TARLAND BURN RESTORATION

KEY QUESTIONS AND ANSWERS

QUESTION: IS THIS THE FINAL DESIGN?
This is not a final, fixed design. The outputs presented here are the first round of design and modelling, showing the full potential for restoration across the study site. The results of this first exercise provide an understanding of where adjustments are required, for future iterations of the design.

QUESTION: WHAT DO WE MEAN BY THE FLOOD RETURN EVENTS MODELLED?

- A 200-year flood is a flood event that has on average a 1 in 200 chance (0.5% probability) of being equalled or exceeded in any given year. This means that, statistically, a 200-year flood could happen once every 200 years, but it could also happen more or less often than that.
- A 200-year flood is a rare event, but is typically used in Scotland to show what areas are at risk from river floods. Farming communities are often interested in lower return period floods like the 2-year, 10-year and 20-year floods.
- A 2-year flood is a much more common event: it is the level of flood that has a 50/50 chance of occurring or being exceeded in any given year.
- A 10-year flood has a 10% chance of occurring in any given year and a 20-year flood has a 5% chance of occurring in any given year.

It is important to note that the term "200-year flood" is a statistical term, and it does not mean that a flood of that magnitude will only happen once every 200 years. For example, it is possible that two 200-year floods could happen in a row, or that there could be no 200-year floods for 200 years.

The flood output maps show water depths at the peak of each flood event. This is essentially the 'worst-case' scenario for each flood event and is a temporary scenario.

QUESTION: DOES THE RESTORATION DESIGN AFFECT FLOODING IN TARLAND?
The model results show that the current design does not impact existing flood risk within Tarland village.

The flood maps do show a very localised area of additional flooding immediately upstream of Tarland Bridge as a result of the design, however, this has been reviewed by the consultants and confirmed as an artefact of the mapping of the model results, rather than a physical change to flooding.

QUESTION: HAS DRAINAGE BEEN CONSIDERED IN THE FLOOD MODELLING?
Site drainage information is important for guiding the design. The open or surface drainage network has been included within the model, but the model does not consider sub-surface drains/ field tiles. However, it's only under more normal flow levels that the field tiles will be operational; under flood situations, the water levels are so high in the main channel and open drains that the below-surface drainage systems will be inundated, and so are not expected to have any additional effect on flooding.

QUESTION: HOW HAS CLIMATE CHANGE BEEN CONSIDERED?
Flood return periods are based on historical data, and they can change over time due to factors such as climate change. We have indicated the 200 year flood for Tarland with an increased rainfall based on SEPA's assessment of how the local climate might change. For example, if the climate becomes more extreme, then the return periods for floods may decrease. This means that floods that were once considered to be rare events may become more common.

QUESTION: WILL THE DESIGN INCREASE FLOW SPEED AND THE LIKELIHOOD OF BANK EROSION?

Within the restoration site, the average velocity or flow speed of the burn will be reduced as a result of the design. Localised increases in velocity (e.g. at bends in the river) will be expected, as the design is aimed at encouraging more natural river processes in the appropriate places. However, large areas of the design include lower and less steep riverbanks which will generally be less susceptible to erosion. Additionally, risk of significant erosion and scouring can be mitigated against during the construction process, to ensure that the bankside vegetation has time to re-establish and the banks re-stabilise following the physical works.

QUESTION: HAS RESTORATION OF SIMILAR SITES BEEN SUCCESSFUL?

A restoration project on the Eddleston Water, near Peebles in the Scottish Borders, has delivered work similar in nature to the Tarland proposals, but on a larger scale. That project has involved the restoration of several individual stretches of the river, through predominantly agricultural land. The designs included the creation of a meandering channel, wetlands, putting large wood back into the river and tree planting. As well as benefitting downstream flood risk to Peebles, as a result of the restoration and the new habitats created, there has been an increase in fish numbers and invertebrates at the sites. Due to its success, the project has recently been designated the UK's first UNESCO eco-hydrology demonstration site.