

Climate Change

Date:	14 December 2022	CH2M HILL United Kingdom
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How is GFPS dealing with climate change?

The flood defences to be constructed as part of the GFPS need to be resilient and adaptive to climate change predictions whilst recognising that simply constructing to a future predicted flood defence level is not necessarily the best economic or sustainable option. Due to the uncertainties in projecting future levels of flood risk, the proposed GFPS measures are to be designed, where possible, so that they can be adapted in future i.e. a managed adaptive approach is to be adopted. This approach was discussed and agreed with the Scottish Government in 2019.

Adaptation plans allow for the planning and preparation of flood risk management measures, that can adjust efficiently as the future climate change and science progresses and more information on risk becomes available. Such plans can be made up of a series of actions that might be taken at various points in time. The GFPS adaptation plan has yet to be prepared but will incorporate actions to re-visit previously discounted options e.g. flood storage was previously discounted due to the presence of major accident hazard pipelines and high voltage infrastructure but such infrastructure may not exist and provide a constraint in the future.

Therefore, flood defences will be designed to account for climate change with the majority of flood defences constructed to the 200 year plus up to 0.6m freeboard to ensure the scheme provides a minimum 1 in 200 year standard of protection. In a few locations, the proposed flood defences will be constructed to account for climate change due to the difficulties in accessing these areas (SPA, ground conditions, proximity to hazardous industry) and the form of construction proposed is not readily adaptable in terms of increasing the height of defences.

The potential impacts of climate change on the proposed flood defences is significant, both in terms of the increase in defence length but also height. Analysis has shown that defence heights on the River Carron and River Avon would need to increase by 0.5 – 1.65m and on the Grange Burn defences would need to increase by around 0.3 – 0.4m to deal with future increases in rainfall. In order to provide some resilience to these potential future increases, the GFPS flood defences will be designed to allow future raising by up to 0.6m without the need to carry out strengthening of foundations. Whilst increasing the height of defences would offset some of the impacts of climate change, they would be insufficient on their own as new defences would also need to be constructed in areas not currently at risk but at risk when climate change is considered. In addition, particularly on the Carron and Avon the proposed increase in defence height is still significantly lower than the predicted increase in flood defence height required to fully accommodate current climate change impacts. Therefore alternative measures such as flood storage, conveyance improvements and

Technical Memorandum

relocation, as well as others, would need to be considered. Natural flood management could also be used to offset the impacts of climate change but it is unlikely that this on its own would be sufficient.