

Stokeinteignhead Flood Improvements

Report of the Head of Planning, Transportation and Environment

Please note that the following recommendations are subject to consideration and determination by the Cabinet (and confirmation under the provisions of the Council's Constitution) before taking effect.

Recommendation: It is recommended that Cabinet;

- (a) approves the implementation of the proposed flood improvements for Stokeinteignhead;**
- (b) approves the revised funding sources and an overall increase in the capital budget of £60,000 giving a total budget allocation of £780,324.**

1. Summary and Purpose of Report

The purpose of this report is to inform Cabinet on the progress made in developing the flood improvements for Stokeinteignhead, the challenges that have been experienced to date and the current proposals for scheme delivery. It will also update on the funding allocations that were previously reported in the 2019/20 Flood Risk Management Annual Action Plan presented to and approved by Cabinet in March 2019.

2. Background to Flood Improvements

Stokeinteignhead is a small village to the east of Newton Abbot with up to 45 properties at risk of flooding from an event with a high¹ probability of occurrence. During the severe weather experienced in 2012 it was reported that 12 of those properties suffered internal flooding. There are two watercourses merging in the centre of the village, one from the Stoke Road catchment and the other from Dean Road, together with numerous surface water flow paths, all flowing towards the low-lying area of the village where the majority of at-risk properties are located.

An initial 'quick-win' scheme was carried out in 2016 to improve the drainage conveyance and discharges back into the watercourse for the lower end of the village. This only reduced the risk of flooding to a small number of properties but was an essential element of works to support the current proposals and enable flood flows to be conveyed downstream away from properties.

After modelling, numerous site investigations, land negotiations and financial viability the preferred option consisted of upsized drainage for a considerable length of Stoke Road and the creation of a large dammed flood storage area and drainage improvements for the Dean Road area. The cost estimates, produced for the initial design concepts, were very close to the threshold of available funding, even prior to more detailed consideration of potential risk factors.

Reviews were undertaken of the scheme design, cost estimates and risks, which identified additional costs and further risks that needed to be considered. The resulting conclusion was that the envisaged scheme proposals did not meet a realistic cost benefit and, as such, were unaffordable. Consequently, a difficult decision had to be made to reduce the scope of works, whilst still ensuring a good standard of flood improvements could still be delivered.

¹ High risk is as low as a 1 in 5-year event

This was, understandably, a disappointment for the residents of Stokeinteignhead, particularly given the lengthy process of reaching this decision; however, there is good support for the alternative proposals now being promoted.

3. Proposed Flood Improvement Scheme

The currently proposed scheme for Stokeinteignhead incorporates three separate elements:

1. Property Flood Resilience (PFR) installation to individual properties;
2. Improvements to the local highway drainage network; and
3. The installation of Natural Flood Management (NFM) measures in the upper catchment.

These three elements together will give the desired benefit to the properties in question and the economic appraisal indicates that there is justification to implement this option, with 45 properties moving to a lower risk band.

Property Flood Resilience (PFR) is recognised in DCC's Local Strategy as a suitable option to reduce the risk of flooding to a property when no other measures are economically or practically feasible. In the case of Stokeinteignhead, PFR is to be installed as a passive measure (i.e. permanently in place to provide continuous flood protection), in contrast to the installation of flood boards required at times of high rainfall. For the majority of properties, these passive measures will be placed on the boundary walls rather than on the property itself. Where this is the case, however, the doors will also be passive (i.e. self-closing) in nature, giving internal flood protection once closed.

Accompanying the PFR measures, to be installed on individual properties, a programme of highway drainage improvements is to be undertaken, as illustrated in Appendix A. The hydraulic modelling exercise identified a number of restrictive elements in the underground culverted watercourse system and highway drainage network. The scheme will remove these pinch points and improve conveyance through larger diameter culverts/pipes. This will reduce the frequency of overland flows being conveyed down the highway.

In addition to the PFR and highway drainage improvements, a series of Natural Flood Management (NFM) measures are to be developed in conjunction with the land owner to slow water flows and give temporary storage in the upper catchment. This will give a reduction in peak flow and take the pressure off the downstream system. The measures to be included in the NFM proposals are the installation of woody debris dams, shallow scrapes and planted backwaters, which should result in some wildlife benefit as well as reducing flood risk.

4. Options/Alternatives

A number of alternative options have been considered, including upstream storage and attenuation, upsizing of the existing drainage system and installation of new culverts, an improved highway gully network, natural flood management measures and temporary flood defence systems. Some of these options were progressed through to design stage but have had to be discounted due to affordability within the available budget and a realistic cost benefit. A combination of the options considered have helped to derive a scheme that will still provide a good standard of protection for the at-risk properties and which can be delivered within an acceptable cost benefit ratio.

5. Consultations/Representations/Technical Data

Key stakeholders have been involved from a very early stage of the investigation and throughout development of the scheme proposals in Stokeinteignhead. These include the Parish Council, District Council, land owners, local MP, the local flood group and individual property owners. Regular attendance at the Parish Council meetings with a specific agenda

to discuss the flooding issues in the village has enabled a robust scheme to be developed ensuring that local anecdotal evidence has been considered where necessary.

A number of the properties to benefit from the works are Listed Buildings, which has required discussion with the District Council's Conservation Officer to understand the specific requirements for undertaking the works. This is reflected in the proposed project programme.

Once the decision was made to stop working towards the storage attenuation option, which was considered to be unachievable within the available budget and unrealistic in terms of cost benefit, a community drop-in event was arranged by DCC to discuss individual needs with the affected residents. This resulted in 35 of the 45 affected properties being represented with overwhelming support shown for the new scheme proposals to deliver individual property protection measures together with improved drainage.

6. Financial Considerations

A business case is currently being finalised for submission to the Environment Agency for Flood Defence Grant in Aid reflecting the current cost estimates for the revised scheme. The partnership funding calculator has indicated that the figure of £200k to be requested is within the limits of grant aid and, subject to acceptance of the scheme detail, should gain the necessary approval. The £150k of Local Levy has already been granted by the South West Regional Flood and Coastal Committee (SWRFCC) and has been allocated for 2019/20. A sum of £250k from Highways Assets has been approved with an equal split between 2019/20 and 2020/21, however current estimates are that only £25k approved for 2020/21 is likely to be required.

The remainder of the required funding is from the County Council's own capital and revenue flood risk budgets, which have also provided all the investment to date. Prior expenditure included the 'quick win' works in 2016, plus all site investigations, studies and design work. The various funding sources are illustrated in the table below by financial year. These figures include an optimism bias of 45% to provide for contingency and risk.

Funding Source	Prior to 2019/20	2019/20	2020/21	Total
Prior capital costs incurred by DCC	£205,324	-	-	£205,324
Internal Borrowing (Capital Flood Improvement Budget)	-	£21,492	-	£25,000
Capital Receipts (Capital Flood Improvement Budget)	-	£3,508	£50,000	£75,000
External Grant (Local Transport Plan Capital Drainage)	-	£125,000	£25,000	£125,000
External Grant (Flood Defence Grant in Aid) See note below *	-	£200,000	-	£200,000
External Grant (Local Levy)	-	£75,000	£75,000	£150,000
Total	£205,324	£425,000	£150,000	£780,324

* Subject to approval of the business case submitted to the Environment Agency

7. Legal Considerations

Under the Flood and Water Management Act 2010 Devon County Council is defined as a Risk Management Authority and the Lead Local Flood Authority, giving it powers under the Land Drainage Act 1991 to carry out flood improvements in its area. The District Councils,

which in this case is Teignbridge, have certain powers for carrying out works on an ordinary watercourse and these can be delegated to the LLFA for carrying out the flood improvements, as they have been in this instance.

Notices will need to be served on property/landowners for access onto their properties for carrying out the flood improvements, but these are generally completed as a formality to support a local agreement made between the landowner and DCC.

8. Environmental Impact Considerations (including Climate Change)

An environmental appraisal has been carried out for the proposals and this has indicated that, with the appropriate mitigation, there will be limited impact upon landscape, historic and ecological interests. The scheme will also look to maximise any ecological opportunities. Where possible the project will look to reuse materials excavated on site to reduce the need for their importation to site. There is also the desire to utilise naturally occurring materials as part of the Natural Flood Management proposals, again to reduce the carbon footprint of the scheme.

Action to address areas at particular risk of flooding will become an increasing priority due to changing weather patterns linked to climate change. The design of schemes routinely takes account of this additional climate change risk.

9. Equality Considerations

All of the flood improvements have been developed in accordance with the Equality and Environmental Assessments produced in support of the Devon Local Flood Risk Management Strategy. All elements of the scheme have been assessed at the appropriate stage using the corporate, integrated assessment tool, with relevant equality and environmental impacts identified and acted on as necessary.

10. Risk Management Considerations

The risks associated with flooding are set out in the Devon Local Flood Risk Management Strategy and are addressed through multi-agency and local emergency plans, developed by DCC, the Local Resilience Forum and local communities. In addition, the corporate risk register identifies the risks linked to the implementation of DCC's role as Lead Local Flood Authority. The proposed works are designed to reduce these risks and align with these strategies and plans.

The current standard of protection to some properties is estimated to be as low as from the 1 in 5-year event and this scheme aims to improve the standard beyond the 1 in 50 year, as a minimum, and, for many properties, up to the 1 in 75-year scenario.

11. Public Health Impact

The effects of flooding are devastating, not only the physical nature in terms of damage to the properties and infrastructure, but also the stress and mental wellbeing of the individuals affected. Deep flood waters present a risk to life as they often contain contamination from foul sewers and pesticides from field runoff and there is also the risk of drowning. The delivery of these essential flood improvements will help to reduce the risks identified and contribute to the wellbeing of residents.

12. Discussion

The development of flood improvements for Stokeinteignhead, achieving the required design standards, has been very challenging, particularly to justify the level of investment required. Consequently, it has become the first location where we have had to reduce the scope of the

works to make it a more affordable option and bring it in line with an acceptable cost benefit. On average grant-aided flood improvement schemes being delivered across the country are now in the region of £13,000 per benefitting property, whereas estimates for the initial proposals for Stokeinteignhead were indicating considerably more than double this national average. DCC has worked closely with the Parish Council, elected member and local residents to reach this decision and help manage expectations on the final scheme proposals to be delivered.

13. Conclusion and Reason for Recommendation

After much deliberation and determination to achieve the maximum standard of protection the decision has had to be made to deliver an affordable scheme that achieves a more realistic cost benefit, whilst still providing a much-improved standard of protection albeit less than the 1 in 100-year desirable level. It is, therefore, recommended that approval be given to deliver the most advantageous and cost beneficial flood improvements within the assumed budgets, as set out in this report.

Dave Black
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Electoral Divisions: Ipplepen and The Kerswells

Cabinet Member for Community, Public Health, Transportation and Environmental Services:
Councillor Roger Croad

Chief Officer for Communities, Public Health, Environment and Prosperity: Dr Virginia Pearson

Local Government Act 1972: List of Background Papers

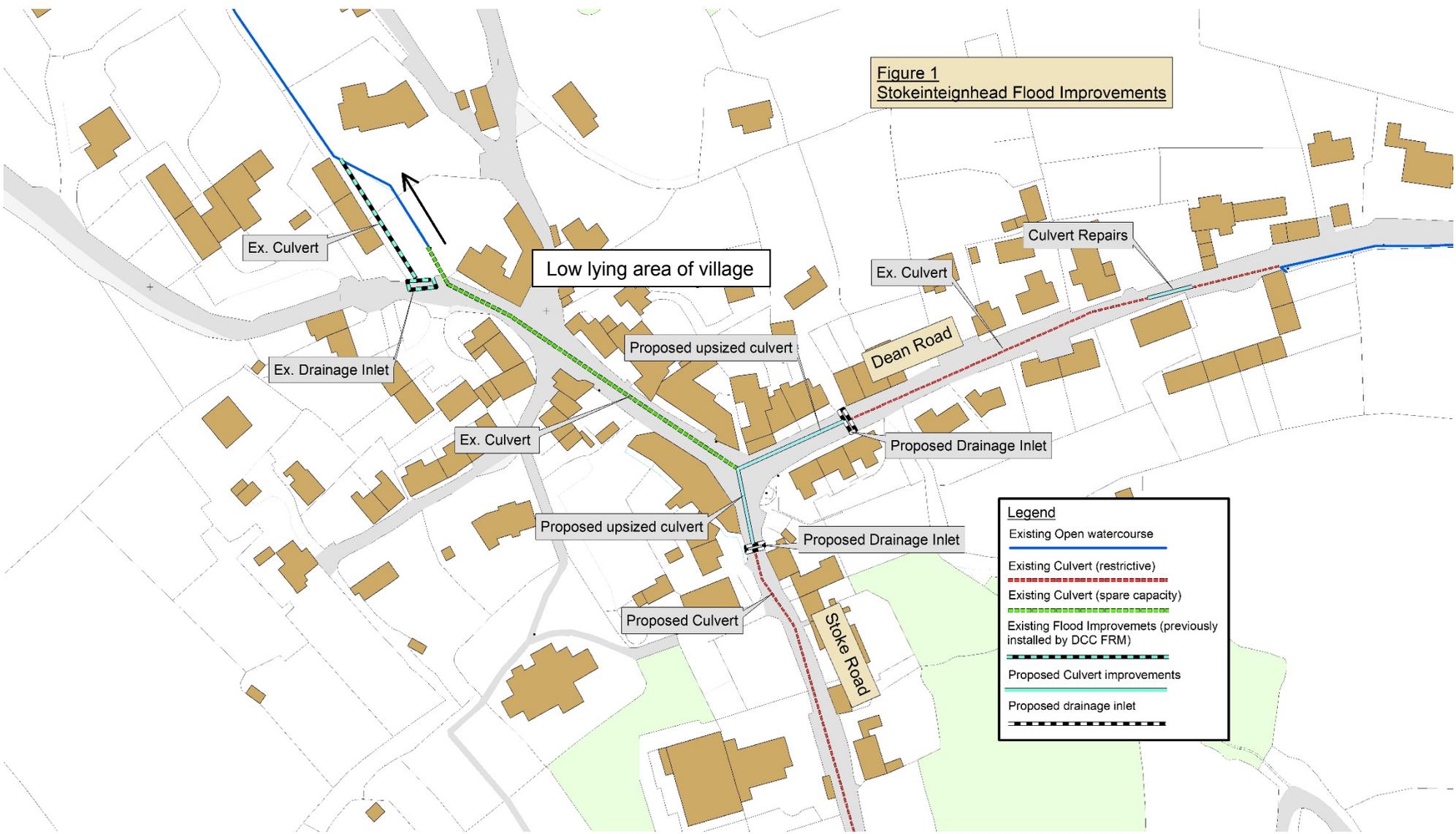
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Background Paper	Date	File Reference
1. Government Programme of Flood and Coastal Erosion Risk Management Schemes	Updated 1 st April 2019	https://www.gov.uk/government/publications/programme-of-flood-and-coastal-erosion-risk-management-schemes
2. Devon Local Flood Risk Management Strategy	June 2014	https://new.devon.gov.uk/floodriskmanagement/local-flood-risk-management-strategy/
3. Flood Risk Annual Action Plan	March 2019	https://www.devon.gov.uk/floodriskmanagement/local-flood-risk-management-strategy/action-plan/
4. Impact Assessment – Devon Local Flood Risk Management Strategy	March 2014	https://www.devon.gov.uk/floodriskmanagement/local-flood-risk-management-strategy/

Figure 1
Stokeinteignhead Flood Improvements



Legend

- Existing Open watercourse
- Existing Culvert (restrictive)
- Existing Culvert (spare capacity)
- Existing Flood Improvements (previously installed by DCC FRM)
- Proposed Culvert improvements
- Proposed drainage inlet