River Medway (Flood Relief) Act 1976

The Environment Agency's application to vary the Scheme for the operation of the Leigh Flood Storage Area

Objection to the application

From Jenny & Kevin Storey

[redacted]

Photograph of December 2013 when [redacted] was flooded.

Taken after the Environment Agency operated the Leigh Barrier impounding the existing Flood Storage Area to its maximum depth of 28.05 metres AOD.

July 2020

1. Introduction

[redacted] is the closest home to the River Medway in Penshurst, at its closest point it is just nine metres from the river bank. It is within the Flood Storage Area (FSA).

We have lived at [redacted] for fifteen years. In 2010 the Environment Agency (EA) informed us that they had a proposal to raise the height of the water level stored in the FSA. This proposal did not proceed. But in 2015 we received Newsletter No1 informing us that the proposal was now being funded and would be proceeding.

2. Fundamental reasons for Objection

2.1 We strongly object to this application to vary the Scheme for the operation of the Leigh Flood Storage Area. The EA has consistently failed to properly understand the effect that the operation of the FSA has on both Bridge House and Penshurst. Because of this lack of understanding it has developed a theoretical model of flood events that is fundamentally flawed. This has a knock on effect through the whole project.

2.2 Despite having had at least ten years to measure the actual flood levels at [redacted] and Penshurst, the EA has taken an entrenched position on its theoretical modelling and simply denies that raising the level of the FSA will have an adverse effect on [redacted] and Penshurst.

2.3 The River Eden joins the River Medway a few hundred metres upstream of [redacted], and measurement of actual flood levels should have been taken after this confluence of two major Kent rivers to understand the effect that the operation of the FSA causes during times of flooding. Instead the EA relies on measuring actual flood levels at Colliers Land Bridge for the River Medway and Vexour Bridge for the River Eden and then estimating the effect after the confluence. This is a fundamental flaw. Modelling is only ever as good as the inputs into it, if the inputs are flawed, the outputs will also be flawed.

2.4 It is a disgrace that the EA have never measured actual flood levels after the confluence of the two rivers.

2.5 [redacted] has flooded 5 times since 2000. On every occasion, that flooding has been after the EA has commenced impounding of the FSA. We have submitted evidence of these five floods to the EA that shows the flooding took place after the EA started impounding of the FSA. These submissions are included in this document as Appendices A, B, C & D.

2.6 December 2013 was the first flood occasion for us and we struggled to get the EA to pay compensation for the losses incurred. In November 2019, five years and eleven months after the event, the EA finally admitted liability and paid us compensation. Yet in their application they still say that raising the level of the FSA will not have an adverse effect on us. There is a serious breakdown of communications within the EA.

2.7 Page 7 states *“There are no households within the additional area to be flooded.”* This is simply untrue. [redacted] is within the existing FSA so must be within the enlarged FSA.

3. Flawed Process

3.1 Natural Flooding

We challenge the EA's assumption that "Natural Flooding" occurs rather than being the effect of impounding the FSA. In our experience as residents of the house most affected, this is simply not true. We have provided evidence to the EA that all floods from 2000 to 2020 at [redacted] and the Village have occurred **after** the impounding of the FSA takes place. This flooding is greater than, and lasts for a longer duration than, any natural flooding.

3.2 Inconsistent standards

In the EA's Strategic Flood Policy it states that 1 in 100 years plus climate change is the scenario that should be defended against.

Throughout this project the EA have always quoted 1 in 100 years plus climate change as the scenario used.

In the application the EA have quoted a 1 in 75 years scenario. This conflicts with their own National Guidance.

3.3 Failure to gather evidence of actual flood levels

The EA have failed to measure the actual flood levels at [redacted] specifically and Penshurst generally. Instead they have relied on theoretical modelling, which simply does not stand scrutiny when compared to the actual flood levels during impoundment of the FSA. The EA first raised the proposal to increase the FSA in 2010. Had they measured the flood levels then they would have actual data for the floods of 2013, 2019 & 2020. They failed to do this, instead they have relied on calculated flood levels and theoretical modelling. We have sent the EA the actual flood levels at [redacted] but they have chosen to disregard these. Their arrogance as an organisation is unacceptable in today's UK culture of openness and accountability

3.4 Misleading statements

On Page 12 the EA state that they use "Better and more reliable gauging technology which provides more accurate information about actual river levels." Whilst this may be true, it is certainly not true in Penshurst. They have no gauging at all between the Leigh Barrier itself and Colliers Land Bridge for the River Medway and Vexour Bridge for the River Eden, a distance of 8km and 5 km respectively. And there is no gauging at all after the confluence of these two rivers.

3.5 Flow Rates

The current Scheme allows the FSA to be used when the rate of flow in the River Medway exceeds 35 cubic metres per second. Since 2011 the EA have only used the FSA when the flow exceeds 75 cubic metres per second, as to "go too early" would leave them with no spare capacity. Yet they ask to retain the lower figure. This places a great risk on Penshurst. With an increased capacity they could start impounding of the FSA too early and this would increase flood levels at [redacted], (and Penshurst generally).

3.6 Biased letters of support
In the application the EA has submitted letters of support from many bodies. Not one person or organisation representing upstream communities have been invited to submit letters giving opposing views. For a Public Body this is unacceptable bias.

3.7 Failure to meet statutory obligation 1
The Environment Agency (EA) have not met the requirements of Section 17, Part II (e) of the River Medway (Flood Relief) Act 1976. The Act requires the EA to supply a copy of the revised scheme to "The Specified Interests" **BEFORE** submitting the scheme to the Minister for approval. The EA failed to do this. The scheme was submitted on the 10th June, but we did not receive the copy until after this, denying us the opportunity to (a) discuss the revised scheme with the EA and (b) to come to an agreement with them.

3.8 Failure to meet statutory obligation 2
The Environment Agency (EA) have not met the requirements Section 17, Part II (e) of the River Medway (Flood Relief) Act 1976. The Act required the EA to supply a **COPY** of the revised scheme to "The Specified Interests." The EA failed to do this. The copy supplied is not the same as that which has been submitted to the Minister. The revised scheme on the reverse of the letter dated 8th June contains 5 paragraphs, whereas the revised scheme submitted contains 4 paragraphs. Again as the scheme had already been submitted, we were denied an opportunity to (a) discuss the revised scheme with the EA and (b) to come to an agreement with them.

3.9 Communication Failure 1
The EA have consistently failed to listen to us, even when we have provided actual evidence of the flood levels at [redacted] when they have impounded the FSA. We eventually persuaded the EA to erect a Gauge Board on the river bank next to [redacted]. When they erected it we told them it was too short and would not be visible during a flood, they did nothing. In both the 2019 and 2020 floods the Gauge Board was under water. It is now July 2020 and the EA have still done nothing.

Gauge Board

Gauge Board Going

Gauge Board Gone

3.10 Communication Failure 2
There has been no meaningful discussion with residents nor the Parish Council. What communication there has been, has simply been the EA telling us that their Theoretical Model shows that they are not responsible.

The EA have failed to monitor, assess safety and accessibility within the Village and to identify solutions.

3.11 Disregard for local MP
Tom Tugendhat MP has been supportive of our vulnerable position within this proposal. He has raised our position with the EA but has always been told that they were discussing it with us, whilst this was not untrue, it implied that a solution was being agreed, when it was not.

3.12 Risk of Judicial Review
All of the above flaws in the process mean that any decision made on the EA's Application could be challenged by means of a Judicial Review. The residents of Penshurst have twice raised funds to pay a QC to challenge two national decisions via Judicial Review, one planning decision and one aviation decision. Both decisions were quashed due to failure in process.

4. [redacted]

4.1 Right to flood
There is a legal agreement (1985 Deed) that allows the EA to flood part of our property but not all of it, effectively they can flood the garden but not the house.

We raised the validity of the 1985 Deed with the EA, and in 2018 they confirmed in writing that there was a discrepancy within it but that they still considered it to be valid. In 2019 we asked the EA to raise this discrepancy with their legal counsel. In May 2020 we received a summary of that legal opinion but were told that it was privileged information and they would not allow us to see it. The EA is a public sector organisation and the project is a public one, we are taxpayers and it is wrong for the EA to withhold this legal opinion. They should operate with transparency.

4.2 Liability accepted and partial compensation paid
In 2013 the EA flooded [redacted] by 0.5 metre when they impounded the FSA. When we contacted them to receive compensation, we were told that they did not have a procedure to pay compensation, despite it being a legal requirement of The River Medway (Flood Relief) Act 1976 for them to do so. We continued to press our case over a period of years, they were then told by their own advisors that they had to pay compensation, and finally in November 2019 the EA accepted liability and paid us compensation. The amount claimed was the sum of individual elements, for two elements the EA only paid us 50%. This was unlawful as The River Medway (Flood Relief) Act 1976 specifically states that full compensation shall be paid.

4.3 EA to purchase [redacted]
The EA produced a Technical Note that showed the forecast flood levels at [redacted]. This was so serious that we offered to sell [redacted] to the EA. The EA commissioned two Estate Agents/Surveyors to provide full Red Book Valuations of the Open Market Value (OMV) of Bridge House. After we were given copies of the valuations the EA ceased communicating with us. After a year and a formal complaint we were told that they would not be proceeding with the purchase of [redacted]. The Technical Note is at Appendix E

4.4 Flooding of Household

Page 24 of the application states that there are no households within the additional area to be flooded. This conflicts with the Technical Note that the EA produced and gave to us. It states that their forecast is that [redacted] will flood to a depth of 1.4 metres. The Technical Note is at Appendix E

4.5 Flood Duration

On page 25 of the application the EA state that the enlarged FSA will only take one day longer to return to normal. This conflicts with the Technical Note the EA produced and sent to us, that states that it would be up to 8 days. The Technical note is at Appendix E

4.6 Solution for [redacted]

We decided that we had to find a solution to the future flooding. We employed an architect who submitted a planning application to demolish the lowest part of [redacted] and to abandon the ground floor, re-providing the same space lost with a raised extension to the rear, as well as raising the garage and driveway. This innovative and permanent solution would give [redacted] resilience to the worst case flood level that the EA had calculated. The EA supported this planning application and it was granted in April 2019.

4.7 Funding of [redacted] Solution

On 16th June 2020 the EA invited us to submit a proposal for them to make a contribution to the cost of implementing the above solution. The EA should have reached agreement with us before they submitted this application.

5. Penshurst Village

5.1 Risk of Death

Rogues Hill is a major route into and through the Village. It is the route used by the Fire Brigade, Police and Ambulance Service responding to emergency calls. It is also used by school buses and village traffic. When the EA impound the FSA this road floods to a depth of up to 1 metre, making it impassable, yet vehicles still attempt to pass. Raising the level of the FSA can only increase this flooding. This would create a **Moral Hazard**, with the potential for death. The water flow is known to be in excess of 70 cubic metres per second and should a school bus attempt to go through the flood, it could easily be carried away downstream. This risk of multiple death is high. The EA have merely said that it is the responsibility of the Highways Agency. The **Grenfell disaster** has taught us that Moral Hazards can prove fatal years later for many innocent members of the public.

5.2 Disregard for Penshurst Estate Residents

When the Leigh FSA was built in 1982 the EA's predecessor identified the risk of access to properties on the Penshurst Estate, and paid for the construction of a concrete road to ensure safe access. The EA's proposal to raise the height of the FSA now places access via that same concrete road at risk. On Page 21 the EA deny this problem, but say there may be scope to help . This is typical of the condescending attitude throughout both communications and the application. They have failed to provide a solution to a problem of their creation. A problem that affects not just six residential properties and farm buildings but also a nursery school with many children in its care.

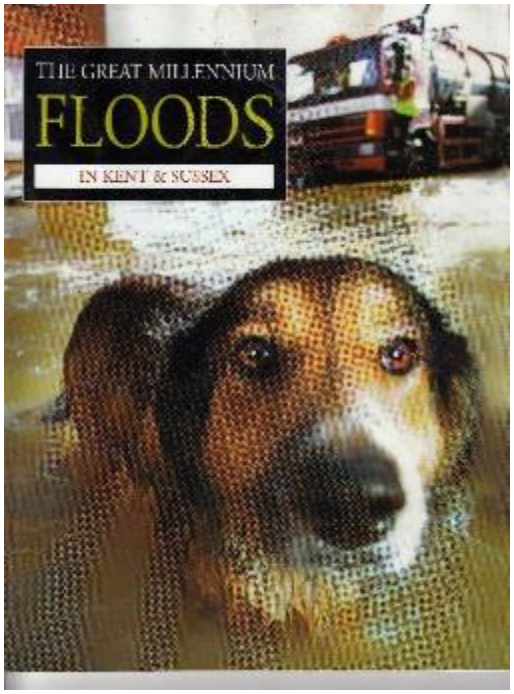
5.3 Disregard for High Street Properties

Flooding will affect properties on High Street. There are buildings used for warehousing, hobbies and garages to the rear of these properties. Increased flooding will cause damage to property and access problems. One of these properties also claimed compensation for flooding caused by the EA's impounding of the FSA in December 2013. Early in 2020 the EA admitted liability and paid compensation to the owner of the property.

Appendix A

[redacted]

Evidence of flooding 2000 and 2002



Flood of October 2000

Kevin Storey 3rd March 2020

Introduction

On the 2nd March 2020 at a meeting between the Environment Agency (Tim Connell) Dalcour Maclaren (Jonathan Young) and co-owner and resident of Bridge House (Kevin Storey) the question of whether [redacted] was flooded in the year 2000 was asked. This came from anecdotal evidence given to Jonathan Young whilst consulting with residents of Penshurst.

In addition Kevin Storey who, with his wife, purchased [redacted] in November 2004 recalled the vendors confirming that the property had previously flooded. Kevin Storey agreed to review the legal documentation, in particular the responses to the pre contract enquiries to determine when this was.

Legal Framework

The River Medway (Flood Relief) Act 1976 is the legislation enacted to allow the construction and operation of the Leigh Barrier.

The Authority referred to in the Act was initially Southern Water and is now the Environment Agency

Section 21of the Act authorised legal agreements to be entered into, that in return for payment, allowed the Authority to flood land.

Section 17 (4) of the Act states *"Where damaged is sustained by any person by reason of the exercise by the Authority of their powers under this section, Authority shall pay full compensation to that person and the amount of compensation shall, in default of agreement, be determined by the tribunal."*

Legal Agreement

A legal agreement dated 22nd January 1985 was entered into between the Authority and the owners of [redacted]. That agreement is in respect of land marked blue on the plan attached to the agreement.

The Blue land includes the rear garden, the kitchen and the workshop.

The Blue land does not include the lounge or the dining room nor the garage. Nor does it include some land to the sides and to the front of the house.

This legal agreement is known as the 1985 deed.

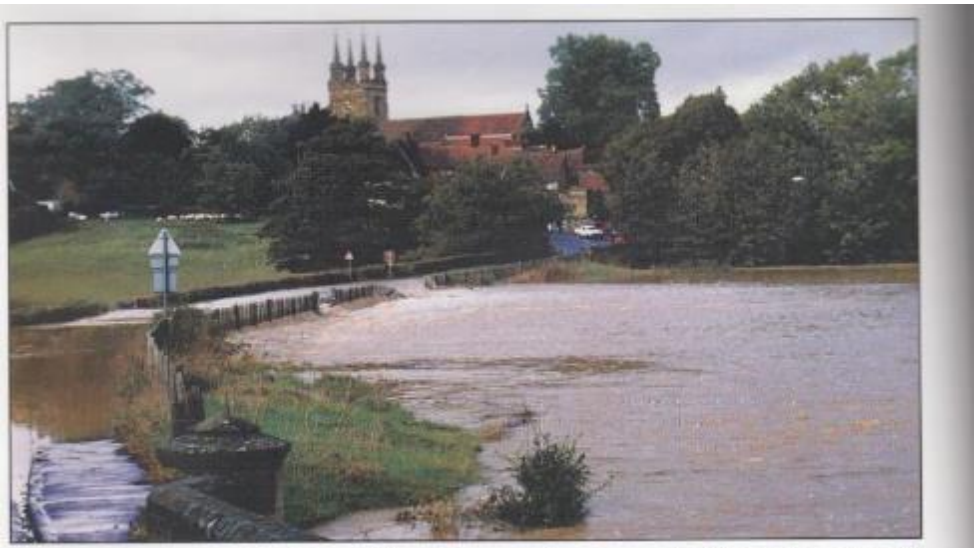
Confirmation of Flooding October 2000

A book titled *"The Great Millennium Floods in Kent & Sussex"* was published by Courier Newspapers shortly after the floods of 2000 (ISBN 0-9539832-0-X) This book comprises 133 photographs of flooded areas supported by narrative.

On page 40 there is a photograph of the bridge next to [redacted] in flood.

On page 42 there is a photograph of the road from Penshurst to Fordcombe in flood.

Photograph on page 40 of *"The Great Millennium Floods in Kent & Sussex"*



Penshurst at the confluence of rivers Eden and Upper Medway saw the causeway road to Bidborough disappear under water just below the entrance to Penshurst Place, cutting another bus route into Tunbridge Wells.

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[redacted] is situated just downstream of the confluence of the river Medway and the River Eden.

In December 2013 [redacted] flooded to 29.5 m AOD. This flooded property marked white on the deed. The Environment Agency paid compensation for this flooding.

This photograph on page 40 shows the flood level to be close to the bridge. It also shows the flood level against the metal gate to the field on the left hand side of the photograph.

These are the two points of reference used for comparison. By comparison with a similar photograph taken in December 2013 it can be seen that the flood levels are very similar.

The October 2000 flood level can therefore be determined to be approximately 29.5 M AOD at [redacted]. This would have flooded the property marked white in the 1985 deed by approximately 0.5 metre.

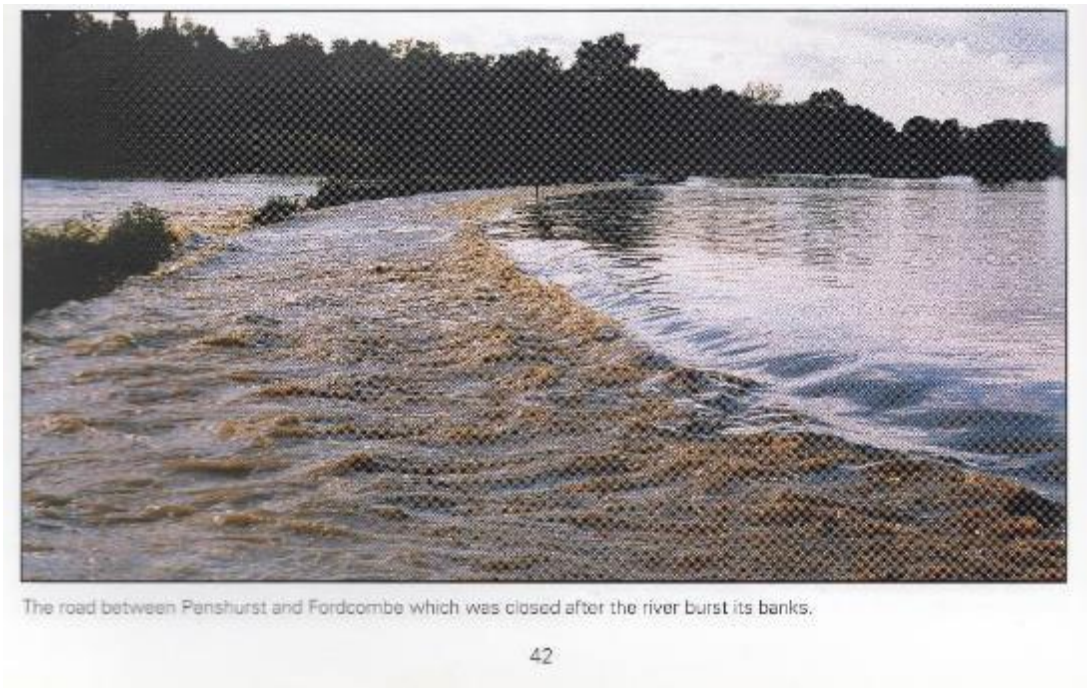
Photograph taken in December 2013

Photograph on page 42 of *"The Great Millennium Floods in Kent & Sussex"*

This is a photograph showing the River Medway heavily flooded across the road from Penshurst to Fordcombe in October 2000. The caption states that the road had to be closed.

This level of flooding is greater than I have seen during the fifteen years that we have lived in Penshurst.

This evidence of the flooding of October 2000 shows that this was a very serious flood. This supports the comparison made between October 2000 and December 2013 flood levels.



The road between Penshurst and Fordcombe which was closed after the river burst its banks.

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Confirmation of Flooding 2002

A review of the legal documentation provided to Kevin & Jenny Storey when they purchased [redacted] in November 2004 has been undertaken.

The responses to the pre contract enquiries included confirmation from the vendors that Bridge House did flood in 2002. They also confirmed that the flooding extended into the kitchen.

The J C White survey of [redacted], commissioned by the Environment Agency in July 2018, identifies the kitchen floor level to be 29 m AOD. It also identifies that property marked white in the 1985 deed is at 29 m AOD.

The 2002 flood level can therefore be confirmed to be greater than 29 m AOD. Therefore the flood extended to property marked white in the 1985 deed.

Conclusion

From the above evidence, [redacted] flooded to levels between 29m AOD and 29.5 m AOD in both October 2000 and in 2002.

Both of these flood events extended into property marked white in the 1985 deed.

Appendix B

[redacted]

Claim for compensation

Flood of December 2013

Introduction

[redacted] is situated next to the River Medway in Penshurst. On the 24th December 2013 the Environment Agency operated the Leigh Barrier so as to store water in the Flood Storage Area (FSA) at the maximum legal height at the barrier of 28.05 metres AOD. This caused flooding at [redacted], some damage was avoided by taking mitigating action but some damage was incurred. This claim is for compensation for the relevant damages incurred. The flood level at Bridge House was 29.5 metres AOD.

[redacted] has different floor levels on the ground floor. The kitchen is at 29 metres AOD, the lounge is at 29.4 metres AOD and the dining room is at 29.5 metres AOD.

HR Wallingford was commissioned by the Environment Agency to produce an independent audit of the operation of the FSA in the December 2013 flood. It identified that the impounding of the FSA started at 05.55 on 24th December 2013 and lasted until 20.40 on the 26th December 2013.

Legal Framework

The River Medway (Flood Relief) Act 1976 is the legislation enacted to allow the construction and operation of the Leigh Barrier.

The Authority referred to in the Act was initially Southern Water and is now the Environment Agency

Section 21of the Act authorised legal agreements to be entered into, that in return for payment, allowed the Authority to flood land.

Section 17 (4) of the Act states *"Where damaged is sustained by any person by reason of the exercise by the Authority of their powers under this section, Authority shall pay full compensation to that person and the amount of compensation shall, in default of agreement, be determined by the tribunal."*

Legal Agreement

A legal agreement dated 22nd January 1985 was entered into between the Authority and the owners of [redacted]. That agreement is in respect of land marked blue on the plan attached to the agreement.

The Blue land includes the rear garden, the kitchen and the workshop.

The Blue land does not include the lounge or the dining room nor the garage. Nor does it include some land to the sides and to the front of the house

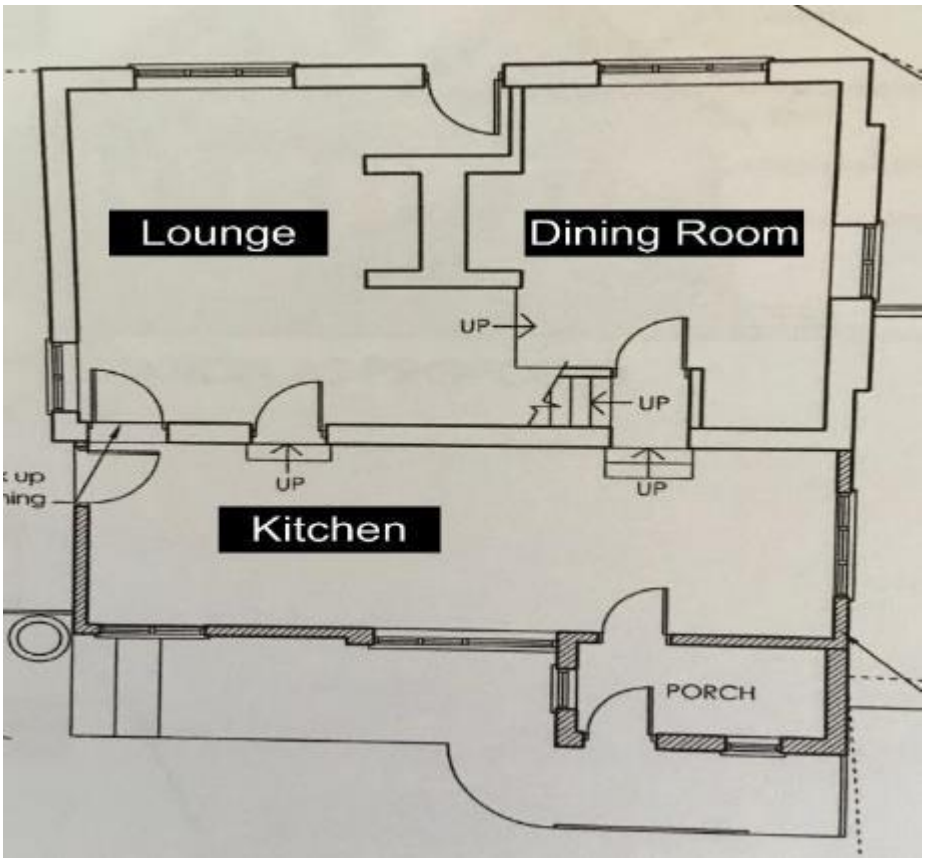
Compensation is sought for damage only in respect of land not marked blue.

No compensation is sought for damage in respect of land marked blue.

Layout of [redacted]

The drawing below shows the Kitchen and the Lounge that flooded. It also shows the Dining Room that did not flood internally, although all external walls were flooded as the property was encircled by flood water.

Flood water entered the Lounge from the two interconnecting doors between it and the Kitchen as well as coming in the front door.



The two interconnecting doors between Lounge and Kitchen where floodwater entered the Lounge

Floodwater also entered the Lounge through the front door

Mitigating works

At 2 am on Christmas Eve the hourly increases in the water level indicated that the main house would flood and that it was time to remove items from the ground floor to the 1st and 2nd floors. These items included rugs, small furniture, loose items, books and soft furnishings. This was a labour intensive exercise and took about 6 hours, but proved to be effective in reducing the damage to a minimum. The House was the first priority. Second priority were our cars, which were removed from our driveway and parked on the road on higher ground. Third priority was the garage but the flood levels to the rear of the house were then approximately 1 metre deep, making it unsafe to have waded through to get to the garage. Damage to the garage contents was mitigated on the 23rd December as small items in the garage had been lifted off the ground where possible and some larger items raised by 100mm wooden blocks, which proved to be insufficient.

Damages not sought

The sidecar fitted to the 1924 Norton was removed, it had suffered from water ingress, but only required cleaning and re-greasing of the wheel bearing. No long term damage was incurred.

Small items and tools in the garage were flooded but, were cleaned and dried with no permanent damage.

No claim is made for labour as no costs were incurred.

Damages incurred

Water flooded the Lounge to a level of 95mm causing damage to the plaster walls and some wooden architrave.

Water did not enter the Dining Room but the flood waters acting on the external walls caused damage to the plaster on the internal walls.

Water flooded the garage to a depth of 500mm. Inside the garage were a collection of Classic Motorcycles. These included:

- 1911 3 ½ hp Triumph fitted with a wicker sidecar. Registration number BK 574 This had been raised 100mm off the ground on wooden blocks.
- 1937 Velocette GTP. Registration number 608 UXC. This had been raised 100mm off the ground on wooden blocks.
- 1924 Norton 16H fitted with a Bramble sidecar. Registration number SV 7403
- 1929 Norton Model 19. Registration number BF 4012
- 1957 Matchless G3LCS. Registration number YKR 185

- 1960 Norton/Matchless Special. Registration number 6219 PX

The 1911 3 ½ hp Triumph fitted with a wicker sidecar is a very basic motorcycle and, although flooded was able to be stripped to remove all water and to re-grease its bearings, its magneto was dried and it ran again but the magneto should be stripped and reconditioned to ensure long term working.

The 1937 Velocette suffered water in the engine, clutch, gearbox and wheel bearings. The piston was rusted in the barrel. A new piston was sourced from the Velocette Owners Club Spares Scheme, the damaged barrel was sent to Autoworx Ltd to be honed to suit the new piston. The gearbox was drained and refilled with oil. The clutch now slips, requiring a strip down and new plates to be fitted.

The 1924 Norton will require stripping of the engine, clutch, gearbox and wheel bearings and the magneto will require reconditioning.

The 1929 Norton will require stripping of the engine, clutch, gearbox and wheel bearings and the magneto will require reconditioning.

The 1957 Matchless will require stripping of the engine, clutch, gearbox and wheel bearings and the magneto will require reconditioning.

The 1960 Norton/Matchless Special will require stripping of the engine, clutch, gearbox and wheel bearings and the magneto will require reconditioning.

A length of close boarded fencing and gravel boarding was displaced and damaged by the flood water

Compensation sought

Lounge & Dining Room
At the suggestion of Jonathan Young, Peter Cox were asked to inspect the damage to the plaster walls. They have submitted a full report (Copy attached separately) The cost to repair the plaster walls and architrave have been quoted at **£6,477.60**

Garage
1911 3 ½ hp Triumph fitted with a wicker sidecar. Cost of reconditioning magneto is **£250**

1937 Velocette GTP 608 UXC. From parts purchased and parts still to be purchased the cost of full repair will be **£450.00**

1924 Norton 16H Cost of reconditioning magneto is **£250** other costs are estimated at **£200**

1929 Norton Model 19. Cost of reconditioning magneto is **£250** other costs are estimated at **£200**

1957 Matchless G3LCS. Cost of reconditioning magneto is **£250** other costs are estimated at **£200**

1960 Norton/Matchless Special. Cost of reconditioning magneto is **£250** other costs are estimated at **£200**

Fencing
2.5 metres of close boarded fencing at £30 per metre has been estimated to be **£75**

Total compensation sought **£9,052.60**

Without the mitigating action that was taken the claim for compensation would have been much higher.

The compensation sought includes estimates but is on a full and final settlement basis for the December 2013 flood.

Chronological List of Photographs

Photo #1932 Date 24 December 2013 Time 06:46

Christmas Eve. Mitigating works in the Lounge

Photo #1940 Date 24 December 2013 Time 08:14

Christmas Eve. Floodwater at the front (East) of [redacted]

Photo #1944 Date 24 December 2013 Time 08:18

Christmas Eve. Floodwater at the front (East) of [redacted]

Photo #1945 Date 24 December 2013 Time 08:35

Christmas Eve. Floodwater to the East of [redacted]

Photo #1947 Date 24 December 2013 Time 08:52

Christmas Eve. Mitigating works in the Dining Room

Photo #1948 Date 24 December 2013 Time 09:07

Christmas Eve. Flood water to the South East of [redacted]

Photo #1949 Date 24 December 2013 Time 09:08

Christmas Eve. Flood water to the South of [redacted]

Photo #1950 Date 24 December 2013 Time 09:08

Christmas Eve. Flood water to the South West of [redacted]

Photo #1951 Date 24 December 2013 Time 09:09

Christmas Eve. Flood water to the North West of [redacted]

Photo #1955 Date 24 December 2013 Time 09:51

Christmas Eve. Flood water level at the Workshop and Garage

Photo #1956 Date 24 December 2013 Time 09:51

Christmas Eve. Flood water to the South of [redacted]

Photo #1957 Date 24 December 2013 Time 09:52

Christmas Eve. Peak flood water level in the Kitchen

Photo #1958 Date 24 December 2013 Time 09:52

Christmas Eve. Peak flood water level in the Kitchen

Photo #1961 Date 25 December 2013 Time 08:17

Christmas Day. Loss of close boarded fence due to flood water

Photo #1962 Date 25 December 2013 Time 08:17

Christmas Day. Close boarded fence found in driveway

Photo #2023 Date 29 December 2013 Time 10:00

Christmas eve + 5 days. 1911 Triumph post flooding to a depth of 500mm

Photo #2024 Date 29 December 2013 Time 10:00

Christmas eve + 5 days. 1924 Norton & Sidecar post flooding to a depth of 500mm

Photo #2025 Date 29 December 2013 Time 10:01

Christmas eve + 5 days. Sodden board showing garage flood level of 500mm

Appendix C

[redacted]

Evidence of flooding December 2019

Flood of December 2019

Introduction

[redacted] is situated next to the River Medway in Penshurst.

[redacted] has different floor levels on the ground floor. The kitchen is at 29 metres AOD, the lounge is at 29.4 metres AOD and the dining room is at 29.5 metres AOD.

Legal Framework

The River Medway (Flood Relief) Act 1976 is the legislation enacted to allow the construction and operation of the Leigh Barrier.

The Authority referred to in the Act was initially Southern Water and is now the Environment Agency

Section 21of the Act authorised legal agreements to be entered into, that in return for payment, allowed the Authority to flood land.

Section 17 (4) of the Act states *"Where damaged is sustained by any person by reason of the exercise by the Authority of their powers under this section, Authority shall pay full compensation to that person and the amount of compensation shall, in default of agreement, be determined by the tribunal."*

Legal Agreement

A legal agreement dated 22nd January 1985 was entered into between the Authority and the owners of [redacted]. That agreement is in respect of land marked blue on the plan attached to the agreement.

The Blue land includes the rear garden, the kitchen and the workshop.

The Blue land does not include the lounge or the dining room nor the garage. Nor does it include some land to the sides and to the front of the house

Flood levels

At 11 am on Friday 20th December the hourly increases in the water level indicated that the house and garage may flood. Mitigating action was taken to protect items in the house, our cars and items in our garage.

At 5pm on the 20th December 2019 the Environment Agency operated the Leigh Barrier so as to store water in the Flood Storage Area (FSA).

At 7pm the flood levels in [redacted] and its garage reached their maximum of 29.13 m AOD.

At 06.42 on Saturday the 21st December the FSA reached its maximum level for this flood event. The height at the barrier of the water level was 27.05 metres AOD. Details were kindly provided by David Lowe (Environment Agency).

Although the operation of the Leigh Barrier caused flooding at [redacted], significant financial damage was avoided by us taking mitigating action.

Mitigating action

Items were moved from the ground floor to the 1st and 2nd floors. These items included rugs, small furniture, loose items, books and soft furnishings. This was a labour intensive exercise and took about 6 hours, but proved to be effective in reducing the damage to a minimum, one glass table top was broken during the move and the dishwasher failed due to the floodwater. The House was the first priority. Second priority were our cars, which were removed from our driveway and parked on higher ground. Third priority was the garage where items in the garage had been lifted off the ground, which proved to be sufficient to avoid any financial damage.

Conclusion

No financial claim is being made for the flooding caused by the operation of the Leigh Barrier for this flood event.

Mitigating action taken was labour intensive and physically demanding. Although we will always try to mitigate any loss, it must be considered that if we were away on a holiday during a future flood event, no mitigating action would be possible and a claim for damages would be a significant sum, probably in the tens of thousands (total loss of furniture, rugs, electrical items etc). We are also both retired and there will come a time when we would just not be physically capable of lifting and shifting the volume of items on the ground floor.

There is also another loss that we suffer. The loss of utility of our garage, we have built staging to keep vehicles up out of flood levels, but this means that the garage is now effectively permanently high level storage which restricts our use of it.

We ask the Environment Agency to recognise the flooding caused, and to confirm that they accept that the mitigating action taken for this flood event cannot always be relied upon.

Chronological List of Photographs

Photo #2705 Date 20 December 2019 Time 14:10

Floodwater by bridge

Photo #2727 Date 20 December 2019 Time 17:49

Floodwater in the garage. Not yet at maximum level.

Photo #2728 Date 20 December 2019 Time 17:49

Floodwater in the garage. Not yet at maximum level.

Photo #2731 Date 20 December 2019 Time 21:03

Floodwater in the kitchen. Shortly after maximum level.

Photo #2732 Date 20 December 2019 Time 21:03

Floodwater in kitchen. Shortly after maximum level.

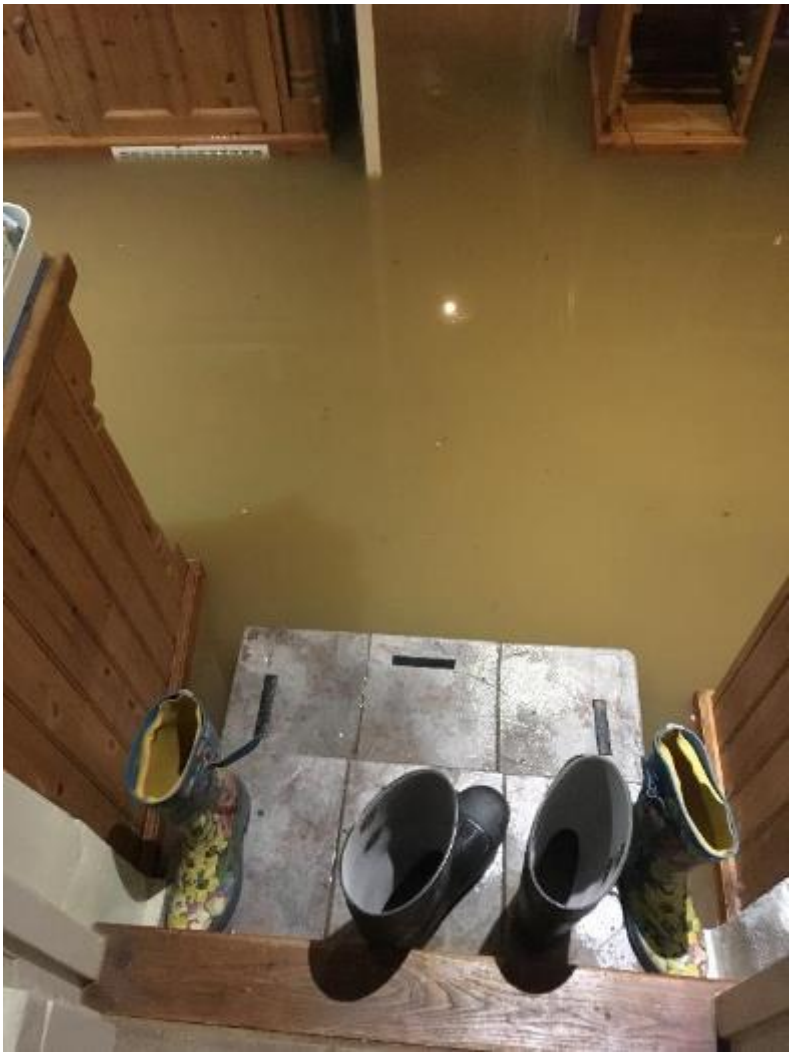


Photo #2733 Date 20 December 2019 Time 21:03

Floodwater in the kitchen. Shortly after maximum level.

Photo #2746 Date 22 December 2019 Time 11:14

Mitigating action taken. Two days after maximum flood level.

Photo #2748 Date 22 December 2019 Time 11:15

Mitigating action taken. Two days after maximum flood level.

Appendix D

[redacted]

Evidence of flooding February 2020

Flood of February 2020

Introduction

[redacted] is situated next to the River Medway in Penshurst.

[redacted] has different floor levels on the ground floor. The kitchen is at 29 metres AOD, the lounge is at 29.4 metres AOD and the dining room is at 29.5 metres AOD.

Legal Framework

The River Medway (Flood Relief) Act 1976 is the legislation enacted to allow the construction and operation of the Leigh Barrier.

The Authority referred to in the Act was initially Southern Water and is now the Environment Agency

Section 21of the Act authorised legal agreements to be entered into, that in return for payment, allowed the Authority to flood land.

Section 17 (4) of the Act states *"Where damaged is sustained by any person by reason of the exercise by the Authority of their powers under this section, Authority shall pay full compensation to that person and the amount of compensation shall, in default of agreement, be determined by the tribunal."*

Legal Agreement

A legal agreement dated 22nd January 1985 was entered into between the Authority and the owners of [redacted]. That agreement is in respect of land marked blue on the plan attached to the agreement.

The Blue land includes the rear garden, the kitchen and the workshop.

The Blue land does not include the lounge or the dining room nor the garage. Nor does it include some land to the sides and to the front of the house

Flood levels

At 8 am on Sunday 16th February the hourly increases in the water level indicated that the house and garage may flood. Mitigating action was taken to protect items in the house, our cars and items in our garage.

At 5.30 pm on Sunday the 16th February the Environment Agency operated the Leigh Barrier so as to store water in the Flood Storage Area (FSA).

Between 11pm on Sunday the 16th February and 1 am on Monday the 17th February the flood levels in [redacted] and its garage reached their maximum of 29.13 m AOD.

At 15.44 on Monday the 17th February the FSA reached its maximum level for this flood event. The height at the barrier of the water level was 27.815 metres AOD. Details were kindly provided by David Lowe (Environment Agency).

Although the operation of the Leigh Barrier caused flooding at Bridge House, significant financial damage was avoided by us taking mitigating action. This was the second flood event of the winter, the first being on Friday the 20th December 2019, it was also the second time that mitigating action avoided significant financial losses.

Mitigating action

Items were moved from the ground floor to the 1st and 2nd floors. These items included rugs, small furniture, loose items, books and soft furnishings. This was a labour intensive exercise and took about 6 hours, but proved to be effective in reducing the damage to a minimum, the fridge freezer suffered permanent failure due to the floodwater, some frozen food had to be discarded, a new fridge freezer will have to be purchased. The House was the first priority. Second priority were our cars, which were removed from our driveway and parked on higher ground. Third priority was the garage where items in the garage had been lifted off the ground, which proved to be sufficient to avoid any financial damage.

Conclusion

No formal financial claim is being made for the flooding caused by the operation of the Leigh Barrier for this flood event.

Mitigating action taken was labour intensive and physically demanding. Although we will always try to mitigate any loss, it must be considered that if we were away on a holiday during a future flood event, no mitigating action would be possible and a claim for damages would be a significant sum, probably in the tens of thousands (total loss of furniture, rugs, electrical items etc). We are also both retired and there will come a time when we would just not be physically capable of lifting and shifting the volume of items on the ground floor, or the garage.

There is also another loss that we suffer. The loss of utility of our garage, we have built staging to keep vehicles up out of flood levels, but this means that the garage is now effectively permanently high level storage which restricts our use of it. This second flood event proves that we cannot remove the staging after flood, for fear of a subsequent flood.

We ask the Environment Agency to recognise the flooding caused, and to confirm that they accept that the mitigating action taken for this flood event cannot always be relied upon.

Request for financial recompense

We would ask that the Environment Agency offer financial recompense for the small losses incurred in this flood and the flood of December 2019. It is accepted on our part that this would be a goodwill gesture by the Environment Agency as there is no legal necessity for them to do so. It would however be fair and reasonable as our not inconsiderable efforts and mitigating action have avoided significant financial losses.

Chronological List of Photographs

Photo #2821 Date 16 February 2020 Time 13:50

Mitigating action

Photo #2823 Date 16 February 2020 Time 13:50

Mitigating action

Photo #2821 Date 16 February 2020 Time 15:23

Floodwater in garden. Not yet at maximum level.

Photo #2843 Date 16 February 2020 Time 17:17

Floodwater in garden. Not yet at maximum level.

Photo #2845 Date 16 February 2020 Time 22:33

Floodwater in kitchen. Before maximum level.

Photo #2846 Date 16 February 2020 Time 22:33

Floodwater in the kitchen. Before maximum level.

Photo #2847 Date 16 February 2020 Time 22:33

Flood level in kitchen. Before maximum flood level.

Photo #2858 Date 17 February 2020 Time 12:56

Road closure to recover 40 tonne crane that suffered in the flood.

Photo #2862 Date 17 February 2020 Time 13:53

Garage after the flood. Mitigating action proved successful.

Photo #2863 Date 17 February 2020 Time 13:53

Garage after the flood. Mitigating action proved successful.

Appendix E

Project:	**Leigh Expansion and Hildenborough Embankments Scheme**		
Subject:	Penshurst modelled flood risk	**Consultant:**	VBA
Date:	June 2018	**Version:**	2

1. Purpose

This technical note outlines the modelled risk of flooding at and near to [redacted], Rogues Hill, Penshurst under three Leigh Flood Storage Area (FSA) operational scenarios. This has been produced as part of the Leigh Expansion and Hildenborough Embankment Scheme (LEHES) which is currently being progressed by the Environment Agency and partner organisations.

2. Modelled events

Under the existing situation, the Environment Agency impound flood water in the Leigh storage area to a maximum level of 28.05m Above Ordnance Datum (AOD), measured at the main embankment near to the mechanical gates. The current study is investigating whether this storage level could be increased to 29m AOD to increase storage within the flood storage area. The upstream impact of both of these storage levels has been simulated in the hydraulic model.

The hydraulic model has also been used to understand the risk of flooding if there was no storage area. This is referred to as the undefended scenario. The Environment Agency do not intend to promote this option, but it provides an understanding of the 'natural' risk of flooding with no impoundment.

Six design flood events have been simulated for the two Leigh FSA storage levels, with two design flood events simulated for the undefended scenario. These cover a range of event probabilities. Maximum flood levels have then been extracted from each of the model results. These water levels have been analysed to assess the risk of flooding to Bridge House.

3. Ground and threshold levels

Approximate ground levels have been identified using Light Imaging, Detection and Ranging (LIDAR) data at the following key locations (Figure 1):

- Lowest point on Penshurst Road: 28.9m AOD
- Average ground level on floodplain upstream of Penshurst Road: 27.6m AOD

Threshold levels have been taken from survey data:

- Front threshold of [redacted]: 29.5m AOD
- Rear threshold of [redacted]: 29.1m AOD
- Outhouse building at [redacted]: 28.7m AOD

Figure 1. Locations of key ground and threshold elevations against which modelled flood levels are compared

4. Modelled flood risk

Impact of Penshurst Road

Penshurst Road is raised above the surrounding land, creating a causeway which restricts the natural flow of water across the floodplain. In lower order events, up to and including the 20% (1 in 5) annual probability flood, the modelled water level upstream of the road rises to approximately the same as the minimum road level (28.9m AOD) but does not exceed it. The restriction on floodplain flow caused by the road results in flood levels which are higher upstream of the road compared with those on the downstream side, increasing flood risk at [redacted]. Although in larger events, water is modelled to overtop the road, the effects of the restriction on flow are still observed. It is this flow restriction which causes the differences in water levels upstream and downstream of the road illustrated in Tables 1 to 3 below.

Undefended scenario

Undefended modelled water levels are given in Table 1. These indicate that part of [redacted] would be at risk of internal flooding in the 5% (1 in 20) Annual Probability (AP) event

with no impoundment at Leigh. The front threshold of the property is exceeded for a 1% annual probability event with climate change but not in a 5% annual probability event.

Table 1. Undefended modelled water levels

Flood Event annual probability	Water levels near [redacted] (m AOD)	Water levels downstream of Penshurst Road (B2176) (m AOD)
5% (1 in 20)	29.4	28.7
1% (1 in 100 + CC)	30.3	29.4

Existing Leigh Operation

Modelled water levels from the existing situation (storage at Leigh to 28.05m AOD) are given in Table 2. In the two events for which undefended water levels have been modelled (5%, and 1% with climate change annual probabilities), the water level near [redacted] is approximately 0.1m higher as a result of the impoundment at Leigh than for the Undefended model water level. This increase means that in the 5% (1 in 20) Annual Probability (AP) event, water levels are about equal to the front threshold of the property.

Table 2. Existing situation (storage at Leigh to 28.05m AOD) modelled water levels

Flood Event annual probability	Water levels near [redacted] (m AOD)	Water levels downstream of Penshurst Road (B2176) (m AOD)
20% (1 in 5)	28.9	28.4
5% (1 in 20)	29.5	28.8
2% (1 in 50)	29.9	29.1
1.3% (1 in 75)	30.0	29.3
1% (1 in 100 +CC)	30.4	29.5
0.4% (1 in 250)	30.4	29.6

Proposed Increase Storage Option

Modelled water levels caused by raising the maximum flood storage at Leigh from to 29m AOD are given in Table 3. This illustrates that the change in maximum water level at Leigh has no impact on flood levels upstream at Penshurst.

Table 3. Proposed options (storage at Leigh increased to 29m AOD) modelled water levels

Flood Event annual probability	Water levels near [redacted] (m AOD)	Water levels downstream of Penshurst Road (B2176) (m AOD)
20% (1 in 5)	28.9	28.4
5% (1 in 20)	29.5	28.8
2% (1 in 50)	29.9	29.1
1.3% (1 in 75)	30.0	29.3
1% (1 in 100 +CC)	30.4	29.5
0.4% (1 in 250)	30.4	29.7