water use and management of water on and near the land;

   ii. appropriate retention and propagation of vegetation, including large gum trees;

   iii. minimising disturbance to the land through building activities;

c. planning for the occurrence of a landslide or landslip (e.g. evacuation plans);

d. information on how to monitor land for early signs of a landslide or landslip;

e. directions on the appropriate authority to whom the occurrence of a landslide;

f. landslip on private land should be reported; and

g. what to do following a landslide or landslip.[61]

72 As set out in Recommendation 22 above, the training and community information events the Board of Inquiry is recommending should include the topics outlined above, in addition to content about landslide risk in the municipal area.

73 The limited information presently published by the Victorian Government about landslide mitigation and preparedness will be addressed through the preparation of the landslide sub-plan to the SEMP and updates to existing VicSES plans. Hazard sub-plans to the SEMP are made available to the public on the Emergency Management Victoria website. The intended audience is government, businesses, the broader Victorian community and primary agencies with responsibilities within the emergency management sector.[62]

59 Victorian State Emergency Service, 'Landslides: Take actions and stay safe', *Emergencies: what you need to know* (Web Page) <https://www.ses.vic.gov.au/plan-and-stay-safe/emergencies/landslide>.

60 See, Queensland Government, 'Landslide', *Get Ready Queensland* (Web Page) <https://www.getready.qld.gov.au/getting-ready/know-your-risk/types-disasters/landslide>; Tasmanian State Emergency Service, 'Landslides in Tasmania' *Get Ready* (Webpage) <https://www.ses.tas.gov.au/plan-prepare/landslide/#:~:text=Reduce%20your%20landslide%20risk&text=Comply%20with%20land%20use%20planning,by%20a%20suitably%20qualified%20practitioner>.

61 Submission of Mornington Peninsula Shire Council on the adequacy of the regulatory framework in relation to the prevention and management of landslides and landslips in Victoria, 30 July 2025, [MSC.5094.0001.0004 at .0018].

62 State of Victoria (Emergency Management Victoria), *State Emergency Management Plan Bushfire Sub-Plan* (2023) 8.

74 In conjunction with the preparation of the landslide sub-plan to the SEMP, it is expected that existing emergency management training programs and preparedness forums will be updated with more specific landslide information. Emergency Management Victoria and the VicSES both manage extensive emergency training programs and Emergency Management Victoria runs an annual critical infrastructure sector resilience forum and annual preparedness briefings with industry.[63]

75 The Inspector-General for Emergency Management is also undertaking a review of statewide all-hazards community preparedness programs as well as a review of local government emergency management training.[64] This work may include advice on these matters, including for local government.

76 The Board of Inquiry notes that in updating educational materials and advice within Victoria, there is no shortage of expertise across Australia that government can draw upon. Australia's academic and research institutions are well-advanced in landslide research and those who spoke to the Board of Inquiry were generous in sharing their insights as to how to keep communities safe. There is, for example, the University of Melbourne's work on early prediction of slope failure,[65] the University of Wollongong's landslide inventory and susceptibility modelling,[66] and the University of Newcastle's rockfall hazard assessments.[67] Geoscience Australia also seeks to support the community with data and advice on the vulnerability of the built environment and real-time monitoring and analysis. Several non-government organisations have also sought to provide the community with advice about nature-based mitigation strategies such as deep-rooted vegetation and bioengineering.[68] Landcare New South Wales is one such organisation.

77 The VicSES's State Landslide Hazard Plan (2018) also contains useful information, including safety messages in relation to the threat of landslides. The State Landslide Hazard Plan (2018) sets out when the threat of a landslide becomes an emergency.[69]

78 Regrettably, the growing threat of a landslide in McCrae after 5 January 2025 was not appropriately treated as an emergency, and, as such, was not referred to the VicSES before the threat materialised on 14 January 2025. This meant that the VicSES did not respond to the emergency or lead the coordination of public information and warnings in that period, as provided for in the State Landslide Hazard Plan (2018).[70]

79 Emergency preparedness inherently involves early detection and continuous monitoring. Local landslide early warning systems can be used to monitor specific slopes that have been pre-identified as being at risk of failure. Specific risk thresholds can then be tied to certain emergency actions.

63 Emergency Management Victoria, 'Critical Infrastructure Resilience', *Emergency Management Victoria* (Web Page) <https://www.emv.vic.gov.au/about-us/current-projects/critical-infrastructure-resilience>.

64 Inspector-General for Emergency Management, 'IGEM's Annual Forward Plan of Reviews – 2024–25', *Inspector – General for Emergency Management* (Web Page) <https://www.igem.vic.gov.au/publications/publications/igems-annual-forward-plan-of-reviews-2024-25>.

65 Antoinette Tordesillas and Guoqi Qian, 'The satellite data mapping Australia's new climate extremes', *Pursuit* (Web Page, 5 December 2022) <The satellite data mapping Australia's new climate extremes | Pursuit by the University of Melbourne>.

66 University of Wollongong Australia, 'Landslide Research' *University of Wollongong Australia* (Web Page) <https://www.uow.edu.au/engineering-information-sciences/research/landslide-research/>.

67 University of Newcastle, 'Rockfall Hazard Assessment', *Centre Geotechnical Science and Engineering* (Web Page) <https://www.newcastle.edu.au/research/centre/cgse/research/georisk/rockfall>.

68 Landcare New South Wales, 'Mitigating Landslips with Nature-Based Strategies', *Landslide Mitigation* (Web Page) <https://landcarensw.org.au/landslip-mitigation>.

69 Victorian State Emergency Service, *State Landslide Hazard Plan* (Version 1, September 2018) [SES.0001.0001.0146 at .0156].

70 Victorian State Emergency Service, *State Landslide Hazard Plan* (Version 1, September 2018) [SES.0001.0001.0146 at .0162].

80 Detection, monitoring and prediction typically rely on remote-sensing techniques that include aerial observation, laser scanning and ground-based interferometry.[71] A range of commercial products are available. Companies such as GroundProbe provide geohazard real-time monitoring.[72]

Recommendation 23: Early identification of landslide risk

The Board of Inquiry recommends the Victorian Government, local councils and relevant stakeholders work together to identify pathways for early identification of landslide risk and ensure escalation processes and procedures are well understood. This is a matter which may be most appropriately addressed as part of the development of the landslide sub-plan to the SEMP.

Lessons management

81 Lessons management is an important part of assurance and continuous improvement in emergency management, as with other areas of policy and practice.

82 Debriefs, after action reviews, community surveys and independent evaluations all offer different strategies for collecting learnings, observations and insights. As the Australian Institute of Disaster Resilience notes:

> Australia's safety and security depends on our collective ability to learn from experience, manage the knowledge gained and develop learning organisations that can adapt to deal with current, emerging and unexpected threats. Organisations need a lessons capability that adequately resources the collection, analysis, distribution and sharing of lessons in a way that ensures action is taken to effect change.[73]

83 The Mornington Peninsula Municipal Emergency Management Plan refers to the role of lessons management. It notes "*the committee regularly undertakes a review process to improve risk assessments, analysis of lessons learned from events, changes to exposure and vulnerability and changes in the nature (frequency and severity) of hazardous events*".[74]

84 The Board of Inquiry received no evidence that the Mornington Peninsula Municipal Emergency Management Planning Committee debriefed about the November 2022 landslides in McCrae or discussed landslide risk in any detail. This is despite the fact that the Shire's MBS had issued Emergency Orders to the owners of multiple affected properties.

71 Nicola Casagli, Emanuele Intrieri, Veronica Tofani et al, 'Landslide detection, monitoring and prediction with remote-sensoring techniques (2023) 4(1) *Nature Reviews Earth and Environment* 51.

72 GroundProbe, 'What we do', *GroundProbe* (Web Page) <Landslide detection, monitoring and prediction with remote-sensing techniques>.

73 Australian Institute for Disaster Resilience, *Lessons Management* (Handbook, 2019) 4 [1.2].

74 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, Exhibit CA-11(6) [MSC.5006.0001.1021 at .1069].

85 A debrief or review could have resulted in actions being taken prior to the next, more significant, landslide that occurred in the same area on 5 January 2025. The absence of an EMO could have been discussed. The need to seek further data and information about landslide susceptibility and risk in the local government area could have been considered. A debrief could have identified a need for more timely communication with residents about risk and mitigation. Landslide may have ultimately been identified as a "principal emergency risk" to be included in the Emergency Management Plan. These opportunities were missed.

86 Fortunately, debrief opportunities were not missed again following the McCrae Landslide. Mornington Peninsula Municipal Emergency Management Planning Committee members did discuss the landslide incident at the 21 February 2025 meeting.[75]

87 It is important that municipal emergency management planning committees take responsibility for debriefing and learning. While the Inspector-General for Emergency Management has a review role, they only undertake incident reviews at the request of the Minister. This makes municipal-level reviews a crucial tool for learning from past events.

Recommendation 24: Emergency management planning committee debriefing

The Board of Inquiry recommends municipal emergency management planning committees review their procedures to ensure that, following landslide incidents there is appropriate debriefing which includes actively considering opportunities to improve mitigation, planning and preparedness measures.

75 Minutes of Mornington Peninsula Municipal Emergency Management Planning Committee Meeting, 21 February 2025, [MSC.5051.0001.0008 at .0016].

8.2.1 Case study: what does an integrated and coordinated approach to mitigation look like? Learning from Victoria's approach to coastal erosion

88 The Victorian Government is currently running a statewide monitoring program for coastal erosion that draws on data and analysis from drone surveys, satellite imagery and photographs from the community using CoastSnap (see case study below).[76]

89 The program is an invaluable example of a comprehensive statewide approach to a hazard similar to landslides. The Board of Inquiry received extensive evidence of detailed methodologies, plans, data, tools and guidelines designed and delivered by the Department of Energy, Environment and Climate Action (**DEECA**) and its portfolio agencies in partnership with academics, industry and community to manage the risks arising from coastal erosion.

90 The Marine and Coastal Strategy (2020) provides the policy framework that guides activity and also identifies specific actions to mitigate the risk of coastal erosion including:

a. collecting and sharing information to inform hazard mapping and projections, erosion advice, emergency responses and adaptation planning;

b. delivering priority coastal hazard data and applications to fill known gaps and support planning across public and private land;

c. establishing coastal erosion advisory support; and

d. reviewing and strengthening coastal hazard warning services.[77]

91 Underpinning this work is a shared understanding of risk. In 2023, DEECA published the Victorian Coastal Cliff Hazard Assessment,[78] a digital dataset consisting of multiple spatial layer outputs from modelled erosion (cliff instability) and risk assessment scenarios. This provides a comprehensive statewide understanding of areas susceptible to coastal erosion.

92 The Victorian Government has also established the Victorian Coastal Monitoring Program.[79] This is a field monitoring and knowledge management program that provides coastal managers and communities with information about coastal processes and hazards and enables them to make informed decisions about how best to manage the risks. Importantly, it also involves the community in the process of collecting data. Residents can participate through the Citizen Science Drone Program or share coastal photos via CoastSnap (a global citizen science project founded by the University of New South Wales and New South Wales Department of Planning, Industry and Environment) to complement data from satellite and drone imagery.[80]

76 State of Victoria Energy, Environment and Climate Action, 'Citizen Scientists and Traditional Owners', *Marine and Coastal Knowledge* (Web Page) <https://www.marineandcoasts.vic.gov.au/marine-and-coastal-knowledge/victorian-coastal-monitoring-program/citizen-science>.

77 State of Victoria Department of Environment, Land, Water and Planning, *Marine and Coastal Strategy* (May 2022) [DEE.0001.0001.0304 at .0317–.0320].

78 Submission of the State of Victoria, Response to second list of questions for the State of Victoria, 30 April 2025, [DGS.0001.0004.0001 at .0016].

79 Submission of the State of Victoria, Response to second list of questions for the State of Victoria, 30 April 2025, [DGS.0001.0004.0001 at .0015].

80 State of Victoria Energy Environment and Climate Action, 'Citizen Scientists and Traditional Owners', *Marine and Costal Knowledge* (Web Page, 20 May 2023) <https://www.marineandcoasts.vic.gov.au/marine-and-coastal-knowledge/victorian-coastal-monitoring-program/citizen-science>.

93 The Victorian Coastal Monitoring Program is supported by the following two tools that assess erosion hazards:

a. the erosion warning indicator used to assess a site overall and compare sites; and

b. the erosion hotspot detector used to automatically identify and assess high erosion areas in greater detail.[81]

94 The indicators ensure there is a single product output from the Victorian Coastal Monitoring Program that summarises the current state of all regularly surveyed sites with regard to coastal erosion. It serves as a reference for coastal land project managers, consultants and academics to, for example, provide an overview of a site prior to conducting a detailed hazard assessment.

95 DEECA also administers Victoria's Resilient Coast Grants Program which provides funding for organisations for strategic coastal hazard risk management and adaptation aligning to one or more stages of Victoria's Resilient Coast Adapting for 2100+.[82]

96 DEECA's comprehensive and well-regarded statewide program to manage the risk of coastal erosion offers insights for managing landslide risk.

97 In a changing climate with more extreme, severe and prolonged weather events, there could be an increased risk of landslides in Victoria.

Recommendation 25: Obtaining insights and expanding other programs

The Board of Inquiry recommends the Victorian Government consider how insights from the Victorian Coastal Monitoring Program could be applied to landslides and explore options to expand or build on the program, including by monitoring areas identified as being highly susceptible to landslides.

81 Submission of the State of Victoria, Response to second list of questions for the State of Victoria, 30 April 2025, [DGS.0001.0004.0001 at .0015].

82 Submission of the State of Victoria, Response to second list of questions for the State of Victoria, 30 April 2025, [DGS.0001.0004.0001 at .0015].

8.3 Land use planning

98 Land use planning is a key strategy to minimise the risk and consequences of landslides.

An overview of Victoria's land use planning system

99 The *Planning and Environment Act 1987* (Vic) (***Planning and Environment Act***) serves several purposes. It:

a. establishes a framework for planning the use, development and protection of land in Victoria;

b. contains procedures for preparing and amending the Victoria Planning Provisions and planning schemes;

c. sets out the process for obtaining permits under planning schemes; and

d. defines the roles and responsibilities of councils, government departments and others involved in the planning system.

100 It does not precisely define the scope of planning. The detail is in instruments made under the *Planning and Environment Act*, including in the Victoria Planning Provisions, planning schemes, regulations and Ministerial directions.

101 The Victoria Planning Provisions are a comprehensive set of planning provisions for Victoria. They are not a planning scheme and they do not apply to any land. The Victoria Planning Provisions are a statewide reference document used as required to develop a planning scheme. They are a statutory device to ensure that consistent provisions for various matters are maintained across Victoria and that the construction and layout of planning schemes is always the same.[83]

102 A planning scheme is a statutory document that sets out objectives, policies and provisions relating to the use, development, protection and conservation of land in the area to which it applies. A planning scheme regulates the use and development of land through planning provisions to achieve those objectives and policies. The provisions in a planning scheme will include standard zones and overlays. Some of these zones and overlays will include local provisions as schedules to the zone or overlay.[84]

103 The administration and enforcement of a planning scheme is the duty of a responsible authority. In most cases this will be a council, but it can be the Minister administering the *Planning and Environment Act* or any other person whom the planning scheme specifies as a responsible authority for that purpose. A council will usually act as both the planning authority and responsible authority.[85]

104 All land is subject to zoning. The planning scheme zones land for particular uses, for example, residential, industrial, commercial. The zones are listed in the planning scheme and each zone

83 State of Victoria Department of Transport and Planning, 'Chapter 1: Planning schemes', *Guide to Victoria's Planning Scheme* (Web Page, 23 March 2024) <https://www.planning.vic.gov.au/guides-and-resources/guides/guide-to-victorias-planning-system/planning-schemes>.

84 State of Victoria Department of Transport and Planning, 'Chapter 1: Planning schemes', *Guide to Victoria's Planning Scheme* (Web Page, 23 March 2024) <https://www.planning.vic.gov.au/guides-and-resources/guides/guide-to-victorias-planning-system/planning-schemes>.

85 State of Victoria Department of Transport and Planning, 'Chapter 1: Planning schemes', *Guide to Victoria's Planning Scheme* (Web Page, 23 March 2024) <https://www.planning.vic.gov.au/guides-and-resources/guides/guide-to-victorias-planning-system/planning-schemes>.

has a purpose and set of requirements for use. A planning scheme sets out if a planning permit is required for proposed works and the matters that the council must consider before deciding to grant a permit.[86]

105 The planning scheme map may show that land is subject to an overlay and zoning. However, not all land is subject to an overlay and some land may be subject to more than one overlay. If an overlay applies, the land will have some special feature such as a heritage building, significant vegetation or flood risk. The overlay information will indicate if a planning permit is required for the construction of a building or other change to the land and set out requirements for subdivision and buildings and works that apply in addition to the requirements of the zone.[87]

How is landslide risk managed in the planning system?

106 Planning tools are particularly important in the context of landslide risk. Like many hazards – such as bushfire and flood – poor planning can increase community vulnerability and exposure through development in high-risk areas. Uniquely, poor planning can also be a preparatory factor for landslides. While individual buildings may be able to manage landslide risk through engineering solutions, poor planning for urban development may disrupt soil cohesion and change water pathways, destabilising areas of land and creating or exacerbating landslide risk.

107 There are two primary mechanisms within Victoria's land use planning system that seek to manage landslide risk.

108 The first is the statewide policies contained in the Planning Policy Framework.

109 The second is the EMO, which has already been the subject of much discussion in this Report.

110 These two mechanisms are supported by a range of broader tools which can also assist to mitigate landslide risk, such as the vegetation protection overlay and stormwater management planning.

111 Starting with the Planning Policy Framework, the policies contained in the Planning Policy Framework are incorporated into the Victoria Planning Provisions and all planning schemes.[88]

112 Clause 13.04–2S of the Planning Policy Framework sets an objective to protect areas prone to erosion, landslip or other processes of land degradation, including:

a. identifying areas subject to erosion or instability in planning schemes and when considering the use and development of land;

b. preventing inappropriate development in unstable areas or areas prone to erosion; and

c. promoting vegetation retention, planting and rehabilitation in areas prone to erosion and land instability.[89]

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86 State of Victoria Department of Transport and Planning, 'Chapter 1: Planning schemes', *Guide to Victoria's Planning Scheme* (Web Page, 23 March 2024) <https://www.planning.vic.gov.au/guides-and-resources/guides/guide-to-victorias-planning-system/planning-schemes>.

87 State of Victoria Department of Transport and Planning, 'Chapter 1: Planning schemes', *Guide to Victoria's Planning Scheme* (Web Page, 23 March 2024) <https://www.planning.vic.gov.au/guides-and-resources/guides/guide-to-victorias-planning-system/planning-schemes>.

88 State of Victoria Department of Transport and Planning, 'Planning Policy Framework translation', *Strategies and initiatives* (Web Page, 3 March 2024) <https://www.planning.vic.gov.au/guides-and-resources/strategies-and-initiatives/planning-policy-framework-translation>.

89 *Victorian Planning Provision* (Vic) cl 13.04–2S.

113 Planning authorities (usually councils) are required to give regard to those objectives in designing and managing their planning schemes, and when determining applications for planning permits.

114 While consideration of the objectives in cl 13.04–2S is mandatory, there is flexibility within the system. As a result, some planning schemes contain general policy statements addressing erosion and landslides, while others have dedicated local policies dealing specifically with those matters. This enables planning authorities to take steps proportionate to local conditions and risk.

115 Turning now to the second mechanism, the EMO is one of several standard overlays with statewide application within the Victoria Planning Provisions.[90] It aims to *"protect areas prone to erosion, landslip, other land degradation or coastal processes by minimising land disturbance and inappropriate development*".[91]

116 Where an EMO applies to land, building works, vegetation removal and subdivision all require a permit, unless an exemption is listed. When deciding an application, the responsible authority must consider a range of requirements including stabilisation measures, measures to manage water runoff and site drainage, the extent of soil disturbance, and whether the building works themselves are likely to result in landslide.[92]

Limitations on the efficacy of the planning tools

117 It is evident that there are limitations on the ability of current statewide planning policies and tools, particularly the EMO, to appropriately and comprehensively manage landslide risk.

118 The Minister for Planning referred the Board of Inquiry to several concerns and issues with the design and application of the EMO identified by the Department of Transport and Planning during a desktop review.[93] The Minister acknowledged that those concerns present a case for improving how the EMO operates.[94]

119 It is appropriate to now discuss some of the Minister for Planning's concerns and others also identified by the Board of Inquiry.

Data on landslide risk

120 The first limitation on the effectiveness of the EMO identified by the Board of Inquiry is the availability of data.

121 As already discussed, there is presently no statewide data on landslide susceptibility or statewide assessment of landslide risk. For the planning system, this has meant that councils, as the relevant planning authorities, need to acquire relevant data to identify areas to be subject to the EMO. This often involves procuring expensive geotechnical assessments.

122 As also discussed earlier, only six of the 21 (29%) councils who responded to questions asked by the Board of Inquiry had mapped landslide risk. The biggest impediments raised to mapping and implementing an EMO by councils were funding (63%), competing priorities (42%), complexity

90 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at _0003].

91 *Victorian Planning Provisions* (Vic) cl 44.01-3.

92 *Victorian Planning Provisions* (Vic) cl 44.01-8.

93 Submission of Minister for Planning Response to list of questions, 30 July 2025, [DTP.0001.0020.0001 at _0006].

94 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at _0006].

and/or a lack of clarity around requirements (16%) and a lack of technical expertise (11%). Several councils indicated they had not mapped landslide risk as they did not believe their council had sufficient risk to warrant the investment.

123 This approach to data collection can be contrasted to the situation in relation to the Bushfire Management Overlay. Bushfire risk is identified and verified through a mapping process managed by the Department of Transport and Planning, relevant fire agencies and local government. The Department of Transport and Planning prepares bushfire management overlay planning scheme amendments based on that mapping, and the Minister for Planning approves updates under s 20(4) of the *Planning and Environment Act* "*generally every six months*".[95]

124 The Shire is one council that has procured mapping of landslide susceptibility.[96] As discussed in earlier Chapters of this Report, it did so many years ago and is presently updating this mapping.[97] While the Shire did procure mapping, regrettably it did not then use the data to seek to update the areas covered by the EMO schedules.

125 Where councils procure such data, there is no guidance as to how they should use it to assess risk, design appropriate planning controls or undertake mitigation measures. This means that land with the same level of risk included within an EMO in one council area but not included within an EMO in another council area, may be subject to different thresholds for mitigation measures.

126 The Minister for Planning helpfully acknowledged in her submission to the Board of Inquiry that planning policy would be strengthened by practice notes and guidance specifically on landslide risk. The Minister noted that:

> By comparison, the mandatory state-wide policies relating to coastal inundation and erosion … and bushfire planning … are more sophisticated and responsive to those known risks. These include, for example, guidance on hazard identification and assessment, a hierarchy of interventions, and benchmark metrics to assist decision-making.[98]

127 This issue is not unique to Victoria. The New South Wales Disaster Mitigation Plan confirms that in New South Wales "*there are no agreed processes to balance tolerable hazard risk with housing supply and development. This means there is currently no agreed criteria and thresholds for what makes land 'too hazardous' for different types of development across all hazards*".[99]

128 Nevertheless, there are useful examples across Australia of balancing local flexibility with greater consistency and sound decision making in the absence of landslide mapping data. Planning authorities in other States have adopted approaches to risk tolerance that minimise the level of discretion and reliance on regular and costly landslide mapping data.

129 In Queensland, local government authorities apply Landslide Hazard and Steep Slope Overlay Codes, which form part of their planning schemes. Instead of procuring costly landslide susceptibility data for the purpose of identifying areas to be the subject of the overlay, a planning authority can simply identify and include those areas with a slope gradient of at least 15%.[100]

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95 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at _0014].

96 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 8 [40].

97 See, Davin Slade, Stantec, Geotechnical and Planning Advice for an Interim Erosion Management Overlay, 2 July 2025, [MSC.5083.0001.2780].

98 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at _0008].

99 New South Wales Government (NSW Reconstruction Authority), *State Disaster Mitigation Plan: 2024–2026* (February 2024) 106.

100 State of Queensland, Department of Infrastructure, Local Government Planning, *Natural Hazards, risks and resilience: Landslide: State Planning Policy: State Interest Guidance Material* (July 2017) 7.

130 As Mr Paul, explained in his evidence to the Board of Inquiry, slope angle is a critical risk factor in landslide susceptibility. He went on to state that "*in a general sense, the steeper the slope the more susceptible it might be to sliding*".[101]

Finding

The Victorian planning system allows for widely inconsistent approaches by local planning authorities to the identification and management of landslide susceptibility and risk.

Using a single overlay for both landslide and coastal erosion

131 The next limitation to be discussed concerns the inclusion of coastal erosion and landslide within a single overlay. Victoria is one of few jurisdictions to have a single overlay covering both landslide and coastal erosion. On the Mornington Peninsula, this means that the mountainous areas of Red Hill and the coastal cliffs of Flinders are covered by the same overlay, despite different preparatory risk factors existing, which in turn require very different mitigation measures.

132 The lack of distinction between these hazards in the Victoria Planning Provisions makes it difficult to assess whether the overlay is effective in managing landslide risk. It also makes it challenging to set benchmarks and targets, a matter noted by the Minister for Planning.[102]

133 There is also potential for the community to misunderstand the nature of the overlay. This is especially so where the EMO does not identify the reason it is applied to certain land. A desktop review of the EMO in 2023 by the former Department of Environment, Land, Water and Planning found that where an EMO was applied, there was usually limited information within EMO schedules to explain why it had been applied to a specific area.[103]

134 Queensland, New South Wales and Tasmania all refer to landslide risk in the name of the relevant overlay and distinguish landslide risk from other types of erosion.

Conflicting planning control needs for hazards

135 A third limitation on the effectiveness of the EMO is the conflict between planning controls for different types of hazards and a lack of guidance on navigating the issue. Largely, the planning system seems to presume exposure to a single hazard at a time. In the case of McCrae, this conflict was most evident between bushfire and landslide risk.

136 Vegetation is critical to risk mitigation for landslide. However, the Bushfire Protection Exemptions within the Victoria Planning Provisions allow landowners to clear vegetation around their property or maintain defendable space for bushfire protection without a planning permit.[104] This may be

101 Public Hearing Transcript, Darren Paul, 7 May 2025, 35.

102 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at_0008].

103 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at _0006].

104 *Victorian Planning Provision* (Vic) cl 52.12.

the case even where the land is at greater risk of landslide than bushfire. As the Shire submitted to the Board of Inquiry, in relation to these exemptions, "*their general and strict application can have an inadvertent adverse impact on the prevention and management of landslides*".[105]

137 The converse is true when an application is made for a planning permit in respect of an area subject to an EMO. Such applications are often accompanied by an opinion from a geotechnical engineer about the risk to life from a landslide event. They do not address other hazards which might be created from the imposition of conditions to mitigate the risk of landslides. Such conditions (e.g. vegetation conditions) may create other hazards, such as those related to bushfires. There are no practice notes or guidelines to assist planning authorities with such issues.

138 A strategy that could be considered to ensure an all-hazards approach is for planning authorities to assess societal risk.

139 Societal risk concerns the potential adverse impacts and consequences that hazardous events or disasters can have on a community, population or society. It encompasses the likelihood of such events occurring and the extent of harm that they could cause to people, property, infrastructure, the environment and the overall wellbeing of the affected population.[106] It provides a potential pathway to consider the interrelationship between different hazards as well as the long-term impacts on communities.

140 Mr Pope gave evidence that current geotechnical reports use risk to life assessments that assess risks to individuals, but the standards also provide opportunities to consider broader societal risk.[107] New Zealand's Landslide Planning Guidance: Reducing Landslide Risk through Land-use Planning (2024) considers societal risk alongside local personal risk, annual individual fatality risk and annual property loss/risk.[108]

Finding

Planning controls for different hazards can be in conflict, such as vegetation management for bushfire risk and landslide mitigation measures. Victoria's land use planning system does not assist planning authorities to navigate concurrent and interdependent hazards.

Timeliness of updates to areas covered by an EMO

141 The Board of Inquiry received evidence from Mr Simon, Acting Director Planning and Environment at the Shire, that the most recent update to the Shire's EMO schedules had taken six years.[109] By the time the update came into effect in January 2025, the landslide mapping that had informed it was more than 10 years old.

105 Submission of Mornington Peninsula Shire Council on the adequacy of the regulatory framework in relation to the prevention and management of landslides and landslips in Victoria, 30 July 2025, [MSC.5094.0001.0004 at .0009].

106 Institute of Geological and Nuclear Sciences Limited, *Landslide Planning Guidance: Reducing landslide risk through land-use planning* (January 2024) 23.

107 Public Hearing Transcript, Dane Pope, 8 May 2025, 117–119.

108 Institute of Geological and Nuclear Sciences Limited, *Landslide Planning Guidance: Reducing landslide risk through land-use planning* (January 2024) 22.

109 Public Hearing Transcript, David Simon, 9 May 2025, 234.

142 While this was certainly at the upper end of timeframes, the Department of Transport and Planning confirmed that the full process for an amendment that is publicly exhibited and referred to Planning Panels Victoria typically takes at least one year. The Department of Transport and Planning informed the Board of Inquiry that in the last three years the median time for a medium complexity planning scheme amendment in Victoria was 378 days.[110]

143 In exceptional cases, the Minister for Planning can fast track the amendment process by, for example, removing the requirement for public consultation for an interim amendment and directing a council to take steps within specified timeframes.[111] However, Ms Barlow, Manager of Strategic and Infrastructure Planning of the Shire, gave evidence that even where two landslides had occurred in relatively close proximity, as was the case in McCrae, she thought that it would still take at least four to six months to impose an interim or emergency EMO over the area.[112]

144 The Minister for Planning told the Board of Inquiry that efficiency is one of the matters being considered in the current review of the *Planning and Environment Act*. The Minister helpfully explained the following:

a. the current review of the *Planning and Environment Act* will consider the planning scheme amendment process with a view to making it more efficient and flexible; and

b. it is the Minister's expectation that the improvements that have recently been made to the *Planning and Environment Act* and those that will be made following completion of the review will result in planning schemes being better able to respond to environmental risks and other hazards, including landslides.[113]

145 The improvements recently made to the *Planning and Environment Act* are found in the *Consumer and Planning Legislation Amendment (Housing Statement Reform) Act 2025* (Vic) (***Amendment Act***), which received Royal Assent on 18 March 2025. The *Amendment Act* introduces (through Part 7) amendments in relation to the planning scheme process. The amendments include an initial tranche of changes currently due to commence on 25 November 2025.[114]

146 The amendments include a new div 1AA which will enable any person to request a municipal council to prepare an amendment to the planning scheme in force in its municipal district. The council must then either apply to the Minister for authorisation to prepare the amendment or refuse the request with written notice and reasons. The Minister may direct a municipal council to make a decision on the request within a specified time of not less than six weeks. If the council decides to apply to the Minister for authorisation to prepare the amendment, the Minister can similarly direct the council to make the application for authorisation within a specified time of not less than six weeks.[115]

110 Exhibit CA-52, Witness Statement of Stuart Menzies 6 June 2025, 7 [29].

111 See, *Planning and Environment Act 1987* (Vic) s 185A(1).

112 Public Hearing Transcript, Katanya Barlow, 20 June 2025, 784.

113 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at _0005–_0006].

114 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at _0005].

115 *Consumer and Planning Legislation Amendment (Housing Statement Reform) Act 2025* (Vic) ss 16A–16E.

147 New div 1AA also introduces a process for "*low-impact amendments*" to a planning scheme.[116] One aspect of the new process is that amendments to be prepared by a municipal council without first obtaining authorisation from the Minister.[117] The prescribed classes of low-impact amendments have not yet been defined.[118]

148 Pleasingly, these amendments have the potential to prompt action by municipal councils and to ensure timely decision making. The effectiveness of the amendments is a matter to be assessed over time.

149 As part of the Victorian Government's review of the *Planning and Environment Act*, the Municipal Association of Victoria proposed other new approaches for implementing and updating EMOs within planning schemes. It submitted that consideration should be given to the involvement of a specialist standing panel and the Minister acting as the planning authority. The Minister has noted that this is an option worthy of further consideration because it has the potential to streamline the process for the implementation of a completed landslide risk assessment into the planning scheme.[119]

150 It is noted that a proposed action under the Victorian Government's Built Environment Climate Change Adaptation Action Plan (2022–26) was to update planning provisions to respond to climate change based on the most current advice from relevant natural resource and emergency management authorities. This included:

> review the landslide policy and strategic approach in the planning system, including the Erosion Management Overlay, as more extreme rainfall events and bushfires will increase risk.[120]

151 The Department of Transport and Planning informed the Board of Inquiry that the work to deliver this proposed action item was subject to resource capacity within the Department.[121]

152 In the context of more frequent and severe storm events driven by climate change and their intersection with landslide risk, agility is becoming increasingly important. National commitments such as the National Disaster Risk Reduction Framework identify the need for land use and development planning and practices to be integrated, strategic and adaptive to rapid change.[122] Planning authorities need to be able to quickly update planning controls to mitigate the risks associated with landslide.

153 The current review that is underway by the Victorian Government to ensure Victoria's planning system is responsive to emerging hazards should continue to be progressed to minimise the impact and consequence of landslides in Victoria.

116 *Consumer and Planning Legislation Amendment (Housing Statement Reform) Act 2025* (Vic) ss 16N.

117 *Consumer and Planning Legislation Amendment (Housing Statement Reform) Act* 2025 (Vic) sub-div 3.

118 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at _0005].

119 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at _0013].

120 State of Victoria Department of Environment, Land, Water and Planning, *Built Environment Adaptation Action Plan 2022–2026* (2022) [DEE.0001.0001.0002 at .0039].

121 Exhibit CA-52, Witness statement of Stuart Menzies, 6 June 2025, 1 [3].

122 Commonwealth Department of Home Affairs, *National Disaster Risk Reduction Framework* (2018) 9.

Limited oversight and technical review

154 The next limitation to be discussed is the lack of oversight of the management of landslide risk within the planning system.

155 Victorians are deeply reliant on local councils, in their role as planning authorities, understanding and managing landslide risk within the planning system.

156 The Department of Transport and Planning informed the Board of Inquiry that it does not have a review process to ensure planning authorities are appropriately mapping landslide risks into the planning system.[123] In addition, the Minister does not typically seek independent geotechnical expertise when planning applications are presented for approval.[124]

157 The Minister for Planning does have some powers to ensure planning authorities are delivering on their obligations to prevent inappropriate development in unstable areas or areas prone to erosion.

158 The Minister for Planning also has statutory powers to prepare a planning scheme for any municipal district or other area of Victoria, and make amendments to any provision of a planning scheme.[125] The Minister informed the Board of Inquiry that in principle the provisions would enable her to introduce an amendment to a planning scheme if a municipal council did not do so.[126] However, importantly, the Minister also noted that she would still be reliant on the council to do the preparatory work to support the planning scheme amendment, including the relevant mapping and risk assessments.[127]

159 The Minister for Planning was asked by the Board of Inquiry how it was that the Shire received approval to create EMO schedules that only covered some of the areas identified as high risk in the landslide susceptibility mapping that the Shire obtained from Cardno in 2012. The Minister explained that the Department of Transport and Planning can only review material before it on its merits and that it was normal for amendment applications to be staged and only cover part of a municipality due to resource constraints and managing public consultation processes.[128]

160 These matters raise a related issue. Even if the Department of Transport and Planning had closer oversight of the management of landslide risk by planning authorities, the lack of available data on landslide risk and the absence of geotechnical expertise within the Victorian Government, would make oversight difficult.

161 The Board of Inquiry has been informed that government agencies (such as local councils) generally lack internal specialist geotechnical expertise,[129] which hinders the effectiveness of the planning system.

123 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at _0009].

124 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at _0008].

125 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at _0011]; *Planning and Environment Act 1987* (Vic) s 8.

126 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at _0011].

127 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at _0011].

128 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at _0009].

129 Public Hearing Transcript, Darren Paul, 7 May 2025, 52.

162 In its submission to the Board of Inquiry, Engineers Australia also highlighted the lack of specialist engineering expertise in the public sector. The submission stated that:

> the public sector engineering workforce has declined by 40 per cent since the 1980s, while engineering-related construction activity has grown by over 200 per cent in real terms. Currently, only 15 per cent of publicly commissioned engineering work is delivered internally. Combined with a widening capability gap, this reduction in engineering expertise has reduced the public sector's ability to manage risk, ensure value for money and deliver projects efficiently.[130]

163 Engineers Australia suggested the re-establishment within government of the role of the Chief Engineer to provide "*a focus for technical advice to government to ensure work is planned, managed and evaluated according to best practice*".[131]

164 While there is a lack of geotechnical expertise within the Victorian Government and the relevant departments, it does have direct experience in managing landslide risk in the planning system through its role as the planning authority for the Alpine Resorts. The Victorian Government identified for the Board of Inquiry various geotechnical assessments and policies to manage the risk of landslide in the Alpine Resorts.[132] It also has significant experience managing the risk of landslides on public land, including the road network.

165 Insight-based and best practice approaches to landslide risk management do not appear to be broadly shared. The Board of Inquiry is not aware of a Victorian Government agency or department seeking to engage with the Shire following the November 2022 landslides in McCrae. There were several possible ways this engagement could have occurred within the planning system. It could have arisen from the perspective of planning policy, aiming to identify any lessons that could inform reform of the planning system. It could have been to collaboratively engage on the need to update the relevant EMO. It could have been to share learnings and insights, particularly as the Department of Transport and Planning had its own major landslide incident in 2022 — a 600,000 tonne landslide on the Bogong High Plains Road between Mt Beauty and Falls Creek, one of the largest to affect Victoria's road network in the past 40 years.[133]

Absence of planning tools to manage risks regarding existing development

166 The planning system has limited ability to respond to hazard risks associated with existing development. Planning tools such as zones and overlays are designed to support sustainable future development and generally do not apply retrospectively.[134] As a result, the EMO does not regulate pre-existing land uses or developments that were underway before the addition or amendment of an EMO schedule.

167 As the case of McCrae highlights, there are communities in Victoria where homes have been built in areas susceptible to landslide or where risk has increased over time. The latter may continue as a result of climate change, affecting more people, homes and businesses.

130 Submission of Engineers Australia, McCrae Landslide Inquiry, 25 July 2025, [SUB.0048.0001.0001 at _0002].

131 Submission of Engineers Australia, McCrae Landslide Inquiry, 25 July 2025, [SUB.0048.0001.0001 at _0002].

132 Submission of the State of Victoria, Response to second list of questions for the State of Victoria, 30 April 2025, [DGS.0001.0005.0001 at .0020–.0021].

133 State of Victoria, 'Bogong High Plains Road Landslide', *Big Build Roads* (Web Page, 20 January 2025) <https://bigbuild.vic.gov.au/projects/roads/bogong-high-plains-road-landslip>.

134 *Planning and Environment Act 1987* (Vic) s 6(3).

168 While the planning system may not provide direct means of managing risk in existing developments, redevelopment and subdivision can present longer-term opportunities to influence and reshape these areas. Revised building standards, setbacks, and land use requirements can be implemented to address risk. As the Australian Institute for Disaster Resilience notes:

> it is important that planning agencies work collaboratively with other relevant agencies and seek to be involved in existing hazard management processes to examine options to manage the risks of natural hazard to existing settlements and implement retrofitting action to reduce the exposure or vulnerabilities of these areas.[135]

169 Indirectly, policies, guidance and standards for new development can also shape community behaviour by offering valuable information that may prompt existing residents to take steps to reduce their own risk.

170 Ultimately, land use planning is only one tool for managing risk and does not replace the need for comprehensive emergency planning and preparedness. In cases where developments face risk levels beyond what is acceptable to the community, property buybacks or relocation programs may be necessary.

Recommendation 26: Strengthening the land use planning system

The Board of Inquiry recommends the Victorian Government review and strengthen the management of landslide risk within the land use planning system to ensure Victorians can have confidence that areas at risk of landslide are subject to proportionate, timely and consistent planning controls.

Consideration should be given to:

a. developing consistent principles for the application of planning overlays, including threshold requirements such as slope gradient;

b. identifying consistent tolerable levels of residual risk to the community;

c. the appropriateness of continuing to combine landslide risk and coastal erosion within a single overlay;

d. building internal geotechnical engineering expertise in the Department of Transport and Planning to support appropriate technical review and applications to amend planning schemes;

e. providing technical and financial support when appropriate to municipal councils to support the identification of landslide risk for the purpose of planning scheme amendments;

f. developing planning practice notes and guidance;

135 Australian Institute of Disaster Resilience, *Australian Disaster Resilience Handbook Collection: Land use planning for disaster resilient communities* (First edition, 2020) 48.

g. incorporating the Australian guidelines for landslide developed by the Australian Geomechanics Society;

h. providing planning authorities with best practice guidance on how to consider cross-cutting hazards such as bushfire and landslide; and

i. requiring more frequent reviews of hazard-related planning controls such as overlays, to ensure they reflect changing environmental impacts.

Improving land use planning in McCrae

171 The Board of Inquiry acknowledges that implementing its recommendations to improve landslide risk management within the planning system will take time. However, there is an urgent need to address current gaps in the planning scheme for McCrae and other landslide-prone areas on the Mornington Peninsula.

172 Municipal councils have an obligation, as responsible authorities, to efficiently administer and enforce the planning scheme and to implement the objectives of the planning scheme. Councils are responsible for identifying landslide and erosion risks as part of their general obligations as a planning authority and responsible authority.[136]

173 There is a clear need for the Shire to advance an interim amendment to the relevant EMO schedules to extend the EMO to at least those areas that have been identified as highly susceptible to landslide.

174 Interim planning scheme amendments can be implemented expeditiously under ss 20(2) and 20(4) of the *Planning and Environment Act* on the approval of the Minister for Planning if deemed to be in the interests of Victoria or any part of Victoria. Notwithstanding its limitations, the most comprehensive planning tool currently available to manage landslide risk is the EMO. An interim EMO would introduce temporary planning controls in areas that have been identified to be susceptible to landslide.

175 Given the occurrence of multiple landslides, increased council rates for residents and geotechnical assessments confirming ongoing risks to life and property in McCrae, there is a strong case for expediting an interim planning scheme amendment.

176 The Shire informed the Board of Inquiry that it had not sought an interim amendment due to the following principal concerns:

a. the importance of public consultation which would not occur and which could create uncertainty, anxiety and additional costs for thousands of affected property owners across the Shire;

b. the accuracy of existing landslide susceptibility data that would inform the interim EMO, which is now more than 13 years old; and

c. the need for further work before progressing permanent controls which are typically progressed alongside interim controls.[137]

136 Submission of Minister for Planning, Response to list of questions for Minister for Planning, 30 July 2025, [DTP.0001.0020.0001 at _0007]; *Planning and Environment Act 1987* (Vic) s 12.

137 Exhibit CA-34, Witness Statement of Katanya Barlow, 6 June 2025, 18–20 [56]–[61].

177 As to the second issue, the risk of inappropriate development occurring in the Shire in the absence of an EMO outweighs any risk arising from the landslide susceptibility data not being recent data. The interim EMO would ensure that any building works require a permit and that the Shire, as the relevant planning authority, ensures that the building design and works are appropriate given the landslide risk. If the Shire determines that some land identified in the landslide susceptibility mapping no longer warrants inclusion in an EMO, that can be addressed as part of the process for establishing permanent planning controls. Any such considerations would also be taken into account in the assessment of relevant planning permit applications submitted by affected landowners.

178 On 2 September 2025, the Shire's solicitors informed the Solicitors Assisting the Board of Inquiry by letter that the Shire has now engaged Stantec "f*or the purpose of the Shire's consideration of the application of a Shire wide interim erosion management overlay (that would include McCrae)*". The Shire's solicitors also stated that "*the Shire anticipates that Stantec will provide their advice by mid-November 2025*".[138]

179 It is unsatisfactory that the Shire has yet to move beyond merely 'considering' an interim EMO. This is especially so given that the Shire's solicitors also informed the Solicitors Assisting the Board of Inquiry that the Shire intends to prepare proposed amendments to the planning scheme to introduce a permanent EMO in additional areas but that this work will take several years. The letter stated that the Shire has not yet engaged a geotechnical engineer to assist with this work, and it expects that, once engaged, the engineer may require about two years to complete their assessment.[139]

Recommendation 27: Interim EMO

The Board of Inquiry recommends the Shire urgently implement an interim EMO schedule that applies, at a minimum, to the land that was identified as highly susceptible to landslides in the 2012 mapping obtained by the Shire. The Shire should promptly obtain advice from geotechnical engineers about the appropriateness of including a wider area on an interim basis.

Recommendation 28: Progressing the interim EMO

The Board of Inquiry recommends the Victorian Minister for Planning ensure that the Shire's application for an interim EMO schedule (Recommendation 27) proceeds expeditiously, including by constituting herself to act as the planning authority if deemed appropriate and necessary to achieve this outcome.

138 Letter from Mornington Peninsula Shire Council's solicitors to the Solicitors Assisting about request for further information, 2 September 2025 [INQ.0014.0001.0002].

139 Letter from Mornington Peninsula Shire Council's solicitors to the Solicitors Assisting about request for further information, 2 September 2025 [INQ.0014.0001.0002].

8.4 Building regulation

180 The next topic that needs to be addressed is the use of the *Building Act 1993* (Vic) (***Building Act***) to respond to landslides.

181 The *Building Act* sets out the requirements for building activity in Victoria. Its objectives include:

a. to protect the safety and health of people who use buildings and places of public entertainment; and

b. to enhance the amenity of buildings.[140]

182 Together with the *Building Regulations 2018* (Vic) (***Building Regulations***) and the National Construction Code, the *Building Act* provides a regulatory framework for construction that incorporates a system of building permits, inspections, and enforcement powers.

183 Municipal councils have duties, functions and responsibilities under the *Building Act* which relate to the compliance and safety of buildings.[141] Councils employ Municipal Building Surveyors (**MBS**) who exercise functions under the *Building Act*. The Municipal Association of Victoria notes that the MBS has:

> unique and distinct roles and functions separate to those of a council. In relation to matters of and risk to life and property, the MBS may have a legal duty to act in a manner that is not subject to the direction of the Council.[142]

184 Under s 102 of the *Building Act*, the MBS can make an Emergency Order if they are of the opinion that the order is necessary because of a danger to life or property arising out of the condition, use or proposed use of a building or the land on which building work is being or is proposed to be carried out.

185 An Emergency Order can direct an owner or occupier to:

a. evacuate a building or land within a specified time or times;

b. prohibit any person from entering, using or occupying a building or land; and/or

c. require an owner or occupier within a specified time to stop building work or carry out building work or other work necessary to make the building or land safe or to secure the building or land from access.[143]

186 In practice, Emergency Orders are issued to respond to a range of circumstances, from localised vehicle accidents and building fires, to larger-scale natural disasters like bushfire, flood, landslides or earthquakes.[144]

187 The MBS can also issue Building Orders under the *Building Act* requiring an owner to stop or carry out building work in certain circumstances where there is a danger to the life, safety or health of a person.[145]

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140 *Building Act 1993* (Vic) s 1.

141 *Building Act 1993* (Vic) pt 12 div 5.

142 Municipal Association of Victoria, *Local Government's Role in Building Control: An introduction for councillors* (February 2025) 4.

143 *Building Act 1993* (Vic) ss 103, 104.

144 Municipal Association of Victoria, *Local Government's Role in Building Control: An introduction for councillors* (February 2025) 2.

145 *Building Act 1993* (Vic) ss 112, 113.

188 As outlined in Chapter 3, the Shire's MBS played a central role in the Shire's response to the November 2022 landslides, 5 January 2025 landslide and the McCrae Landslide – a role that continues to this day.

189 Regrettably, this has been the source of considerable frustration and confusion for McCrae residents.

How did the Shire use the *Building Act* to respond to the landslides?

190 As discussed in Chapter 3, the Shire's MBS served Emergency Orders and Building Orders on McCrae residents in response to the November 2022 and January 2025 landslides in McCrae.

191 Notices, which are the required precursor to the issuing of Building Orders, were issued to the owners of the properties where the landslides originated and the owners of properties impacted by the landslides.

192 In a witness statement to the Board of Inquiry, Mr Oz, stated that on "[*p*]*rivate property owners bear primary responsibility for managing landslide risks on their own land*", and further, that "*the owner is generally responsible for remediation costs, though insurance may cover some expenses depending on the policy*".[146]

193 Although the 2022 and 2025 landslides in McCrae occurred on private land, it was not clear to the residents whether they or the Shire were responsible for undertaking works – particularly as some of the residents were clearly not responsible for causing the landslides.

194 Some residents informed the Board of Inquiry in their evidence that they found the Emergency Orders served upon them to be confusing and that the orders added to the distress they were already experiencing.

195 Mr Willigenburg's home sits at the toe of the escarpment at 3/613 Point Nepean Road. During questioning by Counsel Assisting, Mr Willigenburg further explained his confusion about the Emergency Orders:

> I was confused about the emergency order, I have to say, because it suggested to me that I had to do something … I wasn't quite sure why that would be the case. We hadn't done anything. So, yes, I did ask about that, and he explained that we weren't having to do anything ourselves.[147]

196 Mr Flores acknowledged during his evidence that Emergency Orders issued to residents set unrealistic timeframes for residents to commission geotechnical assessments and complete stabilisation works – only 48 hours. He also accepted that the Emergency Orders sometimes lacked specificity about the work that was expected.[148]

197 In a submission to the Board of Inquiry, MERG criticised the Shire's "*poor consultation with the homeowners*" and the "*lack of information or evidence supporting the need for work or action under an [emergency or building] order*".[149]

146 Exhibit CA-11, Witness Statement of Bulent Oz, 11 April 2025, 5 [23].

147 Public Hearing Transcript, Paul Willigenburg, 14 May 2025, 453.

148 Public Hearing Transcript, Claudio Flores, 20 June 2025, 757.

149 Submission of Mornington Evacuated Residents Group about the regulatory framework, 29 July 2025, [SUB.0044.0001.0001].

198 In an email to the Board of Inquiry, Mr and Mrs Borghesi wrote about their disappointment with the Shire's "*complete lack of ownership and accountability for providing (pragmatic) guidance or constructive support*" when issuing Emergency Orders.[150]

199 As already observed earlier in this Report, throughout the Board of Inquiry's work, it became very clear that many McCrae residents have lost confidence and trust in both the Shire and the Office of the MBS, and that this requires the Shire's care and attention.

Recommendation 29: Landslide mitigation roles and responsibilities

The Board of Inquiry recommends the Victorian Government develop guidance materials clarifying the roles and responsibilities of local councils, municipal building surveyors and residents in respect of landslide mitigation works following landslides and more generally.

Limitations of the *Building Act* for managing landslide risk on private land

200 On 3 May 2024, the owners of 10–12 View Point Road, Mr and Mrs Borghesi, commenced proceedings in the Building Appeals Board of Victoria appealing Building Orders and an Emergency Order served upon them by the Shire's MBS following the November 2022 landslides.

201 It is necessary to briefly explain what provoked these legal proceedings.

202 In response to an Emergency Order served on the Borghesis following the November 2022 landslides on their land, they engaged geotechnical engineers to investigate and prepare a scope of remedial work aimed at mitigating the risk of future landslides.[151] Upon considering the expert opinion they received, they held the view that the landslides were caused by a failure on the part of the Shire to adequately maintain the drainage system and kerbs on View Point Road, which in turn led to an unreasonable seepage of water on their property. Consequently, they informed the Shire that they would not be undertaking remedial work on their land.[152]

203 The Shire's MBS then issued building notices to the Borghesis requiring them to, amongst other things, show cause as to why they should not undertake stabilisation works to the area affected by the landslides. After considering the Borghesis' response to the notices, the MBS served Building Orders upon them.[153]

204 The Borghesis then commenced proceedings to appeal those Building Orders in addition to the extant Emergency Order.

205 Earlier this year, in April 2025, the Building Appeals Board handed down its decision. The Building Appeals Board found that the Building Orders and the Emergency Order were invalid.

150 Email from Gerrard Borghesi to the Solicitors Assisting the Board of Inquiry about requests for documents, 17 April 2025, [SUB.0001.0001.0229].

151 *Borghesi & Anor v Municipal Building Surveyor for the Shire of Mornington Peninsula* [2025] VBAB 60, 4 [4].

152 *Borghesi & Anor v Municipal Building Surveyor for the Shire of Mornington Peninsula* [2025] VBAB 60, 4 [5].

153 *Borghesi & Anor v Municipal Building Surveyor for the Shire of Mornington Peninsula* [2025] VBAB 60, 4 [6]–[7].

206 The Building Appeals Board held that s 102 of the *Building Act* does not permit an Emergency Order to be issued in respect of land alone. The power to make an Emergency Order in relation to land does not crystallise unless there is building work being or proposed to be carried out on the land in question.[154]

207 The same finding was made in respect of s 106 of the *Building Act* which concerns the issuing of building notices.[155]

208 The Emergency Order and the building notices issued to the Borghesis were premised solely on the condition of the land because of the landslide, and not because of the condition, use or proposed use, of land where building work was being, or was proposed to be, carried out.[156] As such, the MBS did not have power to issue the Emergency Order or the Building Orders.

209 The Shire made the following submission to the Board of Inquiry about the decision of the Building Appeals Board:[157]

> The upshot of the BAB's determination is that, while the Building Act affords some mechanisms for requiring the evacuation and making safe of land affected by landslide or landslip, these mechanisms are limited to land on which building works are being or are proposed to be carried out or to buildings that have been affected by landslide or landslip, such as where the footings of the building have been undermined. In practice, the Shire considers that this also renders the entire scheme of the Building Act, as it pertains to emergency orders and building notices, to be in the vast majority of cases reactive. That is, in practice it will generally be the case that only after there is a landslide or landslip, and because of the landslide or landslip the condition or use or proposed use of a building, or land on which building works are being or proposed to be carried out, presents a danger to life or property, is there a role for the MBS.
>
> As a result, where there is no building work being or proposed to be carried out on the land, the power, in the Building Act, to require the evacuation or making safe of land affected by a landslide or landslip is currently limited to circumstances where a building on the land presents a danger to life or property because it has been affected by the landslide or landslip.
>
> Furthermore, the Building Act provides very limited power for the MBS to take pre-emptive steps to issue building notices or emergency orders to protect against the risk of landslide or landslip – that is, to evacuate a building, or to require works to be done on land or to a building, so as to prevent or mitigate the risk of a landslide or landslip occurring (posed either by that land or building, or posed to that land or building, or other land or buildings, or their inhabitants).

210 The Shire concluded that this creates a significant gap in the regulatory regime for the prevention and management of landslides and landslips in Victoria, which requires timely legislative intervention to resolve.[158]

154 *Borghesi & Anor v Municipal Building Surveyor for the Shire of Mornington Peninsula* [2025] VBAB 60, 19 [63].

155 *Borghesi & Anor v Municipal Building Surveyor for the Shire of Mornington Peninsula* [2025] VBAB 60, 17–18 [50]– [51].

156 *Borghesi & Anor v Municipal Building Surveyor for the Shire of Mornington Peninsula* [2025] VBAB 60, 19 [64].

157 Submission of Mornington Peninsula Shire Council on the adequacy of the regulatory framework in relation to the prevention and management of landslides and landslips in Victoria, 30 July 2025, [MSC.5094.0001.0004 at .0014].

158 Submission of Mornington Peninsula Shire Council on the adequacy of the regulatory framework in relation to the prevention and management of landslides and landslips in Victoria, 30 July 2025, [MSC.5094.0001.0004 at .0014].

211 The Shire is correct that this regulatory gap exists. The gap places the burden on residents to identify and manage any potential landslide risks on their property, including risks that could affect both the wider community and the environment.

212 At a minimum, this highlights the importance of educating the community about landslide risks and ways to mitigate them.

213 The question of whether the *Building Act* should be amended to grant the MBS the power to issue orders to landowners regarding landslide risks requires careful consideration. One issue is that the MBS lacks qualifications or training in landslide risk assessment, as their focus is primarily on building compliance. Another more important policy question is what powers should be developed in relation to regulating private land in the context of landslides. These are complex matters, necessitating broader policy review and public consultation.

214 The Shire has also raised a further amendment to expand its powers. The Shire submitted to the Board of Inquiry that reg 133(2) of the *Building Regulations* should be amended to permit local councils to identify a point of stormwater discharge from an allotment that is at a reasonable location beyond the allotment boundary and that compliance should be overseen by the local council. The Shire considers that this would assist to mitigate the risk of landslide.[159]

Recommendation 30: Management of landslide risk on private land

The Board of Inquiry recommends the Victorian Government consider the current regulatory environment for how local government and private landowners manage risks on and from private land susceptible to landslides, both to the wider community and the environment.

8.5 Water management

215 Turning the focus now to water management, the *Water Act 1989* (Vic) (***Water Act***) provides the framework for managing Victoria's water resources. The *Water Industry Act 1994* (Vic) (***Water Industry Act***) was introduced to provide for the reform of the water industry.

216 Pursuant to s 4I of the *Water Industry Act*, the Minister for Water may issue statements of obligations to water corporations specifying obligations in performing their functions and exercising their powers.

217 A Statement of Obligations (General) was issued by the Minister for Water on 20 December 2015. It sets out a broad range of obligations and guiding principles applicable to all water corporations.

218 The guiding principles include water corporations minimising the impacts of their activities on the environment and managing risk to protect public safety.

159 Submission of Mornington Peninsula Shire Council on the adequacy of the regulatory framework in relation to the prevention and management of landslides and landslips in Victoria, 30 July 2025, [MSC.5094.0001.0004 at .0012–.0013].

219 Obligation 5-1 requires water corporations to develop and implement plans, systems and processes to ensure that risks associated with functions performed and services provided are identified, assessed, prioritised and managed.

220 Obligation 5-2 requires water corporations to development an emergency management plan for incidents and emergencies covering all hazards and measures, including incidents resulting in water discharges to the environment. The emergency management plan must contain an assessment of the emergency risks as well as measures to manage them.

221 As addressed in Part 8.2 of this Chapter, the SEMP also provides that within and outside the emergency management sector, agencies contribute to the mitigation of emergencies as part of their business-as-usual functions.

222 In Victoria, local councils are also involved in water management. Under the *Local Government Act 1989* (Vic) councils are responsible for the management and control of public sewers and drains, sewers and drains in and under roads and works relating to such infrastructure.[160]

223 In McCrae, SEW is the water corporation with responsibility for the potable water supply (mains water) and reticulated sewerage infrastructure.[161] The Shire is responsible for the stormwater and drainage network.[162] The Gippsland and Southern Rural Water Corporation is responsible for managing groundwater, dams and the licensed extraction of surface water from unregulated waterways, such as through bores.[163] Melbourne Water is the Catchment Management Authority for the Port Phillip and Westernport region, which includes McCrae.[164]

Water corporations and landslide risk management

224 Prior to the McCrae Landslide, there was a lack of identification of landslide as a risk by those entities with water responsibilities in the McCrae area.

225 SEW had not identified landslides as a risk to its operations throughout the network, including asset maintenance and repairs.[165] SEW informed the Board of Inquiry that it did consider landslides when planning to undertake capital works in areas covered by the EMO.[166]

226 The Gippsland and Southern Rural Water Corporation also informed the Board of Inquiry that its risk management activities did not specifically consider the possibility of landslides.[167]

227 As addressed in part 8.2 of this Chapter, landslide is also not identified as a risk in the Shire's Municipal Emergency Management Plan. Nor is it identified in the SEMP or the Regional Plan, as discussed in Part 8.2 of this Chapter.

160 *Local Government Act 1989* (Vic) ss 198(1)(a)–(c).

161 Exhibit CA-25, Witness Statement of Lara Olsen, 16 May 2025, 2 [8]–[11].

162 Exhibit CA-31, Third Witness Statement of David Smith, 11 June 2025 3–4 [10]–[12].

163 Exhibit CA-46, Witness Statement of Simon Wilkinson, 1 May 2025, 3 [12]–[15].

164 Exhibit CA-49, Witness Statement of Paul Rees, 3 June 2025, 1 [2].

165 South East Water, PowerPoint Presentation about Incident Management, 4 March 2025, [SEW.0001.0001.4877 at _0006–_0007].

166 Exhibit CA-51, Witness Statement of Christopher Smith, 6 June 2025, 5 [26]–[28].

167 Exhibit CA-46, Witness Statement of Simon Wilkinson, 1 May 2025, 5 [24].

228 The evidence clearly points to the fact that, until now, relevant government agencies have given limited attention to the risk of landslides and the pivotal role that water can play in amplifying the risk. This is unexpected, given the historical evidence discussed in Chapter 7, which shows that leaking water assets and poor maintenance have been contributing factors in previous landslides, most notably the tragic Thredbo event.

229 SEW is now actively working to identify and manage landslide risks throughout its service area.[168]

230 All other water corporations should do the same. They should not depend solely on the EMO to identify landslide risks, as there are likely areas highly susceptible to landslides that are not covered by the EMO, as demonstrated in the Mornington Peninsula.

231 Water corporations should also ensure that they develop processes and procedures for maintaining and assessing their water assets in areas with landslide risk. Local councils should do the same.

232 Water corporations should work together, with other regulated entities, such as local governments and experts to improve their understanding of, and preparedness to manage, landslide risk. Victorian councils should be sharing information about landslide risk with water corporations operating in the municipality. This may be achieved by, for example, including water corporations on emergency management planning committees.

233 The Board of Inquiry's specific recommendations to SEW are addressed in Chapters 5 and 6.

168 Public Hearing Transcript, Lara Olsen, 16 May 2025, 571.

Appendices

APPENDIX A

Order in Council

Inquiries Act 2014

APPOINTMENT OF A BOARD OF INQUIRY INTO THE MCCRAE LANDSLIDE

Order in Council

The Governor in Council, on the recommendation of the Premier under section 53(1) of the **Inquiries Act 2014**, appoints Renée Enbom KC to constitute a Board of Inquiry to inquire into, report on, and make any recommendations considered appropriate in relation to, the terms of reference specified in this Order.

This Order comes into effect on the date it is published in the Government Gazette.

1. BACKGROUND

1.1 The Victorian Government understands that for all Victorians, including families and senior Victorians, our homes are the foundation of family life. When a Victorian's ability to enjoy their home is adversely impacted by an unexpected significant event, they want to know what happened, why it happened, and what steps might be taken to minimise the risk of it happening again.

1.2 On 14 January 2025, a landslide of approximately 120 tonnes occurred at Penny Lane, McCrae within the Mornington Peninsula Shire Council (**McCrae Landslide**). One house was destroyed, three others were damaged, and a council worker at the site of the destroyed house was injured.

1.3 The Victoria State Emergency Service (**VicSES**) set up an exclusion zone around the site of the landslide, and restricted access to multiple residences within the exclusion zone, including closing part of Point Nepean Road and a local government road.

1.4 Landslides and landslips have previously occurred in the McCrae area, including:

a) a landslide of approximately 20 tonnes in the vicinity of the west end of View Point Road in November 2022, which caused minor damage to two townhouses in Penny Lane; and

b) a landslide of approximately 30 tonnes in the vicinity of the east end of View Point Road on 5 January 2025.

1.5 The Victorian Government acknowledges that it is important that the people of McCrae, particularly the affected homeowners, understand what caused the McCrae Landslide, whether actions could have been taken to mitigate the risk of the landslide and what action should be taken to assist in minimising the risks and damage of another landslide or landslip occurring in the McCrae area.

2. OBJECTIVES

The objectives of this Board of Inquiry are to:

2.1 Determine the cause(s) of the McCrae Landslide;

2.2 Determine the adequacy of measures taken to prevent and minimise landslides and landslips in the McCrae area, including reviewing responses to the November 2022

and 5 January 2025 landslides and landslips in the area to the extent that this information is available and relevant to the McCrae Landslide; and

2.3 Identify measures to be undertaken for the prevention or mitigation of the risk of similar landslide events to the McCrae Landslide occurring in future in the McCrae area.

3. TERMS OF REFERENCE

3.1 Scope

Having regard to the objectives set out above, you are required to inquire into, report on, and make any recommendations considered appropriate in relation to, the following terms of reference:

a) The cause(s) of the McCrae Landslide;
b) The actions (including any inaction) and decisions of Connected Parties, including:
   (i) actions taken to prevent or mitigate landslides and landslips in the McCrae area: and
   (ii) actions and/or decisions taken that may have contributed to causing the McCrae Landslide (including, without limitation, approving and issuing permits, and undertaking building, road, water or other works);
c) The adequacy of any risk assessments undertaken to determine the likelihood and severity of landslides and landslips in the McCrae area before the McCrae Landslide;
d) The adequacy of preventative and mitigative measures taken before the McCrae Landslide, including actions that could have been but were not taken by Connected Parties;
e) Any barriers to the implementation of measures to prevent or mitigate landslides and landslips in the McCrae area that existed before the McCrae Landslide occurred;
f) The regulatory framework, including the responsibilities, powers, duties and functions of all responsible authorities in relation to the prevention and management of landslides and landslips in Victoria; and
g) Identify any measures for the prevention or mitigation of the risk of similar landslide events to the McCrae Landslide occurring in future in the McCrae area.

3.2 Definitions

Connected Parties include responsible authorities, contractors undertaking any works in the area and other parties with direct interests in the area.

McCrae area refers to the suburb of McCrae in the Shire of Mornington Peninsula local government area.

Responsible authorities include the Mornington Peninsula Shire Council, water authorities, the Department of Transport and Planning, the Victorian Building Authority, and any other relevant entity established under legislation that had any function or responsibility or took any action in relation to landslides or landslips in the McCrae area.

3.3 Reporting Dates

You must report your findings and any recommendations to the Governor as soon as possible, and not later than 18 June 2025.

3.4 Conducting the Inquiry

Without limiting the scope of your inquiry or the scope of any recommendations arising out of your inquiry that you may consider appropriate, you are directed to:

a) Conduct your inquiry as you consider appropriate, subject to the requirements of procedural fairness;
b) Have regard to any existing research relevant to your inquiry;
c) Have regard to any relevant existing expert or consultant reports, such as geo-technical reports, that may have been procured or are otherwise in the possession of a responsible authority or other person or body;
d) Have regard to the findings and recommendations of any previous relevant report or inquiry into landslides and landslips in Victoria, and elsewhere in Australia;
e) Develop a process to allow residents of the McCrae area to engage with your inquiry;
f) Communicate with the Victorian community about your objectives and progress and the ability of persons with relevant information to provide information to the inquiry;
g) Have regard to relevant information provided by the residents of the McCrae area or other persons;
h) Conduct your inquiry in accordance with this Order, the *Inquiries Act 2014*, and all other relevant laws;
i) In conducting your inquiry:
   (i) to the extent you think it appropriate, have regard to any ongoing legal proceedings or investigations relating to the McCrae Landslide;
   (ii) to the extent you think it appropriate, adopt informal and flexible procedures to ascertain the relevant facts as directly and effectively as possible;
   (iii) avoid unnecessary duplication; and
   (iv) avoid unnecessary cost or delay.

The following matters are outside the scope of your inquiry and you should not inquire into them:

j) Actions taken since the McCrae Landslide at the site of the McCrae Landslide;
k) Without limiting clause 3.4(j), actions taken since the McCrae Landslide relating to the rehabilitation or making-safe of the McCrae landslide area;
l) Without limiting clause 3.4(j), the emergency response, relief and recovery activities for the McCrae Landslide;
m) The activities of Emergency Management Victoria, VicSES and the Inspector-General for Emergency Management;
n) Insurance arrangements of any parties impacted by the McCrae Landslide;
o) Landslips, landslides and other similar events that occurred in the McCrae area prior to the McCrae Landslide, except to the extent you reasonably consider

them to be relevant to the scope of the inquiry as it relates to the McCrae Landslide.

3.5 Exercise of Powers

a) You may exercise the powers of a Board of Inquiry in accordance with the *Inquiries Act 2014*.
b) You may engage one or more Australian legal practitioners to assist the Board of Inquiry as counsel.

3.6 Expenses and Financial Obligations

In conducting your inquiry, you are authorised to incur expenses and financial obligations to be met from the Consolidated Fund up to $3.14 million.

Dated: 10 MAR 2025

Responsible Minister:

Hon Jacinta Allan MP
Premier

Clerk of the Executive Council

APPENDIX B

Amended Order in Council

Inquiries Act 2014

Amended terms of reference for the Board of Inquiry into the McCrae landslide

ORDER IN COUNCIL

The Governor in Council, on the recommendation of the Premier under section 53(1) and (2) of the **Inquiries Act 2014**, amends the Order in Council dated 18 March 2025 establishing the Board of Inquiry into the McCrae landslide by:

1. For the words 'You must report your findings and any recommendations to the Governor as soon as possible, and not later than 18 June 2025' **substituting** 'You must report your findings and any recommendations to the Governor as soon as possible, and not later than 10 September 2025'; and
2. For the words 'In conducting your inquiry, you are authorised to incur expenses and financial obligations to be met from the Consolidated Fund up to $3.14 million' **substituting** 'In conducting your inquiry, you are authorised to incur expenses and financial obligations to be met from the Consolidated Fund up to $4.42 million.

This Order comes into effect on the date it is published in the Government Gazette.

Dated: 11 JUN 2025

Responsible Minister:

Hon Jacinta Allan
Premier

Clerk of the Executive Council

APPENDIX C

About landslides

What are landslides?

1 Landslides are a worldwide phenomenon. They range from extremely minor examples of boulders being dislodged, through to significant catastrophes that result in tens of thousands of deaths,[1] widespread damage to the environment and cultural heritage,[2] and significant economic loss.[3]

2 There are a range of definitions used nationally and internationally to describe landslides. Geologists, engineers, planners and emergency management professionals all use slightly different or overlapping definitions.[4] In general, 'landslide' can be defined as the "*downslope movement of soil, rock and organic materials*", under the "*effect of gravity and also the landform*".[5] Terms such as landslip, mass movement and slope failure are interchangeable with landslide.[6]

Why do landslides happen?

3 Landslides can be 'triggered' by a range of factors, including soil moisture. Indeed, the US Geological Survey considers that "*slope saturation by water is a primary cause of landslides*".[7] Research into known-causes of landslides in the European Union reinforces that conclusion, on the basis that landslides *"commonly [occur] due to extreme weather events, such as heavy rainfall and floods"*.[8]

4 Slope or soil saturation can also be caused by changes in ground water levels and surface water levels. For this reason, flooding and landslides are often closely related, with landslides occurring as a consequence of floods, because of their links to precipitation, runoff and saturation of the ground by water.[9]

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1 Examples include a landslide in Haiyuan, China in 1920 that killed 200,000 people, a landslide in Vargas province, Venezuela in 1999 that killed 30,000 people and caused losses of up to US$4 billion and a landslide in Armero, Columbia in 1985 that killed 24,000 people and caused estimated losses of US$218 million. See, Lynn Highland and Peter Bobrowsky, *The Landslide Handbook— A guide to understanding landslides* (U.S. Geological Survey Circular 1325, 2008) 17; World Atlas, 'The Deadliest Landslides in Recorded History', Natural Disasters (Web Page, 25 February 2023) <https://www.worldatlas.com/natural-disasters/the-deadliest-landslides-in-recorded-history.html#h_708771932758716773284382 68>.

2 See, Lynn Highland and Peter Bobrowsky, United States Geological Survey, *The Landslide Handbook – A guide to Understanding Landslides* (2008) 17.

3 United States Geological Survey, 'Catastrophic Landslides of the 20th Century – Worldwide', *Landslide Hazards Program* (Web Page, 25 June 2018) <https://www.usgs.gov/programs/landslide-hazards/science/catastrophic-landslides-20th-century-worldwide>.

4 Lynn Highland and Peter Bobrowsky, United States Geological Survey, *The Landslide Handbook – A Guide to Understanding Landslides* (2008) 4.

5 Lynn Highland and Peter Bobrowsky, United States Geological Survey, *The Landslide Handbook – A Guide to Understanding Landslides* (2008) 4.

6 Lynn Highland and Peter Bobrowsky, United States Geological Survey, *The Landslide Handbook – A Guide to Understanding Landslides* (2008) 4.

7 Lynn Highland and Peter Bobrowsky, United States Geological Survey, *The Landslide Handbook – A Guide to Understanding Landslides* (2008) 30.

8 Ubydul Haque et al, 'Fatal landslides in Europe' (2016) 13(6) *Landslides* 1545-1554.

9 Lynn Highland and Peter Bobrowsky, United States Geological Survey, *The Landslide Handbook – A Guide to Understanding Landslides* (2008) 30.

5 Landslides can occur quickly in seconds, or take place over an extended period. They represent a specific hazard in mountainous, coastal and steeply banked areas, with their *"impact depend[ent] largely on their size and speed"*.[10] The extent or outcome of landslides can also be vastly different. They can vary in size from a boulder falling a few metres down a hill to millions of cubic metres of material travelling kilometres into large towns and cities.

6 There are a range of preparatory factors and features in a landscape that can contribute to slope failure and land sliding.[11] These include the basic geology of the environment, steepness of the terrain, vegetation, groundwater conditions, and exposure to weathering, deforestation and erosion. Landslides are also often the result of natural weather events such as earthquakes, bushfires or torrential storms due to their destabilising impact on the terrain.

7 Human activities can also impact the likelihood and severity of landslides. Expanding populations, both into new areas, or enlargement of existing residential areas, have been identified as a primary means through which people contribute to landslides, especially where that change leads to *"[d]istributing or changing drainage patterns"*.[12] Potential factors that may contribute to landslide susceptibility include, but are not limited to, loading the slope by filling or discharging water (such as from leaking pipes), unsupported cuts or the removal of vegetation.[13]

8 The United States Geological Survey also notes that landslides can occur in areas that were *"once stable…due to other human activities such as irrigation, lawn watering…leaking pipes and improper excavating or grading on slopes"*.[14] However, an area that may be at risk of landslide or has susceptible geology, may still be considered appropriate to develop or build on, subject to landslide zoning analysis, engineering factors, and a consideration of the impact of building on the natural environment.

9 Importantly, for the purposes of this Report and consistent with scientific and emergency management discourse in Victoria, landslides are related but distinct from avalanches and coastal erosion. Avalanches involve the movement of snow and/or ice from mountain slopes. Coastal erosion involves the removal of sediments to bedrock from the shoreline through waves, currents and land subsidence, which is often expedited by extreme weather events such as coastal storms, surges, flooding and tsunamis.

10 European Soil Data Centre, European Commission, 'Landslides', *Themes: Landslides* 2018 (Web Page, 12 February 2018) <https://esdac.jrc.ec.europa.eu/themes/landslides>.

11 Public Hearing Transcript, Darren Paul, 7 May 2025, 43.

12 Lynn Highland and Peter Bobrowsky, United States Geological Survey, *The Landslide Handbook – A Guide to Understanding Landslides* (2008) 33.

13 Lynn Highland and Peter Bobrowsky, United States Geological Survey, *The Landslide Handbook – A Guide to Understanding Landslides* (2008) 33.

14 Lynn Highland and Peter Bobrowsky, United States Geological Survey, *The Landslide Handbook – A Guide to Understanding Landslides* (2008) 33.

APPENDIX D

Public hearings

10 The Board of Inquiry held four rounds of public hearings at the County Court of Victoria and the Federal Court of Australia in Melbourne on the following dates:

a. 7 to 16 May 2025;

b. 20 to 24 June 2025;

c. 4 and 5 August 2025; and

d. 18 August 2025.

11 In total, 26 witnesses were called to give evidence. All witnesses attended in person.

12 The following table lists hearing dates, topics and witnesses.

Date	Witness name and role	Topic
Wednesday 7 May	**Darren Paul**, Technical Director – Engineering Geology, WSP	The science of landslides
Thursday 8 May	**Dane Pope**, Principal Geotechnical Engineer, PSM Consult Pty Ltd	The science of landslides and brief overview of the 2022 landslides and events leading up to the 2025 landslides
	Bulent Oz, former Acting Chief Executive Officer, Mornington Peninsula Shire Council	Actions taken by Mornington Peninsula Shire Council
Friday 9 May	**David Simon**, Acting Director Planning and Environment, Mornington Peninsula Shire Council	Actions taken by Mornington Peninsula Shire Council
Monday 12 May	**Kellie Moran**, McCrae resident **Nicholas Moran**, McCrae resident **Brett Cooper**, McCrae resident **Kevin Hutchings**, McCrae resident	Events leading up to and including the 2025 landslides and their impacts
Wednesday 14 May	**John Bolch**, McCrae resident **Paul Willigenburg**, McCrae resident **Gerrard Borghesi**, McCrae resident	Events leading up to and including the 2022 and 2025 landslides and their impacts
Thursday 15 May	**Gerrard Borghesi**, McCrae resident	Events leading up to and including the 2022 and 2025 landslides and their impacts
Friday 16 May	**Lara Olsen**, Managing Director, South East Water	Actions taken by South East Water

Date	Witness name and role	Topic
Friday 20 June	**David Smith**, Director – Assets and Infrastructure, Mornington Peninsula Shire Council **Claudio Flores**, Principal Building Surveyor, Mornington Peninsula Shire Council **Katanya Barlow**, Manager, Strategic and Infrastructure Planning, Mornington Peninsula Shire Council	Actions taken by Mornington Peninsula Shire Council
Monday 23 June	**Tim Lloyd**, General Manager for Service Delivery, South East Water **Jason Marsh**, former employee of South East Water	Actions taken by South East Water
Friday 24 June	**Jonathan Crook**, Group Manager for Analytics and Performance, South East Water **Julian Tully**, Technical Director of Civil and Environmental Engineering, South East Water **Andrew Forster-Knight**, General Manager, Digital and Transformation, South East Water	Actions taken by South East Water
Monday 4 August **Tuesday 5 August**	*Experts engaged by the Board of Inquiry* **Darren Paul**, Technical Director – Engineering Geology, WSP **Stephen Makin**, Hydrogeologist, WSP **Dr Hong Vu**, Geochemist/Geochemical Modeller, WSP *Experts engaged by Mornington Peninsula Shire Council* **Dane Pope**, Principal Geotechnical Engineer, PSM Consult Pty Ltd **Phillip Hitchcock**, Principal Hydrogeologist, Australian Environmental Auditors Pty Ltd *Experts engaged by South East Water* **David Hartley**, Senior Associate Engineer, SMEC **Hugo Bolton**, Technical Principal Hydrogeologist, SMEC **Chris Jewell**, Owner of C.M. Jewell & Associates Pty Ltd	Causation
Monday 18 August	**Darren Paul**, Technical Director – Engineering Geology, WSP **Dane Pope**, Principal Geotechnical Engineer, PSM Consult Pty Ltd	Mitigation measures

APPENDIX E

The expert evidence process

1 A key responsibility of the Board of Inquiry was to determine the cause of the McCrae Landslide.[15] The Board of Inquiry was to have regard to any extant expert reports relevant to that issue.[16]

Request for relevant reports

2 One of the Board of Inquiry's first tasks was to issue to the Shire and SEW a Notice to Produce seeking, among other things, any geotechnical, geomorphological, engineering or technical reports, or reports including such information, prepared for or received by the Shire and SEW concerning the landslide that occurred on 5 January 2025 and the McCrae Landslide.

3 Following a review of documents produced in response to those Notices to Produce, it was evident that no expert had yet provided an opinion as to the cause of the 5 January 2025 landslide or the McCrae Landslide. It quickly became apparent that the Board of Inquiry would need to engage an independent geotechnical expert to consider the matter. Darren Paul, Technical Director – Engineering Geology of WSP, was subsequently engaged.

First block of hearings commencing on 7 May 2025

4 Mr Paul gave evidence of a more general kind at the Board of Inquiry's first hearing block about preparatory and causal factors for landslides,[17] the regulatory framework used by municipalities to control landslides,[18] and how landslides are investigated.[19]

5 The Board of Inquiry also required the geotechnical engineer engaged by the Shire, Dane Pope of PSM, to attend the first hearing block for cross-examination. Mr Pope was originally engaged by the Shire in October 2023 in relation to legal proceedings brought against the Shire by the owners of 10–12 View Point Road, in respect of the November 2022 landslides.[20] Mr Pope had, prior to the first hearing block, prepared a geotechnical factual report concerning the McCrae Landslide.[21] Although Mr Pope was briefed on 17 January 2025 to prepare a report addressing, among other things, the cause of the McCrae Landslide,[22] he told the Board of Inquiry at the first hearing block that he had not yet been provided with a clear list of questions,[23] and would be unable to finalise that report until July 2025.[24]

15 Victoria, *Victoria Government Gazette*, No S 111, 18 March 2025, 1 [2.1], 2 [3.1(a)].

16 Victoria, *Victoria Government Gazette*, No S 111, 18 March 2025, 2 [3.4(c)].

17 Public Hearing Transcript, Darren Paul, 7 May 2025, 43–51, 78–81.

18 Public Hearing Transcript, Darren Paul, 7 May 2025, 51–78.

19 Public Hearing Transcript, Darren Paul, 7 May 2025, 81–98.

20 Public Hearing Transcript, Dane Pope, 8 May 2025, 125.

21 Public Hearing Transcript, Dane Pope, 8 May 2025, 161–162; Exhibit CA-2, Geotechnical Factual Report on McCrae Landslide – Evacuation Order Area prepared by PSM, 9 April 2025, [MSC.5007.0004.0078].

22 Exhibit CA-13, Second Witness Statement of David Simon, 17 April 2025, CA-13(135) [MSC.5007.0004.0015].

23 Public Hearing Transcript, Dane Pope, 8 May 2025, 167.

24 Public Hearing Transcript, Dane Pope, 8 May 2025, 166.

6 SEW had engaged a geotechnical engineer, David Hartley of SMEC, prior to the first hearing block but he was not immediately required for cross-examination. It is convenient to chronicle the Board of Inquiry's understanding of Mr Hartley's engagement by SEW prior to the first hearing block:

a. On 30 April 2025, at the request of the Board of Inquiry, SEW provided the witness statement of Lara Olsen, then Managing Director of SEW. Ms Olsen's statement stated that SEW had engaged an expert to produce a report concerning the McCrae Landslide and its connection (if any) to a burst water main near the corner of Bayview and Outlook Roads in McCrae.

b. On 1 May 2025, the Solicitors Assisting the Board of Inquiry wrote to SEW's solicitors, Thomson Geer, requesting further information about the report. Thomson Geer responded by explaining that Mr Hartley had been engaged by SEW, and had already provided SEW with an interim report, but that this report was the subject of legal professional privilege. Thomson Geer also stated that a finalised version of Mr Hartley's report was expected to be provided to SEW on 5 May 2025 and that, at that time, SEW would consider whether to waive privilege over the report and provide it to the Board of Inquiry. In accordance with Practice Direction 4, submissions and supporting evidence concerning the privilege claim were requested from SEW.

c. On 6 May 2025, Thomson Geer provided submissions and affidavit material in support of SEW's privilege claim, the tenor of which was that Mr Hartley's expert report was commissioned in anticipation of legal proceedings.

7 The first hearing block commenced the next day.

8 On the morning of the second hearing day, SEW informed the Board of Inquiry that it was waiving privilege over Mr Hartley's report, and produced the report to the Board of Inquiry shortly thereafter.[25]

9 By the end of the first hearing block, it was apparent that more time was required by each of the experts to consider the cause of the McCrae Landslide, and accordingly an extension to the Board of Inquiry's reporting date was requested and granted to 10 September 2025.[26]

Expert reports, conclaves, and evidence regarding causation and mitigation

Establishment of expert process

10 Following the first hearing block, the Solicitors Assisting the Board of Inquiry corresponded with Mr Paul and the solicitors for the Shire and SEW about the timing of the expert reports in relation to the cause of the McCrae Landslide.

25 Exhibit CA-27, Multidisciplinary Expert Report on McCrae Landslip Project prepared by SMEC, 5 May 2025, [SEW.0001.0001.0142].

26 Victoria, *Victoria Government Gazette*, No S 295, 11 June 2025.

11 Informed by that correspondence, on 12 June 2025, the Solicitors Assisting informed Mr Paul, the Shire, SEW, and the State, that all expert reports on causation were to be provided to the Board of Inquiry by no later than 21 July 2025, and that expert reports on mitigation were to be provided by no later than 12 August 2025. The Solicitors Assisting also foreshadowed hearing blocks at which the experts would be required to attend for cross-examination. Relevantly:

a. one hearing block was to focus on causation with expert witnesses to give evidence concurrently. This would start on or around 4 August 2025 after the experts had attended a private conclave to discuss their opinions and after they had provided a joint report to the Board of Inquiry identifying the issues about which they agreed and disagreed; and

b. the further and final hearing block was to focus on mitigation with expert witnesses again giving evidence concurrently following a conclave and the production of a joint report. This hearing block would start in the middle of August.

12 On 17 June 2025, by letter to the Shire, SEW, and the State, the Solicitors Assisting explained that they were creating a central database for the experts to share raw data so that each expert could consider the same evidence while preparing their reports. The Board of Inquiry issued a Notice to Produce to each of WSP (engaged by the Board of Inquiry), PSM (engaged by the Shire) and SMEC (engaged by SEW) on the same date, seeking the raw data the experts had obtained in the course of their work in relation to the November 2022 landslides, the 5 January 2025 landslide and the McCrae Landslide.

13 On 26 June 2025, the shared expert database was established with the materials produced by each of the experts.

14 On 7 July 2025, the Solicitors Assisting wrote to each of the experts and requested that an appendix be annexed to their causation reports setting out the documents considered in preparing their respective reports.

15 On 10 July 2025, the Solicitors Assisting wrote to the Shire, SEW, and the State confirming the following:

a. the expert reports on causation were due by 21 July 2025;

b. a conclave regarding causation would take place over 28 and 29 July 2025 at the office of WSP;

c. a joint report following the conclave was due by 31 July 2025; and

d. the hearings on causation would proceed over 4 and 5 August 2025.

16 On 14 July 2025, the Solicitors Assisting again wrote to the experts and requested that they ensure all raw data relied upon be included in the expert database by 2.00pm the following day. In that same letter, the Solicitors Assisting again confirmed that causation reports were to be provided by 21 July 2025.

17 In addition to the above, the Solicitors Assisting corresponded with the solicitors for the Shire and SEW throughout May, June and July, in particular to enable SEW's experts access to the exclusion zone set up around the landslide site. For example, the Solicitors Assisting liaised with the Shire and the owners of the properties within the exclusion zone to permit SMEC to access the properties directly impacted by the McCrae Landslide, as well as undertaking drilling and testing of the ground in and around the landslide site. The Solicitors Assisting also corresponded with the solicitors for the Shire and SEW to ensure that they had timely access to documents and raw

data generated by the experts. The Solicitors Assisting made it clear that the parties with leave should inform them immediately if they had any difficulty obtaining materials or access to the site so that the Board of Inquiry could expedite the process where possible.

18 None of the experts informed the Board of Inquiry that they needed more time to prepare their expert reports.

The causation reports, conclaves, and oral evidence

19 By 21 July 2025, Mr Paul of WSP,[27] Mr Pope of PSM,[28] and Mr Hartley of SMEC,[29] had each provided their causation reports to the Board of Inquiry. Information and data relied upon by the experts in producing those reports was taken from the shared expert database, as well as from field investigations undertaken by each expert at various times. Additionally, Phillip Hitchcock of Australian Environmental Auditors also produced a report concerning hydrogeology on behalf of the Shire.[30]

20 On 25 July 2025, four days after the deadline set by the Board of Inquiry, SEW provided an additional technical memorandum from SMEC,[31] noting that Mr Hartley would speak to that memorandum during the conclave. No explanation was provided at that time as to why the additional report was late.

21 On 28 and 29 July 2025, Mr Paul, Stephen Makin (Hydrogeologist of WSP), Mr Pope, Mr Hitchcock, Mr Hartley, and Hugo Bolton (Hydrogeologist of SMEC) participated in a private conclave concerning causation. Following the conclave, Mr Paul informed the Solicitors Assisting that he considered an additional conclave concerning geochemistry ought to be organised.

22 On 30 July 2025, the Solicitors Assisting wrote to the solicitors for the Shire and SEW proposing a further conclave for a discussion around geochemistry. In response, SEW's solicitors outlined SEW's position that, in addition to the experts from SMEC, SEW had engaged Chris Jewell of C.M. Jewell & Associates on the issue of causation, and that he should attend the conclave. Mr Jewell was not referred to in the causation report produced by SMEC on behalf of SEW. The further conclave concerning geochemistry was arranged for 1 August 2025.

23 On 31 July 2025, 10 days after the date by which expert reports on causation were due, and two days after the conclusion of the causation conclave, SEW produced an amended version of SMEC's causation report.[32] On that same day, the joint expert report on causation was also produced by the experts.[33]

24 On 1 August 2025, Mr Paul, Hong Phuc Vu (Geochemist/Geochemical Modeller of WSP), Mr Hartley, Mr Bolton and Mr Jewell participated in the further conclave for a discussion around geochemistry. Following the conclusion of the conclave, SEW's solicitors wrote to the Solicitors

27 Exhibit CA-67, McCrae Landslide Causation Report prepared by WSP, 21 July 2025, [DPA.0004.0001.0001].

28 Exhibit CA-71, McCrae Landslide Causation Report prepared by PSM, 21 July 2025, [MSC.5087.0001.0157].

29 Exhibit CA-68, Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 21 July 2025, [SEW.0001.0002.4187].

30 Exhibit CA-73, Expert Hydrogeological Report prepared by Australian Environmental Auditors, 21 July 2025, [MSC.5087.0001.0001].

31 Exhibit CA-70, Technical Memorandum concerning Geochemical Analysis of Groundwater Provenance prepared by SMEC, 25 July 2025, [SEW.0001.0002.4197].

32 Exhibit CA-69, Revised Multidisciplinary Expert Supplementary Report on McCrae Landslide prepared by SMEC, 30 July 2025, [SME.0001.0001.0501].

33 Exhibit CA-74, Joint Report about causation prepared by expert conclave, 31 July 2025, [INQ.0009.0001.0001].

Assisting to advise that an additional expert report would be provided by Mr Jewell on 8 August 2025 (18 days after the due date for expert reports). On that same day, a minute of the conclave was provided by the experts to the Board of Inquiry.[34]

25 At 8.46pm on 3 August 2025, the eve of the causation hearings, SEW produced 17 additional documents containing test results from boreholes dug by SMEC which had not previously been provided to the Board of Inquiry. SEW's solicitors stated that the results had not been produced to the Board of Inquiry earlier due to an oversight. At 10.21pm, SEW produced further results from tests taken by SMEC after its experts had attended McCrae over the weekend. The Board of Inquiry had not been told that such additional testing was taking place.

26 The hearings into causation were held over 4 and 5 August 2025. Eight experts gave evidence concurrently during those hearings – Mr Paul, Mr Makin, Dr Vu, Mr Pope, Mr Hitchcock, Mr Hartley, Mr Bolton and Mr Jewell. The experts were cross-examined by Counsel Assisting. Counsel for the Shire, SEW, and the State were also given an unrestricted right to cross-examine all experts.

27 At the beginning of the hearings, SEW's non-compliance with the expert timetable that had been set was raised. After submissions were heard on this matter, SEW was directed to produce Mr Jewell's expert report by 10.00am on 8 August 2025.[35] As directed, and to his credit, Mr Jewell provided his report concerning hydrochemistry on 8 August 2025.[36] Adjustments were also made to the timetable for the submissions of SEW and the Shire due to SEW's late provision of expert evidence.

28 On 8 August 2025, SEW provided the Board of Inquiry with its written submissions on causation.[37] On 9 August 2025, the Chair extended the time for the Shire to provide its written submissions to 14 August 2025. On 10 August 2025, the Solicitors Assisting confirmed with SEW's solicitors that SEW would be able to provide reply submissions on causation on a date to be fixed between 15 and 18 August 2025.

29 On 12 August 2025, the Shire produced an addendum to Mr Hitchcock's original report,[38] presenting Mr Hitchcock's views of the additional materials produced by SMEC and Mr Jewell's report. On 13 August 2025, both Mr Paul and Mr Pope produced a memorandum addressing the late evidence produced by SMEC and Mr Jewell's report.[39] Following production of those documents, SMEC provided additional results concerning a raft of tests undertaken between 9 July and 1 August 2025. The Solicitors Assisting provided these additional results to Mr Paul, who produced an additional memorandum on 18 August 2025.[40] The Shire's solicitors informed the Solicitors Assisting that the additional materials did not change the opinion of Mr Pope and Mr Hitchcock, and they otherwise agreed with the comments made by Mr Paul in his memorandum.

34 Exhibit CA-75, Joint Report about geochemistry prepared by expert conclave, 1 August 2025, [INQ.0010.0001.0001].

35 Public Hearing Transcript, Chairperson, 4 August 2025, 1066.

36 Exhibit CA-84, McCrae Landslide Geochemistry Report prepared by C.M. Jewell & Associates, 8 August 2025, [SEW.0001.0002.4199].

37 Submission of South East Water about the causes of the McCrae Landslide, 29 July 2025, [SEW.0001.0002.4201].

38 Exhibit CA-85, Expert Hydrogeological Report Addendum on McCrae Landslide prepared by Australian Environmental Auditors, 11 August 2025, [MSC.5088.0001.0001].

39 Exhibit CA-88, Assessment of additional information provided by South East Water between 21 July 2025 and 8 August 2025 prepared by WSP, 13 August 2025, [DPA.0006.0001.0001]; Exhibit CA-89, Response to SMEC Submissions prepared by PSM, 13 August 2025, [MSC.5090.0001.0001].

40 Darren Paul, WSP, Assessment of additional information provided by South East Water on 14 August 2025, 18 August 2025, [DPA.0007.0001.0001].

30 The Shire also provided the Board of Inquiry with its submissions on causation on 13 August 2025.[41] The Solicitors Assisting immediately provided a copy of the submissions to SEW's solicitors and confirmed that SEW would need to provide any reply submissions by 18 August 2025.

31 SEW provided its reply submissions on causation on 18 August 2025.[42]

The mitigation reports, conclave, and evidence

32 By 12 August 2025, Mr Paul and Mr Pope each provided their expert mitigation reports to the Board of Inquiry.[43] SEW elected not to provide an expert report in relation to this issue.

33 On 14 August 2025, Mr Paul, Mr Pope and Tim Whelan (Director – Major Projects and Engineering of Whelans Group), a contractor engaged by the Board of Inquiry to cost Mr Paul's proposal, participated in the private conclave concerning mitigation. On that same day, those experts provided their joint mitigation report.[44]

34 On 18 August 2025, the hearing into mitigation took place. Mr Paul and Mr Pope gave evidence concurrently during that hearing. Counsel Assisting cross-examined the experts. Counsel for the Shire, SEW, and the State were given an unrestricted right to cross-examine both experts.

35 On 22 August 2025, the Shire and SEW each provided submissions on mitigation.[45]

41 Submission of the Mornington Peninsula Shire Council about the causes of the McCrae Landslide, 13 August 2025, [MSC.5095.0001.0001].

42 Reply Submission of South East Water about the causes of the McCrae Landslide, 18 August 2025, [SEW.0001.0002.4202].

43 Exhibit CA-87, McCrae Landslide Remediation and Mitigation Report prepared by WSP, 12 August 2025, [DPA.0005.0001.0001]; Exhibit CA-86, McCrae Landslide Mitigation Report prepared by PSM, 11 August 2025, [MSC.5088.0001.0007].

44 Exhibit CA-90, Joint Report about remediation and mitigation prepared by expert conclave, 14 August 2025, [INQ.0012.0001.0001].

45 Submission of Mornington Peninsula Shire Council about mitigation of further landslides, 22 August 2025, [MSC.5094.0001.0050]; Submission of South East Water about measures to reduce or prevent the risk of another landslide, 22 August 2025, [SEW.0001.0002.4205].

APPENDIX F

Appearances

Name	Counsel appearing	Firm acting
Counsel and Solicitors Assisting the Board of Inquiry	Mark Costello KC Alexander Di Stefano Angela Kittikhoun	Wotton Kearney
Mornington Peninsula Shire Council	Kathleen Foley SC Elizabeth Bateman Cal Viney William Phillips	MinterEllison
South East Water Corporation	Deborah Siemensma	Thomson Geer
State of Victoria (including: Department of Energy, Environment and Climate Action; Department of Government Services; Department of Jobs, Skills, Industry and Regions; Department of Justice and Community Safety; Department of Premier and Cabinet; Department of Transport and Planning; Department of Treasury and Finance; Essential Services Commission; Building and Plumbing Commission; Victorian Managed Insurance Authority; Victorian Planning Authority; Emergency Management Victoria; Victoria State Emergency Service Authority; Victoria Police; Victorian WorkCover Authority (WorkSafe); Parks Victoria).	Kylie Evans KC Emma Peppler Christopher McDermott	Clayton Utz

APPENDIX G

Public submissions

1 On 15 April 2025, the Board of Inquiry invited individuals and organisations from McCrae and the wider community to make submissions addressing the Board of Inquiry's Terms of Reference.

2 This Appendix provides further details regarding the submissions process. This information about the submissions process was outlined on the Board of Inquiry's website to assist the public in making their submissions.

3 The Board of Inquiry also welcomed written submissions from the Shire, SEW, the State, MERG and individual residents on the following topics:

a. causation;

b. mitigation and remediation; and

c. the regulatory framework.

4 Targeted written submissions were also sought from experts, academics and local councils across the country.

The submissions process

5 Submissions were welcomed in any format. This included written submissions, as well as photographs, videos and any other documents relevant to the Board of Inquiry's Terms of Reference. Individuals and organisations who provided submissions were invited to specify how their submission was to be handled by the Board of Inquiry, specifically, whether the submission was to be treated as being made on a public, confidential, or anonymous basis.

6 The Board of Inquiry published a list of questions on its website to guide the submissions process. However, submissions were not required to address any, or all, of the following questions:

a. What is your connection to the McCrae Landslide?

b. Did you witness any events or conditions before, during, or after the landslide on 14 January 2025?

c. Did you notice any changes in the landscape, drainage, or other physical conditions in the time leading up to the 14 January 2025 landslide?

d. What actions did you observe being taken after previous landslides in the McCrae area (November 2022 and 5 January 2025)?

e. Do you have any information about construction, excavation, water infrastructure, or other works conducted in the area before the landslide?

f. Did you report any concerns about potential landslide risks to authorities before 14 January 2025? (Who did you contact and what response did you receive?)

g. How has the landslide affected you personally? (This could include impacts on your property, finances, wellbeing, or community connections)

h. What do you believe could or should have been done to prevent this landslide?

i. What measures do you believe should be implemented to prevent further landslides in the McCrae area?

Submissions received by the Board of Inquiry

7 The Board of Inquiry received 86 submissions. The following list outlines the public and anonymous submissions received.

Submission Number	Author
Submission 01	Peter Johnson
Submission 02	Brett Cooper
Submission 03	Anonymous
Submission 04	Jane and Duncan MacCallum
Submission 05	Judy O'Donnell
Submission 06	David Gregory and Sue Holderness
Submission 07	Phil Johnson
Submission 08	Megan Rowsthorn
Submission 09	Richard Bendell
Submission 10	Brett Manders
Submission 11	South East Water
Submission 12	Anonymous
Submission 13	Ronald Sait
Submission 14	Ron Mason
Submission 15	Dr Joseph Radcliffe
Submission 16	Jenny and Len Warfe
Submission 17	John Bolch
Submission 18	Kevin Hutchings
Submission 19	Allan Wightman
Submission 20	Engineers Australia
Submission 21	Professor Robin Chowdry
Submission 22	Mornington Peninsula Shire Council (Regulatory framework)
Submission 23	South East Water (Regulatory framework)
Submission 24	MERG (Regulatory framework)
Submission 25	MERG (Regulatory framework)
Submission 26	Department of Government Services (Regulatory framework)

Submission Number	Author
Submission 27	Mornington Peninsula Shire Council (Causation)
Submission 28	South East Water (Causation)
Submission 29	South East Water (Causation)
Submission 30	Gerry and Bronwyn Borghesi (Causation)
Submission 31	Mornington Peninsula Shire Council (Mitigation)
Submission 32	South East Water (Mitigation)
Submission 33	Gerry and Bronwyn Borghesi (Remediation)
Submission 34	Gerry and Bronwyn Borghesi (Mitigation)
Submission 35	Department of Government Services
Submission 36	Department of Government Services
Submission 37	Department of Government Services
Submission 38	Minister for Planning

APPENDIX H

Glossary

Acronyms and abbreviations

Acronym or abbreviation	Definition
AGS	Australian Geomechanics Society
AGS Guidelines 2007	Australian Geomechanics Society *Practice Note Guidelines for Landslide Risk Management* 2007
Building Act	*Building Act 1993* (Vic)
Building Regulations	*Building Act and the Building Regulations 2018* (Vic)
DEECA	Department of Energy, Environment and Climate Action
Emergency Management Act	*Emergency Management Act 2013* (Vic)
EMO	Erosion management overlay
EMO 1	Schedule 1 of the Mornington Peninsula Planning Scheme EMO
EMO 2	Schedule 2 of the Mornington Peninsula Planning Scheme EMO
EMO 3	Schedule 3 of the Mornington Peninsula Planning Scheme EMO
EMO 4	Schedule 4 of the Mornington Peninsula Planning Scheme EMO
EMO 5	Schedule 5 of the Mornington Peninsula Planning Scheme EMO
GIS	Geographical information System
GPR	Ground penetrating radar
MBS	Municipal Building Surveyor
McCrae escarpment	The escarpment above Point Nepean Road and along the coastline of Port Phillip Bay
MERG	McCrae Evacuees Response Group
Montage	Record keeping system used by South East Water
Office of the MBS	Office of the Municipal Building Surveyor, which is comprised of employees at the Shire who assist the MBS in carrying out their functions under the *Building Act* or *Building Regulations*
Planning and Environment Act	*Planning and Environment Act 1987* (Vic)
SEMP	State Emergency Management Plan
Water Act	*Water Act 1989* (Vic)
Water Industry Act	*Water Industry Act 1994* (Vic)

Defined terms

Defined terms	Definition
2022 landslides	The landslides that occurred on the McCrae escarpment on 14 and 15 November 2022.
McCrae Landslide	The landslide that occurred on the McCrae escarpment on 14 January 2025.
aeolian soil	Type of soil formed by the erosion and deposition of sediment by the wind.
anthropogenic	Caused by human activity.
aquifer	A layer of soil or rock that stores usable volumes of groundwater.
colluvium soil	Type of soil that forms from the gradual accumulation of soil and rock debris at the base of slopes.
escarpment	A steep slope or cliff formed by erosion or faulting, espeically one separating land at different heights.
fill	Material used to 'fill' in low-lying areas, holes or to raise the elevation of a site. Fill can be made up of a mix of different materials, including soil, sand or clay.
gabion wall	A type of retaining wall made of wire mesh baskets or cages filled with stones, gravel or concrete.
headscarp	Steep slope at the upper edge of the landslide (at the head), from where displaced material has moved.
hydraulic conductivity	The rate at which water moves through a given material in metres per second.
landslide	Downslope movement of soil, rock and organic materials under the effects of gravity, and the results of such movement.

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