

CANADA / JUDGMENT

Jorgensen v. Kamloops (City)

2020 BCSC 864

COURT

Supreme Court of British Columbia

DECIDED

10 June 2020

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2020 BCSC 864 Jorgensen v. Kamloops (City)

IN THE SUPREME COURT OF BRITISH COLUMBIA

Citation:

Jorgensen v. Kamloops (City),

2020 BCSC 864

Date: 20200610

Docket: S52352

Registry: Kamloops

Between:

Brenda Fay Jorgensen also known as

Brenda Fay Davy and

Kelsey Lynn Davy

Plaintiffs

And

City of Kamloops,

Her Majesty the Queen in Right of the Province of British Columbia,

Trans Mountain Pipeline ULC and Kinder Morgan Canada Inc.

Defendants

- and -

Docket: S52353

Registry: Kamloops

Between:

Deborah Alexandra Kuipers

Plaintiff

And

City of Kamloops,

Her Majesty the Queen in Right of the Province of British Columbia,

Trans Mountain Pipeline ULC and Kinder Morgan Canada Inc.

Defendants

Corrected Judgment: The text of this judgment was corrected at paragraph 21 on June 16, 2020.

Before: The Honourable Madam Justice Norell

Reasons for Judgment

Counsel for Ms. Jorgenson and Ms. Kuipers:

G. Thomson

Counsel for Trans Mountain Pipeline ULC and Kinder Morgan Canada Inc.:

G. Cameron

K. Milinazzo

Place and Date of Trial:

Kamloops, B.C.

February 19-21, 2020

Place and Date of Judgment:

Kamloops, B.C.

June 10, 2020

Introduction

[1] These are reasons on four summary trial applications in the two actions.

- [2] On June 30, 2015, an intense storm passed over the Westsyde neighbourhood in Kamloops, B.C. The storm delivered a heavy rainfall in a short period of time. Roadways and residential areas were flooded with water, mud and debris, and homes had to be evacuated. A local state of emergency was declared. Amongst the victims of the storm were the plaintiffs in these actions.
- [3] The plaintiffs own residential properties that are located on a hillside that slopes down toward the west bank of the North Thompson River. Ms. Kuipers' property is situated at the bottom of a natural gully within that hillside. The hillside above Ms. Kuipers' property is Crown land. Ms. Jorgenson's property is directly across the street and slightly downhill from Ms. Kuipers' property. The storm caused water, mud, rocks and other debris (the "Flood") to flow down the gully and onto the properties of the plaintiffs.
- [4] The other plaintiff in the Jorgensen action, Ms. Davy, previously dismissed her action by consent.
- [5] The City of Kamloops (the "City") and Her Majesty the Queen in Right of the Province of British Columbia were also defendants in both actions, but the plaintiffs discontinued their actions against those defendants.
- [6] Trans Mountain Pipeline ULC ("Trans Mountain") and Kinder Morgan Canada Inc. ("Kinder Morgan") are the remaining defendants in both actions. Trans Mountain is the registered holder of a right of way on the Crown land. The right of way is about 60 metres wide and traverses the gully at a right angle on the hillside some distance above Ms. Kuipers' property. The right of way has been in existence since the 1950's. There is a rough access road that runs along the right of way. The Trans Mountain pipeline runs underneath the right of way. Trans Mountain is the owner of the pipeline. Kinder Morgan is the agent of Trans Mountain with the authority to maintain the pipeline, and it employed the individuals who worked in Trans Mountain's operations. I will refer to Trans Mountain and Kinder Morgan together as "the defendants".
- [7] In 2011, the defendants installed a French drain across the right of way at the point where it intersects the gully above Ms. Kuipers' property. The plaintiffs allege that the French drain caused or exacerbated the Flood and the ensuing damages. The plaintiffs claim against the defendants in nuisance, negligence, and the rule in *Rylands v. Fletcher* (1866), L.R. 1 Ex. 265, *aff'd* (1868), L.R. 3 H.L. 330 for recovery of the damages they suffered.
- [8] The central issue is whether the French drain caused some or all of the damages suffered by the plaintiffs. Both the plaintiffs and the defendants retained professional engineers who produced expert reports and were qualified to give opinion evidence.

- [9] The defendants filed summary trial applications seeking the dismissal of both actions. The plaintiffs each filed a summary trial application in their respective actions seeking judgment against the defendants for damages suffered. Ms. Kuipers claims damages of \$206,073. Ms. Jorgensen claims damages of \$136,905. Those claims include damages for the cost of repairs, the lost profits on investments they had to sell to pay for the repairs, and non-pecuniary damages for the impact of the Flood on their lives.

Suitability for Summary Trial

- [10] All parties agree this matter is suitable for determination by summary trial pursuant to R. 9-7 of the Supreme Court Civil Rules. In addition to affidavit evidence, the parties filed an agreed statement of facts, read in examination for discovery evidence, and the experts were cross-examined before this Court. I am satisfied I am able, on the whole of the evidence, to find the facts necessary to decide the issues of fact and law. I am also satisfied it would not be unjust to decide the issues on the applications.
- [11] The applications were heard together, with evidence in one action being evidence in the other, pursuant to a previous court order.
- [12] In deciding the applications, I will discuss the evidence, outline the legal principles, and then set out my analysis of the expert opinions and findings of fact, before turning to my ultimate finding on whether the plaintiffs have made out their case.

Description of the Gully, Right of Way and French Drain

- [13] The gully above Ms. Kuipers' property has two channels that converge into a single channel to form a "Y" shape. The bottom of the Y is where the plaintiffs' properties are situated. The right of way crosses the gully at the point where the two channels converge. The two channels slope down steeply to the right of way, at which point the slope of the gully flattens out somewhat over the right of way. The right of way also slopes down toward the vertex on each side of the Y, so that there is a large shallow dip at the vertex of the Y. From the right of way, the two channels merge to form one channel which continues, initially steeply, down to the back of Ms. Kuipers' property. The total length from the very top of the two channels to Ms. Kuipers' property was not given in evidence, but I would estimate from the photographs that it is at least a kilometre, with the right of way being approximately 250 metres (in distance, not elevation) above Ms. Kuipers' home. One of the experts had estimated from memory that it was at least 100 metres. The exact distance is not relevant to the analysis. The precipitation catchment area of the gully was estimated by the experts to be about 41 hectares. The gully contains vegetation, rocks, and wood.

[14] In 1987, the City commissioned a professional engineering study for drainage in the Westsyde neighbourhood (the "1987 Drainage Study"). In 1988, the engineering firm provided recommendations for works to ameliorate drainage conditions in that area. The 1987 Drainage Study specifically mentioned that the plaintiffs' properties were at risk of flooding damage due to their location at the bottom of the gully:

In several instances, residential development has taken place along the toes and lower valley sides without regard to the defined ravines and the potential for storm damage. As can be seen from Figure 3, a substantial portion of the runoff from the undeveloped rural uplands does not have a safe flood route through the developed portions of the lower slopes and valley floor. This was demonstrated in the 1986 snowmelt, when significant flooding and erosion occurred.

The P-3 basin, approximately 135 ha, drains through a developed residential lot ([Ms. Kuipers's address]) with no easement to a very shallow swale and ditch/culvert system on Parkview and thence to a 300 mm dia. inlet with concrete headwalls adjacent Westsyde Road. Major flows, and probably minor flows, from the ravine will currently enter a sunken patio and the basement at [Ms. Kuipers' address]. If flows are diverted around the patio to Parkview, the swale is too small to handle any more than very minor flows; thus flows would likely "jump" Parkview and enter sunken carports and/or basements on the lower side of the road. As in the P-2 basin, the ditch/culvert route is generally shallow without headwalls and is susceptible to infilling with debris, either water-borne or dumped. It is reported that this basin experienced flooding problems in spring, 1986.

[15] There was no evidence of the recommended mitigation works being carried out prior to the Flood. I note here that the 1987 Drainage Study was not admitted as expert opinion evidence for the truth of the opinions expressed within it.

[16] As part of an ongoing risk management program, the defendants engaged BGC Engineering Inc. ("BGC"), a professional engineering firm, to implement an inspection program along the pipeline to manage the risk of pipeline exposure. In 2008 and 2013, BGC conducted an inspection of the right of way. The 2008 report by BGC described the gully above the plaintiffs' properties:

Gully washout 15 m downstream from centreline, although channel appears inactive. Seepage observed in headscarp. 8% slope across right of way, natural gully slope is 21%. Steep V-shaped gully upstream and downstream of right of way but flattens over right of way. Fibre optic right of way upstream 30 m. Possible ponding on road above scarp. Poorly defined channel.

Recommendation Comments: Inspect for headward erosion of gully and for increased channel degradation over crossing.

[17] The defendants also conducted regular helicopter and ground checks of the pipeline to ensure its integrity.

- [18] In 2011, the defendants determined that repairs were required on a section of the pipeline above the plaintiffs' properties. In October and November 2011, work was undertaken to perform the repairs, which necessitated excavation of the pipeline. The excavation work was followed by the installation of the French drain.
- [19] A French drain is a hole or trench that is filled with rock. It is also called a dry well. Its purpose is to hold water until it is able to percolate down and be absorbed into the ground. Water is able to flow along the gaps between the rocks.
- [20] The French drain in this case is a trench that is approximately a metre deep and a metre across, and is lined with landscape fabric. It is filled with "eight- to ten- inch riprap", which is coarse angular rock, to allow for drainage. The French drain was created in an "L" shape within the right of way. The shorter arm of the L runs along the right of way, and extends between the bottoms of the two channels which converge on the upper side of the right of way. The longer arm of the L crosses the right of way to the single channel, which commences at the lower side of the right of way. The exact linear dimensions of the French drain were not given in evidence, but from photographs I would estimate it to be approximately 25 metres in length between the two upper channels and 35 metres in length across the right of way. Again, the exact dimensions are not relevant to the analysis. Near the lower side of the right of way, and past the French drain, riprap was placed on the ground in a fan shape, extending further down the lower single channel. The length of this fan was not given in evidence, but I would estimate from photographs that it was 10 metres in length and had the same maximum width.
- [21] Mr. Stelter is the pipeline integrity supervisor for the defendants. He provided two affidavits, and the plaintiffs also read portions of his examination for discovery into evidence. Mr. Stelter is responsible for implementing programs for pipeline inspection, right of way maintenance, vegetation management, and erosion control for the pipeline, between Edmonton, Alberta and Burnaby, British Columbia.
- [22] Mr. Stelter stated that the purpose of the French drain was to prevent erosion of the materials surrounding the pipeline and ensure that the pipeline stayed covered and intact, and to prevent the access road from becoming a mud bog and being scoured and eroded. Although the French drain was able to convey some subsurface flows of water (since water could flow between the riprap), the French drain was not installed to drain continuous flows of water. It was meant to keep the surface of the right of way dry.
- [23] Mr. Stelter stated that Cobra Contracting installed the French drain in 2011. The total cost was approximately \$28,000. The contractor was not given sketches or drawings. Instruction was given to the contractor on site, with an employee of the defendants pointing out where to dig and backfill and what to do. An engineer was not hired to oversee the work or to do an evaluation of the area for water flow. Mr. Stelter agreed that there was no mesh installed at the lower end of the French drain restraining the riprap from going down the gully, but said that the angular riprap restrains itself.

[24] A report of the installation contains the following passage:

Select fill and drain rock, was hauled onto site. Back fill was implemented in 2' lifts with compaction. Drain rock was placed on the west bank of the R/W in two separate drain ditches joining into one main ditch across the R.W. The drain rock was 8" - 10", enabling proper run off, preventing wash-out, and vehicle erosion. Marker installed over the BSLV. Rock classified as angular rip-rap.

[25] In 2013, a few years after the installation of the French drain, BGC inspected the right of way. The reported condition of the right of way was nearly identical to what was noted in the 2008 inspection report.

The Flood

[26] The parties produced videos taken on June 30, 2015 at the time of the Flood. The videos show an enormous amount of water and mud flowing onto Ms. Kuipers' property and across the street to Ms. Jorgensen's property. The parties also produced numerous photographs of the damage. The mud, rocks and debris at the back of Ms. Kuipers' property and that flowed into her carport was approximately two to three feet deep. Her prized motorcycle in the carport was ruined. Water and mud entered her basement and destroyed carpets, furnishings and a music collection. The bricked driveway of Ms. Jorgensen's property, which she had personally installed, was covered in mud, rocks and other debris, and had to be completely redone. Her hot tub was ruined.

[27] Ms. Jorgenson described the flood as follows:

At 3:56 we had a river of boulders, mud, debris, branches, tires and landscape fabric come down hitting our house and parting around both sides of our home. The current of this river was so strong and carried an abundance of rock and debris that busted open the double gates into the backyard and continued along the fence line forcing a panel of fencing out over the bank. The water height during this flood ranged from 16 inches to 24 inches and continued with such powerful force it carried cinder blocks, cement flower pots and uprooted plants.

[28] On July 1, 2015, a representative of the defendants inspected the right of way and reported the following:

although there is evidence of a washout above and below our pipeline there did not appear to be any ditching damage closer than 15 meters from the pipe. The washout did fan out over the right of way and in fact deposited material on top of the right of way.

[29] The parties produced many photographs of the right of way, including aerial photographs, which were taken both before and after the installation of the French drain, and after the Flood. Photographs after the Flood show mud and rocks deposited on the right of way from the two channels above, including on the area where the French drain was installed. Parts of the French drain on the flatter portion of the right of way are still visible. Photographs also show that some riprap is missing at the lower side of the right of way, where the French

drain ends and the gully continues steeply down as one channel.

- [30] Subsequent to the Flood, the City retained Urban Systems Ltd., a professional engineering firm, to provide advice regarding drainage improvements to the Westsyde neighbourhood. The City also undertook drainage works to establish an overland flood route along the side of Ms. Kuipers' property and direct future storm events past her house.
- [31] Finally, there was evidence that there is another gully nearby, which also suffered the storm. That gully had accumulated vegetation, rocks and debris and also experienced flooding with flows of water, mud and debris following the storm. The right of way also traverses this gully, but there is no French drain at the point where the gully and the right of way transect.
- [32] I turn now to the expert evidence adduced by the parties.

Expert Evidence

- [33] Each party filed expert reports from a hydrotechnical engineer. The plaintiffs filed two reports of Mr. Brian LaCas, dated November 3, 2017 and April 24, 2019. The defendants filed two reports of Mr. Christopher Coles, dated July 27, 2018 and August 29, 2019.

Mr. Brian LaCas' Original Report

- [34] Mr. LaCas is a professional engineer with experience in hydrotechnical engineering. He obtained a degree in civil engineering in 1981, and practices in the area of hydrological engineering, channel geomorphology, and hydraulic modeling design and review in the following areas: flood control, hydraulic structure design, river restoration, channel/watershed assessment, erosion/scour protection, water management, and water licensing.
- [35] Using local radar data, Mr. LaCas concluded that there were two significant rainfall periods on June 30, 2015: one between 1530 and 1700 hours, and another between 1800 and 1900 hours. Treating this as one rain storm over six hours, Mr. LaCas estimated that a rainfall of this severity would be anticipated once every 25 to 50 years. It is not clear why Mr. LaCas assumed a duration of six hours when a total of three and one-half hours elapsed between the beginning and the end of the two significant rainfalls. Nonetheless, this was a rare storm in terms of the intensity of rainfall over a short period of time.
- [36] Mr. LaCas opined that the expertise of a professional engineer was required to design and oversee the installation of the French drain because it could pose a flood hazard to the inhabited areas below. He had three main criticisms of the French drain.
- [37] First, it did not have sufficient hydraulic capacity to prevent overflow of the trench. The French drain should have had adequate capacity to contain an anticipated flood without overflowing. It should have been designed to handle a 200-year flood event, meaning an event so severe that it is only anticipated to occur once every 200 years. He stated that this is the provincial standard for flood design.

- [38] Second, a French drain with sharp bends is not an acceptable channel design since there is a tendency for channel avulsion (the escape of water out of the channel to form a new path). In this case, the tip of the short arm of the L of the French drain formed a right angle with one upward channel, and there was another right angle at the corner of the L (where the other upward channel also reached the short arm).
- [39] Both the overflow and avulsed flow could cause erosion and scouring of the right of way, increasing the volume of debris in the flood waters that washed down the gully below the right of way. Photographs after the storm of the right angle in the French drain (at the tip of the L) show bent grass and soil erosion from channel avulsion. The additional volume of scoured debris materials from the right of way would have likely increased the degree of damage to the plaintiffs' properties.
- [40] Third, there was no fencing holding the riprap in place at the exit of the French drain on the lower side of the right of way. Photographs after the storm show missing riprap in this area. Mr. LaCas was asked to assume that riprap reached the plaintiffs' properties. On that assumption, he opined that the additional riprap would have likely increased the degree of damage to the properties. Photographs of the debris on the plaintiffs' properties show angular rock similar in size and shape to the riprap placed in the French drain.
- [41] In summary on causation, Mr. LaCas opined that the French drain likely caused increased damages in two ways: the volume of the Flood increased from debris because water that overflowed or avulsed from the French drain entrained further debris as it crossed the right of way; and riprap (that he was asked to assume reached the properties) did so.

Mr. Christopher Coles' Original Report

- [42] Mr. Coles is a professional engineer with experience in hydrotechnical engineering. He obtained a civil engineering degree in 1994 and a Masters of Applied Science in Civil Engineering degree in 2004. He works in the area of hydrotechnical engineering, including rainfall and runoff analysis, open channel flow assessments, river engineering and flood hazard assessments.
- [43] Mr. Coles had Mr. LaCas' original report when he wrote his first report.
- [44] Mr. Coles agreed that the 200-year flood event standard is often used as a design basis for flood protection works in B.C., but disagreed that it was applicable in this case. In 2011, this design standard was not required to be applied to all water conveyance works in B.C. The Geometric Design Guide for Canadian Roads is the primary source for basic design principles for roads in B.C. The recommend flood event standard for design depends on the type of road and hydraulic structure. There is nothing in the guide for a French drain that crosses a right of way access road. In his opinion, the closest comparison would be a ditch or a culvert associated with a low volume road. The design flood event for those scenarios ranges from a 1 in 10-year to a 1 in 100-year event.

- [45] Mr. Coles opined that a professional engineer was not required for the design or installation of the French drain. He is not aware of a profession or industry practice related to right of way access roads for pipelines. However, given the nature and function of such a road, in his opinion it is reasonable to consider the standards applicable to a forestry road. The Forest Road Engineering Guidebook presents the design requirements for forestry roads, including stream crossings. With specified constraints, non-engineers can design shorter single-span bridges. The French drain is significantly less complex than a bridge and, in his opinion, the design of this structure by a non-professional with considerable experience in designing and constructing such projects would be in accordance with the guidelines. The formation of a drainage structure armored by riprap is a common measure to prevent erosion from water.
- [46] On the issue of causation, while the French drain may have had some influence on the direction of runoff within the immediate area of the French drain, Mr. Coles opined that the French drain did not have any appreciable effect on the rate or direction of the flow of water to the plaintiffs' properties. The characteristics of a watershed that could have a significant influence on storm water flow include the following:
- a) The slope of the watershed can impact the water flow. However, the French drain is limited to a very small footprint within the watershed and does not influence the elevation of the watershed lands or the distance to the properties. The drain had no influence on the slope of the watershed;
 - b) The size of the watershed that contributes runoff to the point of interest (in this case the plaintiffs' properties) affects the volume of water. The watershed is approximately 41 hectares. The surface area of the drain is approximately 125 square metres, which represents 0.03% of the total estimated watershed area; and
 - c) Vegetation cover and surficial soils affect the absorption and retention of water. The absorption or retention of the French drain is similar to other areas within the watershed, such as the exposed faces of rock. The drain had no impact on the absorption or retention of water within the watershed during the storm.
- [47] Photographs show that debris from uphill of the right of way was deposited onto the right of way by the Flood. Mr. Coles observed that the debris was largely deposited on top of the French drain, rather than having displaced the riprap in the drain. When he viewed the right of way, he noted that a small amount of the riprap at the lower side of the right of way was displaced and was likely conveyed down the single channel. He estimates that the volume of riprap displaced was 3.75 cubic metres, based on 2.5 metres in length, 2.5 metres in width and 0.6 metres in thickness. In comparison, an engineering study commissioned by the City after the flood (by Westrek Geotechnical Services Ltd.) estimated in 2016 that if a similar storm should happen, a debris flood volume of 600-1000 cubic metres would take place. After accounting for the quantities of debris that the right of way access road prevented from reaching the single channel below the right of way, the volume dislodged from the

French drain was insignificant in comparison to the estimated debris flood volume.

- [48] There is native coarse, angular rock both above and below the right of way. Since the French drain did not impact the rate or direction of the flow of water or debris, and the small volume of riprap dislodged is generally similar in size and shape to the native rock within the channel, he could not conclude that the riprap from the French drain traveled to the plaintiffs' properties.

Mr. LaCas' Reply Report and Cross-Examination

- [49] Mr. LaCas disagreed that the standards in the Geometric Design Guide for Canadian Roads for culverts and ditches is applicable because a French drain is not the same as a ditch or culvert. A ditch or culvert is designed to convey free-flowing water, while the French drain has riprap that water flows through. Mr. LaCas disagreed that the Forest Road Engineering Guidebook is applicable because it addresses remote forest service roads and not roads in the vicinity of habitable areas.
- [50] Mr. LaCas stated that Mr. Coles did not address his criticisms regarding the design of the French drain. Mr. Coles, he said, also did not provide any calculations regarding the average channel velocity of the Flood at the site of the French drain to determine whether riprap could have washed down to the properties.
- [51] In cross-examination, Mr. LaCas stated that the first time he saw the 1987 Drainage Study was the day before he testified. He agreed that it provides a clear warning that the plaintiffs' properties were at significant risk of flood damage. None of the recommended mitigation measures had been taken. He said that these facts did not affect his opinion because when he attended the plaintiffs' properties, he "immediately could see" that the properties were at the foot of the gully, were part of a flood corridor, and were vulnerable to flooding. He volunteered that he would expect an engineer who designed the French drain to have read the 1987 Drainage Study because it would show that an engineer had already determined that there is a flood hazard, and the engineer would not want to do anything to put the hazard over the "tipping point".
- [52] Mr. LaCas never attended the right of way, nor did he walk up the gully from Ms. Kuipers' property to the right of way. He looked at photographs and looked up the gully from Ms. Kuipers' property. He said that perspective was sufficient because by the time he had been retained, two years had passed, and there had already been significant vegetation growth.
- [53] When asked to clarify that this was a French drain and not a swale, he volunteered that it was not standard practice to fill a creek or watercourse to the brim with riprap because of the very limited area for water to flow. He volunteered that he had "never seen this before" and that it was "really poor engineering". When asked to clarify the definition of "freeboard" (which is the space above the top of a channel and the expected surface level of water within that channel), he said that if designing a water channel, an engineer would calculate the potential flood level and build in freeboard so the channel does not spill over in

a flood. He volunteered that the channel contained four-inch rock, so there were only small spaces between the rocks. He agreed that he had not done any calculations to see if a French drain could be built for a 200-year flood standard. He said that typically, French drains are used to address the seepage of ground water around a house, not in a channel in a "creek", by which he meant the gully.

- [54] With respect to causation, he agreed that prior to the installation of the French drain, all of the water in the two channels above the right of way flowed into the one channel below. He agreed that after the installation of the French drain, the water from the two channels still flowed to the same place. However, he volunteered that during the storm there was additional water going into the single channel because the right of way itself had become a waterway. This conclusion was not in his written reports. He referred to a photograph that showed rivulets and erosion in the access road on each side and above the French drain, where it appears water had flowed down the access road to the vertex of the Y. He said that the road had been "cut down" in the direction of the channel and vegetation had been removed so there was a change in the hydrology. Photographs show that vegetation in the immediately surrounding area was removed when the French drain was installed. Vegetation impedes the flow of water. There was, therefore, an effect on the hydrolics on the road. He opined that more water got to the gully faster because there was a wider non-vegetated road in that area. Thus, he said there were two issues: the access road and the French drain, thus adding to his opinion on causation.
- [55] He agreed that a French drain is not intended to convey free-flowing surface water like a pipe. Rather, its purpose is to allow water to percolate. He reiterated his concern about the right angles created by the French drain vis-à-vis the channels. He stated that the two upper channels were "majorly altered" because of this design. He said it was difficult for water to be conveyed when two channels are combined into one and then the channel is filled with rock. He opined that flood waters jumped out of the channel and flowed across the right of way, and eroded and picked up surficial material from the right of way. He opined that if the French drain had been designed properly with freeboard, then water would not have overflowed the French drain and the flood water would not have entrained material as it flowed across the right of way.
- [56] Despite his concerns, on the issue of causation, he agreed that if the French drain had never been installed, the water would have flowed over the right of way to the same place and that there would have been surficial erosion on the right of way from water flowing over it. He agreed that he had not done calculations to determine how much additional entrained material (mud and small rocks) the right of way contributed to the Flood volume. He stated that there were no engineering calculations or drawings, so he could not calculate how much extra material went down the gully.

- [57] He agreed that because the French drain created an area for water to percolate, it would have assisted in taking a small amount of the flood waters away from the surface of the right of way.
- [58] He said Mr. Coles' opinion that the French drain only covered 0.03% of the 41 hectares of the watershed is an odd way to look at the issue. For example, a dam is small in comparison to its surface area, but has a great impact. The issue is not a function of area, but instead a function of risk.
- [59] He was asked to confirm the statement in his report that he had been told to assume that riprap travelled down the gully to the plaintiffs' properties. He stated that after he looked at photographs, which show rocks on the plaintiffs' properties that were similar in size and shape to the riprap, he also formed the opinion that it was likely the riprap had made its way onto the properties. He agreed that he is not a geologist, and that he did not walk the watershed to see if similar rocks were native to the area above or below the right of way. When asked if he accepted Mr. Coles' estimate of 3.75 cubic metres of missing riprap from the lower edge of the French drain, he said that he would like to see the calculations and compare it to design drawings. Neither analyses were performed. Like Mr. Coles, he did not do any calculations to determine whether riprap could have traveled down the gully to the properties. He could only say that, from photographs, there were similar looking rocks that reached the plaintiffs' properties.
- [60] He did not think it was relevant to compare what happened in another nearby gully, which allegedly also had similar debris deposits and flooding. He said he did not have the volume of debris or a detailed survey, so he could not make calculations to compare the two.

Mr. Coles' Reply Report and Cross-Examination

- [61] Mr. Coles disagreed with Mr. LaCas that the Geometric Design Guide for Canadian Roads is not applicable. The intent of the French drain was to convey water across and beneath an access road located within the right of way. This purpose is consistent with that of a culvert, so it would be reasonable to apply a design standard for a culvert to the French drain.
- [62] He opined that the 200-year flood standard referred to by Mr. LaCas came from the Flood Hazard Area Land Use Management Guidelines and is not applicable. The intent of those guidelines was to help in the development and implementation of land-use management plans and in making subdivision approval decisions for flood hazard areas. Conversely, the intent of the French drain was to drain water underneath an access road within a right of way. The drain was not constructed with the intent to - and nor does it - provide flood protection measures to the properties, nor would it have been typical practice to construct the French drain with that intent. If it was constructed with such an intent, the drain would be considered a dike and subject to the Dike Maintenance Act, R.S.B.C. 1996, c. 95.

- [63] He disagreed with Mr. LaCas that the guidelines in the Forest Road Engineering Guidebook are limited to forest service roads in remote locations. Many forest service roads are in close proximity to communities in B.C.
- [64] In Mr. Coles' opinion, the calculation to determine whether riprap would have reached the properties is complex and involves more than just velocity as Mr. LaCas suggested. Given that there is native rock in the area that is similar to the riprap, it would also require a geologist to compare the rocks, identify their source, and determine if the rocks on the plaintiffs' properties were riprap. Neither he nor Mr. LaCas have done the required analysis of the hydraulic conditions to conclude that riprap could be transported to the properties, nor is there an analysis by a geologist to identify the rocks as riprap versus rock native to the surrounding area.
- [65] With respect to causation, in cross-examination, Mr. Coles stated that in the absence of the French drain, any water from the two channels would naturally flow to the single channel below the right of way. He agreed that water goes through the French drain and that one purpose of the French drain was to protect the roadway. He agreed that after the installation of the French drain, in a usual rain fall, water coming down the two channels would be intercepted by the French drain and, within the confines of the right of way, would travel as a sub-surface flow through the French drain to the single channel below. It was suggested to him that this was like a thumb on a garden hose. He disagreed. In his view, this is not a closed system where internal pressure is increased, leading to increased velocity. It is open to the air. He clarified that he was not saying that the only way for flow velocity to increase is if there is a pressurized system.
- [66] While he accepted that the French drain may have some degree of impact on the flow rate and velocity of water within the confines of the right of way, he said that from the perspective of the plaintiffs' properties, the velocity and flow would be "as if the work was not constructed". The French drain would not increase water velocity downstream of its location. He said "water doesn't have that kind of memory. It is a cascading system. It doesn't carry that energy for a long distance". The channel below the right of way has a number of debris dams. Water moves across built up logs, soil, rocks, and cascades over. It does not carry kinetic energy for long distances, so any changes made upstream would be insignificant to what is going on downstream.
- [67] He disagreed that the installation of a right-angle turn caused an avulsion that gathered up more debris than it would have naturally, and then carried that debris down the gully. He stated that if the amount of water coming down the two channels increased so that the French drain was filled, the water would resume its natural flow path across the right of way. By the time the flow reached the other side of the right of way, it would have resumed the same path it was in before the French drain. The Flood would not entrain any more material than it would in the absence of the French drain.

- [68] Mr. Coles agreed that, as Mr. LaCas opined, the installation of the French drain appears to coincide with a wider disturbed area where vegetation was removed.
- [69] Mr. Coles clarified that when he referred to the 0.03% area of the French drain, he was referring to the hydrologic response to water - how every drop of water responds - and not the surface area that the drain occupied. He was determining if the French drain had impacted a significant portion of the watershed or taken water from the watershed.
- [70] Mr. Coles agreed that his reference to 3.75 cubic metres of displaced riprap was a guess based on the dimensions he had estimated from photographs of the end of the French drain. When shown an aerial photograph of the area after the installation of the French drain, he agreed that it appears that roughly 1/4 to 1/5 of the span of the riprap (the fan below the French drain) had disappeared after the Flood. He did not dig up the right of way to see if all the riprap was still there. He agreed that photographs of the riprap show that it contained just not eight- to ten-inch rock, but also smaller sized rocks. He agreed that if there is a concern for debris flow, installing mesh at the end of the French drain is a mitigating step that can be taken. He could not say whether he would have recommended such an installation here because he did not do an analysis to see if a mesh screen was needed. He agreed that the slope in the single channel below the right of way (where there was riprap) could be as steep as 28%.
- [71] Mr. Coles estimated that if an engineer were asked to design a water conveyance structure on the right of way, it could cost between \$10,000 and \$40,000. If relevant to the task, the engineer would consider properties above and below the right of way. The engineer would endeavour not to transfer risk to a third party. An engineer would also look to see if there were any relevant previous flood reports.

Plaintiffs' Objection to Certain Evidence Filed by the Defendants

- [72] The plaintiffs object to certain portions of the affidavits of Mr. Grant and Mr. Stelter. I agree with most of their objections.
- [73] Mr. Grant is an engineer employed by Urban Systems Ltd., which is a company that the City retained after the Flood to advise the City with respect to mitigation works. Mr. Grant's affidavit appends hearsay correspondence and reports. These are not admissible to prove the statements within the correspondence or the opinions in the reports. Mr. Grant also refers to the other nearby gully and states that it contained significant debris that was purged during the storm. I agree with the plaintiffs that it is not clear if Mr. Grant personally observed this change. In any event, as discussed below, I do not rely upon it, as I do not find it probative of the issues in this case. Finally, Mr. Grant refers to a recommendation by another engineering firm to place a drainage channel across the right of way and armour it with riprap to restore or improve drainage and prevent erosion. I agree with the plaintiffs that this is not admissible, as it is hearsay and opinion evidence that does not meet the expert evidence admissibility requirements.

- [74] Mr. Stelter swore two affidavits. His first affidavit contains paragraphs in which he states that an employee inspected the right of way and if a significant amount of riprap had been removed in the storm, he would have expected that to be reported to him. These paragraphs are being advanced for the implied assertion that none of the riprap was missing. This is hearsay and not admissible for proving whether or not riprap disappeared down the gully.
- [75] In Mr. Stelter's first and second affidavit he states that BGC did not identify to him any risks to downhill properties as a result of the French drain or the need for the replacement of riprap after the storm. While this may be admissible for Mr. Stelter's state of knowledge, it is not admissible to prove any opinions from BGC as to any risk posed by the French drain or the quantity of riprap that disappeared. There also was no evidence that BGC was asked to opine on this issue.
- [76] In both affidavits, Mr. Stelter also states that he attended the site of the French drain before and after the storm and did not see the French drain redirecting or diverting the flow of water. However, his examination for discovery evidence suggests he did not personally attend the location. Regardless, the statement is not probative, as there is no detail of when he attended or what the water conditions were at that time. Further, it is not clear how he could state that water was not being redirected because it would have been a sub-surficial flow. I do not rely upon these statements.
- [77] As discussed below, I rely primarily upon the expert reports on the issue of causation.

Legal Principles

- [78] Causation is an element that must be proven for all three causes of action alleged: *Blatz v. Impact Energy Inc.*, 2009 ABQB 506 at para. 5-9, aff'd 2011 ABCA 92 [Blatz]. As causation is the central issue, I will review the law on causation generally and then briefly review causation in the specific context of each cause of action.

Causation

- [79] In *Clements v. Clements*, 2012 SCC 32 at paras. 8-11 [Clements], the Supreme Court of Canada reaffirmed that the test for causation is the "but for" test. The plaintiffs must prove that but for the alleged tortious event, they would not have suffered the damages alleged. This test ensures there is a substantial connection between the alleged tortious event and the damages suffered. The Court in *Clements* also discussed a rare exception to the "but for" test, being recovery on the basis of a "material contribution to risk of injury": at para. 13. That exception is limited to situations "where it is impossible to determine which of a number of negligent acts by multiple actors in fact caused the injury, but it is established that one or more of them did in fact cause it": at paras. 13, 46. That situation is not applicable here, as there are not multiple alleged tortfeasors, and there is evidence on which to be able to determine whether the French drain caused the damages. The usual "but for" test applies to this case.

[80] More recently, in *Waterway Houseboats Ltd. v. British Columbia*, 2019 BCSC 581 [Waterway], a flooding case, Mr. Justice G.P. Weatherill at para. 383 put the causation question as this: "even if [the defendants] did what the plaintiffs say they should have done, would it have made any difference?" He also summarized the principles of causation at paras. 382-385, drawing upon the reasons in *British Columbia v. Canadian Forest Products Ltd.*, 2018 BCCA 124 and a number of Supreme Court of Canada cases. Of particular note, the cases highlight that "but for" causation does not require scientific certainty. Inferences of causation can be drawn on the basis of common sense. As well, the trier of fact can take into account the relative positions of the parties to adduce evidence on causation. However, the burden remains on the plaintiff to prove causation throughout.

Rule in *Rylands v. Fletcher*

[81] In *Mineault v. Kamloops (City)*, 2017 BCSC 316 at paras. 32-61, which concerned water escaping from a lawn irrigation system, the Madam Justice Donegan reviewed the principles of the rule in *Rylands v. Fletcher*. She summarized at para. 38:

While the rule has various formulations, the Ontario Court of Appeal in *Smith* at para. 71 and the British Columbia Supreme Court in *John Campbell Law Corp. v. Strata Plan 1350*, 2001 BCSC 1342 at para. 22 framed it as requiring the plaintiff to prove the following elements:

1. The defendant made a "non-natural" or "special" use of his land;
2. The defendant brought onto his land something that was likely to do mischief if it escaped;
3. The substance in question in fact escaped; and
4. Damage was caused to the plaintiff's property as a result of the escape.

[82] Apart from the other elements that must be proven, with respect to causation, the plaintiffs must prove that the defendants' installation of the French drain accumulated, stored, or added water with entrained debris to the right of way, which then escaped and caused damage in the Flood; and/or that that riprap (which the defendants did bring onto the right of way) escaped and caused damage to the plaintiffs' properties.

Nuisance

[83] In *Suncourt Homes Ltd. v. Cloutier*, 2019 BCSC 2258 [Suncourt], Madam Justice Watchuk summarized the law of nuisance as follows:

[85] A nuisance consists of "an interference with the claimant's use or enjoyment of land that is both substantial and unreasonable": *Antrim Truck Centre Ltd. v. Ontario (Transportation)*, 2013 SCC 13 at para. 18.

[86] In nuisance, the focus is on the harm done, rather than the conduct of the defendant. As explained by the Supreme Court of Canada in *St. Lawrence Cement Inc. v. Barrette*, 2008 SCC 64:

- [77] At common law, nuisance is a field of liability that focuses on the harm suffered rather than on prohibited conduct (A.M. Linden and B. Feldthusen, *Canadian Tort Law* (8th ed. 2006), at p. 559; L.N. Klar, *Tort Law* (2nd ed. 1996), at p. 535). Nuisance is defined as unreasonable interference with the use of land (Linden and Feldthusen, at p. 559; Klar, at p. 535). Whether the interference results from intentional, negligent or non-faulty conduct is of no consequence provided that the harm can be characterized as a nuisance (Linden and Feldthusen, at p. 559). The interference must be intolerable to an ordinary person (p. 568). This is assessed by considering factors such as the nature, severity and duration of the interference, the character of the neighbourhood, the sensitivity of the plaintiff's use and the utility of the activity (p. 569). The interference must be substantial, which means that compensation will not be awarded for trivial annoyances (Linden and Feldthusen, at p. 569; Klar, at p. 536).
- [84] Physical damage is usually held to be a substantial and unreasonable interference with the enjoyment of property: *Tock v. St. John's Metropolitan Area Board*, [1989] 2 SCR 1181 at 1190-1192.
- [85] In the context of water, an uphill property owner is generally not liable in nuisance for water naturally flowing from their property. To be liable in nuisance, generally an uphill property owner must take positive steps that cause a change in the direction, volume, or velocity of the natural flow of water that interferes with another party's property: *Trans Mountain Pipeline Co. v. Nicola Valley Sawmills Ltd.* (1975), 52 D.L.R. (3d) 279 at 299-300 (B.C.S.C.) [Trans Mountain]; *Suncourt* at para. 90; *Middelkamp v. McMath*, [1990] B.C.W.L.D. 833 (S.C.) [Middelkamp]; and *Kraps v. Paradise Canyon Holdings Ltd.*, 1998 CarswellBC 703, [1998] B.C.J. No. 709 at para. 15 (B.C.S.C.). For example, in *Trans Mountain* and *Middelkamp*, the courts describe situations involving a property owner diverting water onto a neighbour's property, changing the course of the water flow, negatively altering the ability of the ground to absorb water, or channelling the water in such a way so as to increase the rate of the water flow.
- [86] Although the focus in nuisance is not on the defendants' negligence or fault, the plaintiffs must still prove that the defendants' installation of the French drain caused the unreasonable interference leading to the damages: *Blatz* at para. 7; *Murray v. Langley (Township)*, 2010 BCSC 102 at para. 36; *Nelson v. British Columbia (Environment)*, 2020 BCSC 479 at para. 267.

Negligence

- [87] The elements of negligence are well known. In *Waterway*, Mr. Justice G.P. Weatherill at para. 193 summarized that a plaintiff must establish all of the following:
- a) The defendant owed the plaintiff a duty of care;
 - b) The defendant's behaviour breached the requisite standard of care;

- c) The plaintiff suffered damage; and
- d) The damage was caused, in fact and in law, by the defendant's breach.

[88] Apart from the other elements that must be proven, the plaintiffs must establish that but for the installation of the French drain, they would not have suffered the damages they did.

Analysis of Expert Opinion and Findings of Fact on Causation

- [89] The plaintiffs argue that common sense dictates and Mr. LaCas' opinion supports that the French drain interfered with the natural flow of water on the right of way. Specifically, they argue that the French drain connected two channels into one, thereby diverting water and "transferring the risk" of water, entrained debris and riprap onto the plaintiffs' properties. They say that there was an increase in the concentration of the flow of water and in the amount of entrained debris that flowed to the plaintiffs' properties, causing or exacerbating the damages sustained by the plaintiffs. Further, the plaintiffs contend that the riprap used by the defendants was not secured in place, became loose, and traveled down the gully to the plaintiffs' properties, also causing damage. The plaintiffs argue that they do not have to show causation with scientific precision, for example that a specific rock caused particular damage.
- [90] The defendants argue the French drain did not change the flow path, the velocity or volume of the natural water flow, or the volume of debris during the Flood and, in turn, that they did not cause the damages suffered by the plaintiffs. In the absence of the French drain, the Flood would have travelled down the pre-existing gully across the right of way, and entrained debris, just as the Flood did with the French drain. The risk that the 1987 Drainage Study predicted simply materialized. The defendants argue that it is inaccurate for the plaintiffs to say that the French drain joined two channels into one. There has always been one gully with two channels that flowed into a single channel, which then culminated at the plaintiffs' properties. The defendants did not alter this gully. The path of the water remained the same. The defendants argue it is speculation to say riprap reached the plaintiffs' properties. The Flood brought down a torrent of water and various sizes and types of debris from all over the hillside. They contend that it is impossible to say which piece of debris caused the plaintiffs' damage or where the debris came from on the hillside.
- [91] In this case, the plaintiffs must prove on a balance of probabilities that but for the French drain, they would not have suffered the damages or as much damages as they did. If the plaintiffs would have suffered the same damages in any event, causation is not established. Although the experts disagree on the applicable design standards for the French drain, on the issue of causation, I find that they actually agree on the most significant points, as set out below.
- [92] Mr. LaCas initially opined that the French drain "increased the degree of damage" because the Flood would have entrained debris as it crossed the right of way once it overflowed and avulsed the French drain. However, in cross-examination he agreed that in the absence of

the French drain, the flood waters would have flowed across the right of way to the single channel and entrained debris over the right of way. Mr. Coles opined that once the French drain was full of water, the Flood flowed in the same path across the right of way, as it would have without the French drain. The Flood would not entrain any more material than it would in the absence of the French drain.

- [93] Mr. LaCas was critical that the French drain was not designed to hold all of the flood waters (a 200-year flood event standard), which would have prevented water from flowing across the right of way and the entrainment of debris in the process. Mr. LaCas' criticism of the French drain essentially concerns what the defendants could have done better to eliminate a naturally occurring risk for downhill properties. His criticism is implicitly based on the assumption that the defendants, as uphill property "owners", had a duty to downhill property owners to eliminate the risk associated with naturally flowing surface water. However, the allegation of the plaintiffs was not that the defendants had a duty to install a French drain to prevent entrainment of debris altogether or capture all flood waters; the allegation was that the defendants installed a French drain that increased the concentration of the flow of water and volume of the Flood because it entrained debris and because riprap escaped to the plaintiffs' properties.
- [94] Although Mr. Coles was cross-examined on a theory that the French drain increased the concentration of flow and velocity of water coming from the French drain (the "thumb on the garden hose" analogy with which Mr. Coles disagreed), Mr. LaCas did not opine that the flow or velocity of the water entering the single channel was altered by the French drain. Mr. Coles opined that while the flow of water within the confines of the right of way may have been altered, once it exited the French drain and the right of way, from the perspective of the plaintiffs' properties, the flow and velocity of the flood waters were not changed.
- [95] With respect to the riprap, neither expert did the calculations necessary to determine whether it was possible for the riprap to reach the plaintiffs' properties. Neither expert is a geologist or was able to determine whether the angular rocks observed on the plaintiffs' properties were riprap. Mr. Coles observed there were similar native angular rocks throughout the gully, so he could not conclude either way. Mr. LaCas was initially asked to assume the riprap reached the properties, but later said he formed the opinion that the riprap likely reached the properties because the rocks looked the same. However, he never walked the gully to see if there were also naturally occurring rocks that looked the same. Further, there is no engineering expertise required to say that photographs of rocks looks similar. More importantly, as neither expert did the engineering calculation necessary to express an opinion as to whether riprap could have travelled to the plaintiffs' properties, any opinion whether the rocks on the plaintiffs' properties could be riprap, would be outside their area of expertise, and speculation.
- [96] Based on the expert evidence, the photographs, and the whole of the other evidence, I make the following findings of fact.

- [97] Prior to the installation of the French drain, there were two natural channels above the right of way within the gully. The two channels converged near the upper side of the right of way. When water flowed in those two channels, it naturally flowed across the right of way and into the single channel below the right of way.
- [98] Because water would sometimes flow across the right of way at the vertex of the Y, there was erosion from water and traffic on the access road. As a result, and as part of having to excavate to repair the pipeline, the defendants installed the French drain to assist in taking water away from the surface of the road. Water that previously may have flowed as a surficial flow was now carried along the French drain and either percolated to the bottom of the French drain or, if it did not percolate, was carried within the French drain to the lower side of the right of way and toward the single channel. Previously, water would have either percolated at the surface of the right of way or, if it did not percolate, it would have been carried along the surface to the lower side of the right of way and toward the single channel.
- [99] The intent of the French drain was not to be a culvert and carry all water from the two upstream channels across the right of way so that, in the case of a flood, any chance of entrainment of debris across the right of way was eliminated. The intent of the French drain was to create a percolating trench to keep the surface of the right of way dry and to help protect the pipeline from erosion.
- [100] After the installation of the French drain, water exited at the lower side of the right of way in the same volume as it did prior to the installation of the French drain. While water may have travelled in a different channel within the right of way (through the French drain, as opposed to a surficial flow), soon after the water exited the right of way and started its approximately 250-metre descent to the plaintiffs' properties, the water was of the same volume, pressure and velocity as it was prior to the installation of the French drain. While I agree with the plaintiffs that the course of water within the right of way was altered, I do not agree that the French drain affected the flow of water down the single channel; as Mr. Coles stated, "water does not have that kind of memory". Once the water exited the French drain, the water flowed as it always naturally did. The French drain did not retain water.
- [101] At the time of the Flood, the gully collected water and debris, all of which naturally flowed down the gully to the plaintiffs' properties at the foot of the gully. Flood water and entrained debris would have reached the plaintiffs' properties and caused damage regardless of the French drain. I do not agree with the plaintiffs' argument that the French drain was the "last straw" that caused the Flood to reach their properties or that if the Flood would have reached the properties in any event, it would have only caused a small degree of damage both in scale and cost. Nor do I agree with the plaintiffs' argument that prior to the installation of the French drain there was only a risk of flooding and that the French drain made it a "certainty". The evidence does not support these conclusions. Mr. LaCas does not provide these opinions. The most he opines is that the entrained debris from the right of way and the riprap "increased the degree of damage". He did not opine to what degree or how the damage was increased, and in cross-examination he agreed that debris would have

been entrained without the French drain. His written report states that he was asked to assume riprap reached the properties and in cross-examination he agreed that he did not do the calculations to determine if riprap could reach the properties.

- [102] The French drain comprised 0.03% of the watershed and did not have any impact on absorption. If anything, the French drain slightly increased the ability of the ground where it was situated to absorb, at least before it was overwhelmed, as it allowed more time for the water to percolate into the ground.
- [103] The videos and photographs abundantly show that the Flood was a very significant volume of water and debris. At the time of the Flood, the volume of water coming from the watershed above the French drain overwhelmed the capacity of the French drain and the water resumed its natural course as surficial flow over the right of way. As seen in the photographs, the flow from upstream deposited a large amount of debris onto the right of way.
- [104] To the extent that there was any scouring and entrainment of debris as the Flood flowed over the right of way, it was the same scouring and entrainment that would have taken place in the absence of the French drain, as this was the Flood's natural course.
- [105] Mr. LaCas opines that the vegetation was disturbed on the right of way near the French drain when it was installed and, therefore, more water flowed down the right of way to the single channel. He is correct that the photographs taken immediately after the construction of the French drain show there is a wider area next to the French drain without vegetation. Both experts agree vegetation has some effect on absorption of surface water. However, the photographs also show that there was very little vegetation in that area to begin with, and the photographs referred to by Mr. LaCas were taken four years before the Flood. A photograph taken in 2013 by BGC shows that the vegetation had regrown to the same state it was in prior to the installation of the French drain. I therefore do not accept Mr. LaCas' opinion on this point. Further, there was no calculation from Mr. LaCas as to how the alleged lack of vegetation in this very small area, in comparison to the 41 hectares of watershed, affected the volume of the Flood. The plaintiffs have the burden of proving that the disruption of the vegetation altered the amount of water or debris in the Flood. They have not met that burden.
- [106] To the extent that Mr. LaCas opined in cross-examination that the access road contributed to the amount of water flowing down the single channel, it is not relevant. The plaintiffs did not make an allegation regarding the access road. Further, even if water from the access road were relevant, the access road follows the natural slope of the land. Water was going to naturally flow down the slope in any event.

- [107] The plaintiffs have not established that there is any missing riprap from the flatter portion of the right of way. To the contrary, the photographs show that a large amount of uphill debris was deposited on top of the right of way, and riprap is visible in areas on the flatter portion of the right of way that are not covered in debris.
- [108] There is evidence that a portion of riprap and landscape fabric at the lower edge of the French drain disappeared down the steep embankment at that edge. However, I find that the plaintiffs have not proven on a balance of probabilities that the riprap was carried to the plaintiffs' properties or that it caused damages. Neither expert did the engineering calculations to determine if it was possible for riprap from the French drain to reach the plaintiffs' properties. There is no opinion evidence from a geologist identifying some of the rocks that were found on the plaintiffs' properties as the riprap from the French drain. Although there are pictures of rocks on the plaintiffs' properties that look like angular rock that could be riprap, the photographs also show that there are naturally occurring rocks of similar shape and size in the gully. The Flood flowed from well above the right of way to approximately 250 metres below the right of way, and could have picked up the rocks anywhere along that route. The force of the Flood was so great that it entrained an old tire and a fireplace grate. The mud and rocks that were deposited on top of the right of way (and therefore could not have come from the French drain), appear similar to the mud and rocks that were at the plaintiffs' properties.
- [109] Even if I am wrong in this conclusion, and the missing riprap found its way to the plaintiffs' properties, I am not satisfied that the plaintiffs have proven any damages associated with the riprap as opposed to the other Flood volume. The videos and photographs show an enormous amount of water and mud flowing onto the plaintiffs' properties. There was no evidence of how the costs to clean up and repair the plaintiffs' properties would have been different without the riprap. For example, there is no evidence that any rocks entered the basement of Ms. Kuipers' home, where there was significant water and mud damage. Photographs of her garage show at least a couple of feet of mud and small rocks. There is no evidence that riprap ruined her motorcycle. In total, Ms. Jorgenson estimates there were upwards of 100 rocks of similar size to the riprap on her property, but there is no evidence of any damage caused by the rocks. A friend took most of them and used them as landscape rocks on his property. There is no evidence the rocks, as opposed to the mud, caused her brick driveway or her hot tub to be ruined.
- [110] There is evidence that at least one piece of landscape fabric found its way to the properties. Assuming this landscape fabric is from the French drain, there is no evidence that this landscape fabric caused damage. Further landscape fabric is so different from rocks, I cannot conclude because a piece of fabric was carried in the Flood to the plaintiffs' properties, that riprap did as well.
- [111] Before leaving the causation issue, I will address other arguments made by the parties. First, the defendants argue that it is not plausible to assert that the French drain was the cause of the Flood when other parts of the Westsyde neighbourhood were also flooded and

suffered similar damage. I do not find the evidence regarding the other gully nearby to be particularly probative. Even if it is assumed that the amount of rainfall was the same at that gully, there was no evidence of whether the size of its watershed, the steepness, angle and vegetation of the gully, or the amount of flood water and debris were the same. Therefore, I have not considered this evidence in my analysis.

- [112] Second, the plaintiffs argue that the defendants have not shown that the damage would have occurred in any event. This misconstrues the onus. The onus is on the plaintiffs to prove causation, and not on the defendants to disprove causation, although a lack of evidence from the defendants refuting the plaintiffs' theory of causation may be a factor in assessing the plaintiffs' evidence. In my view, the defendants have tendered expert opinion evidence of what would have occurred if the French drain had not been installed, and in cross-examination Mr. LaCas essentially agreed with that evidence on causation.
- [113] Third, the plaintiffs argue that the defendants' position that no more water or debris came on to the plaintiffs' properties than would have otherwise, is "merely speculation". They say that the installation of the French drain has removed any possibility of determining for certain whether the damage would have been the same. The ability of a party to produce evidence is a relevant factor in considering whether to make an inference of causation. However, in my view, there is expert evidence from both sets of parties that opines on what would have happened if the French drain had not been installed, and as discussed above, that evidence is largely in agreement. I do not find that the evidence is speculative. Nor do I agree that this is a situation where the installation of the French drain has made it impossible to determine whether the damage would have been less without the French drain.
- [114] Fourth, the plaintiffs argue that there had been no damage to either of the properties for close to 40 years. Four years after the installation of the French drain, damage occurred. In my view, this is not persuasive evidence of causation. The evidence was that this was a rain event that occurs once in every 25 to 50 years, and as noted above, that estimate is based on a six-hour window of time, not a three and one-half hour window of time. The shorter time span would only further decrease the likelihood of such a storm occurring.
- [115] Fifth, both parties refer to the 1987 Drainage Study. The defendants argue that in the absence of any mitigating works, which are not the defendants' responsibility, the risk predicted by the 1987 Drainage Study materialized during the Flood. The plaintiffs argue that the defendants cannot escape liability on the basis of the 1987 report because that report does not disprove causation. I agree with the plaintiffs. The 1987 report is not admissible for the purpose of disproving causation or proving the engineering opinions contained within it. The report was not served as an expert report by either party. However, there was much other evidence that established what Mr. LaCas said was immediately clear to him: the properties are in a flood corridor and are at risk of flooding.

Conclusion

[116] Based on my findings of fact on causation, the plaintiffs have not proven on a balance of probabilities that the French drain caused or exacerbated damage to their properties. Any damages they unfortunately suffered were a result of the naturally occurring flow of the Flood from a rare storm event and the location of their properties at the foot of the gully, which is a flood corridor. As a result, it is not necessary for me to consider in detail the other elements of the causes of action that they advance. Even if the plaintiffs could establish the other elements of the three causes of action, their failure to establish causation is fatal to their actions.

[117] The plaintiffs' actions against the defendants are dismissed. Unless there are settlement offers that affect the award of costs, the defendants will have their assessable costs at Scale B.

"Norell J."

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