

Kenilworth Town Council



Application for Community Infrastructure Levy (CIL) Funds

Project Title - Managing river flood risk in Kenilworth using natural flood management methods

Name of Organisation/Group –Warwickshire Wildlife Trust (WWT) (working with Finham Brook (Kenilworth) Flood Action Group)

Address Brandon Marsh Nature Centre
Brandon Lane
Coventry

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Contact Name - Gina Rowe

Position in Group/Organisation – Landscape Recovery Development Manager

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Background of your Organisation/Group

(Tell us a little about your group/organisation e.g.: what does it do? Who is it for?)

Established in 1970, Warwickshire Wildlife Trust is a registered charity, number 209200. The Trust aims to protect and enhance wildlife, natural habitats and geology throughout Warwickshire, Coventry and Solihull, and to encourage a greater awareness, appreciation and participation in all aspects of nature conservation and the environment. The Trust works in partnership with numerous organisations and groups to deliver habitat restoration and creation at a landscape scale. The Trust manages 67 nature reserves, including woods, meadows and wetlands covering over 1000 hectares. The Trust helps to protect threatened places and rare species by campaigning for wildlife and the environment. Walks, talks and events run by Trust staff help people to access and enjoy nature. In addition, the Trust works with schools, businesses and community groups to support local environmental action. We currently have over 26,000 members. Our visitor centres near Coventry and Solihull host over 75,000 visitors a year and we deliver over 21,000 environmental education experiences annually. The Trust successfully fulfils numerous grant funded programmes, reporting finances and outputs and delivering more habitat enhancements and restore nature, aiming at 30% of land in wildlife sensitive management by 2030.

Warwickshire Wildlife Trust has been working with the Finham Brook Flood Action Group since 2021. The flood group was formed in response to property flooding that occurred from Finham Brook in Kenilworth in November 2012. It comprises local residents who are at risk of flooding (mainly in Northvale Close, but also in Forge Road and at Pypes Mill).

The group aims to:

- Raise awareness of local flood risk
- Encourage preparedness for and mutual support during forecast flood events
- Work with statutory agencies and NGOs to deliver methods for reducing flood risk for properties in the area.

Overview of Project/Scheme

(Outline proposed use of CIL funding)

WWT have been working with the Finham Brook Flood Group over the last 2 years, undertaking site visits and discussions with landowners. WWT will be delivering the practical work and monitoring on sites and appointing contractors as needed. The project funding will be used to deliver natural flood management measures in the Finham Brook catchment area (Finham Brook and Inchford Brook), with the aim of reducing the peak height of the Finham Brook after intense rainfall events. This will reduce the number of occurrences of flooding at domestic properties, at the Castle Road and Rouncil Lane fords, and the Odibourne Allotments.

The measures to be used on sites will be further developed after detailed surveys and landowner discussions but examples include:

Leaky dams and large woody deflectors

Swales, wetlands and off line ponds

Infill planting of gaps in hedgerows

Alternative methods of soil management in arable land.

Buffer strip creation

Riparian tree planting and woodland creation.

To achieve reduction in flood risk to the Kenilworth Town centre area, it is essential to work across the upstream catchment of the brooks, slowing the flow of flood water and creating flood water storage capacity through a series of measures. Creating scrapes and pools to fill in times of flood, and to slowly drain down over a period of hours or a few days, slows the flow into the more constrained stretches of watercourses e.g. at fords, close to houses, and at bridge crossing points, and so reduces the likelihood of flood. Use of natural flood management measures will also increase water quality in the Inchford and Finham Brooks, as well as watercourses further downstream, and support the aims for safe bathing waters in the Warwickshire River Avon.

The use of natural based solutions will make the catchment more resilient, increase water capacity across the area, and hedgerow restoration and tree planting will increase permeability in the catchment over time, and so reduce waterflow off the land and into brooks. Gradually the volume of flood water impacting the town will be reduced, in the absence of other major impacts e.g. increased runoff from new developments.

It must be noted that Climate Change is increasing the severity and frequency of storm events and therefore the problem of flooding is growing. This project will take direct and practical action which will start to address the impacts in the catchment.

It must be noted that it will not prevent flood in times of sustained and very high rainfall.

This project is focussed on Natural Flood Management measures in the brooks to slow the flow of flood water, and to create a series of flood water storage pools.

*Some examples of types of NFM measures are shown in the photographs below
Examples of scheme designs are shown in Appendix 1*

Leaky barriers



Pools



Hedgerow planting and trees into hedgerows



Floodplain scrape, to fill when brook is in flood



Pools created at Pleasance Farm in 2021/22

Backwater pool to fill when brook in flood



Purlieu Lane backwater pool created 2022



Project Timescales

This project funding is requested to further develop work that was started by Warwickshire Wildlife Trust in 2021 and continued during 2022.

Work has continued during the 2022/23 financial year, with some further funding provided by the Environment Agency (EA).

Funding is requested to develop measures to be delivered over 2 years (financial years, 23/24 and 24/25). This gives time to develop further contacts with landowners, undertake walkovers across the catchment to identify key potential sites, cost projects and apply for WCC flood work consents.

2023/24 Financial year (currently unfunded):

1. Further engagement with landowners, walkovers Apr - Sep 2023
2. Detailed identification of measures May - Oct 2023
3. Costings and consent applications June - Sep 2023
4. Installation of measures Oct 23 - Mar 2024

Potential Sites include Faerie Tale farm: Channel enhancement – re-meandering, Leaky barriers; Buffer strip creation; Big Poors Wood, Chase Wood, Featherston's Grove and other woodlands in the catchment: Leaky barriers and large log deflectors;

5. Report on delivered outcomes at end of financial year Apr 2024

Discussions are needed with the landowners to develop site proposals. Sites for development in this year have been identified during 2022/23

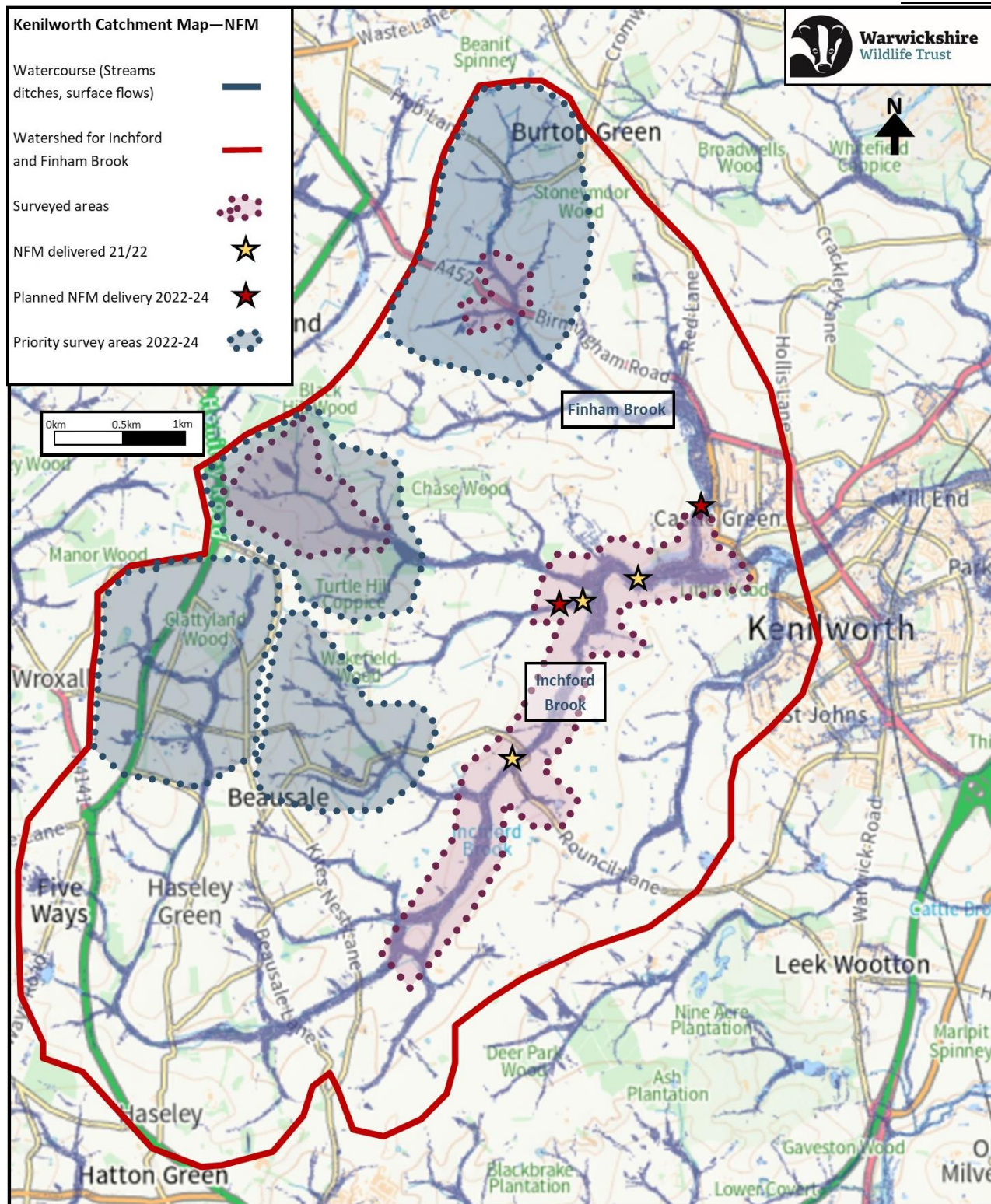
2024/25 Financial year (currently unfunded)

6. Engagement with landowners, walkovers Mar - Sep 2024
7. Detailed identification of measures May - Oct 2024
8. Costings and consent applications June - Sep 2024
9. Installation of measures Oct 24 - Mar 2025

10. Potential sites to be identified in walkovers in previous financial years
11. Report on project outcomes to be written up at close of financial year

It should be noted that the detail of the Project plan may change due to change in landowners' situations and weather. The timing of any decision re funding will also influence the delivery timescales.

Map of catchment area showing areas already surveyed and those needing walkover surveys, planned NFM delivery and priority locations



Total Amount of Funding Requested

(Please give the total amount of CIL monies sought)

£ 69,200

Costing of Project with Full Detailed Breakdown

Delivery over 2 years on 3-4 sites already identified, plus sites on a further 6-7 farms to be engaged has been costed below.

Project expenditure	2023/24	2024/25	Total
Project materials: timber, stakes, wire,	5000	3500	8500
Contractor costs: machinery and operators	8000	7000	15000
Project delivery staff costs, & project management	18700	19800	38500
Mileage costs	1100	800	1900
Flood management consent costs WCC	900	400	1300
Technical reports – ground levels etc.	2000	2000	4000
Totals	35,700	33,500	
Overall Total			£69,200

Due to delays in obtaining further funding, work has continued at a lower level during 2022/23 utilising funding of £12,000 which has been secured from the Environment Agency. A total of £69,200 is requested for proposed work for 2023/24 and 2024/25 which is currently unfunded (There is potential for some further funding from EA in future years. This will depend on match funding being secured as this is an increasing requirement.)

Funding for years the next 2 years is estimated based on the likely projects to be undertaken, and typical costs.

Preliminary work in the catchment was undertaken in 2021/22 to identify whether the catchment was suitable for natural flood management measures. This preliminary work was funded by the Environment Agency (EA) and undertaken by Warwickshire Wildlife Trust. Work at Pleasance farm in 2021/22 included creation of on line pools to increase flood water capacity, and woodland management and tree planting to increase water take up. EA funding for NFM projects in Kenilworth catchment was £18,000 in 2021/22.

To give examples of NFM projects undertaken by WWT, and the possible scale over a few years, we have included details of work fulfilled in North Warwickshire. This work was funded by Environment Agency NFM Community Projects and RFCC Local Levy fund.

2016 – 2021 NFM Fillongley project outputs summary:

- ❖ 28 landowners have been engaged.
- ❖ 94 leaky barriers have been installed, with an additional 27 consented.
- ❖ 1.49 Ha of woodland planted.
- ❖ 1.64km of hedgerow planted.
- ❖ 1280m³ of storage capacity within 15 newly created or enhanced scrapes and ponds.
- ❖ Details of particular sites:

2 scrapes have been excavated in 2 tributary ditches providing an estimated combined detention capacity of 105m³.

- ❖ 10 leaky barriers have been installed slowing an estimated 27m³.
- ❖ Estimated 17m³ of additional detention capacity created from a surface water fed scrape.
- ❖ Estimated additional detention capacity of 628m³ within the newly connected pond.

Upper catchment pond de-silted and bunded on bank to provide estimated 150m³ detention capacity.

Details of other sources of funding applied for and names of any partner organisations.

Please include any funding applied for by any partner organisations.

We will be seeking further funding from Environment Agency in 2023/24 to WWT to deliver NFM projects in Kenilworth catchment area ~ £10,000.

Potential other sources of funding being explored in 2023-24:

HS2 Community and Environment Fund Local bid by WWT (the Flood group itself cannot apply)

Veolia Trust landfill credit fund (possible application from WWT) (need 20% third party funding input)

Biffa landfill credit fund (need 11% third party funding)

The possibility of applying KTC CIL funds as third party funding will be explored if this application is successful.

Further funding sources are being explored

Please specify here the responsibility for ongoing maintenance costs

Natural flood management and natural based solutions measures require little ongoing maintenance, and any work is low cost.

Landowners will be provided with a management schedule, agreed with them prior to the work; most measures installed can be maintained with standard farm machinery.

Leaky barriers only need checking each year and low level removal of silt behind the barriers if it is accumulating.

Smaller pools will need some maintenance after 3 - 5 years depending on size and exact location re leaf fall and runoff from land. Removal of any excess vegetation from one third of the pond every 2 years, either with hand drags with volunteer involvement, or small digger. WWT can offer training to volunteer groups as part of support.

Maintenance of larger pools every 8 - 10 years is a 0.5 – 1 day job with farm machinery.

Tree and hedgerow planting: trees need to be checked re wind blow and watered if no rainfall in spring. Mulching, or clearance of grass from around shrubs to reduce competition will give best survival rates. After 2 years they should need little maintenance until after 7 -10 years when they can be brought into 3 year cycle for cutting.

Buffer strip management: one annual cut in late summer/early autumn will enhance and maintain variety of wildflowers and maximise value for barn owls, kestrels and for a range of small mammals and insects. Cuttings can be used to mulch hedgerows or as animal fodder.

Maintenance will be the responsibility of landowners into future and will be agreed with landowners as the project develops and before measures are implemented, so that landowners are clear about the low level of work involved to maintain features.

How your Proposal meets CIL Funding Criteria

(Your application may meet some or all of the criteria of the CIL priorities. Please explain, where applicable, how your scheme/project meets these criteria. If the criteria do not apply please mark N/A)

Community Priorities

How the proposal has been identified through consultation with residents and the community

Flood group members have been working with statutory bodies for almost 10 years to try to get flood risk management measures introduced.

The Flood group were part of the National Flood Forum Pathfinder project with Warwickshire County Council run for 2 years. Key points from the project are:

The project was very successful in learning from and informing Warwickshire residents and working on a local level with a grass roots approach. The Finham Brook group installed a CCTV camera which allows them to view flood water levels from smart devices, which is still in use. The establishment of Multi-Agency meetings was effective in bringing sectors together to tackle issues. There is a full report available here:

[Warwickshire Community Flood Resilience Pathfinder Project Final Report \(nationalfloodforum.org.uk\)](http://nationalfloodforum.org.uk)

The Flood group has held meetings and has a log of flood issues. There is an established flood warning alert system and there is CCTV on the brook to allow live monitoring of river levels close to houses.

There is wide awareness of the flooding issues around Kenilworth area, and the impacts on lives of residents. The wider community is probably less aware of the ongoing river flooding risk in Kenilworth, especially since Severn Trent funded sewer flooding mitigation measures in the town several years ago.

Several letters of support for the project have been received, demonstrating broad support for the proposed project, listed here and attached as part of the application:

Warwickshire County Council Flood Risk team
Kenilworth Allotments and Tenants Association
English Heritage
Priors Field Primary School
Arden Farm Network
Friends of Abbey Fields

The project will deliver actions and work to fulfil policies in several key local plans, outlined below. Details of each plan and policies are given in Appendix 3.

The **Kenilworth Neighbourhood Plan** is approved. This references that properties are liable to flooding and notes measures to install.

It includes reference at points A.4 and A.15 to using CIL funding to address flooding issues. An additional policy KP21 Flooding has been added to the plan, noting at point 5.82 re the properties at risk of flooding from Finham brook.

The project will deliver against several policies in **Warwick District Council's Local Plan** including CC1 Planning for Climate Change Adaptation, FW1 Reducing Flood Risk, FW2 Sustainable Drainage, NE3 Biodiversity, and NE5 Protection of Natural Resources. Details are given in appendix 3.

The project will support **Warwickshire County Council's Local Flood Risk Management Strategy**. The WCC Flood Risk strategy states:

'Increased flood risk poses a significant climate change challenge to the UK economy. Estimated flood damages in England have risen by around 60% over the past 25 years and already exceed £1 billion per year in direct costs to communities and business.'

The project will work to help fulfil the following Objectives and Measures of the Strategy: 01; 02 measures 2B, 2C, 2E and 2F; 03 measure 3C.

EA's Severn River Basin Flood Risk Management Plan includes in the consultation responses 'the implementation of nature-based solutions, support for Catchment-based approach, importance of joint working across organisations to achieve Climate change and adaptation.

National Flood and Coastal Erosion Risk Management Strategy for England

The project will help to fulfil several objectives of this strategy including:

Strategic objective 1.3 re enhancing resilience of the environment: Measure 1.3.1 re NFM projects; Measure 1.3.2 re working with landowners; Strategic objective 1.4 re enhancing natural environment for future generations; Strategic objective 3.2 re people understand flooding impact and take action.

The project will work towards objectives and actions in the **Local Biodiversity Action Plans** including

Rivers and Streams: Objective B Improve all WFD failing water bodies.

Ponds: Objective C. To expand the extent of the habitat by creating a further 100 new open water bodies.

Hedgerows: Objective C. To restore 151km of degraded hedgerows.

How the Project will benefit the community as a whole; for the "Common Good"

Residents at individual risk of flooding will have their flood risk diminished, which will reduce anxiety during adverse weather events. The likelihood of very severe flooding events requiring the support of emergency and council services should also be curtailed.

Community facilities such as the swimming pool and Odibourne Allotments will also have their flood risk reduced, which will have a positive impact on all users of these facilities.

Incidences of road closures at the Castle Road and Rouncil Lane fords due to flooding should be reduced. These road closures can have impacts on local residents and through traffic, especially as Castle Road is one of the through routes in Kenilworth and its closure at peak traffic times can lead to severe traffic congestion.

The proposed natural flood management and nature-based measures will also lead to improved water quality along the length of Finham Brook, which will lead to increased biodiversity along the whole river corridor, and increased access to wildlife for everyone in the area.

How the Project will Benefit Young People and their Future

Children are known to be acutely affected during and after floods, potentially losing their homes, friendship networks and familiar surroundings, even if only on a temporary basis. They also see adults under great strain and witness the exceptional and long-term tensions that flood risk brings about. The project will develop climate resilience across the catchment through restoring natural processes and making land management more sustainable, and reduce flood risk, making lives more secure and manageable.

The project will demonstrate that positive action can be taken to mitigate the impacts of climate change, bringing a range of benefit to the wider community and directly to families at risk of flooding. There is potential to use the project for direct educational purposes, by the use of case studies, and generally raising local awareness of flood risk and environmental benefits of water management.

Priors Field Primary School sits in flood risk zone 2 and the school grounds have been affected by previous flooding. Although Severn Trent has undertaken some drainage works at the site there is still the potential that the school could be affected by flooding in future extreme weather events. Traffic disruption caused by the fords being closed can impact on children travelling to school or clubs.

Improving biodiversity and restoring habitats is of key value to the lives of young people and future generations, by maintaining and improving green spaces and wildlife in their area to enjoy and from which to gain a wealth of benefits.

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Strategic Priorities

How the Project prioritises long-term Investment in Infrastructure

The project should reduce the number of times that the Kenilworth Castle Road and Rouncil lane fords are closed.

Each flood event affects access for businesses and often impacts on farm infrastructure. It also can have a severe impact on food production, impeding all farm processes such as seeding and harvesting, reducing yields and washing out crops in severe cases.

Soil health is the key to delivering our targets on the environment and improving farm profitability. Well managed soils can lead to increased biodiversity, improved water quality and reduced carbon emissions.

The Soil Health Action Plan (SHAPE) will provide a framework of actions to improve and protect the health of our soils. This was due in Spring 2022.

A [national report in 2019 by the Environment Agency](#) found that in England and Wales:

- almost 4 million hectares of soil are at risk of compaction
- over 2 million hectares of soil are at risk of erosion

- intensive agriculture has caused arable soils to lose about 40 to 60% of their organic carbon
- soil degradation was calculated in 2010 to cost £1.2 billion every year

The importance of soil health is underscored in the government's 25 Year Environment Plan which states that England's soils must be managed sustainably by 2030 and steps must be taken towards restoring the UK's soils.

'Good soil health provides many other ecosystem service benefits besides supporting on-farm production such as increased infiltration to reduce run-off soil loss or flood risk, filtration for water quality, biodiversity in terrestrial and receiving aquatic systems' extract from 'Soil Organic Matter Symposium' held at Rothamsted in 2017 <http://www.som2017.org> West Country Rivers Trust

The project will start the process of enhancing soil carbon and protecting soils in the catchment.

The measures and infrastructure will be monitored. Training will be given in biodiversity monitoring by WWT, which will be a measure of water quality and Citizen science will be used to involve local people and groups.

How the Project Promotes Kenilworth as a Business and Tourist Destination

Natural flood management measures will enhance water quality in the Finham Brook, increasing biodiversity, making the Abbey Fields an even more pleasant place to visit.

Reducing the peak height of the Finham Brook during flood events should help to secure access to Kenilworth castle and roads around the town in times of high rainfall, helping to enable residents and visitors to continue to access the town amenities and shops, and so ensuring flooding has a less negative impact on the town.

How the proposal addresses demands imposed by the increasing population in the town

Increased development and impermeable surfaces in the town will lead to increased surface water run-off, which in turn increases river flood risk. In particular, individual small changes such as front gardens being paved over to create additional parking can lead to increased run off when considered at multiple sites.

Responsible catchment management of land and the use of NFM and other nature based solutions will redress the impact of increased population growth in the town.

Existing developments from 1970s/80 have removed semi natural vegetated areas and farmland which would have absorbed water, plus there is increased run off from hard surfaces, car parking etc.

There is continuing risk from built environment developments which will impact the Avon catchment, with high housing numbers planned in the district. Increased hard surfaces of buildings and roads reduces permeability of land and increases runoff into watercourses, thereby increasing flood risk. Whilst new developments over 10 houses are required to address run off, cumulative small-scale developments, and at times poor delivery and management of SUDS measures installed to address the issue, add to the flood risk factor.

The work to be done by the project will build future resilience to climate change impacts and begin adaptations to cope with these impacts in catchment, through habitat creation and

measures to slow water runoff. Increased semi natural habitat will help to regulate climate and absorb more carbon.

How the proposal supports Kenilworth Town Council initiatives (e.g., Cycling Strategy Group, Tourism Group, the Town Centre Working Group, Climate Emergency Roadmap).

Kenilworth Town Council, Warwick District Council and Warwickshire County Council have all declared a Climate Emergency. The Town Council Climate Emergency Actions Roadmap encourages the support of local groups involved in “environmental initiatives” and the introduction of measures such as “the town and its surrounding countryside including more trees, wetlands and wild areas raising biodiversity, stored carbon and giving natural downstream flood protection”, so the project is aligned with this roadmap.

Management Priorities

Will the proposal seek joint funding/partnership arrangements with WDC/WCC and external bodies (e.g., universities, Sustrans, English Heritage) for infrastructure?

There is a collaborative funding agreement in place with Environment Agency for 2022/23

How will your organisation/group explain publicly how the CIL receipts are forecast, managed and reported?

Warwickshire Wildlife Trust will be responsible for holding and managing the budgeted funds in a specific ring fenced cost centre and the Environment Agency and Warwickshire Wildlife Trust will provide regular updates as part of their delivery of the project.

Updates onto Kenilworth Town Council websites will be written every 3-4 months, with further information as sites are completed.

Walkovers on completed sites will be used to show the issues across the catchment

Financial reporting will be made at least annually, with all details of expenditure recorded

How will your organisation explain publicly how CIL has been spent and allocated?

There will be annual reports of expenditure to Town Council, recording the expenditure on project work.

Details of the work fulfilled will be reported and shown by photographic evidence each year.

Updates onto Kenilworth Town Council websites will be written every 3-4 months, with further information as sites are completed.

How will your organisation ensure that the costs of consultation and project management are covered?

These costs are included in the detailed budget forecasts provided.

Project management costs are included in staff costs.

Flood consent costs are included in the budget, and costs of engagement and consultation with landowners are included in staff costs, as this will be done by the project staff rather than external consultants.

Additional Information that may support your Application

Natural flood management is a relatively recent development, however there is now considerable body of evidence of results from projects across the country, some of which have been implementing NFM work for over 5 years. See below for the reference to the national report. In the past, flood mitigation measures were more likely to comprise “hard” engineering schemes, such as flood walls or the proposed flooding of the Castle Mere. However, hard engineering measures are very expensive to implement, prone to difficulties such as objections on grounds of archaeology etc. and can be prone to failure such as the overtopping of flood walls. The Reservoir Act brings many constraints on engineering solutions and therefore these are prohibitively expensive; they also usually require considerable land take and maintenance costs.

Natural flood management works with the landscape to retain more rain where it falls, and to release it more slowly into the water courses. As well as managing the peak height of rivers during intense rainfall events, the measures can increase biodiversity in the areas where they are installed and improvements to water quality. Although comparatively lower in cost than traditional flood mitigation schemes, there are now examples across the country where NFM schemes have reduced flood risk as well as other environmental benefits.

There are now several case studies of the use of NFM and natural based solutions in various catchments across the country. Some of these case studies are attached for information, with some key points referenced. These include New Forest, and Belford examples.

Extract from NFM Report Case study 16. Belford Natural Flood Management Scheme:

Between 2008 and 2012, approximately 35 run-off attenuation features were constructed in the catchment (6km²) to reduce the risk of flooding.

Monitoring of individual run-off attenuation features has shown that they are able to have a significant impact (up to 10% reduction) on the flood peak in small to medium events.

The run-off attenuation features have an impact on overland flow interception during a large storm event, demonstrating a 50% decrease in the magnitude of discharge in the form of local surface run-off.

The features have also provided multiple benefits including sediment capture and water quality improvements.

A national report ‘**Working with natural processes to reduce flood risk - The evidence base for working with natural processes to reduce flood risk**’ on NFM projects, written by Environment Agency with reports from several projects, was published in February 2021.

Example case studies from this report are submitted with this application. A few key findings include the following points and examples:

- Observed data collected during the Boxing Day floods (2015) in Pickering found the flood risk scheme reduced flood peaks by approx. 15-20%. Half this reduction was due to upstream NFM measures.
- Modelling by Odoni and Lane (2010) found installing 100 leaky barriers could reduce flood flows by 7.5% (from 29.5m³ /s to 27.3m³ /s).
- Environment Agency has a Mixed level of confidence in the flood risk benefits of leaky dams. Observed and modelled evidence shows they are effective at reducing flood risk at a local scale for small flood events (Medium confidence). EA has a High level of understanding of their effect on sediment and geomorphology.
- Kitts (2010) found that leaky barriers in ~12 km² wooded catchments can slow small flood peak by up to 33%.
- Thomas and Nisbet (2012) found that installing 5 leaky barriers reduced flow velocities by 2.1m/s, delaying the flood peak by 15 min over a 0.5 km reach for 1 in 100 year event

The full Environment Agency report and appendices are available at:

[Working with natural processes to reduce flood risk - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/444444/Working_with_natural_processes_to_reduce_flood_risk.pdf)

The National Flood and Coastal Erosion Risk Management Strategy for England states that:

'We need a broader range of actions for achieving climate resilient places. This includes avoiding inappropriate development in the floodplain and using nature based solutions to slow the flow of or store flood waters'

Extracted points from National Flood and Coastal Erosion Risk Management Strategy for England: Climate change is upon us, and its impacts are getting more severe with each passing year (Global Commission on Adaptation, 2019). We are already seeing evidence of more frequent and more extreme flooding

The UK average temperature has INCREASED by 0.8 degrees since 1961–1990

There could be up to 59% more PRECIPITATION in winters by 2050

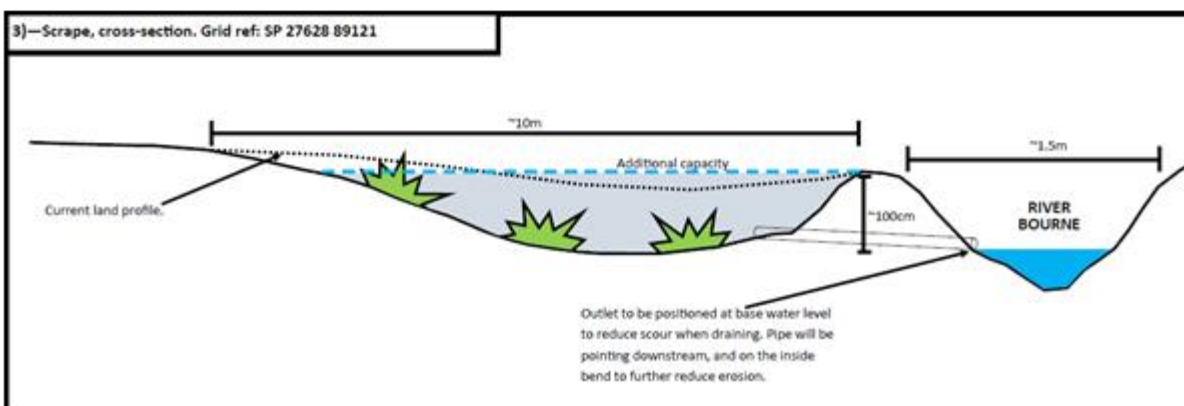
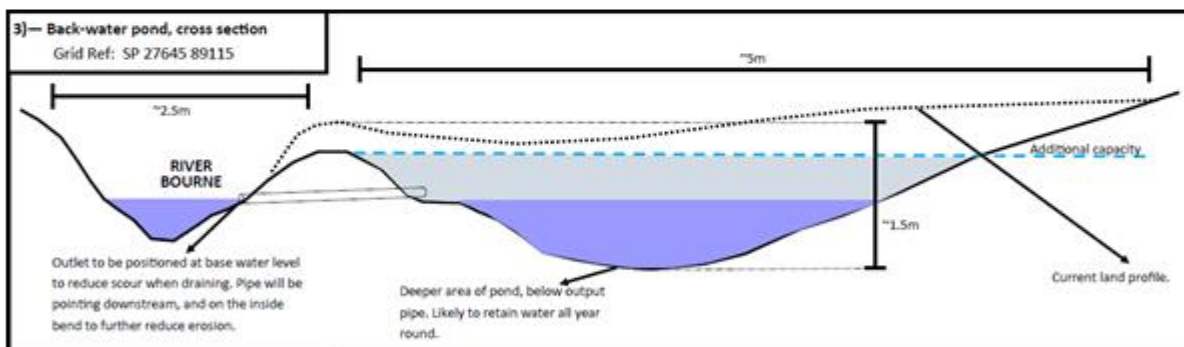
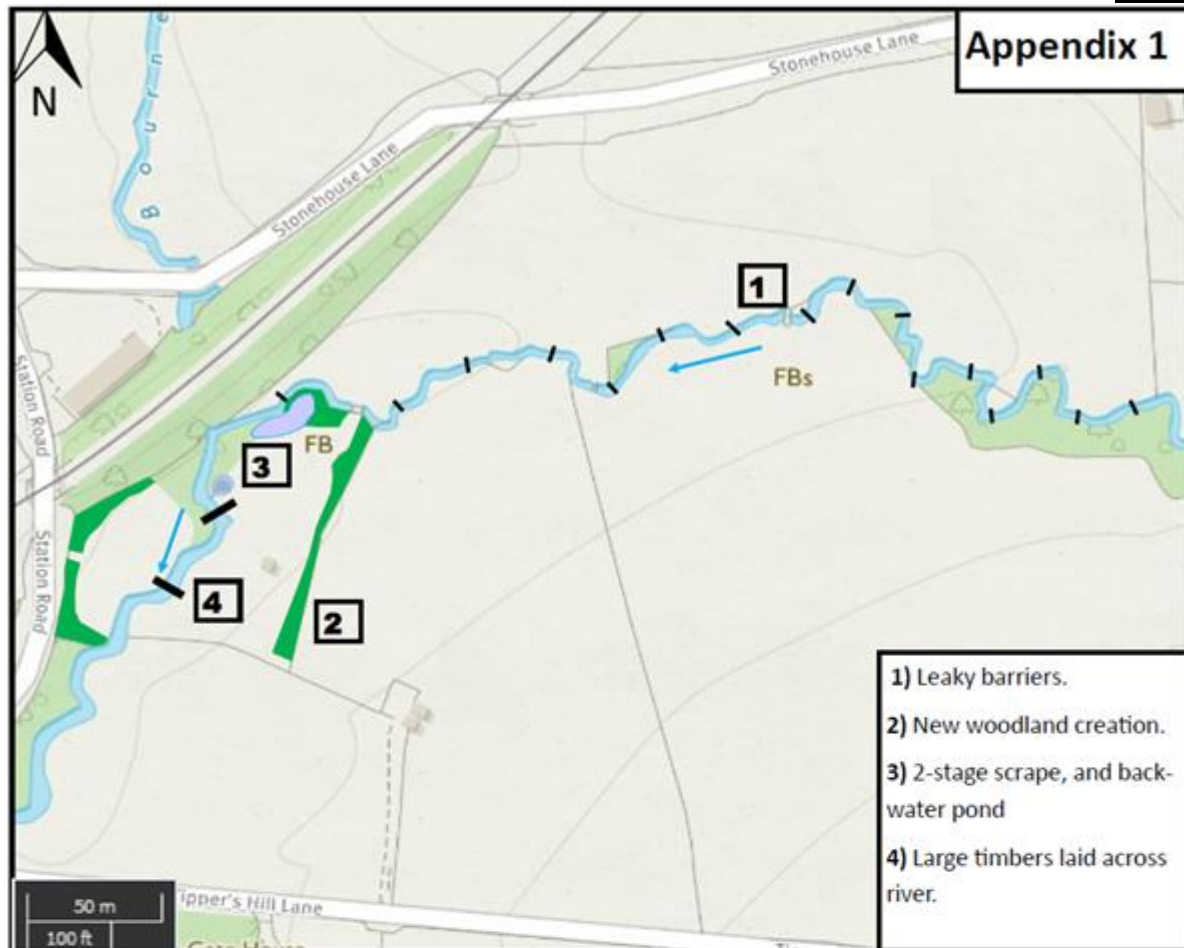
The long-term investment scenarios show that for every £1 spent on protecting communities, we avoid around £5 in property damages.

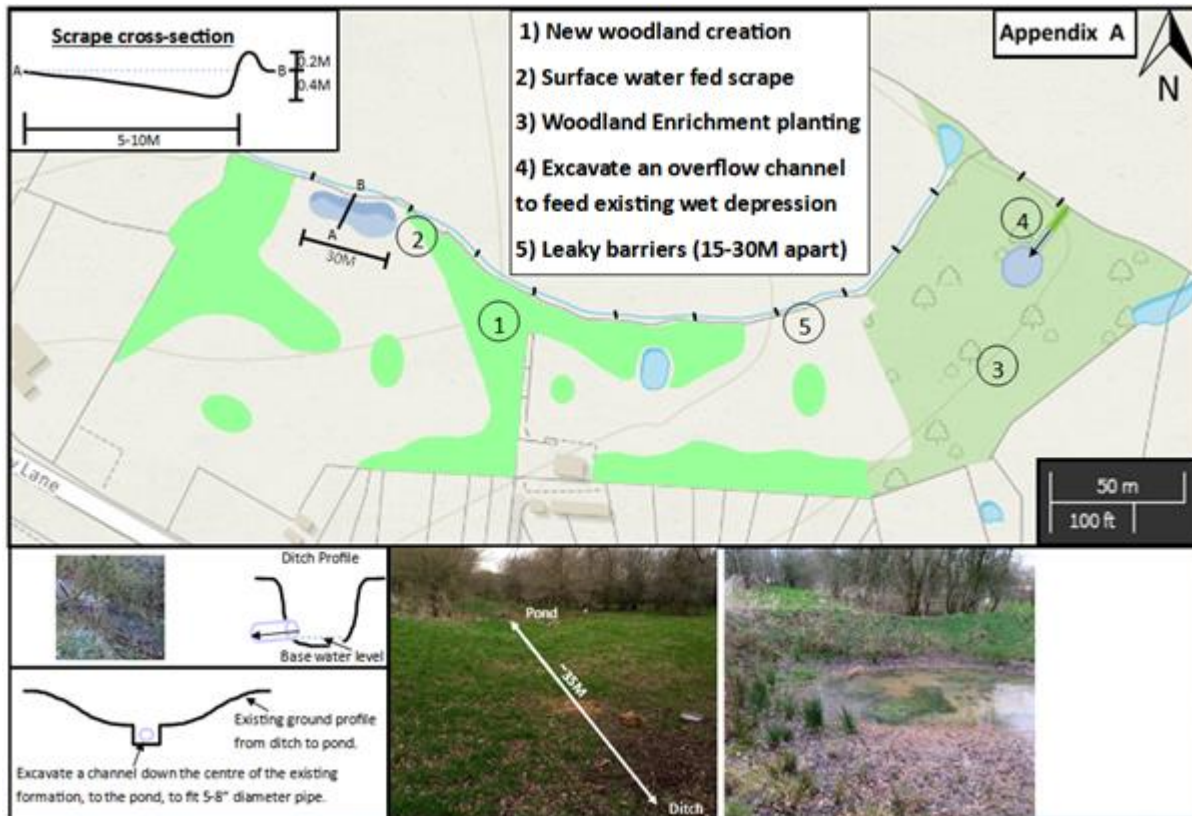
We need a broader range of actions for achieving climate resilient places. This includes avoiding inappropriate development in the floodplain and using nature based solutions to slow the flow of or store flood waters

Reference: [National flood and coastal erosion risk management strategy for England: executive summary - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/444444/National_flood_and_coastal_erosion_risk_management_strategy_for_England_executive_summary.pdf)

Appendix 1

1. Examples of scheme design and cross sections from WWT NFM River Bourne and Didgley brook
2016- 2021 Summary report





In the scheme shown above, the pool created was 15 metres by 8 metres wide with depth of 1m at the deepest section, holding an additional 16.8m³ of water.

This pond's bank full diameter is approx. 20m with a 1 metre headroom to provide additional capacity; this feature is capable of holding est. 852m³ before slowly discharging it.

10 leaky barriers have been installed within the watercourse, and are made up of locally sourced Ash, Hawthorn, Hazel, Alder and Holly.

Appendix 2 Letters of support



Environment Services

Flood Risk Management
 P.O.Box 43
 Shire Hall
 Warwick CV34 4SX
 Tel: 01926 412982

If calling ask for: **Mark Banning**
 Direct Line: **01926 412220**
 Email: **flooding@warwickshire.gov.uk**

15 July 2022

Dear Sue Fitton

I am writing in support of Finham Brook (Kenilworth) Flood Action Groups bid for Community Infrastructure Levy (CIL) funding to allow Warwickshire Wildlife Trust to undertake Natural Flood Management (NFM) activities in the catchment.

Warwickshire County Council as Lead Local Flood Authority (LLFA), have worked closely with both the Finham Brook (Kenilworth) Flood Action Group, which is a good example of a self-sustained group, and Warwickshire Wildlife Trust. We support and encourage such initiatives to build resilience and manage risk at a local community level.

NFM involves working with natural processes to reduce the peak water volume and delay the downstream peak of flooding. Such activities may also de-synchronise flows from tributaries, meaning that the downstream peak flow may be further reduced. Furthermore NFM has the potential to improve habitats, manage sediment transport and improve water quality.

WCC LLFA note that Warwickshire Wildlife Trust have experience of delivering such schemes, and have successfully demonstrated their ability elsewhere in the County. WCC LLFA trusts in the skills and expertise of Warwickshire Wildlife Trust and hope that the Finham Brook (Kenilworth) Flood Action Group can be involved in the delivery process, perhaps being well placed to assist in the landowner engagement? We look forward to supporting this project through the land drainage consent process it will require.

Yours sincerely,

A handwritten signature in black ink that reads "Mark Banning".

Mark Banning
 Flood Risk Management Engineer



*Working for
 Warwickshire*

OFFICIAL



ENGLISH
HERITAGE

Sue Fitton
Chair, Finham Brook Flood Action Group

12 August 2022

Dear Sue,

I am pleased to write on behalf of the English Heritage Trust in support of flood prevention proposals put forward by the Finham Brook Flood Action Group, due to the community benefits they will bring.

We understand the proposals will better protect local properties from the risk of flooding, cause less disruption to the road adjacent to the castle as well as the potential to bring environmental benefits through improved water quality. We understand the principal of 'slowing the flow' of rainfall is an effective and proven way to mitigate against localised flooding events and can see the benefits which the proposed scheme would have in this regard.

Yours sincerely

Dean Chandler
Operations Manager, Kenilworth Castle

Kenilworth Castle, Castle Green, Kenilworth, CV8 1NE
☎ 01926 857482 🌐 english-heritage.org.uk



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Step into England's story

From: Ann Barry <annjbarry@gmail.com>

Sent: 25 July 2022 11:46

To: sue.fitton@thezap.co.uk

Cc: Lily Brownjohn <lilybrownjohn@btopenworld.com>

Subject: Flood Alleviation Measures - KATA Email of Support

To whom it may concern

Kenilworth Allotment Tenants' Association (KATA) fully supports the Finham Brook (Kenilworth) Flood Action Group in their application to the Town Council for funding. The Allotment Association is well aware of the risk of flooding within the Finham Brook catchment area as the Odibourne allotment site is regularly flooded when the brook cannot cope with the water coming downstream after heavy rainfall.

Natural flood management has become an important tool in managing rainfall higher up in catchment areas reducing the risks to towns downstream. It is very encouraging to hear that the Environmental Agency considers the Finham Brook catchment area suitable for such flood management strategies.

The decision to support the application was taken at the Committee Meeting held on Friday 22 July 2022.

Ann Barry (Mrs)

on behalf of the Kenilworth Allotment Tenants' Association

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From: admin2605 PFP <admin2605@we-learn.com>

Sent: 18 July 2022 12:48

To: sue.fitton@thezap.co.uk

Subject: Fw: Support requested please for Kenilworth Flood Group grant application

Dear Sue

Priors Field Primary School is happy to support the work of Finham Brook Action Group and the Grant application.

As a school we have already done work to support the risk of flooding with a SUDs installation in our grounds this year. We are working closely with Severn Trent to educate the children on sustainable drainage.

Kind regards

Katie Gane

Mrs Katie Gane

Headteacher

Priors Field Primary School

Clinton Lane

Kenilworth

Warwickshire

CV8 1BA

Tel: 01926 853015

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To: sue.fitton@thezap.co.uk sue.fitton@thezap.co.uk

Tue 20/09/2022

Support for Proposal for Natural Flood Management project - Finham Catchment

Dear Sue,

I am writing, as the facilitator of the Arden Farm Wildlife Network, in support of the proposed NFM project around Kenilworth, in the Finham Brook catchment.

Our group has 46 members across the Arden landscape character area and a couple of farmers in the local Kenilworth area. The Arden Farm Wildlife Network supports the basis of NFM approach and this funding bid. We have had several members of the group undertaking NFM work on their farms and one in the area who has been involved in the first projects undertaken in 2021.

I also support this proposal as an independent agri-environment consultant and I work with a number of farmers in the catchment who would be interested in the scheme.

If the proposed bid is successful I would be happy to work with you and the Warwickshire Wildlife Trust as / when required.

Kind regards

Zoe

Zoe Bell

Farm Environment Advisor

Grounds Farm
Kenilworth
CV8 1PP

Mobile: 07980 771872

Ojars o.bartmanis@btinternet.com Wed 12/10/2022 12:37

To: Gina Rowe <Gina.Rowe@wkwk.org.uk>

Dear Gina

At our meeting of the Friends of Abbey Fields, yesterday, our committee fully supported your application for funds regarding the:

RE: Proposal for Natural Flood Management project around the Kenilworth catchment.

We do hope you are successful. Please keep us informed of your progress.

Yours sincerely

Bart

Ojars Bartmanis

Chairman

FOAF



Appendix 3 – Relevant policies

Kenilworth Neighbourhood Plan references

Community Infrastructure Levy

A.4 There will be opportunities to invest CIL funds and, at present, the following have been suggested, in no particular priority:

By part flooding the Mere or by alternative schemes reduce the flooding risk Downstream

Flooding

A.15 Whilst Kenilworth as a town is not liable to major flooding of properties, there are a small number of properties which are at risk of flooding or which have indeed flooded in recent years. For the residents this is disastrous. Both Finham Brook and Canley Brook are classed as Main Rivers and are therefore the ultimate responsibility of the Environment Agency. The Town Council is working with the EA and the Local Authorities to examine possible solutions which might involve partial flooding of the Mere at times of heavy rain. The matter is of increasing importance not only because of Climate Change but also because of the effects of the amount of development planned in the area, including Canley Brook which although mostly outside the Town has a big influence on the natural drainage. Following the Consultation an additional Policy, KP21, has been added specifically on Flooding.

Policy KP21 Flooding

In view of the known incidence of flooding from Finham Brook, developers are advised to review the Environment Agency's flood map for planning at the earliest opportunity to consider what development would be appropriate for a potential development site to ensure that proposals are in line with the policy requirements of Warwick District Local Plan Policies FE1 Flood Risk and FW2 Sustainable Drainage.

5.82 There are a number of properties in Kenilworth identified by Warwickshire County Council (WCC), the Lead Local Flood Authority, and the Environment Agency as being at risk of flooding from Finham Brook. These policies are intended to reduce the risk not only to these properties but to the wider area as water does not respect town and parish boundaries. Much of the new development in the town is over the watershed of Finham Brook and natural flows will take surface water discharge out of the town, but flooding elsewhere still needs to be considered. However much of the upstream catchment area for Finham Brook is within the Town boundary, where the Policy KP21 will be very relevant.

5.83 Unfortunately the catchment area of Canley Brook is outside the town, and therefore outside the remit of this Neighbourhood Plan, because heavy flow and flooding from that source can cause flow restriction and backing up of Finham Brook. WCC are concerned with the cumulative effect on Canley Brook of development in Coventry, in Burton Green and at the University of Warwick, and the plan to divert Canley Brook in order to construct the HS2 railway.

Warwick District Council's Local Plan policies relevant to application:

CC1 Planning for Climate Change Adaptation: All development is required to be designed to be resilient to, and adapt to the future impacts of, climate change through the inclusion of the following adaptation measures where appropriate: b) optimising the use of multi-functional green infrastructure (including water features, and planting) for urban cooling, local flood risk management and to provide access to outdoor space for shading, in accordance with Policy NE1; d) minimising vulnerability to flood risk by locating development in areas of low flood risk and including mitigation measures including SuDS in accordance with Policy FW2;

FW1 Reducing Flood Risk

The River Severn Catchment Management Plan has a specific set of recommendations for the area covering Warwick District Council within the Upper Avon, and Coventry cluster sub-catchments. 5.125 The Environment Agency estimates that up to 5000 homes are at risk of flooding within the area managed by

Warwick District Council, and many more businesses, roads and other essential infrastructure are already vulnerable to flood risk.

5.126 The risks can be managed at the same time as encouraging increased floodwater storage on undeveloped floodplains in order to increase attenuation and reduce flood risk to communities. This sub-area presents a good opportunity for storage, as it will benefit communities locally and downstream.

5.127 The Environment Agency plans to reduce dependence on raised flood defences, as this is unsustainable in the long term, by taking opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains. This would benefit many communities here and elsewhere, for example Yelvertoft, Willoughby, Rugby and Leamington Spa.

5.128 Development / redevelopment must be managed to minimise flood risks. Methods must be sustainable over the long term, for example, making more space for rivers through urban areas

FW2 Sustainable Drainage

All new major developments must incorporate SuDS that provide biodiversity, water quality and amenity benefits and be in accordance with the Warwickshire Surface Water Management Plan. There will be a presumption against underground storage of water, and it should support the delivery of green infrastructure.

SuDS schemes must be located outside the floodplain; ideally this should be within the development site or close to the site as part of a master planned drainage scheme. Priority should be given to SuDS that incorporate green infrastructure, including green roofs, walls & rain gardens

5.137 Trees and woods can play a positive role in helping to solve water quality and flow issues. They can deliver a major contribution to resolving a range of water management issues, particularly those resulting from climate change like flooding and water quality implications caused by extreme weather events. Trees can attenuate water flow reducing the impact of heavy rains.

5.139 There are 33 river water bodies, six canal water bodies, two lakes and one groundwater water body in the catchment. The status (health) of the water environment in 2009 was assessed as being generally moderate. In 2014, the status of the water environment had fallen. It can take five to ten years for the positive benefits of actions to be reflected in the ecological status. Current analysis suggests that 68% of the water bodies in the Avon Rural catchment should have the long-term objective of achieving “good” status

NE3 Biodiversity

Development proposals will be expected to ensure that they: a) lead to no net loss of biodiversity, b) protect or enhance biodiversity assets and secure their long term management and maintenance, and; c) avoid negative impacts on existing biodiversity.

5.200 Helping to secure improvements to biodiversity is one of the key roles in achieving sustainable development. National policy is aimed at halting the net loss of biodiversity and striving for gains. The loss of habitats and species, whether from designated sites or not, is a key issue to be addressed. Wildlife habitats have a wide variety of functions and contribute to a range of ecosystem services, including the provision of food and assisting in regulating climate.

NE5 Protection of Natural Resources

f) where appropriate, identify how the proposals will contribute to the EU Water Framework Directive and the Severn River Basin Management Plan, which requires the restoration and enhancements of water bodies to prevent deterioration and promote recovery of waterbodies.

Warwickshire Local Flood Risk Management Strategy.

O1 Develop a better understanding of local flood risk in Warwickshire to better manage flood risk to people, property, infrastructure and the natural environment

- With local flood risk expected to increase due to climate change, greater understanding will enable Warwickshire to plan for the future, mitigating against potential problems and advising strategic development plans.

O2 Seek to reduce local flood risk in Warwickshire in an economically, socially and environmentally sustainable way

- Another key aspect of local flood risk management is working with riparian landowners to ensure they act on their responsibilities for watercourse maintenance

Measure 2B: Warwickshire County Council to work with partners to encourage flood management and maintenance activities by riparian landowners on ordinary watercourses, and flood defence and drainage structures...

Measure 2C: WCC to work collaboratively with partners, including those in the Warwickshire Strategic Flood Forum (WSFF), to encourage flood schemes by third parties, riparian landowners and stakeholders.

Note: Warwickshire Wildlife Trust is a member of the WCC Strategic Flood Forum

Measure 2E: To ensure environmentally sustainable solutions are fully considered in WCC led and in all other flood risk management measures, using a catchment based approach where applicable.

Measure 2F: Aim to ensure a no net loss of biodiversity, particularly in Local Wildlife Sites, and where possible look to provide a net gain through habitat creation and enhancement, contributing to wider environmental objectives.

O3 Adopt a collaborative approach to local flood risk management

- Communication of local flood risk and raising awareness with local communities is another important element of local flood risk management. An example of this is the Defra-funded Community Flood Resilience Pathfinder Project

Measure 3C: Continue to work with and support community flood action groups, Town and Parish Councils and other community groups. Measure 3D: Continue to engage local communities, building on the progress made by the Community Flood Resilience Pathfinder Project.

From the Summary of responses to **EA's Severn River Basin Flood Risk Management Plan** consultation May 2022:

The main themes from the Severn FRMP responses included:

- the implementation of nature-based solutions, especially those that provide multiple benefits was welcomed
- **Nature-based solutions** – support for the implementation of nature-based solutions, including natural flood management techniques, so more biodiversity and environmental benefits can be delivered across the flood and water environment.
- **Catchment-based approach** – support for and a greater emphasis on this for flood risk management.
- **Climate change and adaptation** – the importance of working together across all organisations to adapt and having better information on factors such as the carbon footprint of the measures.
- Funding – the need to identify funding and resources for the timely delivery of measures.

National Flood and Coastal Erosion Risk Management Strategy for England

The project will help to fulfil several objectives of this strategy including:

Strategic objective 1.3:

Between now and 2030 all those involved in managing water will embrace and embed adaptive approaches to enhance the resilience of our environment to future flooding and drought. Measure 1.3.1:

From 2021 the Environment Agency will use the lessons learned from the Defra £15m natural flood management projects and other pilot projects to expand and mainstream working with natural processes by all risk management authorities.

Measure 1.3.2: From 2021 the Environment Agency will work with farmers, landowners and others to identify opportunities for using agricultural practices to manage flooding and coastal change.

Strategic objective 1.4:

Between now and 2030 risk management authorities will enhance the natural, built and historic environments so we leave it in a better state for the next generation.

Measure 1.4.1: From 2021 risk management authorities will contribute to improving the natural, built and historic environment through their investments in flood and coastal projects.

Measure 1.4.2: From 2021 risk management authorities will work with partners and others to identify how the nature recovery network, the northern forest and other habitat improvements can help to manage flood risk and coastal change.

Measure 1.4.3: From 2021 risk management authorities will help to ensure that 75% of all water bodies are in natural or near-natural condition within 25 years.

Strategic objective 3.2: Between now and 2030 people will understand the potential impact of flooding and coastal change on them and take action.

Local Biodiversity Action Plans including:

Rivers and Streams:

Objective B. Improve all WFD failing water bodies to Good Ecological Status (GES) or to Good Ecological Potential (GEP) if heavily modified.

Actions:

SM3. Actively work with partners and agencies to ensure that all flood defence works result in an overall environmental gain to aquatic and riparian habitats.

SM4. Deliver Restoration Projects to improve water quality and ecology.

SM5. Implement schemes to tackle identified issues on priority sites (see RM1) for water course/corridor improvement to ensure that no water bodies in Warwickshire deteriorate, and continue to aim for Good Ecological Status.

Ponds:

Objective C. To expand the extent of the habitat by creating a further 100 new open water bodies.

Actions:

SM2. Restore 55 degraded ponds and their surrounding buffering habitat in both urban and rural areas for wildlife and communities by 2025 and a further 70 by 2030

SM3. Expand the area of the habitat by creating 45 new ponds with surrounding buffering habitat within 250m of existing ponds by 2015 and a further 55 by 2030,

Hedgerows:

Objective C. To restore 151km of degraded hedgerows.

Actions:

SM3. Restore another 37km of degraded hedgerow by 2026 and a further 47km by 2030

SM4. Expand the length of hedgerows in the subregion by planting 18km of native species-rich hedges annually to give a total increase of 162km by 2030

Reference: [Warwickshire Local Biodiversity Action Plan \(warwickshirewildlifetrust.org.uk\)](http://warwickshirewildlifetrust.org.uk)