

# Appendix 1: Proposed Natural Flood Management Schemes

## Medway Flood Action Plan - Maidstone Borough Council

### Reducing the risk of harm from flooding, improving the river Beult SSSI for people and wildlife

#### Background

The Government's 25 Year Environment Plan highlights 'taking action to reduce the risk of harm from flooding, including greater use of natural flood solutions'. The Medway Flood Action Plan, published November 2017, identifies natural flood management as a key theme to manage or reduce the risk and impacts of flooding to benefit properties upstream of Allington Lock.

Natural Flood Management (NFM) is the alteration, restoration or use of landscape features to reduce flood risk to properties. There are a wide range of techniques used including small 'leaky dams', new hedgerows, river bank restoration, targeted tree planting and techniques to hold water temporarily on land to 'slow the flow', reduce and delay flood peaks and store more water away from homes. As well as helping to reduce flood risk, NFM techniques also provide wider social and environmental benefits by improving our environment and wildlife for people to enjoy.

Natural flood management is dependent on landowners, so we need to build awareness and understanding of the techniques and how they can be incorporated into existing land-use. The Medway is a large catchment so we are prioritising areas where positive land management could make the most difference for natural flood management. Six high priority sub catchments have been identified.

The River Beult is one of these catchments and flows through the heart of Maidstone Borough. It is an important natural resource for water companies, land managers, anglers and local people and is designated as a Site of Special Scientific Interest along its length, from Hadmans Bridge near Smarden. It is one of the best examples of a clay river in England and supports nearly 100 species of plant and some nationally scarce insects. 'Improving the River Beult for People and Wildlife' was published in June 2018. It divides the river into segments between the bridges and identifies the most effective options in each segment to create a river that provides:

- Natural flood management
- A secure, clean water supply
- An attractive, resilient landscape that supports sustainable agriculture, flourishing wildlife and recreation, including a healthy fishery with good angling participation

The projects identified here are proposed as matched investments during 2018 to March 2020 within the more rural parishes of Maidstone Borough Council. The aim is to reduce flood risk and improve the River Beult SSSI. The effects will be monitored to inform future investment, as part of a national programme of NFM projects across England. The NFM projects proposed complement the geography of the community resilience projects in Yalding and Collier Street, providing a balanced investment in flood risk reduction across the Borough and are shown in the attached map.

## Appendix 1: Proposed Natural Flood Management Schemes

### 2018 – 2020 PROPOSED PROJECTS<sup>(1)</sup> (UNDER £100K)

	MBC	Match <sup>(*)</sup>	£000s Total Cost
Landowner Relations Development	25	25 <sup>(2)</sup>	50
Headcorn School / Hogg Stream	25	100 <sup>(3)</sup>	125
Beult SSSI Segments 1 / 2 NFM Projects	25	75 <sup>(3)</sup>	100
Bockingfold Wetland Creation Project	25	50 <sup>(3)</sup>	75

- (1) These projects are currently in development, with the best projects taken forward where landowners agree to changes. The additional 'Landowner Relations Development' post will help to secure this essential participation.

\*Match funding for the above projects is provided from two sources:

- (2) Natural England's farm advice programme will provide the match. Opportunities for join up with private sector investors will continue to be developed.
- (3) Defra are investing £300k over 2 years in a pilot project to implement and monitor a number of NFM projects in the Medway catchment. The project is being matched in part from South East Rivers Trust Interreg FRAMES Project. Investment from MBC will be used to provide the match towards the 3 current projects listed above that are within Maidstone borough. The costs at this stage are outline, however if necessary, the value of MBC's investment can be fixed.

## Appendix 1: Proposed Natural Flood Management Schemes

### Landowner Relations Development

#### Background

Delivering NFM and river improvements is entirely reliant on landowners and land managers in the borough. Pockets of positive relationships already exist, built by Natural England (NE) over the years through public investments in environmental land management schemes and through catchment sensitive farming partnerships. This project will build on these relationships by expanding landowner liaison with the whole farming community in each sub catchment in the borough.

The technique of creating 'farmer clusters' in each catchment (tested through NE's facilitation funds) will be used to build understanding and confidence in the potential to supply and invest in public goods, focussing on natural flood management and water quality, to create momentum and ownership by the borough's land community.

There is already an active partnership in the catchment, with skills and time secured for coordination, modelling, project design and construction. This investment will complete the team by introducing dedicated time for developing relationships with landowners and the farming community. This project is therefore a key enabler for the NFM projects in the borough.

NE already has a team of 2 Advisers working in the Medway catchment; this investment will take advantage of this existing resource and the work done to establish contacts and our understanding of the structure of the farming business in the catchment. It will enable dedicated time for landscape scale cluster relations and business development.

#### Project objectives

1. To design and systematically deliver a communications programme with all landowners and the farming community targeted for each sub catchment within Maidstone Borough Council, phasing roll-out to the Hogg Stream and River Beult segments 1 and 2 project areas first to enable the projects below. Secondly to the other high priority NFM catchments and then to all sub catchments in the Maidstone Borough area of the Medway catchment.
2. To use the 'farmer cluster' model to build confidence that the supply of public goods can be a valuable part of the farming business, especially during the significant changes in farming support described in the current Agriculture Bill.
3. To agree with each interested landowner the best techniques for NFM and water quality on their land and outline project options, plus the business case for supplying other public goods including recreation.
4. To sensitively manage hand-over to other partnership team members to deliver the detailed design / construction phases.

## Appendix 1: Proposed Natural Flood Management Schemes

### Headcorn School / Hogg Stream Project

#### Background

The School or Hogg Stream starts as a small spring and flows from the Greensand ridge through the northern part of the village of Headcorn to join the River Beult SSSI. Available mapping shows that the stream is very straight and unnatural in its alignment, with very little natural vegetation along much of its course.

During high rainfall events the stream comes out of its bank and floods parts of Headcorn village, including several properties and the primary school. This is due to a combination of intensive agriculture and run off from roads and properties, exacerbated by the straightened channel speeding up flows. The fact that the catchment is largely rural and undeveloped demonstrates how these unnatural land uses make such a big difference to flow in the watercourse.

There is considerable scope to restore a natural meandering stream. This, combined with attenuation to reduce the rate of flows entering the stream would mean that water takes a lot longer to reach Headcorn, reducing peak flows in the village.

Headcorn Parish Council are already engaged with a partnership with Kent Countryside Management Project, NE (working with Southern Water) and the National Flood Forum.

The project needs to focus its engagement on landowners occupying headwater areas, and would benefit from greater resource to enable the delivery of objectives.

#### Project objectives

- 1 Undertake detailed mapping of the catchment and scope the range of NFM techniques that will offer the best results, involving the community (landowners) through co-design and 'ground-truthing'.
- 2 Following the landowner liaison project, design and agree projects with individual landowners to deliver flood risk and habitat improvement projects.
- 3 Investigate local road run off to establish how much this is contributing to the problem and work with KCC to establish further areas for run off to be captured.
- 4 Install a water height gauge close to the school grounds and involve the primary school and community to monitor the success of the project.
- 5 Aim to provide sufficient storage and slow the flow options to make a difference to properties at risk of flooding in Headcorn, as well as contributing to the overall Medway NFM project of reducing risk to the Yalding area.
- 6 Report back to Defra on the success of NFM on minor lowland tributaries by providing monitoring data on this watercourse.

## Appendix 1: Proposed Natural Flood Management Schemes

### River Beult SSSI NFM – Segments 1 & 2

#### Background

One of our Medway FAP partners has applied to Defra's Water Environment Grant for the in-river improvement projects described in the River Beult Improvement Plan, for the first two segments of the SSSI, between Hadmans Bridge near Smarden and Stephen's Bridge near Headcorn. We should hear whether the bid has been successful this autumn, with the works completed March 2021.

The upper reaches of the River Beult provide a good opportunity to reduce flood peaks downstream by storing more on the floodplain following the restoration of the river.

The project proposed here will complement these in-river projects by delivering NFM- focussed projects on land adjacent to the river. There are a number of small streams and land drains in these Segments that can be enhanced to slow the flow of water downstream, as well as opportunities for riparian planting.

The two projects combined provide the greatest potential to reduce flooding downstream in the River Beult catchment.

Were the WEG bid to be unsuccessful, this project would still have significant value for flood reduction and the investment strategy for the SSSI identifies other funding sources which would be pursued for the in-river improvements.

#### Project Objectives

1. Joint SSSI and NFM liaison with landowners along the Beult SSSI to prioritise and plan the work in more detail. Landowner community workshops to co-design deliverables.
2. Following outputs from the landowner liaison project above, develop detailed designs with each interested landowner
3. Construct a series of small scale NFM projects in each Segment and involve local people and landowners in monitoring success.
4. Provide monitoring data on the success of the project particularly towards water quality and changes in the flow of the River Beult to evaluate the success of the scheme towards multiple objectives including flood risk and environmental and social criteria.

## Appendix 1: Proposed Natural Flood Management Schemes

### Bockingfold Farm Wetland Creation Project

#### Background

A 10 hectare field, part of Bockingfold Farm has been offered by the landowner as a site for flood storage. It lies, upstream from Collier Street which has a history of flooding. The site is on Weald clay and has been previously used on rotation between arable cultivation and temporary grassland.

The potential area which could be used for flood storage is approximately 48 000 square metres of which 28 000 square metres is within Flood Zone 1 or 2. Therefore, up to 20 000 square metres of land at low risk could be utilised.

The area of high flood risk extends approximately 150m to the west of the watercourse. Initial calculations estimate 15,000m<sup>3</sup> of additional storage could be provided, on top of any permanently retained water level in the storage area that provides ecological benefit.

An adjacent property to the east of the site on Kings Lane is known to be at flood risk during events of 50yr return period or greater. This storage area could lower flood levels sufficiently to reduce flood risk to this property, as well as slowing the rate of water heading down stream to Collier Street and Yalding

#### Project objectives

1. The project would need to be constructed during the summer of 2019 to move spoil around the site on a 'cut and fill' basis and install infrastructure such as two culverts into and exiting the site.
2. Modelling is being carried out by the Environment Agency in advance of any detailed design for the project, to ensure that flood storage is viable, and cost the project to present design options to the landowner and any other partners.
3. It will require planning permission from Maidstone Borough Council as well as permission from the Upper Medway Internal Drainage Board. The local community, particularly adjacent properties will need to be liaised with.
4. Creating ponds within the storage area will ensure that there is a wide variety of wetland features created, providing the environmental targets for the scheme. A range of planting and seeding will ensure habitat is diverse attracting wildlife.
5. A management plan and legal agreement with the landowner will ensure that the flood risk management benefits are maintained, the ecological enhancements continue to be provided by the site, and the monitoring as part of the NFM project can continue in the future. The aim will be for the creation of an ecological varied site with wetland features including ponds, woodland, wet grassland and reedbed habitats. These will make a significant ecological contribution to the area. However the exact design will be subject to available funding and long term costs/benefits.
6. Monitoring of the project will provide evidence back to Defra and the local community on the success of the project and its contribution to flood risk and environmental criteria to inform future projects.

## **Appendix 1: Proposed Natural Flood Management Schemes**