

# Delivering flood resilience through the planning system in England

Understanding opportunities, challenges and barriers with a focus on the post-consent planning process



# Delivering flood resilience through the planning system in England: Understanding opportunities, challenges and barriers with a focus on the post-consent planning process

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## Authors

This report has been written by Celia Davis and Hugh Ellis with research assistance from Sally Roscoe and Charlotte Llewellyn.

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## FLOODRE

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## About the TCPA

The Town and Country Planning Association (TCPA) works to challenge, inspire and support people to create healthy, sustainable and resilient places that are fair for everyone. To this end we aim to improve the art and science of planning in the UK and abroad and work to secure fresh perspectives on major issues, including planning policy, housing, regeneration and climate change. Informed by the Garden City Principles, the TCPA's strategic priorities are to:

- Work to secure a good home for everyone in inclusive, resilient and prosperous communities, which support people to live healthier lives.
- Empower people to have real influence over decisions about their environments and to secure social justice within and between communities.
- Support new and transform existing places to be adaptable to current and future challenges including the climate crisis.



**tcpa**

## Town and Country Planning Association

17 Carlton House Terrace  
London SW1Y 5AS

020 7930 8903

[tcpa@tcpa.org.uk](mailto:tcpa@tcpa.org.uk)

[www.tcpa.org.uk](http://www.tcpa.org.uk)



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# 1 Executive summary

This research takes a detailed look at the effectiveness of the planning system for the delivery of flood resilient new housing development in England. The research has been conducted through a literature review, two in depth case studies, stakeholder interviews and a review of the use of conditions in two local planning authorities. The research has been guided by an advisory group of flood risk and development experts.

The findings of the research remind us of the systemic issues around the operation of the planning system in England, which fails to adequately prioritise or secure long-term resilience to the impacts of climate change. Within this system, the research looked in detail at the operation of the development management process in relation to securing flood resilience measures in new development and found areas of dysfunction and vulnerability, and revealed detailed procedural issues that are pertinent to how new development is being monitored and built out.

## Box 1: Case study 1 summary – Twigworth Green, Tewkesbury

The Twigworth Green development for 725 homes, a local centre, primary school and retail space was granted outline planning permission on appeal. The site, at the time of the initial refusal of the scheme, was unallocated, although it later became allocated through the Joint Core Strategy (covering Gloucester City Council, Cheltenham Borough Council and Tewkesbury Borough Council) in December 2017.

The site is predominantly in Flood Zone 1, meaning there is a low risk of fluvial flooding, with some small parts of the site adjacent to the Hatherley Brook within Flood Zone 2 (medium flood risk) and Flood Zone 3 (high flood risk). The main flood risk issue affecting the site arises from surface water flood risk.

Through the development of the site, and since occupation, the site has been affected by flood incidents arising from issues with waste water treatment infrastructure, and the local community has also reported flooding to existing buildings which they believe have been caused by the new development, although the developer disputes this.

The case study explores some key issues in the treatment of flood risk through the planning system, including:

- How planning decisions navigate different interpretations of flood risk evidence and competing assessments of levels of risk,
- Whether flood resilience measures are weakened by limited consideration at early design stages, and if this is particularly an issue for outline planning consents when less detail is required at the point of consent,
- How planning conditions are a pivotal mechanism for securing flood resilience measures for new development,
- The important role of statutory consultees in maintaining oversight of schemes post-consent,
- Challenges arising from the complexity of the planning process and the complex arrangement of institutional roles and responsibilities for flood risk.

**Box 2: Case study 2 summary – Kelham Central, Sheffield**

The second case considers the third phase of a brownfield city centre regeneration scheme in Sheffield, where the major flood risk challenge arises from the river Don. The Kelham Central development is for 114 residential dwellings and commercial floorspace, alongside the associated access, car parking and landscaping.

In this case permission was granted for full planning consent, although there remains a complex post-planning process governing the development due to the large number of conditions and some later amendments to the scheme.

The issues explored through this case study include:

- The differentiation between flood risk mitigations identified in the flood risk assessment, as compared to those that are eventually delivered, and the associated vulnerability of reliance on conditions to bring forward some flood resilience measures.
- Challenges in continued detailed oversight through the post-consent process and the discharge of conditions.
- The enabling role played by lead local flood authorities with the right skills and knowledge to influence drainage strategies at an early stage.

The research findings are discussed throughout the report under three thematic headings:

**1.1 Theme one: the quality of evidence used in decision making**

The research finds that the evidence used to inform planning decisions on flood risk is often out of date, lacks coverage of key flood risk issues, and is difficult to access. Local planning authorities lack the resources to keep understanding of local flood risk up to date through strategic flood risk assessments (SFRA's).

Whilst there are planned improvements to the access and integration of flood risk data through the updated National Flood Risk Assessment (NAFRA 2), there remains a need for clearer oversight and more prescriptive guidance on the production of flood risk evidence such as flood risk assessments. This would ensure a more consistent approach and enhance transparency and trust in the process.



## **1.2 Theme two: securing flood risk requirements through planning**

The case studies and conditions review reveal the pivotal role that conditions play in securing the flood mitigation measures for new development. However, this reliance creates vulnerabilities and means that flood resilience is limited to delivering only minimum policy requirements. The research finds that conditions are not being executed consistently and effectively in practice. Local planning authorities (LPAs) and lead local flood authorities (LLFAs) lack adequate resource to service and monitor the post-consent process, including the discharge of conditions.

The complex post-consent planning process is subject to little scrutiny for compliance and is difficult for communities to engage with. This seems to be a particular issue where a development has been granted through outline planning permission, where more issues are agreed after the principle of development has been approved. The research finds that the complexity of the post-consent process leads to a lack of transparency and it is not clear what flood resilience measures have been delivered for individual schemes.

Despite rising exposure to the risk of flooding, the research finds that the planning system is not successfully securing property flood resilience measures, even when these are identified as required in flood risk assessments.

## **1.3 Theme three: strengthening the operation of the regulatory system**

The regulation of flood risk in the planning system is hindered by institutional complexity and a complicated division of roles and responsibilities. This is evident in the weaker regulation and oversight of risk arising from surface water flooding when compared with tidal and fluvial sources. Another regulatory weakness the research reveals is the consideration of water infrastructure constraints.

It is also clear from the research that the complex post-consent planning process is subject to little scrutiny for compliance, leaving limited oversight of implementation and enforcement.

## 2 Introduction

The planning system plays a pivotal role in ensuring new homes are resilient to the growing risks of flooding and national planning policy in England seeks to direct development away from areas at highest risk of flooding.<sup>1</sup> Where development does occur in areas at risk of flooding, the planning system should ensure that there are suitable measures in place to ensure that people and properties are safe for the lifetime of the development. The government recognises the important role of the planning system in contributing to the long-term resilience of the country to flooding:

*'We will ensure that planning policy is being appropriately applied and effectively implemented on a consistent basis across the country... to help ensure that properties which could be at risk at any point in their lifetime are consistently built to ensure resilience to flood risk from the outset.'*<sup>2</sup>

The ability of the planning system to deliver new housing without increasing the exposure of households to flood risk is also recognised by Flood Re as a key factor influencing the availability and affordability of flood insurance in future.<sup>3</sup> However, the effectiveness of the planning system in delivering flood resilient new development in practice is contested. The Climate Change Committee, in their most recent adaptation progress report, found that 7% of



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<sup>1</sup> *National Planning Policy Framework*. Department for Levelling Up, Housing & Communities, September 2023. <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

<sup>2</sup> *Flood and coastal erosion risk management: policy statement*. Department for Environment, Food & Rural Affairs, July 2020. <https://www.gov.uk/government/publications/flood-and-coastal-erosion-risk-management-policy-statement> (Page 29).

<sup>3</sup> *Our Call to Action: delivering a vision of affordable flood insurance*. Flood Re, 2023. [https://www.floodre.co.uk/wp-content/uploads/Flood\\_Re\\_Transition\\_Plan\\_report\\_2023.pdf](https://www.floodre.co.uk/wp-content/uploads/Flood_Re_Transition_Plan_report_2023.pdf)

new residential addresses were in Flood Zone 3,<sup>4</sup> and that ‘climate resilience is not embedded nor sufficiently enforceable within spatial planning policy.’<sup>5</sup>

It is expected that building new homes in areas of flood risk is likely to continue, with the Environment Agency estimating that there could be an increase in the number of houses built on flood plains of up to 50% over the next 50 years.<sup>6</sup> In this context, it is vital that developments and properties in flood risk areas are designed to be highly flood resilient and protect property and people from the devastating impacts of flooding.

There is also a perception within communities that flood risk mitigations are often not built out effectively on new development sites.<sup>7</sup> The government’s policy review for development in areas of flood risk recognised the important role of enforcement in incentivising compliance with planning conditions related to flood mitigation and raised concerns about the effectiveness of this in practice.<sup>8</sup>

Factors that contribute to this issue may include inconsistent approaches to securing climate adaptation measures in development proposals, a complex and lengthy post-consent planning process, the under-resourcing of development management and planning enforcement in local government, and poor management of on-site flood risk mitigations. This potential gap between policy intent and delivery on the ground provides the context of this research.

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<sup>4</sup> *Progress in adapting to climate change – 2023 Report to Parliament*. Climate Change Committee, March 2023. <https://www.theccc.org.uk/publication/progress-in-adapting-to-climate-change-2023-report-to-parliament/> (Page 210).

<sup>5</sup> *Ibid*, Page 189.

<sup>6</sup> *Managing Flood Risk*. House of Commons Public Accounts Committee, February 2021. <https://committees.parliament.uk/work/905/managing-flood-risks/publications/>

<sup>7</sup> See for example the National Flood Forum response to the 2023 NPPF consultation: <https://nationalfloodforum.org.uk/national-planning-policy-framework-consultation/>

<sup>8</sup> *Review of policy for development in areas at flood risk*. MHCLG, July 2021.



### 3 The governance of flood risk in planning in England

The House of Commons library has published a useful and comprehensive summary of the institutional framework for planning and funding flood resilience measures in England. Table 1 below is taken from this report and sets out the key agencies which all have a crucial role in planning for flood risk.

At a basic level the statutory local plan for any given area should embody policies and allocations which fully reflect an understanding of present and future flood risk which accounts for climate change. The evidence for each local plan depends on a strategic flood risk assessment (SFRA) prepared by the LPA. This information should be reflected comprehensively in plan policy and site allocations, and in relation to individual planning applications including the necessary interventions to ensure flood resilience. National planning policy requires local planning authorities to apply a sequential, risk based approach to flood risk, which directs development away from areas at highest risk of flooding. This should be tested again in more detail through flood risk assessments as part of the development management process.

It is important to note that the reality of plan making involves time scales of between three to ten years and in some places there are multiple other flood risk strategies to consider including Shoreline Management Plans (SMPs) and river catchment plans. It is in this broader institutional context of different players, time frames and datasets that significant issues can arise as to the quality of data which can undermine the adequacy of local plan policy.



Risk management authority	Role
<b>Central government</b>	<ul style="list-style-type: none"> <li>• The Department for Environment, Food and Rural Affairs (Defra) is the lead government department for flood and coastal erosion risk management.</li> <li>• The Department for Levelling Up, Housing and Communities (DLUHC) is the lead government department for response and recovery when flooding occurs. It is also responsible for planning policy.</li> <li>• The Cabinet Office has responsibility for designating lead government department status across all sectors, and owns the overarching policy in relation to emergency planning and response.</li> </ul>
<b>Environment Agency (EA)</b>	Operational responsibility to manage flooding from “main rivers” and the sea; strategic overview of all sources of flooding.
<b>Regional Flood and Coastal Committees</b>	Direct flood risk management decisions in each region; must be consulted by the EA about FCERM work in their region.
<b>Lead Local Flood Authorities (LLFAs, unitary authorities and county councils)</b>	Prepare local flood risk management strategies; maintain registers of flood risk assets; lead responsibility for managing floor risk from surface water, groundwater and ordinary watercourses.
<b>Local authorities</b>	Play a role in ensuring development is safe, flood resilient and does not increase flood risk overall; local authorities also have statutory powers to carry out flood defence works on “ordinary watercourses” which are not in an Internal Drainage Board area.
<b>Internal Drainage Boards</b>	Independent public bodies covering around 10% of England; have statutory powers to carry out works to manage water levels within their drainage districts.
<b>Water and sewerage companies</b>	Manage the risk of flooding from surface water and foul or combined sewer systems.
<b>Highways authorities</b>	Responsible for highway drainage and roadside ditches.

Table 1: Roles in managing flood risk. Source: Flood risk management and funding. [House of Commons Library](#), February 2024.

The development management function of the planning system is also a vitally important gateway for securing flood resilient development. The granting of planning consent should be contingent on a proposal meeting national and local policy requirements on flood risk. For sites

at potential risk of present and future flooding, applicants must produce a flood risk assessment to establish the scale of potential exposure to flood risk and whether this can be mitigated.<sup>9</sup>

Where consent is granted for sites with flood risk exposure, required mitigations will often be secured through planning conditions. Conditions must be approved by the LPA, which should also provide oversight and ensure compliance with conditioned requirements. The National Planning Policy Framework (NPPF) is clear that planning conditions should be kept to a minimum, and national planning guidance sets six tests that they should satisfy. They should be:

1. necessary;
2. relevant to planning;
3. relevant to the development to be permitted;
4. enforceable;
5. precise; and
6. reasonable in all other respects.<sup>10</sup>

The approval and discharge of conditions is a key aspect of the post-consent planning process, but this is just one aspect of a fairly complex system that can allow for changes to be made to the development proposals after consent is granted, and for the local planning authority to maintain oversight and engagement in what is being delivered onsite. This includes approval of reserved matters (where outline planning applications have granted the principle of development, with further 'reserved matters' to be approved later), applications for non-material amendments, monitoring and checking compliance, and planning enforcement.<sup>11</sup>

The main area of investigation for this research is whether this development management process provides a robust approach framework for securing flood resilience measures.

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<sup>9</sup> *Planning practice guidance: flood risk and coastal change*. DLUHC, 2022. (Paragraph 20)

<sup>10</sup> *Planning practice guidance: using of planning conditions*. DLUHC, 2019. (Paragraph 3)

<sup>11</sup> *The whittling away of wonderful ideas: post-consent and the diminution of design quality*. H. Hickman et al. July 2021.

## 4 Research objectives

Much analysis of the operation of the planning system in England ends at the point a decision is made as to whether or not to grant permission for a development proposal. This means that the complex process of checks, balances and changes that are authorised by local planning authorities after the principle of development is permitted, have received comparatively little attention.<sup>12</sup> There is a recognition in the National Planning Policy Framework that approved development can diminish in relation to design quality 'as a result of changes being made to the permitted scheme',<sup>13</sup> but the same concern is not reflected in relation to how other policy aspirations secured at planning consent stage may be diminished through the post-consent process.

The aim of this research is to increase our understanding of the treatment of flood risk mitigations throughout the development process, with a focus on the post consent process.

To achieve this aim, the following research objectives have been used to frame and direct the research. The objectives are:

- To explore how flood risk measures are defined and implemented throughout the development management process.
- To understand how flood risk interacts with other policy areas in decision making.
- To improve understanding of how post-consent mechanisms (e.g. conditions, reserved matters, and enforcement) influence flood resilience outcomes for new development.
- To consider how stakeholder engagement influences flood resilience outcomes for new development.



<sup>12</sup> Ibid.

<sup>13</sup> *National Planning Policy Framework*. DLUHC, 2023. (Paragraph 140)

The research will also provide up to date findings that focus on the practical application of measures to secure higher levels of flood resilience through the planning system in England. These findings may helpfully inform recommendations for how the planning system might more effectively address flood risk in future.

The research is concerned with ‘flood resilience measures.’ This terminology is intended to capture the range of measures that contribute to the resilience of development to flooding, and is intentionally wider in scope than a focus on engineered solutions designed to mitigate the risk of flooding. The flood resilience measures included in scope of the research were discussed with the research advisory group (see section 5.1). It was agreed to consider a broader scope of flood resilience measures that contribute to flood resilience (such as design and landscape features) alongside interventions purely designed to address drainage and flooding. The flood resilience included in scope are:

- Design measures specifically adopted to support flood resilience and manage the movement of water.
- Requirements that direct sensitive development away from high-risk areas of the site or secure appropriate uses.
- Landscaping features that contribute to drainage or ‘slow the flow’ of water (whether specified for this purpose or otherwise).
- Property flood resilience measures.
- Drainage (including Sustainable Drainage Systems).
- Provision of flood risk management infrastructure.
- Requirements to secure safe access and emergency escape.

A final parameter for the research scope is the focus on new build, residential led development, with an intention to consider different development scales and contexts. This is explained further in chapter 5.

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# 5 Methodology

The objective of the research is to gain an understanding of how flood resilience measures are considered and treated through the development management process in England, with a focus on the post-consent process. The methodology has been designed to ensure the research explored existing knowledge and understanding of the challenges and opportunities in planning for flood risk, whilst investigating the detailed process applied to specific sites in order to examine the delivery of development schemes in practice. The component tasks that form the research are summarised below.

## 5.1 Advisory group

An advisory group was established to guide the research and provide access to stakeholder expertise to test and input different perspectives to the project. Members of the advisory group included academics, developers, architects and designers, professional bodies, statutory agencies and the insurance and lending sectors. This group of experts met twice during the research project and provided input to define the scope of the work, and also to provide feedback and perspectives on emerging findings.

## 5.2 Literature review

A literature review to identify the known challenges, barriers and opportunities to address flood risk mitigation through the post consent process and position the research in the context of current practice and known challenges relating to flood risk management through the planning system in England.

## 5.3 Two in-depth case studies

Two case studies have been undertaken to explore the treatment of flood risk mitigation measures throughout the development process. These were selected to enable comparison of different typologies of residential development, both of which reflect broad development trends in England. Comparative factors were discussed with the research advisory group to guide case study selection, and to ensure the two sites represented different contexts in relation to:

- Urban and rural settings,
- Brownfield and greenfield development sites,
- Volume housebuilder and smaller development company,
- Different routes to planning consent (e.g. outline, full consent, planning appeal), and
- Exposure to different sources of flood risk (with an intention to select on predominantly fluvial or tidal flood risk scenario, and one where surface water was the predominant flood risk issue).

The criteria for case studies also sought sites that were a) at least partially completed (so that the post-consent process could be reviewed through to build out), and b) permitted under the National Planning Policy Framework (NPPF), which was introduced in 2012. The first case study, Twigworth Green, represents a large scale, multi-phased greenfield development delivered by a volume housebuilder on a site with areas at high-risk of surface water flooding. The outline planning consent was granted on appeal in 2017. The second case study, Kelham Central, focuses on the third phase of an urban regeneration development on brownfield land at medium

risk of fluvial flooding, which gained full planning permission in 2020. Both developments are largely complete, and partially occupied.

The case studies carefully examine changes proposed and agreed post-consent, with a specific focus on the measures relating to flood risk mitigation. The case studies have been undertaken through desk-based research looking at planning documents in the public domain, and through interviews with stakeholders involved in the cases. For Twigworth Green two interviews took place: one with a representative from the lead developer, and a second with a representative from the local community. For the second case study, one interview with the developer took place. In both cases, the local planning authority were approached to participate in the research, but they were not forthcoming. The interviews were held online, transcribed and analysed thematically to feed into the case study write ups and analysis of findings.

#### 5.4 Conditions review

Closer consideration of the use of conditions to secure flood resilience measures was recommended as part of the research scope by the advisory group, which raised a concern about a lack of understanding about the efficacy of the use of conditions to secure flood resilience measures. The conditions review used a sample of twenty planning applications for residential development from two local planning authorities with high levels of flood risk. For this task Doncaster City Council and Erewash Borough Council were selected.

The conditions applied to the sample planning applications pertaining to flood resilience were reviewed to gain understanding of:

- The use of flood risk conditions in respect of flood resilience measures.
- The strength of conditions in relation to wording, specificity and whether pre-commencement checks are required, and
- Whether conditions are worded in line with advice from statutory consultees (where this has been provided).

Using mapped information on planning applications from the local planning authority websites, sites were selected to represent geographical distribution across the planning authority area, and variation in terms of scale of development. Preference was given to sites permitted in recent years, so that they would more likely represent current practice. The sites were assessed, and the following information gathered:

- exposure to flood risk (using the Environment Agency flood zone and long term flood risk maps),
- whether an FRA was prepared, and if so what flood risk mitigations are recommended,
- whether flood risk consultees had responded to the applications, and if so whether conditions had been suggested, and
- the conditions applied to the consent pertinent to the flood resilience measures included in scope of the research.

#### 5.5 Stakeholder engagement

Further stakeholder engagement was undertaken to capture perspectives on the treatment of flood resilience measures through the planning process. Two interviews were undertaken with members of management committee of the National Association of Planning Enforcement.

This was to capture understanding of the operation of the enforcement function of planning authorities in relation to flood resilience. Feedback was also received on interim findings through the national Property Flood Resilience roundtable and the Flood Re Transition sub-committee.

### **5.6 Research limitations**

While the conditions review and the case studies provided extremely valuable in depth findings, due to the small sample size they cannot necessarily be interpreted as representative of wider practice across English local government. In this context the literature review was particularly important in understanding how far the results were in accordance with previous and more extensive reviews of the planning systems response to climate adaptation. There were also a number of detailed data collection problems in relation to gaining access to local government officers. This was primarily because of the extremely limited capacity and resource that now exist inside local government.



## 6 Literature review

The literature review considered existing research that has explored how flood risk management is delivered through the planning system in relation to the research objectives. Whilst there are a limited number of studies that assess development sites in relation to the delivery of flood resilience measures on the ground, multiple reports have identified an operational void in relation to planning enforcement and compliance, which indicates, at least, a gap in understanding of how this lack of enforcement impacts the delivery of flood resilience measures in practice.

In 2021, the Department for Environment, Food and Rural Affairs (DEFRA) led a review that looked at the operation of the planning system in relation to flood risk, the scope of which included national policy and guidance, decision making, enforcement and compliance. The review considered evidence drawn from a survey of local planning authorities, which found ‘over half...said they rarely or never inspected a new development to check for compliance with flood risk planning conditions’<sup>14</sup> and 73% said they would check for compliance in response to a complaint. The survey identified lack of resources to carry out inspections as the main cause. This was echoed in the Bricks and Water inquiry, which heard evidence of the lack of inspection for compliance with flood risk requirements due to limited capacity to carry out planning enforcement.<sup>15</sup>

This is further borne out in a study by the University of the West of England, which looked at the delivery of design quality in new developments through the post-consent process in the West of England sub-region. Although not focused on flood risk measures, the study provides in depth analysis of the operation of the post-consent planning process and the mechanisms through which changes occur to development schemes between the granting of planning consent and delivery on the ground. The study found weaknesses in the post-consent process, with planning officers reporting that schemes routinely declined in quality post-consent and was often used by developers to ‘value engineer’ schemes.<sup>16</sup> This report also found that the enforcement function of planning teams was severely restricted due to limited capacity, meaning that enforcement in the four authorities in the study was ‘exclusively complaint driven.’<sup>17</sup>

There is one study included in this literature review that sheds further light on this issue in relation to how flood risk measures are treated on specific sites. The Cambridge Institute for Sustainability Leadership (CISL) looked at development case studies in Somerset and found challenges in securing flood risk measures through the planning process, including one instance of a developer not taking on board advice from the planning department, and an example of a reduced level of flood protection being delivered onsite compared to those proposed in the plans. The report found that the local authority planners ‘did not challenge the

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<sup>14</sup> *Review of policy for development in areas at flood risk*. Department for Environment, Food & Rural Affairs, Ministry of Housing, Communities & Local Government, Environment Agency, July 2021. <https://www.gov.uk/government/publications/review-of-policy-for-development-in-areas-at-flood-risk>

<sup>15</sup> *Bricks and water: managing flood risk and accelerating adaptation in a climate emergency*. Policy Connect, June 2023. <https://www.policyconnect.org.uk/research/bricks-and-water-managing-flood-risk-and-accelerating-adaptation-climate-emergency>

<sup>16</sup> *The whittling away of wonderful ideas: post-consent and the diminution of design quality*. Hannah Hickman et al, University of the West of England, April 2021. <https://uwe-repository.worktribe.com/output/7318606/the-whittling-away-of-wonderful-ideas-post-consent-and-the-diminution-of-design-quality> (Page 34).

<sup>17</sup> *Ibid.* (Page 46).

developer because weak regulation related to surface water risk management made the risk of losing a costly court case too high in the view of the district authority.<sup>18</sup>

This report provides the clearest evidence that developers may promise a level of flood mitigations at application stage, but then in practice deliver less. The focused scope of the study cannot demonstrate this is routine practice, but it does highlight that some of the challenges of capacity and resources affecting the regulation and enforcement of planning are likely to have implications for the standard of flood resilience being delivered.

Further findings of the literature review consider more detailed process issues with the planning system, and overall can be summarised under three main themes, which are discussed below.

### 6.1 Theme one: the quality of data and evidence used in decision making

Access to up to date, reliable flood risk information, which includes an appropriate level of detail and considers all sources of current and future flood risk, is a precondition to making sound development management and planning policy decisions. However, the literature reviewed here shows that the quality and availability of flood risk information in England is inconsistent, and often out of date. This is identified as having varied causes and implications:

- Local and national flood risk mapping are not integrated, and therefore national mapping of flood risk does not always reflect the most up to date and localised information available.<sup>19</sup>
- Surface water flood risk maps are inconsistent in their approach and level of detail and of varying quality.<sup>20 21</sup>
- Currently national flood zone mapping is separate from surface water flood risk mapping and doesn't account for the presence of flood defences or the impacts of climate change.<sup>22</sup>
- Flood risk mapping does not currently include areas at increased risk in future due to climate change, and developments in these areas may not be provided with additional flood protection.<sup>23</sup>

The government have made commitments to improving the integration and accessibility of flood risk information, which is due to be available through the update to the National Flood Risk Assessment (NAFRA 2) later this year. This is discussed further in the analysis section (chapter 12).

### 6.2 Theme two: the effectiveness of securing flood risk requirements through planning

The literature review sought evidence on how well flood risk requirements were secured in practice through the planning system. The research has a particular focus on the post-consent

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<sup>18</sup> *Planning decisions, adaptive capacity and insurability: Findings from a case study of flooding in Somerset, UK.* University of Cambridge Institute for Sustainability Leadership, 2023. <https://www.cisl.cam.ac.uk/resources/publications/planning-decisions-adaptive-capacity-and-insurability-findings-case-study-flooding-somerset-uk> (Page 9)

<sup>19</sup> *Reducing the risk of surface water flooding.* National Infrastructure Commission, November 2022. <https://nic.org.uk/studies-reports/reducing-the-risks-of-surface-water-flooding/surface-water-flooding-final-report/>

<sup>20</sup> Ibid.

<sup>21</sup> Policy Connect, 2023.

<sup>22</sup> Ibid. (Page 16)

<sup>23</sup> CISL, 2023. (Page 8)

planning process, so evidence was sought that considers how flood resilience measures are handled through the use of conditions, and other post-consent processes.

In 2022, a PhD thesis by Anna McClean from the Newcastle Law School was published, which looks in depth at the way four local planning authorities treat flood risk issues in the local planning process, through a thorough review of development plans and planning applications. The findings represent the most detailed review of the use of conditions for the specific purpose of managing flood risk found as part of the literature review. What this thesis reveals is the tension between the reliance on conditions to secure flood risk mitigations in development management, and the limitations of the scope of conditions only being able to require minimum policy compliance in order to meet the conditions tests (explained in chapter 3).

*'NPPF directions on conditions also seek them to be used minimally and that they should only address issues necessary to make the development acceptable in planning terms. Essentially this means conditions are restricted to the 'necessary' or 'do minimum' – and can't exceed policy expectations or achieve a precautionary approach, for example.'*<sup>24</sup>

This reveals the inherent limitations of conditions as a main avenue to secure flood resilience. McClean goes on to say:

*'Whilst conditions can be used to make minor improvements to a proposed development and address some flood risk concerns, they are not appropriate for circumstances where substantial changes are required to make the development appropriate in terms of flood risk.'*<sup>25</sup>

The limitations of the use of conditions in practice were further explored by the University of the West of England (UWE), which found weaknesses in the wording, monitoring, scrutiny and implementation of conditions, largely borne from insufficient resource at local planning authorities to provide oversight of conditions on development schemes. This creates a vulnerability in the planning system, as 'If conditions are not properly worded, and if authorities are not resourcing the discharge of conditions appropriately, or handling inter-related conditions concurrently, then they do not provide the quality safeguard that is intended by their use.'<sup>26</sup>

The same UWE study looked comparatively at four case study sites to consider how post-consent changes were made to developments that were approved through outline planning permission and full planning permission. It found that outline planning permissions present particular challenges to local planning authorities as they had less control and lacked power to secure quality outcomes once outline consent was granted.<sup>27</sup>

The literature review also found that the planning system may not be adequately securing property flood resilience (PFR) measures. The Bricks and Water report found that the pace of adoption of PFR is far below what is required to keep pace with adaptation and suggests that planning policy and building regulations should play a role in accelerating their delivery.<sup>28</sup> McClean's study found a very low number of conditions relating to property level resilience and

<sup>24</sup> *Planning for floods: an analysis of planning law and planning practice in Flood Risk Management*. McClean, A. Newcastle Law School, 2022. <https://theses.ncl.ac.uk/jspui/handle/10443/5617> (Page 115)

<sup>25</sup> Ibid. (Page 116)

<sup>26</sup> H. Hickman et al, 2021.

<sup>27</sup> Ibid. (Page 37)

<sup>28</sup> Policy Connect, 2023.

resistance measures. This is explained by the approach of local planning authorities, which consider it is ‘at developers’ discretion whether to include them.’<sup>29</sup>

### 6.3 Theme three: the operational effectiveness of the regulatory system

Multiple reviews and reports have found that the current arrangements for flood risk management in England are overly complex, and this is exacerbated by confusion about roles and responsibilities, overlapping plans and strategies managed by different actors, a lack of an overarching strategy for flood risk management at the local level, and inconsistency in approaches across organisations. This complexity also makes it difficult for the Environment Agency to perform their oversight role and coordinate other bodies.<sup>30</sup> A report for the Climate Change Committee that considered the barriers and opportunities for delivering net zero and climate resilience through local planning found that the divergent responsibilities for flooding across different agencies, with no one agency responsible for all sources of flooding, created a practical barrier to effective climate adaptation.<sup>31</sup> These findings have been repeated by the National Audit Office, the National Infrastructure Commission, the Chartered Institution of Water and Environmental Management (CIWEM), and thinktanks including Policy Connect and Localis.<sup>32 33 34</sup>

This institutional complexity is a clear influencing factor in the perceived weaker regulation of surface water flooding (as compared to fluvial and tidal flood risk) found in the literature. CIWEM conclude this is in part due to the variability of in-house knowledge and capacity across local flood authorities (LLFAs).<sup>35</sup> CIWEM conducted focus groups which reported a perception that less priority is given to surface water flood risk by the Environment Agency as compared to fluvial and coastal flood risk, as this is seen as the responsibility of the LLFAs. The report recommends one responsible risk management authority for surface water flood risk to reduce the complexity of the system.<sup>36</sup>

The CISL report which looked at developments in Somerset found that current regulations were more effective in limiting development in (tidal and fluvial) flood zones, than in areas of known surface water flood risk:

*‘For surface water flooding in particular, the local authority had limited ability to affect the decisions and actions of the developers on the ground at both the planning and construction phases. This was not helped by fragmented roles, and accountability in flood management allowed loopholes to be exploited by a developer in areas highly vulnerable to flooding.’<sup>37</sup>*

Literature on this topic from recent years points to the potential remedy of some of these challenges through the implementation of Schedule 3 of the Flood and Water Management

<sup>29</sup> McClean, A. Newcastle Law School, 2022. (Page 145)

<sup>30</sup> *Managing Flood Risk. Report by the Comptroller and Auditor General.* National Audit Office, November 2020. <https://www.nao.org.uk/wp-content/uploads/2020/11/Managing-flood-risk.pdf>

<sup>31</sup> *Planning for climate resilience and net zero.* Centre for Sustainable Energy and the Town & Country Planning Association, July 2023.

<sup>32</sup> National Infrastructure Commission, 2022.

<sup>33</sup> *Surface water management: a review of the opportunities and challenges.* CIWEM, May 2023. <https://www.ciwem.org/policy-reports/surface-water-management-a-review-of-the-opportunities-and-challenges>

<sup>34</sup> See Policy Connect, 2023, and *Plain Dealing: Building for flood resilience.* Localis, November 2021. [https://www.localis.org.uk/wp-content/uploads/2021/11/042\\_Floodplains\\_WebAWK.pdf](https://www.localis.org.uk/wp-content/uploads/2021/11/042_Floodplains_WebAWK.pdf)

<sup>35</sup> CIWEM, 2023.

<sup>36</sup> Ibid. (Page 19)

<sup>37</sup> University of Cambridge Institute for Sustainability Leadership, 2023. (Page 11)

Act 2010.<sup>38</sup> This would make sustainable drainage systems (SuDS) mandatory for new development, making them a legal (rather than policy) requirement, and establishing local SuDS Approval Bodies, which would improve the oversight of SuDS implementation and provide a route to adoption to improve long term maintenance. The commencement of Schedule 3 would be supported by the removal of the automatic right of new development to connect to the public sewer. Government have committed to the implementation of Schedule 3 and have signalled a consultation on the options for this in 2024.

It is well-rehearsed within the literature reviewed for this study that the operation of the regulatory system for managing flood risk through planning is severely hampered by a lack of capacity and skills across planning and risk management authorities. This has been found to be a fundamental challenge in reports by the National Infrastructure Commission (NIC), CIWEM and DEFRA, and is reflected in academic studies that have engaged with public sector planners (including by UWE, CISL and Newcastle Law School).

In relation to post-consent planning, this is viewed as a particular constraint for the monitoring of conditions and enforcement functions of the local planning authorities. The Royal Town Planning Institute (RTPI) conducted an in-depth review of the resourcing of local planning authority enforcement teams, and the survey of enforcement officers found significant challenges:

- 80% of respondents said there were not enough enforcement officers to do their work,
- 89% of respondents reported a backlog of work,
- 73% of respondents reported challenges in recruiting staff, and
- Under 50% of authorities have the capacity to monitor compliance of conditions once successful enforcement action has been taken.<sup>39</sup>

The result of these resourcing challenges is that 'enforcement teams are no longer able to proactively monitor compliance and the service provided to the public has significantly deteriorated,<sup>40</sup> with an enforcement function which is 'reactive and exclusively complaint driven.'<sup>41</sup>

This issue was also explored in the DEFRA review of policy for development in areas of flood risk, which drew on a survey which explored 'what other mechanisms were being used to ensure developers were building as agreed in approved plans and planning conditions.'<sup>42</sup> The results convey an enforcement function reliant on complaints, with virtually no capacity to proactively monitor compliance with flood mitigation requirements.

#### 6.4 Broader planning issues

Whilst the literature review was primarily focused on the delivery of flood resilience measures through planning (and particularly the post-consent process), there were also important themes that emerged that relate to the broader operation of the planning system.

For example, it is evident that flood risk considerations are in tension with other policy outcomes, both in the site allocation process and in development management decisions. This

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<sup>38</sup> This is recommended by CIWEM, and the National Infrastructure Commission.

<sup>39</sup> *Planning Enforcement Resourcing*. RTPI, 2022.

<sup>40</sup> Ibid. (Page 4)

<sup>41</sup> H. Hickman et al. UWE, 2021. (Page 5)

<sup>42</sup> DEFRA, 2021. (Page 20)

is particularly explored in the literature in relation to the pressure to allocate land for housing development. This dilemma is summarised in the quote below:

*'Faced with competing interests and institutional agendas such as constraints on building on protected land (e.g. the green belt around urban areas in England) and pressure to meet national housing targets, local authorities in the UK frequently permit new developments in flood zones.'*<sup>43</sup>

The Bricks and Water report suggests that 'the demand for housing has now outweighed the requirement for flood risk management. As a result, guidance is being ignored and development is being allowed to proceed within areas of medium and high flood risk.'<sup>44</sup> Localis echo this finding and conclude that under the NPPF it is easy for local authorities to approve planning applications in high flood risk areas.<sup>45</sup>

A second contextual factor is that the post-consent functions of the planning process are influenced by the application of policy at earlier stages, both in the allocation of sites and the application of policy in determining planning applications. Essentially, policy on flood risk needs to be strong, and applied robustly at early stages in planning, but in practice policies on flood risk in the local plan can be hampered by 'lack of clarity, use of ambiguous language, and inclusion of potentially widely applicable exceptions.'<sup>46</sup>

These factors contribute to development being permitted in areas of flood risk, which means that the development management mechanisms to secure the delivery of flood resilience measures become vitally important for the safety of those developments and their future occupants. However, it also creates a risk that failures in the application of policy earlier in the planning process mean that the development management and post-consent processes are relied on to deliver flood mitigations on sites which are fundamentally un-resilient. This throws the full weight of securing future climate resilience on the end of the consent process, at a stage where reopening the principle of the decision is effectively impossible.

It should also be noted that relevant planning guidance and policy direction has shifted in very recent times. The Planning Practice Guidance on Flood Risk and Coastal Change was updated in 2022 and strengthened aspects of application of flood risk policy including the sequential test. The national policy position on the primacy of delivering housing has been in considerable flux in recent months, and it is not possible to ascertain yet the impact of planning reform on allocations and permissions for housing development in flood risk areas, other than to note that the housing crisis and pressure to deliver new homes remain significant contextual factors.

<sup>43</sup> *New build homes, flood resilience and environmental justice – current and future trends under climate change across England and Wales.* Viktor Rözer and Swenja Surminski, November 2020.

<sup>44</sup> Policy Connect, 2023. (Page 14)

<sup>45</sup> Localis, 2021. (Page 35)

<sup>46</sup> McClean, A. Newcastle Law School, 2022. (Page 196)

## 7 Analytical framework

The three overarching themes that emerged from the literature review have been used to frame three specific research questions:

- 1) How does the quality of data and evidence on flood risk influence decision making in the planning system?
- 2) How effective is the post consent planning process at securing flood risk requirements?
- 3) Do the regulatory systems for planning provide an effective safeguard against flood risk in new development?

Taken together these three questions provide an analytical framework to assess and analyse the research findings from the primary research, which are presented in the following chapters.



## 8 Case Study 1: Twigworth Green, Tewkesbury

Twigworth Green is a residential-led development to the south of Twigworth, a village on the A38, around four miles north of Gloucester. The site is in the county of Gloucestershire, and within the boundary of Tewkesbury Borough Council. The development site is a 32-hectare greenfield site within the Gloucester and Cheltenham Green Belt.

An outline planning application was first submitted by Robert Hitchens Ltd in October 2015 for 725 homes, a local centre including a primary school and retail space, and formal and semi-natural green spaces. The application was refused by Tewkesbury Borough Council in January 2016, largely on the grounds of transport impacts and conflict with Green Belt policy. The applicant submitted an appeal, which was allowed in December 2017. The appeal was heard alongside an appeal for an adjacent site for 1,300 homes at Innsworth, but this case study focuses solely on the Twigworth Green site.

The development is currently in the later stages of build out and is partially occupied and has come forward in three phases. The development has largely been bought forward by housebuilders under the umbrella of the Vistry Group (Linden and Bovis) who bought the site with outline planning permission from the land promoter. Phase 2 (comprising 147 homes) was bought forward by Bloor Homes.



Image 1: map showing the location of Twigworth Green.

Source: Land at Twigworth Design and Access Statement. Robert Hitchens Ltd, October 2015.



At the time of the initial planning application, Tewkesbury Borough Council's local plan was out of date, and the site was not allocated for development. However, concurrently to the appeal being heard, the Joint Core Strategy (JCS) for Gloucester City Council, Cheltenham Borough Council and Tewkesbury Borough Council was being prepared. A strategic site at Twigworth and Innsworth (covering the two sites being heard at appeal) was at first excluded from the JCS, but later bought in, and eventually became an allocation when the JCS was adopted in December 2017.

### 8.1 Flood risk issues at the case study site

Tewkesbury is an area known for significant flooding due to the influence of the river Severn and its floodplain, however at the case study site the main risk of flooding arises from surface water. The fields around the village of Twigworth hold water after heavy rain due to the clay soils, and are known locally as the 'water meadows' due to this function.<sup>47</sup>

The southern boundary of the development site is formed by the Hatherley Brook, which is classified as a main river and is a tributary of the river Severn. This is the main source of fluvial flood risk on the site, and where most surface water is discharged.

The site is predominantly in Flood Zone 1, meaning there is a low risk of fluvial flooding, with some small parts of the site adjacent to the Hatherley Brook within Flood Zone 2 (medium flood risk) and Flood Zone 3 (high flood risk).

### 8.2 The planning inquiry

A number of matters were discussed during the appeal, including highways safety and traffic flows, Green Belt, five-year housing land supply and flood risk. In addition, one of the arguments put forward by the Council was that the proposal was not detailed enough to agree to the principle of development, and that 'design by reserved matters'<sup>48</sup> missed the opportunity to comprehensively plan the development and engage the public in key details of the proposal. This is relevant to the flood risk issues on the site, as the LPA argued that the drainage strategy lacked detail and 'masterplanning could only begin when a clear understanding of the site's constraints were obtained.'<sup>49</sup> Furthermore, the Council were concerned that the volume of conditions that would be required to make the development acceptable would lead to a poor design outcome, or risk 'something being missed' if the conditions didn't all 'fit together.'<sup>50</sup>

In terms of the flood risk issues on site, the appeal documents reveal starkly different interpretations of the severity and nature of risk by the local planning authority and the appellant. The Council raised concerns regarding the modelling undertaken to inform the flood risk assessment, and aspects it felt were not factored in, such as drainage from the site into Cox's Brook, which in turn drained into Hatherley Brook – the concern being that the flood risk from Hatherley Brook had been underestimated. The Council also maintained at the appeal that the most up to date modelling and guidance on climate change allowances had not been used,<sup>51</sup> and as a result surface water flood risk had not been properly considered by the appellant,

<sup>47</sup> This name was given by the poet Ivor Gurney, who grew up and was later buried at Twigworth. [Twigworth Parish Council](#).

<sup>48</sup> *Closing on behalf of Tewkesbury Borough Council*. Tewkesbury Borough Council, 2017. Planning application and appeal documents are available online [here](#). Planning application reference number is 15/01149/OUT.

<sup>49</sup> *Ibid.* (Page 85).

<sup>50</sup> *Opening on behalf of Tewkesbury Borough Council*. Tewkesbury Borough Council, 2017.

<sup>51</sup> *Proof of evidence on flooding issues on behalf of Tewkesbury Borough Council*. Thomas Consulting, 2017. (Paragraph 4.10)

meaning the proposed mitigations were insufficient. For example, the Council was concerned that the capacity for attenuation necessary to keep properties safe from flooding had been under-estimated.<sup>52</sup> The Council's position on flood risk during the appeal is summarised by the quote below:

*'There are so many areas needing greater consideration in a comprehensive manner in respect of the flood risk issues and drainage strategy that it would be dangerous to grant a conditional planning approval until the appellant has demonstrated that they can solve the technical problems and have the right to do what they propose in the way of surface water drainage provision.'*<sup>53</sup>

In contrast, the appellants position on flood risk issues on the site was that the layout of the site (including no built development in Flood Zones 2 or 3) and the use of SuDS as mitigation measures would result in a beneficial improvement to overall flood risk in the area by providing additional water storage on site above what the models suggest is required.<sup>54</sup>

The appellants also highlighted procedural factors to demonstrate that flood risk had been appropriately dealt with, including:

- That the Environment Agency and Lead Local Flood Authority had not raised any objections;
- Severn Trent had confirmed capacity for foul drainage at the nearby sewerage pumping station;
- That additional detail on the drainage strategy could be secured by condition; and
- The site had been allocated in the Joint Core Strategy, and the proposal met requirements set in the new development plan.

These procedural points were key factors in the Inspector's conclusions on flood risk. They summarised that the Council's concerns appeared to be focused on the level of information provided rather than fundamental objections in relation to the extent of flood risk at the site. The Inspector felt that the dispute over modelling was resolved as the scheme layout meant areas shown to be at risk from estimated flows would not be developed, and was satisfied that the SuDS would provide sufficient attenuation to deal with pluvial flood risk. The Inspector also referred to the allocation of the site in the JCS and the lack of objection from the Environment Agency as indication that flood risk issues were surmountable: 'I find that any potential flooding and drainage problems would be capable of being addressed by way of planning conditions.'<sup>55</sup>

### 8.3 Flood Risk Consultees

The Environment Agency (EA) agreed with the appellant that the Flood Risk Assessment (FRA) represented the flood risk to the site and were satisfied that the proposed mitigations would address fluvial flood risk. The EA recommended two conditions – one to secure an exclusion of development within 8m of the banks of Hatherley Brook, and the second to secure raised floor levels of 750mm to reflect climate change allowance guidance. The EA are not statutory

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<sup>52</sup> Ibid. (Paragraph 2.11)

<sup>53</sup> Ibid. (Paragraph 2.15)

<sup>54</sup> *Rebuttal Proof of Evidence on Matters Relating to Drainage and Flooding*. Phoenix Design, 2017. (Paragraph 2.55)

<sup>55</sup> *Report to the Secretary of State for Communities and Local Government: Tewkesbury Borough Council Appeals by Robert Hitchins Ltd*. The Planning Inspectorate, 2017. (Paragraph 262)

consultees on surface water flooding, so encouraged engagement with the Lead Local Flood Authority (LLFA) on this issue.

The LLFA initially raised objections to the planning application, which were addressed through a revised flood risk assessment and drainage strategy. The LLFA recommended three conditions to require a detailed drainage strategy, evidenced water company consent, and a management and maintenance plan.

Severn Trent Water raised no objections to the application on the condition of a detailed foul water drainage strategy being approved prior to commencement.

#### 8.4 The post-consent planning process

Like many large housing sites, the development was bought forward in multiple phases, with reserved matters applications requiring approval for each phase. Conditions approval applications were also made in line with the requirements of the appeal decision. These have been reviewed to consider how flood resilience measures were treated through this process, and some observations are listed below:

- The SuDS were phased early to reduce surface water run off through construction.<sup>56</sup>
- The key mitigations in the drainage and SuDS strategy are clearly defined, but the strategy also includes more vague references to further interventions, such as the use of water butts, water efficient fixtures and appliances, and permeable and porous external surfaces.<sup>57</sup> These are acknowledged in the strategy as good practice, but not worded in a way that requires their delivery.
- The drainage strategy further delegates some detail around SuDS, landscaping and planting to the detailed engineering and design stages.<sup>58</sup>
- A proposed green space at the 'gateway' of the development at the A38 was removed in later revisions to include more homes, this change is likely to increase the amount of hard standing across the development site.
- The Environment Agency maintained scrutiny over the proposals, including checking plans for floor levels. This engagement was key to securing compliance across the site.
- The lead local flood authority approved the detailed drainage strategy and confirmed it was in accordance with the flood risk assessment.
- The LLFA highlights an instance of a deviation from the drainage strategy where pipes replace swales on part of the site. The size and configuration of an attenuation pond is altered, but no objections are raised by the LLFA.
- Severn Trent Water raised no objections to the reserved matters applications and were satisfied that the new sewer (built by the developer) would avoid 'the sensitive sewers and pumping stations in Twigworth village.'<sup>59</sup>
- The developer states that additional swales were added across the site to improve surface water management.

<sup>56</sup> *Detailed surface water drainage and SuDS strategy*. Phoenix Design, 2018. (Paragraph 2.2)

<sup>57</sup> *Ibid.* (Paragraph 4.5.1)

<sup>58</sup> *Ibid.* (Paragraph 5.4)

<sup>59</sup> Severn Trent correspondence in response to reserved matters application for Phase 3 of the development. April 2022.

Changes to the initial outline permission not related to flood resilience measures were secured through the post consent process. These included moving affordable housing provision to later phases, removal of hedgerows, changes to the height and location of homes and the layout of roads and footpaths, and original commitments to provide natural play equipment and informal play opportunities not being delivered. Comments from the landscape officer on the Phase 3 reserved matters application convey a sense of cumulative reduction in the quality of landscape design.<sup>60</sup> The planning permission included consent for a primary school located in the western corner of the site, but this has not yet been bought forward through planning.

### 8.5 Post-consent flooding issues on site

The local community have reported several issues with flooding, both on the development site and off-site, which they claim has been exacerbated by the new development. Concerns have been raised by the Parish Councils of Twigworth and neighbouring Down Hatherley, and are summarised below:

- In late December 2023 and early January 2024, flooding affected properties on Brook Lane, which runs to the east of the site. Affected residents said that they had not been affected by flooding prior to the new homes being built, and felt the cause was the displacement of water which would historically have sat in the fields.<sup>61</sup>
- Footage captured by a local resident shows water rising from below the turf in part of the development site on 31 December 2023.<sup>62</sup>
- The sewerage infrastructure has also had issues, with one instance of the new sewer overflowing into fields<sup>63</sup>, and other instances of developers bringing in tankers to alleviate pressure on the sewerage system.
- The attenuation ponds on the site have been performing their role in managing outflow levels, but images captured by the Parish Council show one of these ponds very full, demonstrating the additional capacity factored into their design is being utilised.



Image 2: SuDS attenuation pond holding water following heavy rainfall in January 2024.  
Source: JW Redfern, Twigworth Parish Council.

<sup>60</sup> Landscape officer comments on to reserved matters application for Phase 3 of the development. June 2022.

<sup>61</sup> *Concerns new Twigworth housing causing current homes to flood*. BBC News Gloucestershire, 5 January 2024.

<sup>62</sup> *The Gloucester villages experience unprecedented levels of flooding*. Twigworth Parish Council, December 2023.

<sup>63</sup> Ibid.

Winter 2023 / 2024 was subject to significant rainfall events, which mean fluvial flooding of the River Sever in the vicinity of the site has been happening alongside the above reported issues from surface water flooding.



Image 3: Aerial photograph showing proximity of fluvial flooding to the Twigworth Green development in January 2024. Source: [Twigworth Parish Council](#).

## 8.6 Community perspectives of flood risk at Twigworth Green

Twigworth Parish Council have been concerned about flood risk issues caused by the development on this site since the initial planning proposal was mooted, and have engaged in consultations on the allocation in the Joint Core Strategy and the Twigworth Green planning applications.

During an interview for this research, a community representative involved with Twigworth Parish Council shared some key concerns of the local community, and their experiences of the impact of the development. Local concern has focused on the impact of the development to nearby existing homes, as the community are concerned that the onsite flood mitigations such as raised floor levels, whilst offering protection to the new buildings, would present a risk to existing buildings from water displacement.

The community have reported many issues relating to flooding on the Twigworth Green site throughout its construction. Waterlogging on the site led to a shut down in construction for two months, and the community reported seeing multiple pumps used to remove water. There were known issues with sewerage capacity in the area, which members of the local community feel have worsened since the new homes were connected to the sewerage infrastructure. According

to the Parish Council, tankers are sent to the pumping stations during heavy rain events and new sewerage pipes built to serve Twigworth Green have overflowed.

The community representative also shared perspectives on the planning process, and the sense in the community of great frustration from their engagement with it, feeling that their concerns and local knowledge about flood risk have not been heard. These issues relate to the process of site allocation in the Joint Core Strategy which the interviewee for this case study felt was politically motivated rather than based on the suitability of the site for housing, giving a sense that the allocation of the site was 'predetermined' and greatly influenced by pressure to meet housing numbers. The interviewee reported a sense amongst the Parish Council that they were perceived as 'NIMBYs', and as a result their concerns were not taken seriously.<sup>64</sup>

The community representative also felt the developer's proposals lacked scrutiny from the local planning authority, and raised a concern about the unequal power balance between developers and the local authority, which they perceived to be reluctant to 'bare teeth' to developers due to the threat of litigation and the imbalance of resources for those processes.<sup>65</sup>

When asked about the treatment of flood risk in relation to Twigworth Green, the community representative expressed concern that 'too many cooks' leaves weak points in terms of scrutiny and compliance. This results in pluvial flood risk being overlooked and receiving less attention and scrutiny than fluvial flood risk, and infrastructure capacity constraints (that were understood by Severn Trent) not being appropriately considered or mitigated.

### **8.7 Developer perspectives of flood risk at Twigworth Green**

A representative from the lead developer of Twigworth Green also shared perspectives on flood risk at the site. The business model of the company tends to be (as with Twigworth Green) to acquire sites with outline planning permission, meaning that the drainage strategy and principles of flood risk mitigations are inherited from the outline planning application. For Twigworth Green, the strategy included attenuation on site, discharge at a set rate, raised floor levels, and a sequential approach to site layout, so that all homes were built on land within Flood Zone 1.

The developer representative's perspective of the inherited flood risk assessment and drainage strategy was that the evidence and resulting flood mitigations were sophisticated. Furthermore, the modelling drew on data gathered from the July 2007 flood event, meaning it was more specific than relying on less detailed Environment Agency data.<sup>66</sup> The developer's approach to SuDS was to provide additional capacity, and backup. For example, the network of swales had a piped system beneath them, meaning that in the event of a failure of the piped system, the surface swales would hold water instead. The swale network allows water to move through the site in a similar way that it would naturally and conveys water away from vulnerable low points on the site.

The developer interviewee also outlined the ongoing engagement that had been undertaken with the local community, to address their concerns about the flood risk and convey how the engineering solutions on the site would alleviate these, to ensure the development would not add to flood risk issues in the locality.

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<sup>64</sup> Case study interview with Twigworth community representative.

<sup>65</sup> Ibid.

<sup>66</sup> Case study interview with developer representative for Twigworth Green.

In response to the sewerage constraints, the developer constructed an offsite foul sewer to requisition directly to the pumping station. In the developer's view, this means 'there is no impact whatsoever from the 700 houses on the existing infrastructure.'<sup>67</sup> The developer acknowledged that there has been issues with the sewerage pumping station, and instances of localised off-site flooding reported to them, but these have been investigated and the interviewee stated that the Twigworth Green development has not been found to have been the cause of any of these issues. In the developer's view, issues with the foul water drainage have been caused by problems at the Severn Trent pumping station, which has taken on additional demand from the significant housing development at Twigworth Green and the neighbouring development at Innsworth. The interviewee reported a proactive response by the developer, for example using tankers on site in November 2023 to take pressure away from the offsite sewerage treatment works and prevent any back up from affecting their customers.

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<sup>67</sup> Ibid.

## 9 Case study 2: Kelham Central, Sheffield

The second case study provides a very different development context to Twigworth Green. The site is the third phase of a development led by Citu in the Kelham Island area of central Sheffield, which has undergone significant regeneration in recent years. Phase one and two of Citu's development are referred to as 'Little Kelham', and the third phase, which is the focus of this case study, is called 'Kelham Central.'

The development is for 114 residential dwellings and commercial floorspace, alongside the associated access, car parking and landscaping. The development is being delivered by Citu, a small developer with specialism and experience in low carbon development, such as the Climate Innovation District in Leeds.<sup>68</sup> Kelham Central provides a range of houses and apartments, ranging in size from 1-4 bedrooms, spread over twelve blocks between two and four stories high. The planning application was submitted in late 2019 and approved in June 2020. The site is now near completion, and partially occupied.

Although Sheffield City Council's extant Core Strategy (adopted in 2009) designates the area for general industrial use,<sup>69</sup> significant change in the surrounding area including the introduction of more residential development has been well underway for over ten years.



Image 4: Impression of Kelham Central from above. Image source: Fox Lloyd Jones.

<sup>68</sup> For more information on this scheme see [here](#).

<sup>69</sup> *Sheffield Development Framework Core Strategy*. Sheffield City Council, March 2009.



### 9.1 Flood risk issues at the case study site

The case study site is in flood zone 2, and the Environment Agency's mapping service shows areas of the site are at high risk of surface water flooding. The site Flood Risk Assessment (FRA) highlights surface water flood risk arising from the hardstanding nature of the site within a built-up area with little green space.<sup>70</sup>

There are many instances of historic flooding at Kelham Island from the river Don. Much of central Sheffield was subject to catastrophic flooding in 2007, when the river Don burst its banks after prolonged rainfall. Since this incident, significant works to improve flood defences and water containment have taken place, which have enabled residential development to come forward in the city centre in close proximity to the river, including at Kelham Island. The improvements have meant that water has remained within the river Don channel during subsequent flood events (such as in 2019).<sup>71</sup>

There have been significant flooding events since the application was made, including in February 2022 when the underground carpark of a building adjacent to the Little Kelham development was flooded.<sup>72</sup> However, during these events the developer reported that Little Kelham and Central Kelham have not been subject to flooding.

### 9.2 Flood resilience measures considered through the planning application

Due to its location in Flood Zone 2, the site had to pass the sequential and exception tests to demonstrate that there were no suitable, available sites with less risk available for the development. The Council accepted that the proposal passed this test and 'that the proposed flood management and sustainability measures will manage any residual risk.'<sup>73</sup> Due to the historic flooding and residual risk (in case of, for example, a breach of flood defences), flooding was recognised as a key issue for the site, with the design, layout, drainage strategy and 'wider safety issues' considered as key considerations for the application, including flood warnings and evacuation arrangements.<sup>74</sup>

The key flood resilience measures outlined in the Flood Risk Assessment include:

- Finished floor levels 600mm above the 1 in 100 year plus climate change allowance flood event;
- Flood door guards for residential and commercial buildings;
- Occupiers signing up to the flood warning scheme;
- Attenuation storage designed to accommodate the 1 in 100 year plus climate change allowance flood event.

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<sup>70</sup> *Flood Risk Assessment: Little Kelham Phase 3, Sheffield*. Eastwood & Partners, March 2020. All planning application documents are available through the Sheffield planning portal [here](#). Planning application reference is 19/03944/FUL.

<sup>71</sup> *Sheffield City Council Planning Application Officer Report*. Sheffield City Council, 2020.

<sup>72</sup> *Sheffield flooding latest as incredible footage shows student tower block car park under water*. Maynard Manyowa, Yorkshire Live, 20 February 2022.

<sup>73</sup> Sheffield City Council, 2020.

<sup>74</sup> *Ibid.*

The Flood Risk Assessment also recommends that the flood evacuation management plan is produced and that a more detailed drainage strategy for surface water run-off is approved during the design phase of the project.<sup>75</sup>

Through an interview for this research, a representative from the developer confirmed that onsite attenuation was the central aspect of the flood mitigation strategy. The scheme was designed to withhold water onsite and release this slowly into the combined sewer or water course. This is achieved through a combination of sustainable drainage both above ground (for example through soft landscaping and rain gardens), and below ground structures and crates. The site also has permeable paving throughout to avoid surface water build up. The phase 3 'Kelham Central' planning application also includes a public square with the capacity to hold water during a rainfall event. Although the final design for this has not been approved, it could potentially provide an innovative and multi-functional rainwater storage solution.



Image 5: Artist impression of the public square at Kelham Central. Image source: [Crosthwaite Commercial](#).

Due the site being in Flood Zone 2, the Environment Agency were consulted on the planning application. The Environment Agency raised no objections on the basis of the measures highlighted in the FRA being implemented to make the development safe. The EA was clear that a condition securing the FRA mitigations, including raised floor levels, flood resilience and resistance measures, and flood warning and evacuation measures was required in order for

<sup>75</sup> Eastwood & Partners, March 2020.

the development to be compliant with the National Planning Policy Framework.<sup>76</sup> The condition wording suggested by the EA is copied in Box 3 below:

The development shall be carried out in accordance with the submitted flood risk assessment (ref March 20 / 44123-001 / Eastwood & Partners Ltd) and the following mitigation measures it details:

- Residential finished floor levels shall be set no lower than 49.6m above Ordnance Datum (AOD).
- Commercial finished floor levels shall be set no lower than 49.3m above Ordnance Datum (AOD).
- Flood resilience and resistance measures shall be included as part of this development as stated in the submitted FRA.

These mitigation measures shall be fully implemented prior to occupation and subsequently in accordance with the scheme's timing/phasing arrangements. The measures detailed above shall be retained and maintained thereafter throughout the lifetime of the development.

**Reason(s):** To reduce the risk of flooding to the proposed development and future occupants

Box 3 – Planning condition recommended by the Environment Agency for the Kelham Central development. Source: Environment Agency consultation response.

Consultee comments were also received from the Lead Local Flood Authority, which raised no objections, but suggested conditions relating to surface and foul water drainage. Yorkshire Water recommended standard conditions relating to tree planting and piped discharge of surface water, and also sought further engagement in relation to potential inundation of attenuation systems.

The Planning Statement submitted as part of the planning application highlighted further water management measures that would be included in the development, including the use of water efficient fittings, water collection and reuse, and measures such as green roofs to assist in reducing water run-off.<sup>77</sup>

### 9.3 How were flood risk mitigations secured?

One of the main instruments for securing flood risk mitigations on developments is through the use of conditions. The list of conditions on the decision notice for the application has therefore been reviewed to see which flood resilience measures were secured by this route. These are highlighted below:

- Condition 2 states that 'development must be carried out in complete accordance with the following approved documents.'<sup>78</sup> The condition lists over 40 documents, which includes the approved drainage strategy, but does not include the flood risk assessment. The list includes plans and elevations, which demonstrates the ground floor levels are above those required by the EA.

<sup>76</sup> Environment Agency consultee response to the

<sup>77</sup> *Planning & Heritage Statement: Site of Richardsons Cutlery Works*. ID Planning, June 2020.

<sup>78</sup> *Planning Decision Notice*. Sheffield City Council, June 2020.

- Condition 7 requires full details of the surface water drainage strategy, reflecting the recommendations in the FRA. Condition 24 ensures no piped surface water discharge can occur prior to drainage provision is in place.
- Conditions 26, 27 and 28 seek further detail of soft landscape and green roof provision, including their maintenance, prior to occupation.
- Conditions 46 and 47 ensure not obstructions or planting can occur in close proximity to the public sewer (reflecting the advice from Yorkshire Water).
- Condition 54 secures a maximum surface water discharge rate of 8 litres per second per hectare.
- Condition 55 ensures the discharge of foul and surface water are separated.

Comparing the conditions recommended by the Environment Agency to those listed for the development, some gaps are apparent:

- There is no condition that pertains directly to the finished floor levels agreed by the EA. However, condition 2 requires accordance with submitted plans which show finished ground floor levels in compliance with the EA advice.
- There is no condition that aims to secure the flood resilience measures identified in the Flood Risk Assessment (including the property flood door guards) or highlighted in the Planning Statement.
- There is no condition requiring the production of an emergency flood evacuation plan, despite this being recommended in the FRA.

#### **9.4 How were flood resilience measures handled after consent was granted?**

Following the granting of consent the developer is required to gain approval of conditions. The following observations arise from a desk-based review of the documents associated with the approval of conditions related to flood resilience:

- Scrutiny of the detailed surface water drainage plan by the Council's drainage team led to approval of Condition 7 (approval of full details of the surface water drainage strategy) being delayed, as further information was requested. Further details were submitted, and the condition was approved in April 2021.
- Yorkshire Water raised an objection to the initial application to approve Condition 24 (surface water discharge). The objection was on the basis that the drawings submitted showed perforated pipes discharging surface water to the sewer network.<sup>79</sup> This application was resubmitted with approval from Yorkshire Water, on the grounds that the agreed discharge rate (Condition 54) would be adhered to.
- Condition 28 related to the provision of a green roof on one of the blocks. This was approved, but a later application to amend the plans removes the green roof in favour of solar panels.
- The developer also highlighted that the public square with attenuation capacity will require further design work. The function of the square in holding water is agreed through planning, but it is anticipated that further design detail will need to be approved prior to build out.

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<sup>79</sup> Yorkshire Water consultation response to planning application ref 19/03944/COND3. Yorkshire Water, October 2021.

During an interview for this research, the developer confirmed that property flood resilience measures, such as flood door guards, have not been installed at the properties, and neither has an emergency evacuation plan been produced and communicated to residents. The developer felt this was in large part due to the flood risk context of the site changing through the flood defence works that have been delivered for the river Don, which have significantly reduced the flooding experienced at Kelham Island during high rainfall events.<sup>80</sup> In the view of the developer, these measures, combined with the site's implemented drainage strategy, means the development has not experienced any flooding and the flood risk measures are succeeding.

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<sup>80</sup> Case study interview with developer representative.

# 10 Conditions review

The literature review revealed that reliance on the use of conditions to secure flood resilience measures in development schemes could potentially present a weakness in the regulatory function of planning. This is due to the inherent limitations of conditions as they must meet the six tests set in PPG, and therefore can only secure measures necessary to make development acceptable, not measures that may go ‘above and beyond’ required standards. The discharge of multiple conditions through different stages of development also creates an increased complexity and resource demand. UWE’s report on the post-consent process and design quality also highlighted that this may be exacerbated by discontinuity in case officers and local authorities’ tendency to deprioritise post-consent processes in terms of resourcing.<sup>81</sup>

To gain some insight into how these issues play out in practice, a review of the use of conditions in two local planning authorities was undertaken. The approach taken is explained in detail in section 5.4.

The two planning authorities selected for the conditions review were the City of Doncaster and Erewash Borough Councils. Ten consented planning applications for residential development were reviewed from each of the authorities. The planning applications were selected to represent a varied range of developments in terms of size, location, levels and sources of flood risk and whether applications were made for full or outline planning permission. All applications are dated within the last six years.

## 10.1 Erewash Borough Council

Erewash is a district between Derby and Nottingham. It contains the two medium sized towns of Ilkeston and Long Eaton and the smaller town of Sandiacre, but is otherwise a largely rural district. The river Erewash runs through the borough, close to the border with the Broxtowe district and through the towns of Sandiacre and Long Eaton in the south-east of the authority area.

Erewash experienced significant flooding in the wake of Storm Babet in October 2023, with the most dramatic impacts in Sandiacre and Long Eaton, where 400 homes were flooded after the river Erewash burst its banks.<sup>82</sup>

Erewash Borough Council is the local planning authority, with a Core Strategy for the district dating from March 2014. A local plan review was delayed by the Council, but an intervention by the housing minister has halted the Council’s intention to withdraw the plan from examination.<sup>83</sup> A targeted consultation on the local plan took place in early 2024. Erewash is included in the geography of the Greater Nottingham Strategic Flood Risk Assessment (SFRA). The original report was produced in 2010, and was recently updated through an ‘addendum’ which was

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<sup>81</sup> H. Hickman et al. UWE, 2021. (Page 40)

<sup>82</sup> *Erewash declares climate emergency after 500 homes flood during Storm Babet*. Eddie Biskell, Derby Telegraph. (29 October 2023).

<sup>83</sup> *Minister makes ‘dramatic 11th hour intervention’ to stop council withdrawing local plan from examination*. Michael Donnelly, Planning Resource. (4 December 2023)

produced in 2017.<sup>84</sup> Erewash's adopted SPD on Flood Risk and Aquifer Protection dates from 2006, predating the NPPF.<sup>85</sup>



Image 6: Aerial view of flooding in Sandiacre following Storm Babet, including new development and a construction site. Image source: iNews, October 2023.

Derbyshire County Council is the Lead Local Flood Authority (LLFA) for the Erewash district. As part of their role as the LLFA, Derbyshire County Council maintain a Local Flood Risk Management Strategy for the county area, and provide consultee advice regarding flooding from surface water, groundwater and ordinary watercourses for major development proposals. Ten planning applications are included in this review of the use of planning conditions for flood resilience measures in Erewash. Of the ten sites reviewed:

- Eight were for full planning permission and two were for outline.
- Four sites were for major development, four for non-major development,<sup>86</sup> one minor (householder) and one change of use application.
- Three of the applications were approved in 2023, four in 2022, one in 2021, one in 2019 and one in 2018.
- Not all the sites had significant flood risk issues:
  - One site for 53 new dwellings is located in flood zone 2, with small areas in flood zone 3.
  - One smaller site for eight homes is entirely located in flood zone 3, and also has medium level of surface water flood risk.
  - Three other sites have some sections of medium-high surface water flood risk, according to the Environment Agency's long term flood risk mapping service.<sup>87</sup>

<sup>84</sup> The Greater Nottingham SFRA is available on the Nottingham City Council website: <https://www.nottinghamcity.gov.uk/information-for-business/planning-and-building-control/planning-policy/greater-nottingham-strategic-flood-risk-assessment-addendum/>

<sup>85</sup> *Development, Flood Risk and Aquifer Protection Supplementary Planning Document*. Erewash Borough Council, April 2006. <https://www.erewash.gov.uk/planning-policy-section/supplementary-planning-documents.html>

<sup>86</sup> Defined as development of between 1-9 dwellings

<sup>87</sup> *Check the long term flood risk for an area in England*. Environment Agency. <https://www.gov.uk/check-long-term-flood-risk>

- A site-specific flood risk assessment was undertaken for four of the ten sites.
- The scale of the applications were fairly small in scale, reflecting the development context of the predominantly rural district. Of the four major development sites, three of these were for less than fifty homes (as was the change of use application). Only one site was for more than 50 dwellings.

## 10.2 City of Doncaster Council

Doncaster is a city authority in South Yorkshire. The Council's area is centred around the urban area of Doncaster, but also expands to cover rural areas and small settlements on the fringes of the city. Doncaster is the largest metropolitan borough in England, covering an area of approximately 568 square kilometres, and home to a population of 308,100.<sup>88</sup> Doncaster's topography is predominantly flat, some of which is below sea level. It relies heavily on an extensive system of man-made drainage channels, pumps and other control structures to drain the land effectively.<sup>89</sup> City of Doncaster Council is both the Local Planning Authority and the Lead Local Flood Authority.

The majority of fluvial flood risk comes from the river Don and its tributaries to the north of Doncaster with large areas of agricultural land and a number of small settlements in flood zones 2 and 3, as are parts of central and northern Doncaster. Tidal flood risk from the Humber Estuary affects the north-eastern and eastern parts of the borough, which are within the low-lying tidal floodplain. The topography in the tidal floodplain is below sea level in some places with extreme tidal flood levels extending inland up to 8m AOD.<sup>90</sup>

The Doncaster Local Plan was adopted on the 23 September 2021. A level 1 Strategic Flood Risk Assessment is available and dated November 2015. A Level 2 SFRA is intended, but this is currently on hold pending updates to the Environment Agency's flood modelling for the region.<sup>91</sup>

Ten planning applications are included in this review of the use of planning conditions for flood resilience measures in Doncaster. Of the ten sites reviewed:

- Six were for full planning permission and four were for outline.
- Seven sites were for major development, and three for non-major development.
- Five of the applications were approved in 2023, one in 2022, three in 2021, and one in 2020.
- Two of sites have no significant flood risk issues according to Environment Agency data. Of those that did:
  - Three sites have areas in flood zone 3.
  - Three sites have areas in flood zone 2.
  - Three sites have areas at medium risk of surface water flooding, and two have areas of high risk of surface water flooding.

<sup>88</sup> *Population and household estimates, England and Wales: Census 2021*. Office for National Statistics, 2022. <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/populationandhouseholdestimatesenglandandwales/census2021>

<sup>89</sup> *Written evidence submitted by Doncaster Council to the EFRA select committee flooding inquiry*. Doncaster Council, 2020 <https://committees.parliament.uk/writtenevidence/9714/pdf/>

<sup>90</sup> *Doncaster MBC Level 1 Strategic Flood Risk Assessment*. JBA Consulting, November 2015. <https://www.doncaster.gov.uk/services/planning/development-and-floodrisk> (Page 18)

<sup>91</sup> *Strategic Flood Risk Assessment (November 2015)*. Doncaster City Council. <https://www.doncaster.gov.uk/services/planning/development-and-floodrisk>



- All ten sites submitted a site-specific Flood Risk Assessment.
- The majority of the sites were major, with three sites between 50-99 dwellings, one between 100-149, and two for more than 150 homes.

### 10.3 The use of planning conditions for flood resilience measures in Erewash and Doncaster

The review of the twenty applications found that conditions were used to secure a range of flood resilience measures.

Condition theme	No of conditions found in review
<b>Pre-commencement conditions</b>	
Detailed drainage strategy approved by the LPA	8
Detailed landscape plan approved by the LPA	7
Highway surface drainage plan approved by the LPA	1
<b>No occupation until:</b>	
Drainage scheme works completed	3
Landscape works approved	6
<b>Development carried out in accordance with:</b>	
Flood risk assessment / drainage plan mentioned	10
<b>Specific design measures mentioned</b>	
Finished floor levels	5
No development within specific distance of watercourse or infrastructure	5
No sleeping accommodation on the ground floor	2
Porous materials to be used for hard standing landscape features	2
Separate drainage systems for foul and surface water	5
Property flood resilience measures	1
No surface water infiltration	1
<b>Management and maintenance</b>	
Drainage management and maintenance plan required	1
Plans for scheme management and maintenance	4

Table 1: conditions found relating to flood risk by theme.

The table shows that conditions are used routinely to secure flood risk mitigations, and this is generally through making reference to a drainage strategy or flood risk assessment which will include more detail of required mitigations.

The conditions to secure specific design measures are less routinely used, and the most common interventions secured this way are raised floor levels and restrictions on development in close proximity to watercourses or infrastructure assets – these tend to reflect the advice provided by statutory consultees. The conditions most regularly used, such as the pre-commencement conditions for securing detailed drainage strategies also appear to reflect standard conditions, as the wording is very similar across multiple planning applications.

In terms of areas where conditions are more limited, standard practice demonstrates a reliance on reference to secondary material (such as FRAs or drainage strategies) rather than directly listed the design measures or mitigations required. In some cases, the condition will reference specific sections of the FRA, but this tends to be as far as the specificity extends. Other areas where the conditions appear to offer limited coverage include specific maintenance and management plans for drainage infrastructure, and pre-occupation conditions ensuring that drainage works are completed prior to occupation (although where outline planning consents are concerned, it's possible these will be secured later through reserved matters).

From the sample, more conditions with a bearing on flood resilience issues were applied to outline planning applications as compared to applications for full planning consent. On average, six conditions relating to flood risk were applied to outline consents and only three to full planning consents. Another variable that appears to influence the number of conditions relating to flood resilience is the size of development with an average of six conditions applied to developments for 50 dwellings or more, and 2.5 applying to those for less than 50 dwellings.

	Average number of conditions applied with pertinence to flood resilience		
	Flood zones 2 or 3	Med-high SWF risk	Low flood risk
<b>Erewash</b>	6.5	1	1
<b>Doncaster</b>	6	4	5

Table 2: number of flood risk conditions applied to applications

Another key factor to consider is the relative flood risk at the sites, as this will clearly influence the flood risk mitigations required. Whilst it's acknowledged that no firm conclusions can be reached from the relatively small sample of sites reviewed here, the above table has separated results by the two authorities as it demonstrates some variability in practice. Based on the sites reviewed, Doncaster Council are utilising conditions relating to flood risk across all developments regardless of the flood risk source and risk levels, although with more conditions applied to sites in flood risk zones 2 and 3. Erewash similarly are applying more flood resilience conditions to proposals in flood zones 2 and 3, but there is a drop off in the use of conditions in areas with surface water flood risk and low flood risk overall.

This analysis also looked at advice provided on the planning applications by the Environment Agency, LLFA and water companies, and whether this was reflected in the conditions included in the decision notice. Some of the findings of this exercise are briefly summarised below.

## 10.4 Erewash

Looking at specific sites, some common practice is identified that has the potential to weaken the strength of conditions applied to development. One of these relates to referring to sections of the flood risk assessment, rather than listing specific mitigations that are deemed to be required to secure a safe development. One example of this is on a site for 53 dwellings in flood zone 2. The flood risk assessment identifies significant residual risk, and that raised floor levels in line with EA advice is not possible. It therefore recommends further mitigations relating to safe access and egress, safe evacuation routes and flood warnings, which are not reflected in the conditions, other than through broad reference to the mitigations section of the FRA. This weakens the condition in relation to enforceability, as it is not likely to be clear to the enforcement officer which of the mitigations are necessary to make the development acceptable.

Another practice on this site which is seen elsewhere in the conditions review is the copying and pasting of advice from the EA and the LLFA to the decision notice, below the list of conditions. This maybe a helpful way to convey information and best practice to developers, but there is ambiguity about the status of this advice, and whether the practice of 'copying and pasting' standard advice in this way may perhaps weaken it. For example, the flood risk assessment for the site makes explicit reference to access, egress and invacuation, implying that an evacuation plan may be necessary to account for the potential residual flood risk. The LLFA advice, which is copied to the decision notice, states that 'the applicant should provide a flood evacuation plan.'<sup>92</sup> It's not clear why this (and potentially other aspects of the general advice), are not conditioned, and therefore the ambiguous status of this requirement reduce the likelihood that it will be delivered.

Another potential area of regulatory weakness revealed by the use of conditions in Erewash is in relation to surface water flood risk. The NPPF states that a flood risk assessment is required in flood zone 1 where there are other sources of flood risk, and where development 'will introduce a more vulnerable use.'<sup>93</sup> Whilst it's possible that flood risk information has changed since the planning applications were made, there are two sites in Erewash that appear to meet that criteria due to exposure to surface water flood risk (according to EA mapping), but where a flood risk assessment has not been issued. The general impression from the ten sites in Erewash is that there is inconsistency in how the LLFA engage in planning applications. The same issue potentially applies to the requirement in the NPPF for a flood risk assessment in areas of increased flood risk in future, but this relies on reference to up-to-date information, and the SFRA presenting this information clearly. The current SFRA was updated in 2017, so reflects updates to climate change guidance from 2016. This presents challenges for the LLFA oversight role in terms of keeping information up-to-date and having resources to review compliance.

The review also looked at mitigations proposed in flood risk assessments (where these have been prepared) and compared these to the conditions applied to the planning consents. One area where mitigations were not carried through to conditions is property flood resilience measures. Examples include precautionary 150mm floor raising above external levels, raised electrics on ground floor, and use of flood resistant materials on lower levels.

<sup>92</sup> *Town and Country Planning Act 1990 Notice of Decision (Application ref 0920/0050)*. Erewash Borough Council, 29 June 2022.

<sup>93</sup> Department for Levelling Up, Housing & Communities, September 2023. (Footnote 59).

## 10.5 Doncaster

The review of a selection of development applications in Doncaster reveal similar practice in the treatment of property flood resilience (PFR) measures to those found in Erewash. One example is an outline planning permission for over 400 homes in flood zone 3. The FRA indicates that the opportunity for the use of SuDS is limited due to site conditions, and lists 'proposed' flood mitigation measures including raised outlets and air bricks, non-return valves, tiled floors, flood resistant materials and permeable pavements.<sup>94</sup> PFR measures were also recommended in the consultee response from Yorkshire Water. These however are worded as things that 'could' be included in the development, and therefore not included in the conditions, despite the high flood risk area and limited SuDS indicating these measures may be reasonable expectations to make the development safe.

Where PFR measures have been conditioned, this is done through reference to a package of mitigation measures outlined in the site FRA. A challenge with this approach is that the FRAs tend to use non-committal language around PFR measures, describing them as mitigations that 'could' be used, or making reference to secondary guidance. This lack of clarity around the appropriate measures for specific sites make it difficult to enforce, and result in a lack of clarity about what measures have been delivered on site.

In the Doncaster sites, a similar issue appears to play out in relation to flood evacuation plans, as two of the sites reviewed identify a need for flood evacuation plans in the flood risk assessment, but this does not translate to a condition in either case. A similar example of conditions not picking up key flood risk issues was found on a site where the LLFA objected on the grounds of lack of detail on proposed finished floor levels, which could be addressed through a condition requiring sleeping accommodation on the first floor. However, this advice did not translate into a condition despite its reference in the officer report.

Instances of the wording of conditions being difficult to enforce were also seen in the conditions review. An illustrative example from one of the Doncaster sites is copied in box 4 below.

The Developer should be aware that a Sustainable Drainage System (SuDS) is the LPA's preferred option. A detailed explanation of any alternative option and reasons for rejecting a SuDS solution will be required.

### REASON

To comply with current planning legislation – National Planning Policy Framework.

Box 4: example of condition found in conditions review

This is an example of a condition that is not easy to enforce, as it expresses a preference rather than a requirement. The requirement for a 'detailed explanation of any alternative option' is conditional on the scheme not implementing a SuDS scheme.

It is also important to highlight that there are also instances where engagement with consultees led to better outcomes. For example, where consultation with the LLFA, EA and Yorkshire Water has led to flood risk mitigations being secured by condition, which in some cases represent better outcomes than those proposed in the FRA.

<sup>94</sup> *Wheatley Hall Road, Doncaster Flood Risk & Drainage Assessment*. WYG Consultants, October 2019.

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# 11 Stakeholder engagement

## – National Association of Planning Enforcement

During the research, it became apparent that the scope of the case studies and conditions review had not covered the role of enforcement in relation to securing flood resilience through planning, as no enforcement action had been taken on the case study sites. However, it was felt that understanding of the scope and role of enforcement to secure flood resilience measures was important for the research, so contact was made with the National Association of Planning Enforcement (NAPE) following a recommendation from the research advisory group. Two members of NAPE's management committee were interviewed so that perspectives from enforcement practitioners could be captured. The interviews covered opportunities and barriers to enforcement in relation to flood resilience measures, and invited participants to reflect on the emerging themes from the case studies and conditions review. The themes covered during the two interviews are summarised here.

### 11.1 Examples of enforcement action related to flood risk

The interviewees shared examples of the types of enforcement cases they see taken forward relating to flood resilience. A key role of planning enforcement is to engage in cases where unauthorised development has taken place in flood risk areas, and understand whether mitigations can be retrospectively applied to development to make it acceptable in flood risk terms.

Conditions are commonly used to require drainage strategies and detailed SuDS schemes prior to commencement, so there is also a role for enforcement to ensure information has been submitted and approved, and issue temporary stop notices where this hasn't been satisfied. SuDS schemes that are not operating effectively may also be subject to temporary stop notices while they are investigated. Instances of neighbours reporting increased flooding on their property and questioning whether SuDS schemes have been implemented properly were also reported, but these can be challenging for enforcement teams to evidence.

### 11.2 Very little proactive enforcement is happening

The interviewees reported that very few authorities conduct proactive enforcement. The costs associated with resourcing a proactive compliance function is hard to justify, as the benefit is hard to measure. The interviewees shared a view that the scale of non-compliance in relation to implementing flood mitigations is therefore an unknown quantity.

Planning enforcement can only be taken where it is 'expedient', and due to resource constraints this has become reliant on complaints, meaning the enforcement function of local planning authorities is complaint driven and therefore geared towards 'matters that the neighbours are most concerned about'.<sup>95</sup>

### 11.3 Reliance on specialist flood risk expertise

The nature of enforcement is that applies to a broad range of planning matters, so enforcement officers are unlikely to have specialist flood risk knowledge. This means they are reliant on the

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<sup>95</sup> Quote from research interview participant.

expertise from (depending on the nature of the case) the Environment Agency or the LLFA. The interviewees clearly identified the challenge this presents to enforcement cases due to:

- Resource constraints at the EA and LLFAs, meaning advice is often not provided in a timely manner, which can significantly impact cases.
- Resources at the EA and LLFA tend to be focused on the planning application process, leaving little oversight of enforcement cases, and presenting the risk of costs being awarded against them.
- There is a related knowledge gap around flood mitigations for remediation.
- The interviews also implied a level of inconsistency across authorities in the relationships between flood and enforcement teams, with an indication that this was more functional in Unitary Authorities where flood officers are ‘in house’.
- Reliance on enforcement officers to defend flood risk issues at appeals, without the necessary technical expertise to make the case effectively, leads to permissions being granted retrospectively in flood risk areas.

#### **11.4 Weak conditions can hamper enforcement action**

The interviewees were very clear that clearly written, specific conditions are necessary for enforcement action to be taken on flood risk issues. They agreed that conditions are often worded ‘vaguely’ and make reference to secondary strategies and assessments, making it unclear what mitigations are viewed as necessary to make a development acceptable. Conditions also focus on the requirement for a drainage strategy but may fail to address the implementation of measures within it. Conditions worded in this way present problems for enforcement as it is harder to demonstrate in front of a magistrate exactly what was required by condition. The complexity is confounded by the sheer number of conditions that are applied to consents.

Both interviewees highlighted the relationship between these types of conditions and the tendency to deal with many issues at later planning stages, when important issues such as flood risk would be more appropriately dealt with at earlier stages: ‘really these should be at the heart of the principle of permission, so detail should be clearer early in the process.’<sup>96</sup> The concern was that by bundling flood risk issues in with other conditioned plans, such as construction management plans, the fundamental importance of flood resilience measures is muted, and they are treated as ‘just another thing.’ The preference, and to support a more effective enforcement function, would be to ‘front load’ more key issues, and then ‘condition whatever aspects from that management plan or design you specifically want as part of the scheme to make it deliverable.’<sup>97</sup>

This places the onus on the planning officer to identify from the Flood Risk Assessments which mitigations are necessary, and which are not, and it wasn’t clear from the perspective of the interviewees that this was achieved effectively in practice.

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<sup>96</sup> Ibid.

<sup>97</sup> Ibid.

# 12 Analysis

This chapter draws on the findings from the literature review, case studies, interviews and conditions review and discusses the key implications of these findings. Chapter 7 set out the three components of the analytical framework which was drawn from the literature review, and the analysis below is presented under those thematic headings.

## 12.1 The quality of evidence used in decision making

This theme identified from the literature review that there is an issue around the quality of flood risk evidence available to inform planning decisions. This is discussed below under sub-headings reflecting the common practice issues that have been found in this research.

### Inconsistencies in how evidence is presented and understood

The literature review presents clearly some perceived challenges with the existing approach to flood risk evidence used to inform planning decisions. Problems with the evidence that are regularly cited in the literature are that it is often out of date, difficult to access and understand, lacks mapped information on future flood risk, and data on different sources of flood risk are poorly integrated.



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The practice of four local planning authorities in areas at high risk of flooding were included in the scope of this study. In these authorities the dates of the Strategic Flood Risk Assessments (SFRAs) vary between 2008 to 2017. SFRAs play an important role in providing up to date, local information which accounts for all sources of flood risk and understanding of future flood risk. Changes to the Planning Practice Guidance on Flood Risk and Coastal Erosion which were published in August 2022 emphasise the role of SFRAs as an important evidence base to support decision making, as well as plan making. However, to perform this role effectively they must be up to date, and for that to be achieved, authorities must have adequate resource to update them. The snapshot provided by these authorities show examples of authorities in high flood risk areas reliant on SFRAs that are over 15 years old.

Site specific flood risk assessments should provide a local and detailed picture of all sources of flood risk to inform decision makers and stakeholders. Yet the Twigworth Green case study shows that the data underpinning site specific flood risk assessments can be contested, which creates competing understanding of risk and adds complexity to the decision-making process. In Erewash, site specific FRAs were not always provided where surface water flood risk indicates they were required.

More broadly than this specific case study, it's interesting to reflect on how the culture of decision-making may influence the treatment of flood risk information by different actors. The adversarial nature of planning appeals may incentivise developers to play down potential risk in order to secure planning permission and, conversely, local planning authorities may emphasise risk in order to support justification of refusal. Planning Inspectors must then adjudicate over 'two versions of the truth' at appeal, without necessarily having the specialist knowledge to easily navigate the complex modelling and data presented to them.

The challenges outlined above point to a need for more unified understanding of flood risk across the public and private sectors, and the need for clearer oversight over flood risk evidence. More prescriptive guidance on the production of Flood Risk Assessments, for example, would ensure a more consistent approach and enhance transparency and trust in the process. In order to be effective this would need to go beyond 'best practice' advice and be more directive in terms of acceptable data and modelling approaches, to give more confidence to decision makers and the public. There may also be benefit from the Environment Agency having an enhanced scrutiny and verification role to ensure that data used for FRAs was up to date and acceptable.

### **Gaps and areas of oversight in flood risk evidence**

The government have made significant commitments to improving the consistency and availability of flood risk data across England. This includes:

- Improved integration of local data with the Environment Agency's national flood risk maps,
- £3.5 million investment to improve local surface water flood risk mapping, and
- An update to the National Flood Risk Assessment (NAFRA 2), which will include mapping of all sources of current and future flood risk (including climate change scenarios).<sup>98</sup>

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<sup>98</sup> *Government response to the National Infrastructure Commission's study: Reducing the risk of surface water flooding*. Department for Environment, Food & Rural Affairs, 13 March 2024.



This is likely to enable a significant improvement in access to flood risk data and provides an opportunity to create a more unified understanding of flood risk across the public and private sectors. This will undoubtedly be a positive step in addressing some of the gaps and areas of oversight identified in this research, particularly in terms of inconsistent local data on surface water flood risk.

However, other issues highlighted in the research may not be addressed through NAFRA 2. Data on water management infrastructure constraints, for example, is not consistently available, and therefore planning decisions are at risk of not fully accounting for potential risks from some sources of flood risk. Another point of discussion that arose from the Twigworth Green case study is how local knowledge of flood risk plays a limited role in the planning process, even where quite sophisticated information and understanding of flood risk issues is apparent. This risks exacerbating local frustrations with the planning process and the sense that their concerns are not heard or regarded in decision making.

### **Unclear weight of evidence and the mitigations proposed**

A further area related to the quality of evidence used in decision making is the lack of clarity around the status of some flood resilience measures recommended through site specific flood risk evidence and planning documents. This was seen across the primary research.

In the case of Twigworth Green, references to water butts, porous external surfaces and water efficient fixtures and fittings were identified as best practice in the drainage strategy, but no commitment to their delivery is made in the strategy or secured through conditions. This was repeated in the case of Kelham Central, where despite the flood risk assessment being fairly strong in its recommendation for flood guard doors and an emergency evacuation plan to address residual flood risk, these were not delivered. Not only does this practice mean that sites are potentially not achieving a level of flood resilience that has been assessed as required for the safety of future residents, but it is also confusing for the public, future residents and other stakeholders (including the insurance and lending sector) to understand what flood resilience measures have been delivered on a site, as opposed to those that have merely been considered as a 'nice to have' at some stage in the site's development. Flood Risk Assessments and drainage strategies need to be more upfront about what is being delivered on specific sites. If some interventions are desirable, the circumstances in which these will be delivered should be stated, and a record of their delivery provided.

## **12.2 Securing flood risk requirements through planning**

A second overarching theme of the literature was around the extent to which the planning system is successfully delivering flood risk requirements in practice. The existing literature raises concerns over the reliance on conditions as the mechanism to secure flood resilience measures for development sites, and this is echoed in the findings of this research. There is fairly limited existing evidence relating to this theme, so this section also covers findings that emerge from the research to provide further insight into issues including the oversight of surface water flooding, the specific challenges in securing flood risk requirements presented through the outline planning consent process, and the treatment of property flood resilience measures through planning.

### **Conditions**

The case studies and conditions review reveal how important conditions are in securing flood resilience measures on new developments, and ensuring continued oversight of flood and water

management issues from the Environment Agency and Lead Local Flood Authority as more detailed design solutions are developed. However, as discussed in the literature review, there are vulnerabilities in the use of conditions, and these were apparent in the detailed analysis undertaken for the case studies and conditions review.

The two case studies reveal the great complexity of large development sites. 55 conditions were applied to the Kelham Central consent, each of which need to be approved by the local authority. Having adequate resource to service and scrutinise the post-consent process is a vital aspect of conditions working effectively. During interview, the Kelham Central developer agreed that the use of excessive numbers of conditions creates significant workload both for the developer and the local planning authority, and there are advantages to agreeing more issues prior to determination. However, as a developer they also view the planning consent as a major milestone, and developers will do what they need to do to 'get through planning', which often means accepting a large quantity of conditions.

*'Does it do the job? It sort of does, but it very much heavily weighs then on the resource within a local authority to follow through on that, you know, and then their desire to maintain collaboration while they come through on the conditions.'*<sup>99</sup>

The use of conditions also creates a complex paper trail, making it rather difficult to understand what the result of changes and approved conditions means 'on the ground' in terms of delivery.

Planning Practice Guidance is clear that conditions should be worded effectively and meet the six tests outlined in section 3, which include being 'enforceable' and 'precise'. This research illustrates that the wording and use of conditions for flood resilience often falls short of this bar. Some examples are listed below:

- An example of ambiguity over whether raised floor levels applied to all built development or residential development causing challenges for the Environment Agency.
- The conditions review found examples of wording for conditions that would not be enforceable, for example expressing that SuDS would be a 'preferred option', but not requiring this in stronger terms.
- The case studies and conditions review demonstrate it is common practice to refer to mitigations and measures listed in other documents (e.g. the FRA or drainage strategy), without specificity about the exact measures set out in these assessments are enforceable by condition.
- There is inconsistency in the conditions approach to statutory advice, with the research finding examples of suggested conditions from the EA and the LLFA not being carried through to consents.
- Decision notices include advice from the EA and LLFA which is ambiguous in its status.

These examples indicate that conditions are being used to seek better outcomes from development (e.g. expressing a preference for SuDS schemes on development sites), but either there is not enough detailed information to require delivery of specific interventions, or the information on flood risk remains vague at the point of consent being granted. Additional advice included on decision notices may be helpful in relation to process matters, but there is a risk

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<sup>99</sup> Case study interview with developer representative.

that any specific mitigations listed in this way will be dropped by the developer, as they are not viewed as requirements.

Rather than understanding required mitigations upfront in the decision making process, detailed mitigations are kicked further down the road to be agreed at later stages of planning. The research raises the question about whether this is appropriate for flood risk issues, which are fundamental to whether the principle of development should be agreed.

Conditions are clearly pivotal for securing the flood mitigation measures that are necessary to make developments acceptable in terms of flood risk. Therefore, they carry an enormous responsibility in the planning process, but they are limited because they can only secure what is 'necessary' to consent a development, and are therefore unable to secure more aspirational outcomes. The research findings also suggest that conditions are not being executed consistently and effectively in practice. This is due in part to conditions not being applied effectively, but also speaks to a more fundamental issue explored in the literature review about the limitations on the use of conditions and the potential over-reliance on them to secure flood resilience. This came through as a key theme of the Twigworth Green case study, where during the appeal the local planning authority raised concerns about the reliance on conditions to secure mitigations that should in fact be a more fundamental issue about the principle of development.

This is a particular issue where conditions are influenced by flaws earlier in the planning process, such as reliance on poor-quality evidence. Local plans are used to give certainty about development, and effectively approve the principle of development at allocated sites. However, once a planning proposal comes forward, the flood risk evidence providing the basis for that allocation may be out of date. This is exacerbated where SFRA's were not up to date at the time the local plan was developed. The long time frames for local plan and flood risk evidence review therefore present a vulnerability, and there are limited mechanisms to review allocations and consents in light of updated understanding of flood risk. This leads to a risk of relying on conditions to secure engineered flood risk mitigations to sites that are fundamentally unresilient.

In summary, the conditions review and case study point to an over-reliance on conditions to secure flood risk measures, limiting the scope of flood resilience measures to what is necessary, rather than what might be desired above minimum requirements. The focus of conditions therefore tends to focus on raised floor levels and drainage strategies, and these measures appear to receive detailed scrutiny from consultees such as the LLFA and EA. However, other resilience measures relating to flood resilience are not conditioned routinely, including evacuation plans and property flood resilience measures. This is happening even where the flood risk assessments indicate these should be required. This potentially points to an embedded cultural attitude to certain flood risk measures which is not keeping pace with changing understanding of flood risk, but this would require more targeted research engaging practitioners to explore further.

### **Outline planning permissions**

The two case studies provided a limited opportunity to compare the treatment of flood risk issues for outline planning applications as compared to proposals granted full planning permission. Whilst the limited scope for comparison is acknowledged, the research raises questions about the appropriate timing for the detailed consideration of flood risk, particularly in high flood risk areas. Tewkesbury District Council, in the case of Twigworth Green, were concerned in their representations to the planning appeal that the principle of development was

being granted ahead of detailed understanding of flood risk issues and mitigations on site, made possible through the outline planning application route.

The Twigworth Green site was subject to many more changes after planning consent, when compared to Kelham Central. Although not directly flood resilience measures, some of the changes will have had a bearing on surface water drainage. For example, where hard standing surfaces replace green infrastructure provision and the ‘cumulative reduction in quality’ of landscaping on the site. To a lesser extent this was also seen at Kelham Central in the removal of the green roof – the planning statement notes the contribution of this to water retention, even if this is considered minimal.

The interviewee for Kelham Central emphasised the importance of early engagement with local authorities to secure flood resilience measures. Securing and confirming flood resilience during pre-planning and early design stages, in their view, made significant difference to whether flood resilience is properly planned and ultimately delivered, as developers are resistant to go back and rethink design aspects once costs are fixed. This was echoed in interviews with enforcement professionals who emphasised the importance of front loading flood risk issues, feeling that they were more vulnerable to being lost, or their importance to the scheme diminished, if they are ‘bundled’ with other conditions. Outline planning permission, by pushing back key design considerations to a later stage, arguably limits the opportunity to secure better flood resilience outcomes through this route.

### **Property flood resilience**

The Kelham Central case study reveals the process through which flood resilience measures that are included in the flood risk assessment and planning statement do not transpire into the scheme delivery. Some of the measures included in the planning application documents that have not been delivered on the site include water efficient fittings, water collection and re-use, a green roof, property flood resilience measures including flood door guards, and an emergency evacuation plan.

In the case of the green roof and water collection, these can be understood as making minimal contribution to water attenuation in the context of a drainage strategy that includes raingardens, permeable paving and water storage. However, the flood door guards and emergency evacuation plan can be understood as measures that are intended to address residual risk, and ensure the safety of people and property in the case of a flooding event.

However, these measures are not secured in the development because they were not specified as requirements to be conditioned – likely because they are not considered as ‘necessary’ flood risk mitigations, and therefore not seen to pass the conditions tests. However, the flood risk assessment identified residual risk as a possibility (for example, in the instance of flood defences breaching), which raises the question as to whether these measures should have been considered as necessary for the development. This pattern was repeated in a number of the conditions review sites. The indication is that:

- a) national policy does not encourage inclusion of these measures to address residual risk strongly enough, and / or
- b) that reliance on conditions to secure flood risk mitigations is leading to measures slipping through the net, as they are considered ‘nice to haves’, even when identified as required in flood risk assessments and Environment Agency advice.

The slow take up of PFR has been identified by the government and by the Climate Change Committee as areas where England's adaptation response has been fairly slow.<sup>100</sup> One potential route to address this and secure more resilient property would be to move property flood resilience measures to be handled through building regulations, rather than planning. Considering the significant increase in exposure of property to flood risk anticipated in the coming years, there is a rationale that a basic level of PFR in building regulations would be an efficient, mandatory route to secure minimum standards. The planning system could provide flexibility to increase standards of PFR where flood risk evidence demonstrates it would increase resilience in higher risk locations.

### 12.3 Strengthening the operation of the regulatory system

#### Institutional complexity and roles and responsibilities

The research indicates an inconsistent treatment of surface water flood risk through the planning system compared to fluvial flood risk, but the root cause of this variability comes down to the institutional complexity and complicated division of roles and responsibilities in the management of water and flood risk in England.

This context added to the frustration experienced by the community representative concerned about the Twigworth Green development, who felt there were 'too many cooks', which made resolving issues challenging and led to a sense that organisations were shifting the responsibility. The conditions review and case studies demonstrate the important, and well established in practice, oversight role of the Environment Agency in relation to fluvial and tidal flood risk, but a much more varied experience in relation to LLFA engagement on sites with surface water flood risk. This weakness in the regulation of surface water flooding chimes with the issues revealed by the literature review. The Twigworth Green case study also indicates that understanding of infrastructure constraints may be a potential weakness in the system. Water company engagement in planning also appears to be inconsistent across different areas.

The government, in its Plan for Water, has signalled a future consultation on whether water companies should become statutory consultees on certain planning applications.<sup>101</sup> This has the potential to increase consistency and oversight over planning applications, and encourage water companies to increase capacity to fulfil this function.

The research indicates a need for more alignment of the multiple institutions engaged in flood risk and water management. This is echoed by other bodies, for example the National Infrastructure Commission has called for single, joint plans to address local flood risk which would be owned by all responsible authorities<sup>102</sup>.

This institutional complexity is, to an extent, accepted by government, which has committed to taking action on some fronts to address this, particularly in relation to surface water flood risk management, where it is a particular concern. The quote below is taken from the government's response to the National Infrastructure Commission's (NIC) report on reducing the risk of surface water flooding:

*'The current water and floods policy and legal framework has been developed incrementally over time, resulting in over 15 national plans and strategic documents. Whilst each plan has*

<sup>100</sup> CCC adaptation progress report pg 210

<sup>101</sup> DEFRA, April 2023. (Page 40)

<sup>102</sup> National Infrastructure Commission, November 2022.

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*its own purpose, we want to make the whole framework more outcome-focussed and fully integrated with other environmental plans and government delivery plans. This includes our commitment to better align flood and water planning.*<sup>103</sup>

Whilst the government have committed to reforming local flood risk management planning ‘to deliver strategic and comprehensive plans,’<sup>104</sup> these may still be hampered by the confusing delegation of responsibilities for different sources of flood risk and infrastructure management.

### **Surface water flood risk**

The case studies and conditions review illustrate variable levels of engagement at the different local authorities in terms of the role of the LLFA in the post-consent planning process, particularly when compared to the ongoing scrutiny afforded by the Environment Agency on fluvial and tidal flood risk issues.

One explanation maybe around the legislative framing of the planning consultee requirement on LLFAs as set out in the Development Management Procedure Order (DMPO). The planning consultee requirement on LLFAs is for ‘major development with surface water drainage’<sup>105</sup>, meaning LLFAs may focus on how development proposals seek to manage surface water, and a potential gap in the scrutiny of planning applications for whether the principle of development is acceptable in relation to surface water flood risk. This may contribute to the inconsistency across LLFAs, where their role in terms of scrutiny of planning applications may be interpreted differently. Further research is necessary to understand the apparent variability across England’s LLFAs in relation to resource and capacity constraints, which could also be contributing to inconsistent levels of oversight of planning applications across authorities.

There is the possibility that issues in relation to the oversight of surface water flood risk in planning applications may be addressed through the implementation of Schedule 3 of the Flood and Water Management Act. This would mean all new housing development would require standardised sustainable drainage systems<sup>106</sup> which would be approved and adopted by a SuDS Approval Body. The enactment of Schedule 3 presents a significant opportunity to improve the oversight and long term management of surface water management on new development. A consultation on the implementation of Schedule 3 has been signalled by government to take place in spring 2024.<sup>107</sup>

### **Enforcement and compliance**

The research did not explore in detail the operation of planning enforcement through either of the case studies or the conditions review, as no enforcement action for compliance with flood requirements had taken place on those sites. However, interviews with representatives of the National Association of Planning Enforcement echoed strongly the challenges facing planning enforcement services that were highlighted in the literature review.

It is clear that the complex post-consent planning process is subject to little scrutiny for compliance, leaving vulnerabilities in relation to oversight and implementation. With a lack of proactive compliance taking place, planning enforcement teams are complaint driven, meaning

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<sup>103</sup> Department for Environment, Food & Rural Affairs, March 2024.

<sup>104</sup> Ibid.

<sup>105</sup> *Schedule 4 of the Town and Country Planning (Development Management Procedure) (England) Order 2015*. UK Government.

<sup>106</sup> *Plan for Water: our integrated plan for delivering clean and plentiful water*. DEFRA, April 2023.

<sup>107</sup> Department for Environment, Food & Rural Affairs, 2024.

the 'eyes and ears' role of local communities is an important factor in whether planning breaches are identified and investigated.

Where enforcement action does happen on flood mitigation concerns, the interviews with enforcement professionals revealed that access to expert advice from the EA and LLFA on specific cases can be a limiting factor, and the resources that do exist are more focused on the planning approval process and unlikely to prioritise supporting enforcement action. This leaves enforcement cases vulnerable, as enforcement officers are unlikely to have specific flood risk expertise and can struggle to argue the cases without expert support. The interviewees suggested that a dedicated EA service, such as a helpline, focused on enforcement would provide enabling resource to local planning enforcement teams.

### **Local planning authority resourcing**

The Kelham Central case study demonstrates the positive and enabling influence of a well-resourced and knowledgeable flood management team. In this case, engagement with the LLFA was reported by the developer as having a beneficial impact on the development's approach to flood resilience. The developer representative commended the engagement of Sheffield City Council and identified this as a key enabler to securing a successful flood resilience strategy across all three phases of the Kelham Island development. Key aspects of the successful engagement were the level of knowledge on sustainable drainage within the Council, meaningful early discussion on flood resilience and drainage at the pre-application stage, and a willingness and capacity of the Council to engage in ongoing, informal discussion with the developer, for example to advise when changes to the scheme may need to go through a formal amendment process.

This experience, sadly, does not tend to represent current practice at LLFAs, due largely to constraints placed on them by the crisis in local government resourcing. Both developer interviewees had experiences of dealing with local authorities where there was a lack of understanding of the application of SuDS within officer teams. Many of the issues and vulnerabilities highlighted in this research must be understood in the context of a crisis in local planning resourcing – from inconsistencies in the use of conditions, to lack of oversight and limited scrutiny of planning proposals once permission has been granted. This lack of resource is not just a constraint on preventing bad practice and securing minimal flood resilience requirements, but also limits the opportunity to identify and secure ambitious and innovative approaches to flood resilience, as was achieved in the Kelham Central example. Underlying this whole study it must be accepted that the effective functioning of the planning system is contingent on a well-resourced and knowledgeable workforce in the public sector.

## 13 Broader planning issues

While the focus of this research was on the post consent part of the planning process it is clear that the findings of the case studies confirm a number of other studies which have identified systemic flaws in planning for flood resilience. These include the inevitable tension between national policy which emphasises housing numbers as the key objective of the planning system, and the challenge in securing wider policy outcomes from new development, including long term resilience to the impacts of climate change. The impact of resource constraints and skills along with institutional complexity, complex frameworks of data and the failure to adequately engage communities are all reflected in this research and imply the need for a much wider review of planning for climate adaptation. It is clear that a national policy and a comprehensive programme of restoring skills and resource, particularly around enforcement, are necessary to address these systemic problems.



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# 14 Findings

This section of the report responds to the detailed research findings, which have focused on the operation of the post-consent part of the planning system in terms of securing flood resilience measures. Findings are presented under the thematic headings of the analytical framework and indicate areas where the planning system must be improved to ensure higher levels of flood resilience from new housing development.

## **14.1 Theme one: improving the quality of data and evidence to inform decision making**

The information risk management authorities are relying on to assess planning applications and consider appropriate flood risk mitigations is often out of date, incomplete, and hard to access. This implies a need for clearer oversight of flood risk evidence and more prescriptive guidance on the production of flood risk evidence such as flood risk assessments to enhance transparency and consistency of flood risk evidence.

Flood risk evidence is complex and developers and planners may use different flood models and maps, some of which are not publicly accessible. This can lead to different interpretations of the nature and scale of flood risk, and further undermines the transparency of the system. It also leaves decision makers having to adjudicate complex methodological disputes about interpreting flood risk, something which they are not always trained or resourced to do.

## **14.2 Theme two: securing flood risk requirements through planning**

There are types of flood mitigations our research suggests are being upheld effectively. For example, our case studies found that elevation was clearly specified, scrutinised by statutory consultees, and followed planning guidance to account for climate change. But the complexity and lack of transparency through the process means it is very hard for those interested in the outcome of the process to understand what flood mitigations have been delivered.

There are inconsistencies within and between local authorities in terms of how conditions for flood resilience measures are used and there is limited national guidance as to how these conditions should be specified. Two particular areas of concern were prominent in our research:

- 1) Conditions often refer to secondary documents and do not specify which mitigations are deemed necessary. In addition, decision notices often include advice but it is not clear the status of the advice given and whether it is enforceable.
- 2) Outline planning permission, which is granted prior to a detailed masterplan and drainage strategy being approved, but establishes the principle of development which is hard to undo at a later stage.

The planning system is not effectively securing property flood resilience measures, even when these are identified as required to address residual risk in flood risk assessments.

## **14.3 Theme three: strengthening the operation of the regulatory system**

The system for enforcing flood mitigation measures through planning is overly complex and opaque. This means that it is very hard for those buying, mortgaging and insuring homes to understand the level of flood risk a new build property has or how this has/has not been mitigated against.

The challenges outlined above are particularly acute in regard to surface water, because LLFAs do not provide a consistent level of oversight and water companies have an important role in mapping and managing surface water but are not statutory consultees in planning applications.

The complex post-consent process is subject to little scrutiny for compliance, planning enforcement is entirely reactive, and this further undermines transparency for those interested in the process.



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# 15 Addressing broader planning issues to improve flood resilience

It became clear through the research that many of the challenges of navigating the post consent process stem from wider ‘upstream’ systemic problems at the initial allocation and consent stages including, importantly, the strategic approach to the allocation of land for housing development, and whether this is operating in a way that appropriately accounts for long-term flood risk.

Whilst not the primary focus of the research, it is important to acknowledge that wider contextual factors will have a significant bearing on the flood resilience of new development and may require further enquiry to understand in more depth. These include:

- How flood risk is considered alongside other planning considerations in the allocation of land for housing.
- Factors influencing the quality of flood risk evidence used to inform plan making.
- Whether the creation of a sub-national strategic tier of spatial planning would help limit the allocation of housing in flood risk areas.
- The impact of ongoing deregulatory measures which further undermine the planning system’s flood risk controls – for example the expansion of permitted development rights and use of Local Development Orders for residential development in flood risk areas.

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# 16 Conclusions

It is clear that there is significant dysfunction in the approach to delivering flood resilient development through the planning system in England, and this report has highlighted particular challenges that impact the effectiveness of the post-consent process. As a result, fundamental change is necessary to secure an effective regulatory regime that delivers flood resilient communities that are safe for the long term.

The process for managing flood risk and securing long term community resilience to climate change is complex, and the planning system should play a vital regulatory role to secure the measures necessary to make development safe. However, this research has revealed that the current system is failing to service this purpose effectively due to procedural issues, which are borne out within a malfunctional system that further exacerbates these problems.

The research finds that there are three headline areas that need to be addressed to secure more flood resilient new development: the quality of evidence and data to inform planning decisions must be improved, the planning system must work harder at securing the measures necessary to make development safe from flood risk, and the regulatory system and oversight must be more robust to ensure these measures are delivered in practice.

The research scope highlights that securing flood resilient developments is contingent on both effective operation at a systemic level and the execution of detailed procedures. Both the system and the details are fundamental components of planning for flood risk management, and building safe and resilient communities is contingent on their successful operation.