Defra Ref: DPI/H2265/20/13 (Public Inquiry)
River Medway Flood Relief Leigh Storage Scheme

This note sets out the Environment Agency's responses to the Inspector's question contained in Joanna Vincent's email to Pete Carty of 6th May.

<u>Question 1</u> raised by the Inspector:

"Does Appendix c supersede CD1.15 and if so can you direct me to where I should take the figure (for property's protected) from?"

Document CD1.15 (Strategic Business Case of January 2017) states on page 7:

> In order to maintain the current standard of protection (SoP) at the Leigh FSA, significant investment is needed. The structure was constructed in 1981 and a lot of the infrastructure is at the end of its operational life. A Safety Integrity Level (SIL) study was undertaken to provide an independent assessment of the true operational resilience of the site. The study found a number of potential single points of failure; the majority within the mechanical and electrical controls and the power supply. The Present Value (PV) cost for maintaining the SoP at the Leigh FSA is £10million, this would require a £0.6million of partnership funding. Maintaining Leigh FSA reduces flood risk (no longer at risk of internal flooding) to over 1,200 properties.
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> Improving the flood risk benefit provided by the Leigh FSA can be achieved by raising the normal maximum operating water level (NMOWL). This raising reduces flood risk to an additional 213 residential properties, and with a benefit cost ratio (BCR) of 11.3 and an incremental benefit cost ratio (iBCR) of 7.1 can be selected under the FCERM-Appraisal Guidance (AG) decision rule. The PV (Present Value) cost for the duration of benefits for increasing storage at the Leigh FSA is £13.8million. This option would require £2.9million of partnership funding. The local authority partners in the project team have stated that this funding can be made available and that they support this option.
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> The increased storage would improve the standard of protection at Hildenborough and reduce the size of flood defence required at this location. Increasing the volume of storage at the Leigh FSA is the preferred option and will be taken forward to the Outline Business Case (OBC). The local defence scheme at Hildenborough downstream of the FSA would protect an additional 62 properties not benefitting from the increased storage. The Hildenborough local defence will be taken forward to the OBC. The local authority partners in the project team have stated that they support this option.
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> The only technically viable FSA location on the River Beult (at Chainhurst) reduces flood risk (no longer at risk of internal flooding) to 32 properties in a 1 in 75 flood event. The PV (Present Value) cost for the duration of benefits for this FSA is £9.1million. This option would require £8.6million of partnership funding. The local authority partners in the project team have stated that this funding is
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Appendix C to Mr Connell's Proof (VBA Economics Report, February 2019) states on page 9:

3.1. Property counts

Table 3-1 lists the number of properties predicted to experience internal (above floor level) flooding, for a range of design flood events for each of the option scenarios in the present day (no climate change). These counts are taken from the large study area described in Section 2.3. In each case, counts are split into residential and non-residential. Non-residential properties include a full range of property types including businesses such as shops, offices and public buildings but also farm buildings. All property counts increase with rising event severity and reduce with increasing intervention.

Table 3-1 Present day count of properties with above floor level flooding

	5% (1 in 20)	1.3% (1 in 75)	1% (1 in 100)	0.4% (1 in 250)
Option 1: Do Nothing				
Residential	620	1,570	1,827	2,349
Non-Residential	973	1,581	1,732	1,981
Total	1,593	3,151	3,559	4,330
Option 2: Maintain Leigh FSA + MIOS				
Residential	337	1,252	1,517	2,203
Non-Residential	635	1,389	1,568	1,989
Total	972	2,641	3,085	4,192
Option 3a: Improve Leigh FSA (NMOWL 28.6m AOD) + MIOS + Hildenborough defence				
Residential	318	1,036	1,269	1,814
Non-Residential	618	1,292	1,526	1,951
Total	936	2,328	2,795	3,765
Option 3b: Improve Leigh FSA (NMOWL 28.85m AOD) + MIOS + Hildenborough defence				
Residential	309	1,001	1,183	1,814
Non-Residential	606	1,253	1,443	1,945
Total	915	2,254	2,626	3,759
Option 3c: Improve Leigh FSA (NMOWL 29.0m AOD) + MIOS + Hildenborough defence				
Residential	308	973	1,052	1,779
Non-Residential	606	1,185	1,306	1,909
Total	914	2,158	2,358	3,688

Environment Agency response to Question 1:

Yes, Appendix C of Mr Connell's proof (CD.4.4.3c) does supersede CD1.15.

Core Document 1.15 is the Strategic Outline Case (SOC) that was internally approved in February 2017. Appendix C of Mr Connell's proof is an appendix to the Outline Business Case (OBC) that was internally approved in July 2019. The Outline Business Case supersedes the Strategic Outline Case.

Table 3-1, above, is an appendix to the OBC which shows the numbers of properties protected by the proposed scheme in different flood events.

Mr Connell's proof has relied up Table 3.1 to identify the number of properties that will be better protected as a result of the Revised Scheme. The relevant part of Mr Connell's proof, 7.2.3 – 7.2.5 is produced below showing how the figures have been produced using Table 3.1 with the red additions highlighting how the numbers have been derived from Table 3.1:

7.2.3. With reduced flood depth there is a corresponding reduction in the extent and severity of flooding. Section 3.1 of the Economics report produced by VBA Joint Venture Ltd (see Appendix C) in support of the Outline Business Case for the LEHES showed that without the benefit of the Leigh FSA there are 1,570 (Table 3.1 – Option 1 for a 1.3% design event) residential properties that are at risk from flooding in Tonbridge and Hildenborough for a 1.3% AEP design event. For a 1% AEP design event this figure rises to 1,827 properties (Table 3.1 – Option 1, for a 1% design event).

7.2.4. With the benefit of the FSA under the Scheme, 318 (Table 3.1 – Option 1, 1.3% minus Option 2, 1.3%) of these properties will be protected from flooding in a 1.3% AEP design event, and 310 (Table 3.1 – Option 1, 1% minus Option 2, 1%) properties will be protected from flooding in a 1% AEP design event. In both scenarios the severity of flooding to the remaining properties will be reduced.

7.2.5. With the benefit of the FSA under the Revised Scheme, a further 216 (Table 3.1 – Option 2, 1.3% minus Option 3, 1.3%) residential properties will be protected from flooding in a 1.3% AEP design event, and a further 248 (Table3.1 – Option 2, 1% minus Option 3, 1%) properties will be protected from flooding in a 1% AEP design event. In both scenarios the severity of flooding to the remaining properties will be further reduced.

It can also be noted that the text to Table 3.1 refers back to section 2.3 which describes the study area. As section 2.3 and Figure 2.1 confirm, the study area covers the equivalent of model areas 2, 3 and 4.

Mrs Robertson has also submitted The Environment Agency's River Medway Flood Storage Area Initial Assessment (October 2016). This dates from October 2016 and was part of the assessment of the options at that stage. Again, further work has been done since then. The figures in the Outline Business Case are the relevant ones for this Inquiry.

<u>Question 2</u> raised by the Inspector:

"To what extent does the Expansion of the Leigh FSA take into account proposed development in Tonbridge?"

<u>Environment Agency response to Question 2:</u>

This question has arisen in that there is a concern by some objectors that new development or the refurbishment of existing buildings or residential properties in Tonbridge will proceed on the basis that the Leigh Flood Storage Area (FSA) will be expanded.

The control of development is a matter for the local planning authority, in this case Tonbridge and Malling Borough Council. However, from an Environment Agency perspective, development after 2011 cannot be counted in the economic benefits or funding calculations for flood defences. This is discussed in section 2.3 of the VBA report (Appendix C of Mr Connell's proof). It is in this sense that all additional capacity gained in the Leigh FSA would be to benefit existing properties.

This is in accordance with Defra's Flood and Coastal Resilience Partnership Funding (the Rules). The Environment Agency cannot include any development constructed after 2011 in their economic consideration for new flood defences – see the last paragraph of page 3 which states,

> *For all outcome measures, benefits in relation to any new properties (residential or non-residential) or existing buildings converted into housing after 1 January 2012 will not be counted.*

The Rules can be found at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/221094/pb13896-flood-coastal-resilience-policy.pdf

A query was also raised about planning policy. The relevant guidance is in paragraph 155 of the National Planning Policy Framework (NPPF) which states that:

> *Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.*

In short, any new development in these areas at highest risk must be flood neutral - in that it is not at risk itself and does not increase flood risk to others. The full detail of how flood risk is considered in planning can be found in the NPPF, and in the online Planning Policy Guidance document, on the gov.uk webpage.

Environment Agency
6th May 2021