



See Distribution

18 November 2021

Planning Application A/184/21/PL: Angmering Flood Alleviation Scheme (FAS) Phase 1

References:

- A. Environment Agency Letter HA/2021/123562/01-L01 dated 9 Nov 2021.
- B. Angmering Flood Alleviation Scheme (FAS): Note to update Status of Phase 1 and inform Design Approach and Ecological Survey Requirements for Phase 2 dated 8 November 2021.
- C. On-line meeting re Angmering FAS between EA / LLFA dated 26 October.
- D. Presentation for Angmering Fluvial and Surface Water Flood Alleviation Scheme Project Meeting dated 30 January 2020.
- E. Angmering Flood Alleviation Scheme Options Modelling Report dated 4 December 2018.

Introduction

1. Reference A sought additional information from West Sussex Lead Local Flood Authority (LLFA) as applicant for the above planning application to allow the Environment Agency to assess the proposed development.
2. Specifically, the application required supplementary information, as follows:
 - an explanation as to why other options have not been further explored;
 - evaluation of the degree to which the flow restriction is likely to result in accumulation of silt; and how this will be removed;
 - the incorporation of enhancements/mitigation for the scheme such as of scrapes within the flood plain; and
 - evidence there is no perched flow/impediments to eel passage i.e. raising of bed levels.

3. This letter provides additional information in response to the points set out above and forwarded under Reference A.

Consideration of Options

4. Other options have been considered for Angmering Flood Alleviation Scheme, both by the EA when the project was under EA management and subsequently.
5. The options considered by the EA are set out in Reference E and costed and summarised in Reference D. The preferred option under consideration in January 2022 was a Mott McDonald proposed storage scheme plus natural flood management interventions costed at a total of £608, 0000 whilst yielding a benefit to only 22 properties in terms of reduced flood risk. This was deemed insufficient to meet EA cost benefit criteria.
6. The Phase 1 FAS exploited an opportunity to modify the proposed existing road access for the Land South of Water Lane development, from a free-standing bridge to a culverted access and then attenuate flows behind the road embankment by restricting flows through the culvert. This offers a comparatively low-cost option as the works for the embankment and culvert are being borne by the developer for Land South of Water Lane and the morphology of the existing flood plain at this location offers additional capacity to store storm water.
7. A series of options have been considered for Angmering FAS by the LLFA since it assumed responsibility for the project in March 2020. The original FRA for the scheme compiled in October 2020 considered flow restrictions on the Black ditch at 4 further locations in addition to the culverted road access to Land South of Water Lane. For the reasons set out in the FRA Supplement that accompanies planning application A/184/21/PL, the restrictions on flow on the Black Ditch are now focused on only 1 additional location in the area upstream of Ecclesden Farm. Other options have been considered and continue to be considered for flow routes independent of the Black ditch but the primary focus at this stage is The Black Ditch.
8. At the on- line meeting with the EA, the LLFA was asked why further use is not being made of the Highways attenuation area? The highways attenuation area has been designed to attenuate highways flows only. If fluvial flows are allowed to enter this area then this would not be beneficial as there will be situations where the highways attenuation area will be full due to fluvial flows and with no capacity to receive flows from the highway (should a short and high intensity event fall on the highway for example). The decision has therefore been taken to keep the highway storm run-off and fluvial systems separate.
9. The Angmering FAS is evolving in response to consultation with the landowners and other key stakeholders and budget. The proposed way forward has been set out in Reference B.

Consideration of Siltation and its Removal

10. Notwithstanding the fact that base-flows continue unimpeded, it is assessed that some siltation will occur during extreme storm events; the LLFA has commissioned WSP to model this and evaluate the most effective means of managing this problem. It is proposed that grant of planning permission is conditional upon the EA's review of this assessment and approval of the proposed mitigation, prior to commencement of works on site.

The incorporation of enhancements/mitigation for the Angmering FAS

11. Subject to agreement with Barratt David Wilson Homes, the LLFA is keen to incorporate enhancements / mitigation as part of phase 1. This process has already commenced and the LLFA has been instrumental in the incorporation of a proposed hedgerow on the western bank of the Black ditch. With respect to the incorporation of scrapes, Phase 1 will not significantly change the low and half full in-bank flows (due to the presence of the orifice). The appointed ecologist has therefore suggested that these could take the form of a stepped channel in places along one or both sides of the ditch, ideally with the base about 0.5m above the channel invert to allow for regular flows to remain there (see Figure 1 below).

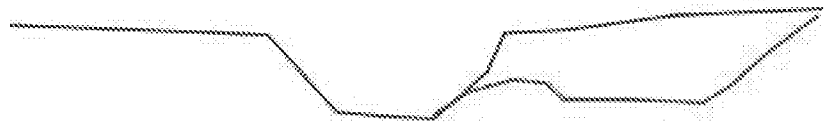


Figure 1: modified stepped channel shown in red.

As the EA is a partner in this project, the LLFA would be happy to work with EA colleagues and the landowner to further determine the location and design of these scrapes. Their scope also is provided for within the approved Landscape and Ecological Management and Maintenance Plan for the Land South of Water Lane development that seeks to: *Manage vegetation on the banks of the stream, ditches and swales to maintain water flow and to create potential wildlife habitats.* Additionally, as set out in Reference B, the LLFA has set out its aspiration to work with the EA, SDNPA and Sussex Wildlife Trust and convene a workshop to discuss the follow-on phase of the Angmering FAS to ensure that it delivers multi-functional benefits including the creation of habitats and enhancement of biodiversity.

Evidence there is no perched flow/impediments to eel passage

12. The evidence is in the detailed design drawings submitted with the planning application that show that the invert level of the orifices is at the same invert level as the main channel allowing based flows, and any eels or lamprey present, to pass through unimpeded.

13. The LLFA trusts the above satisfactorily addresses the concerns raised but remains keen to work with EA to ensure that the design of mitigation features meets with EA approval.

Yours sincerely

Ray Drabble
Drainage Engineer for Lead Local Flood Authority

Distribution:

Environment Agency	Sophie Brown
Environment Agency	Ele Pilla
Adur Worthing Council	Michael Eastham
Adur Worthing Council	Roger Spencer
South Downs National Park Authority	Richard Ferguson
Angmering Parish Council	Nikki Hamilton-Street
Barratt David Wilson Homes	Glenn Pendry