



TECHNICAL NOTE

TO	Hart District Council	FROM	WSP
DATE	24 October 2018		
SUBJECT	Phoenix Green Flood Alleviation Scheme		

Properties have flooded in the village of Phoenix Green in 2000, 2007 and 2009. The 2007 flood was the worst of these events which resulted in internal flooding of 33 properties in the village and further downstream along Mitchel Avenue. Using hydraulic modelling WSP has estimated that 44 and 84 properties are at risk of flooding at these locations, for storm events with a return period of 30 and 100 years respectively.

WSP is preparing a business case to identify the most economical, affordable and effective solution to alleviate flood risk to the Phoenix Green Village and the downstream Mitchel Avenue and Southern Haye areas. The business case will provide the evidence necessary to obtain partial funding through the Thames Regional Flood & Coastal Committee, for the detailed design and construction of the scheme. Additional funding will be obtained from the parish and Hart District Council.

The business case is at a stage where the preferred option has been identified and currently constraints, risks and opportunities are being investigated in detail in order to optimise the preferred solution.

A number of options were considered in the short-listing process as detailed in the table below:

Options		Description	Technical, Environmental & Social matters
A	Do nothing	This option involves cessation of the current maintenance of the existing ditches and culverts that form the surface drainage system. This will lead to blockage of ditches and culverts increasing flood risk.	This option was not acceptable as damages will be worse than the existing situation. It was taken forward for further analysis for the only purpose of comparison against the other options, as the baseline for the Economic Case.
B	Do minimum	This option involves continuation of existing maintenance activities including ditch clearance, trash screen clearance and culvert clearance. None of the existing drainage assets are anticipated to require replacement during the appraisal period.	This option could only be viable if no other "Do something" options were feasible. It was therefore taken forward for further analysis.
C	Flood storage area	This option involves construction of a large flood storage area for the purpose of storing as much floodwater as possible to reduce flood risk to property. Embankment heights could be as high as 1.5m-3m.	Several options were considered for the location of a flood storage area as outlined below: <ul style="list-style-type: none">Ashley Lodge field – This was the preferred location of a previous feasibility study and was taken forward for a more detailed assessment.Mitchel Avenue Recreation Ground – The recreation ground is owned by Hartley Wintney Parish Council. The Parish Council considered the acceptability of building this large flood storage area (as the benefit/cost were comparable to the Ashley Lodge storage area) and concluded that it was not

Options		Description	Technical, Environmental & Social matters
			<p>acceptable, considering its impact on the other uses of this space, primarily for recreation.</p> <ul style="list-style-type: none"> Woodland areas – Construction of a large storage area at this location would have significant negative impacts on the natural environment which would be disproportionate to the flood risk management benefits. It would involve loss of numerous trees and disruption of habitats and the species they support.
D	Property level flood resistance measures	This option involves providing property level flood resistance measures (to 74 properties to achieve a standard of protection of 100 years) within Phoenix Green. They include flood resistant doors, self-closing airbricks, non-return valves and waterproofing of external walls.	Success of this option is reliant on agreement from the residents whose properties the measures would be installed on. Some of the properties are owned by Vivid (Housing Association) however significant proportions are privately owned. This option was taken forward. The Parish Council was not in favour of this option in isolation however there was acceptance of having this measure in combination with natural flood management solutions (option E).
E	Natural Flood Management (NFM)	This option involves the creation of many relatively small temporary impoundments at a number of locations, as opposed to the single large storage area in Option 3. In open spaces this option takes the form of small height 0.4m bunds which are shaped to intersect main flood flow routes. In the woodlands takes the form of more natural methods for slowing the flow.	The installation of many small impoundments can effectively form part of the solution as they bring environmental benefits, they are relatively inexpensive and, together, can contribute to the reduction in flood risk. This option was taken forward in order to test it in combination with other options.

Based on the objectives for this project and the findings from the table above, the long list of options was reduced to the short list below.

- 1) Do Nothing (used as baseline only);
- 2) Do Minimum (only option should others not be feasible);
- 3) Upstream flood storage at Ashley Lodge field and residential property level flood resistance measures (PLP);
- 4) Natural Flood Management bunds and residential property level flood resistance measures.

The economic appraisal demonstrated that the preferred option is Option 4 – Natural Management bunds and residential property level flood resistance measures. The NFM measures result in the creation of small impoundments that are only wet during rainfall events. Three of these impoundments are located at the open fields at Ashley Lodge and are considered important in terms of optimising the flow attenuation upstream of the areas at risk.