Ide Flood Report Update

20th November 2024

Ide Parish Council have now received the comprehensive catchment study and preliminary flood alleviation options report for the Markham catchment in Ide, Devon, prepared by Teign Consult Consulting Engineers.

The study investigates the sources of runoff that caused flooding in November 2023 and proposes various flood alleviation options.

Key points from the document include:

- **Study Background and Site Location**: The study covers the Markham catchment, a tributary of the Fordland Brook, extending from Idestone Cross to Polehouse Lane. The area is prone to flooding due to runoff from fields, highways, and watercourses.
- **Sources of Information**: The study utilises data from the Environment Agency (EA), Southwest Water (SWW), and previous surveys to understand the hydrology and catchment areas.
- **Catchment Areas and Culvert Details**: The Markham catchment area, divided into sub-catchments, covers approximately 0.6673 km^2. For a 100-year return period, the design flow is 1.568 m^3/s, increasing to 2.289 m^3/s with a 46% climate change allowance. Upstream storage behind the railway embankment must hold about 10,000 m^3 of water for the 100-year flood event. The existing 375mm culvert under Fore St has a capacity of 0.431 m^3/s.
- **Flood Alleviation Options**: Several options are proposed, including enlarging downstream pipe capacity, creating upstream storage areas, and utilising the railway culvert for flow attenuation. Each option is discussed in terms of feasibility and potential impact and are summarised in Table 1 below.
- **Report Conclusions**: The current railway embankment culvert can handle flows greater than a 1 in 100-year event with a 46% climate change allowance. However, additional measures, such as a new 600mm culvert or storage areas, are needed to manage flood risk effectively. An extra 600mm culvert and downstream earthworks would be necessary to provide adequate flow capacity to Fordland Brook. Further investigation into utility services and property-level protection is recommended.

Consultation

The report has been distributed to members of Ide Parish Council, Ide Flood Working Group, Flood Risk Management Team DCC, and the Land Management team at the Environment Agency for information and feedback.

DCC

The following comments have been received from DCC:

To advance any of the options, it would be necessary to demonstrate an economic benefit, such as a sufficient cost/benefit ratio. Given the current framework of central government flood risk funding, this is dependent on the number of properties at risk of flooding that would experience a reduced risk because of the proposed works. Considering there are six properties at risk,

including three commercial properties that flooded last year, it is unlikely that large engineering projects such as earth bunds and extensive storage areas would be justifiable due to costs.

The option to utilise the old railway embankment, while appearing advantageous at first glance, may present practical challenges. Various modifications to the structure would be required to make it suitable for water impoundment, which it is not currently designed for. Additionally, pending legislation may reduce the size threshold for an impounded waterbody classified as a reservoir to 10,000 cubic meters, which would introduce stringent legislative and safety requirements.

DCC has now forwarded the report to the project engineer to assess the feasibility of any of the options based on cost-benefit analysis. The additional 600mm pipe option may warrant further exploration, and therefore, the project engineer will request his team (consisting of one member) to develop a preliminary cost estimate.

There may be potential to implement some or part of the suggested options in the report, in conjunction with smaller-scale natural flood management (NFM) efforts upstream to achieve an adequate benefit.

However, all progress is contingent upon the availability of DCC funding.

Additionally, DCC is seeking funding for surface water drainage surveys and will clear village drains in Autumn.

Next Steps

1. Await preliminary costings from DCC.
2. Meet/ receive comments from Church Commission as primary landowner.

Table 1 Summary of Options proposed:

Option	Description	Feasibility	Notes
1	**Enlarging Downstream Pipe Capacity**: This involves adding a new 600mm pipe alongside the existing 375mm pipe to increase the flow capacity to the Fordland Brook. This would help manage the 100-year flood event plus an element of climate change.	Feasible, but requires crossing several utility services, including a gas main, electricity cables, a water main, and a combined sewer. Further investigation of the sewer levels is needed to confirm feasibility.	**Pros** - 100yr flood protection **Cons** - complexity of crossing utility services like gas mains, electricity cables, water mains, and combined sewers suggests significant expenses, likely to include new pipe, earthworks to divert excess flows, and potential utility service crossings.
2	**Railway Culvert Works and Storage Area**: The existing railway culvert could be modified to throttle flows, creating an upstream storage area. This would involve constructing a dam to store water behind the railway embankment, which would require structural assessment.	Feasible, but requires a structural assessment of the railway embankment to ensure it can handle the additional water storage. The creation of a dam and the installation of a throttle device would also be necessary.	**Pros** – reduction in volume reaching lower catchment **Cons** – Costs - including structural assessments of the railway embankment, construction of the dam, and installation of the throttle device. Storage of approximately 10,000m^3 of water, also implies substantial construction costs.
3	**Upstream Storage Area**: Create a storage area upstream of the railway embankment. This would involve constructing a dam to manage flows, but the valley sides are steeper, requiring a greater depth of water for the same volume.	Feasible but the valley sides are steeper in this area, requiring a greater depth of water for the same volume of storage. This option would also need to capture flows from highway outfalls.	**Pros**– reduction in volume reaching lower catchment **Cons** - Less favourable due to the increased depth of water required for the same volume of storage, which could increase costs. The costs would include the construction of the dam and any necessary earthworks.
4	**Alternative Alleviation Options**: These include using a smaller pipe at the downstream outfall	These options are feasible but may provide a lower level of flood protection. Worth considering if utility services pose constraints, considering a lower standard of alleviation (e.g., 1:75-year flow), or implementing property-level protection measures if other options are too costly or landowners are unwilling.	**Pros** – do not need landowner permissions. Potentially cheaper; the costs for these options will vary based on the specific measures taken. Property-level protection measures could be funded through individual property protection schemes offered by Devon County Council. **Cons** – protection level