Project Groundwater
Are you flood resilient?

Annual Report 2025

From innovation to action: turning learning into real-world change and building our legacy



Foreword



Councillor Adekunle Osibogun

Cabinet Member for Environment, Climate Change & Waste

Groundwater flooding is one of those risks that is easy to overlook until it arrives. It does not always come with dramatic images of rivers bursting their banks, but it can seep into homes, close roads, damage services and leave people living with months of uncertainty. As our climate changes and development pressures grow, this quieter form of flooding can no longer be treated as an afterthought.

Project Groundwater has given us a way to face that challenge with innovation and ambition. Over the last few years it has brought together councils, national agencies, academics, communities and specialists to ask some difficult questions: how do we understand groundwater flooding better, how do we talk about it honestly, and how do we support people to live with it more safely and confidently?

In 2025, answers to those questions started to become visible. Ideas that were once experimental are now taking shape as services, designs and ways of working that communities and practitioners can apply and see real results from. Residents are more involved in shaping how their places respond to groundwater risk, and partners are beginning to plan new developments, infrastructure and landscapes with groundwater in mind from the outset.

Across the programme, there is a growing sense that we are building approaches others can adopt and build on.

We are now in the final stages of this journey. With just over a year of funding left, our collective task is to turn this progress into a legacy: tools and guidance that become part of everyday practice, networks and relationships that endure, and communities that feel better informed, better connected and better prepared when groundwater levels rise.

I am proud that our area is helping to shape national thinking on groundwater flooding – from the chalk streams of the Chilterns and the flood-prone valleys of the Pang and Lambourn, to the streets of Chalfont St Peter and the low-lying communities of Luton. And I am grateful to everyone who has contributed their time, expertise and lived experience.

The work set out in this report shows that, with the right partnerships and a willingness to try new approaches, we can move from reacting to events towards genuinely resilient places that recognise groundwater flooding for what it is, and are ready for the future.

Introduction



Luciano Lopes

Project Team Leader, Project Groundwater

Groundwater flooding is often described as a hidden form of flood risk. I believe it also presents a hidden opportunity.

Unlike many other types of flooding, groundwater flooding cannot be understood through a single lens. It affects communities, infrastructure, planning, health, the environment and local economies. Understanding those connections has been one of the defining themes of Project Groundwater throughout 2025.

This year has demonstrated the value of bringing together expertise that would not normally work side by side. Scientists, engineers, planners, local authorities, community groups and residents have all contributed to a shared effort to better understand groundwater flooding and explore how we can respond more effectively to it.

The result is a programme that is creating far more than technical outputs. We are generating evidence, testing ideas, strengthening partnerships and translating knowledge into practical action. Whether through improved warning services, property flood resilience surveys, nature-based solutions, community engagement, planning guidance or academic research, each area of work contributes towards a common goal: helping communities become more resilient to groundwater flooding.

For me, the most important achievement is not what has been delivered in isolation, but what has been learned collectively. The programme has created opportunities to challenge assumptions, test new approaches and understand what works in different circumstances. That learning is every bit as valuable as the outputs themselves.

Project Groundwater was established to explore new approaches to a long-standing challenge. Innovation is rarely a straight line, and not every idea develops exactly as expected. However, every success, challenge and lesson learned contributes to a growing body of knowledge that can support future decision-making well beyond the lifetime of this programme.

As we continue our journey, our focus remains on turning evidence into action, strengthening collaboration and ensuring that communities benefit from the knowledge being created. By building stronger partnerships, improving our understanding of groundwater flooding and sharing what we learn, we can help others tackle similar challenges in the future.

I would like to thank everyone who has contributed to this work so far. The achievements highlighted in this report belong to a wide network of partners, communities and individuals who have shared their expertise, experience and commitment. Together, we are helping to transform a hidden flood risk into a better understood challenge and a stronger opportunity for innovation, resilience and collaboration.



Message from the Flood and Coastal Resilience Innovation Programme

Tom De la Rosa

FCRM Adaptation and Resilience Manager, Environment Agency

Project Groundwater continues to play a vital role within the Environment Agency's Flood and Coastal Resilience Innovation Programme. It tackles one of the most complex and least visible forms of flood risk, and does so by combining technical innovation with practical community involvement. We are pleased to see the Project Groundwater Network contributing to national debate and consultations, raising the profile of groundwater flooding

In 2025 we have seen that approach move from testing ideas to putting them into practice, from trialling a groundwater warning service and designing nature based schemes, to preparing targeted property flood resilience measures and shaping emerging planning guidance.

Just as importantly, the project is turning local experience into learning that can be shared more widely, through research, tools and the growing Project Groundwater Network.

As the programme enters its final phase, the progress made this year gives us real confidence that the impact of Project Groundwater will extend well beyond the life of the project itself, through services, methods and relationships that can be sustained and applied in other places long after the funding ends.

Environment Agency

About Project Groundwater



Project Groundwater is a six-year programme working with communities across up to nine high-risk groundwater flood areas in the Chiltern Hills and Berkshire Downs. Led by Buckinghamshire Council in partnership with five other local authorities and Community Flood Groups, it brings together the people, knowledge and expertise needed to tackle one of the least visible forms of flood risk.

Through the programme, communities are building a much clearer picture of their local groundwater and what it means for them when levels rise. Over time, that understanding translates into practical action: better alerts, shared knowledge and innovative approaches that help minimise disruption and damage, as well as longer-term work to make local places more resilient to flooding in the future.

The findings from Project Groundwater are expected to benefit up to 200 communities and 70,000 properties at risk of groundwater flooding across the region. Alongside practical measures, the programme is working to raise awareness and improve readiness, supporting communities not just in protecting their homes and streets but in feeling more confident and better prepared when groundwater rises. What is learned here will also be shared nationally, so that communities facing similar challenges anywhere in the country can benefit from the experience built up in the Chilterns and Berkshire Downs.



Funding

A Government Policy Statement in 2020 allocated a record £5.2 billion investment in England's Flood and Coastal Defence programme to be allocated over a six-year period. It aims to better protect over 300,000 properties and reduce the national flood risk by up to 11% by 2027.

The Environment Agency and the Department for Food and Rural Affairs (Defra) published their responses to the Policy Statement.

Defra has released the £200 Million Flood and Coastal Innovation programmes, which includes:

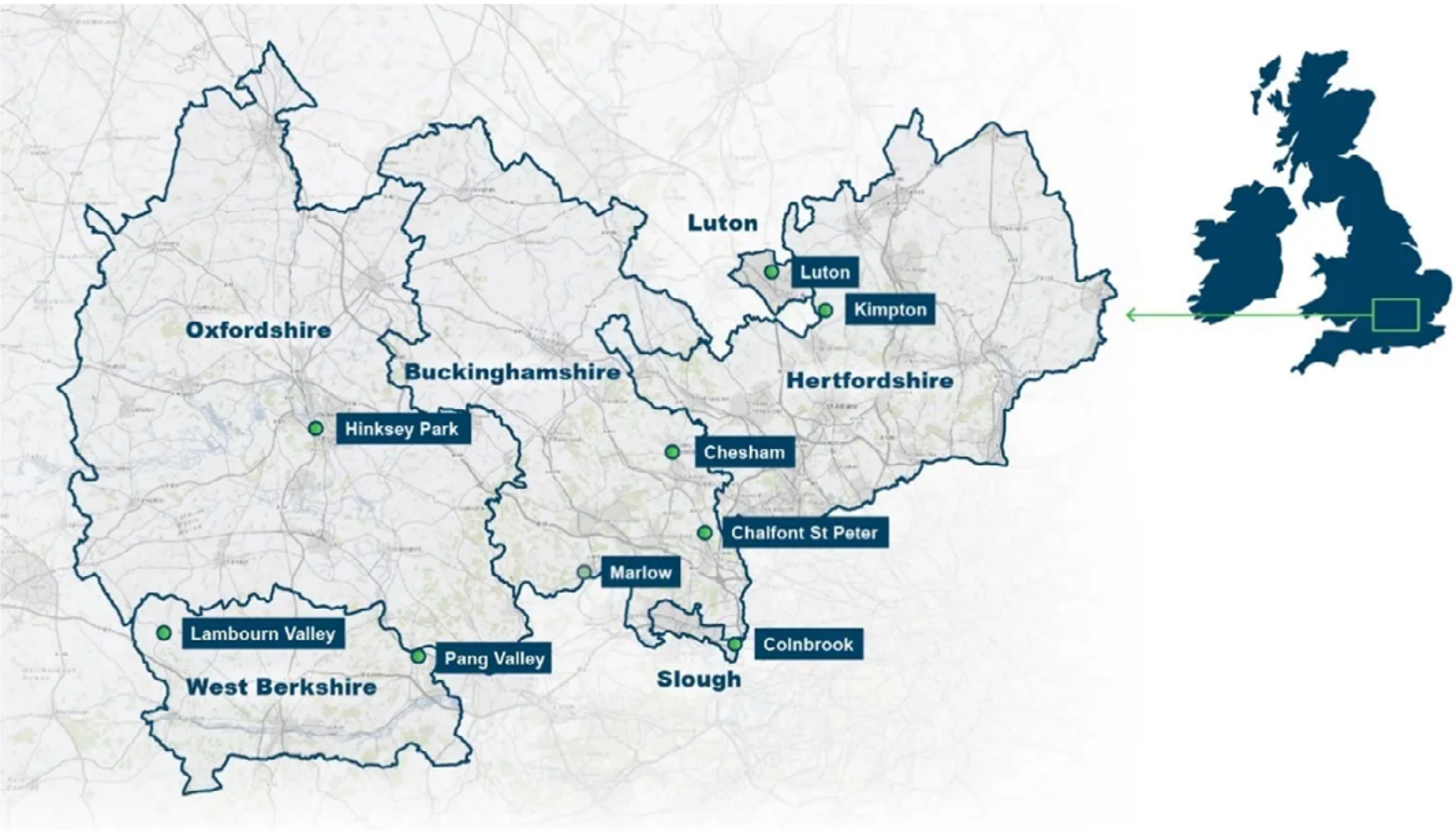
Buckinghamshire Council secured £7.3m funding from Defra's Flood and Coastal Resilience Innovation programme for Project Groundwater - focused on improving understanding, raising awareness, and increasing resilience to groundwater flooding.

£150M *Flood and Coastal Resilience Innovation Programme*

£36M *Coastal Transition Accelerator Programme*

£8M *Adaptation Pathways Programme*

Pilot communities



Map showing the nine pilot communities in our six local authority areas

Core Team



Project Groundwater partnership at our 2024 Annual Summit



Alex Beckett

Project Executive,
Project Groundwater

Alex Beckett joined us this year, to replace Karen Fisher who continues to support the project in a consultancy capacity. Alex has been managing Buckinghamshire Council's flood risk management teams since September 2024 and has a keen interest in sustainability. He drafted the Council's Climate Change and Air Quality Strategy, and mobilised and managed a programme to plant 543,000 trees. He also secured a £0.5 million grant from Defra to upcycle and electrify a refuse collection vehicle, and implemented a £1.9 million 'Energy Doctor' scheme that involves the installation of low-cost resource efficiency measures in low-income homes. He is looking forward to bringing his expertise to Project Groundwater.



Louise Bower

Project Lead,
Project Groundwater

Louise leads Project Groundwater, directing a complex, multi-partner innovation programme at the forefront of national thinking on groundwater flood risk. She brings over 16 years of experience in STEM and 12 years specialising in flood risk and water management, spanning fluvial, surface water and groundwater flood risk, sustainable drainage, natural flood management and property flood resilience. Before taking on her current role at Buckinghamshire Council, Louise served as Strategic Flood and Water Manager at Luton Borough Council, where she first became involved with Project Groundwater as Luton's local authority contact. That cross-authority perspective now informs her leadership of the programme today.

Core Team



Luciano Lopes

Project Team Leader,
Project Groundwater

Luciano is a skilled Project Manager with deep expertise in planning, scheduling and presenting project status to key stakeholders. Drawing on vast experience interpreting data and translating technical details for executive teams, he ensures plans stay on track for on-time, on-budget delivery. Luciano was brought into his current role to lead cross-functional coordination, maintain comprehensive documentation, govern budgets and resources, and keep leadership updated on risks/mitigations. His analytical capabilities and solutions-focused approach enable him to keep complexity behind the scenes while showcasing clarity to partners.



Luana Morais

Communications Assistant,
Project Groundwater

Luana joined Project Groundwater as an apprentice before taking on her current role as Communications Assistant in July 2025. She holds a degree in Zoology and a diploma in Animal Management, and brings a genuine interest in both environmental issues and community engagement to her work on the project. Her background includes volunteering with the RSPCA and serving as an ambassador for both her college and university. Since joining the team, Luana has developed her skills across a range of communications activities, supporting the project's engagement with communities and partners.



Tia Scott

Project Coordinator,
Project Groundwater

Tia brings two years of administrative experience at Buckinghamshire Council, most recently within the Domestic Resource Efficiency Service, to her role as Project Coordinator on Project Groundwater. She holds a diploma in Animal Care and Management, with a focus on conservation and ecology, and is drawn to roles where strong organisational skills can make a practical difference. On Project Groundwater, Tia supports the coordination of the project's activity while building relationships across the wide network of partners and specialists that the programme brings together.



Yui Khatti

Senior Flood Mitigation Officer,
Project Groundwater

Yui's career in nature-based solutions and environmental management has taken her from field research in the Canadian prairies to project and operational roles across the US and Thailand. That international background gave her a deep appreciation for the relationship between natural processes and human activity, and a strong belief in the power of collective action to drive meaningful environmental change. Returning to the environment sector, she now applies over 15 years of experience to flood risk management, and is particularly drawn to the pioneering work being done through Project Groundwater's Nature Based Solutions workstream.

Core Team



Andrew Waugh

Strategic Flood Management Team Leader, Buckinghamshire Council

Andrew has worked in Flood Risk Management for over 11 years in various roles for the Environment Agency and Buckinghamshire Council. Andrew is the Strategic Flood Management Team Leader for Buckinghamshire Council. He manages the statutory functions of the LLFA and works on building relationships with partners and local communities to manage investigations following flood incidents and deliver flood risk management projects. He has a particular interest in helping communities and residents reduce their own risk and builds on this to project manage the Resilience workstream of Project Groundwater.



Organisation and governance

Project Groundwater's work is developed and delivered by a range of partner organisations supporting a core team within Buckinghamshire Council.

Overseen by a programme board, the project is organised into nine technical workstreams which work in close collaboration.

An Engagement and Communications workstream and a Research workstream, provide overarching support across the project. This includes raising awareness, building and sharing understanding, and translating technical information into accessible language for the communities.

A Governance workstream monitors delivery and performance, oversees collaborations with other projects and drives legacy planning.

VISION

Project Groundwater will forever transform how communities prepare and respond to groundwater flooding.

MISSION

By working together, Project Groundwater is developing innovative and sustainable solutions to groundwater flooding that will:

- Share understanding and increase awareness
- Actively monitor flood events and improve warning systems
- Prepare communities to respond to and withstand flood events

VALUES

As a community-focused partnership, Project Groundwater is underpinned and directed by four core principles:

1. Collaboration

So that those impacted by groundwater flooding can be at the heart of everything we do.

2. Innovation

Because communities deserve the best service possible which existing systems and technology may not achieve.

3. Sustainability

Because the risk of groundwater flooding will continue into the future.

4. Transparency

Because we understand the real-world impacts of groundwater flooding and want to maintain people's trust in the project.

Project Groundwater is committed to embedding its values right across the partnership. Offering open and collaborative ways of working and embracing diverse backgrounds, skills, and personalities, has been essential to recognise that innovation isn't a learned skill and that everyone can make an equal contribution. This approach has helped to foster trust across all 36 partner organisations involved in the Project.

Our work

Project Groundwater has nine workstreams. Together, they are designed to deliver our vision of transforming how communities prepare and respond to groundwater flooding.

Engagement and Communications

Working with communities and businesses across our pilot areas to make sure the solutions we develop are collaborative, accessible and shaped by the people who need them most.

PAGE 11

Monitoring

Understanding and improving how groundwater levels are monitored, so we can build a clearer picture of where and when flooding is likely to occur.

PAGE 15

Modelling and Mapping

Modelling and mapping groundwater flood hazard across chalk and permeable superficial deposit areas, giving communities and decision-makers better information about their risk.

PAGE 18

Flood Warning

Developing a web-based flood warning service that gives communities timely, accessible alerts when groundwater flooding is likely.

PAGE 20

Resilience

Researching and testing innovative ways to help properties and communities become more resilient to groundwater flooding, including practical measures that households can install to reduce the impact of flood events.

PAGE 22

Nature Based Solutions

Exploring how nature based approaches and sustainable drainage systems can help manage groundwater flood risk while delivering wider benefits for rivers, land and communities.

PAGE 25

Planning

Working to ensure that groundwater flood risk is properly understood and addressed in the planning system, so that new development does not make the problem worse.

PAGE 28

Evaluation, Learning and Innovation

Making sure that innovation, honest evaluation and continuous learning run through everything we do, drawing on the experience of our communities and partners as we go.

PAGE 31

Research and Education

Building the evidence base on groundwater flooding and sharing what we learn, so that the benefits of Project Groundwater extend well beyond our nine pilot communities and the programme.

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Engagement and Communications

The engagement and communication workstream supports Project Groundwater's nine pilot communities to understand groundwater flood risk, take practical action and stay connected to the wider programme. In 2025, the team deepened relationships with local groups, reached new audiences, and played an active role in helping other workstreams engage communities effectively – all the while continuing to develop the project's communications channels, from the website and newsletters to the Groundwater Rising podcast and social media.

2025

Deepening engagement in our nine communities

Over the course of the year, the Community Engagement Delivery Team attended around 90 events and meetings, speaking directly with more than 1,200 people across our nine pilot communities. Some of these were project-led activities like the Luton Resilience Fair; others were stalls at summer fairs and Christmas markets, where showing up in familiar spaces made it easier for residents to share their experiences and find out about practical support.



Alongside this, we kept investing in the capacity of local groups to lead their own activity. The South Oxford Flood Action Group and the Chalfont St Peter Community Flood Group – both formed in 2024 – grew in confidence and profile during the year. South Oxford now has a live website, while Chalfont St Peter produced and distributed a Flood Awareness and Mitigation leaflet with practical advice on reducing pressure on sewers. We also piloted school engagement sessions for Year 5 and 6 pupils in Marlow, pairing a presentation with a hands-on activity that can be repeated and adapted for other communities.

To encourage locally led innovation, we promoted the Project Groundwater Community Innovation Fund early in the year. Four projects are now underway – in Chalfont St Peter, Chesham, Hinksey Park and Luton – each run by a local community organisation with light support from the engagement team. They are testing different approaches to groundwater flood resilience, and the learning from each will be valuable for other areas facing similar challenges.

Supporting other workstreams

The Engagement and Communications workstream continued to play a central role in supporting other parts of the programme.

Working closely with the Resilience workstream, we completed the Flood Experience Questionnaire (FEQ) campaign across all nine communities by March 2025. Leaflets went to households in Chalfont St Peter, Colnbrook with Poyle and Luton, with in-person support sessions in Chalfont St Peter and at the Luton Resilience Fair. The 276 completed responses gave the programme a much clearer picture of where risk is concentrated and what residents have already experienced – information that is now directly shaping which properties are prioritised for property flood resilience surveys and measures.

We also worked with the Alerts workstream on feedback for the trial groundwater warning service. After gathering comments from users and responding to queries, we ran an online feedback session with four residents alongside a panel including 3 Sided Cube (app developers), Jacobs (UK) and the British Geological Survey. Residents were direct about what they needed: better alignment with Environment Agency warnings, a simpler sign-up process, and clearer flood action plans specific to their community. That feedback drove a set of concrete improvements to the service, which launched on 3 December 2025, with the engagement team contributing community insight throughout and helping to recruit residents for user testing.

> ***"Seeing our social innovation research resonate with the Environment Agency and translate into practice has been really exciting. It's encouraging to see the industry recognise the importance of communication with communities – and the skills of engagement professionals."***
>
> *- Dr Sarah Fitton, Aurora Engagements*



We also supported the nature based solutions workstream to engage communities around proposed schemes in Chalfont St Peter, the Pang Valley and the Lambourn Valley – promoting the schemes at local events and helping to run a drop-in at Chalfont St Peter Community Centre, a webinar for Lambourn and a hybrid event in the Pang Valley. The feedback from residents in those sessions is now informing the next stage of concept design.

Strengthening communications channels

In 2025 we reviewed and improved the project's core communications channels.

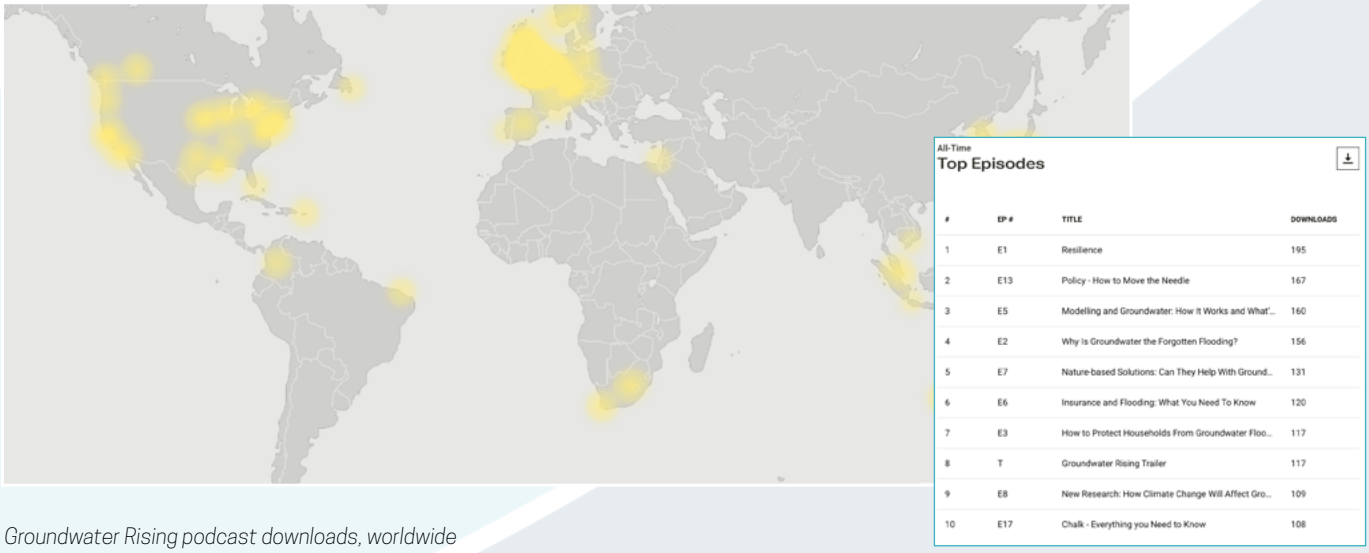
A website review workshop in April gave us a clear view on what was and wasn't working, drawing on analytics and user feedback. The result was a simpler navigation structure built around what people actually come to the site to find – "In Your Area", "Get Involved" and "Resources" – along with a dedicated resources page and refreshed community pages that make local information and contacts much easier to find.

We produced 10 community newsletters and two partner newsletters over the year. Technical problems with our mailing software disrupted some distributions, but we used other channels to keep key messages moving. The Groundwater Rising podcast had a strong year, with downloads up 31% on 2024 – episodes covering resilience, policy and groundwater modelling resonated particularly well, suggesting that audiences are engaged with both the practical detail and the bigger picture.

Social media activity focused on a small number of targeted campaigns rather than spreading effort too thinly. A campaign promoting the Community Innovation Fund and the launch of the Aardman animation together reached several million people and generated many millions of impressions, while a campaign for the nature based solutions concepts found new audiences with an interest in environmental approaches to flood risk.

Through the Research Practice Partnership, we also worked with the Research and Education team to share findings on social innovation, presenting at Flood and Coast 2025 and contributing to wider thinking on how engagement can support more collaborative flood risk management. Regular quarterly in-person meetings gave the workstream team space to reflect honestly on progress and work through shared challenges.

> ***"A real highlight has been the innovation fund: watching communities turn their own ideas into projects that are now nearly complete and already benefitting their neighbours is incredibly inspiring, and a strong legacy for Project Groundwater. Just as powerful has been seeing how much we can learn from residents – especially through their feedback on the warning service, which has been invaluable in improving it."***
>
> *- Jamie Neale, Project Manager, Groundwork South*



Groundwater Rising podcast downloads, worldwide

2026

Sustaining engagement and planning for legacy

As we move into the final year of the programme, the workstream's focus shifts towards sustaining what has been built and making sure the learning doesn't get lost when funding ends.

The social innovation paper *"Surfacing hidden social innovation for a hidden form of flood risk: the story of Project Groundwater"* has now been published in the Journal of Flood Risk Management and is freely available to read, here. We presented its findings at the ADEPT conference in January 2026 and will be sharing them again at Flood and Coast 2026 in June. Close-out reports for the workstream will also begin to take shape, pulling together lessons learned in a form that partners and others working on groundwater flooding can genuinely use.

We will continue looking for opportunities to reach new audiences, including sessions with Explorer Scouts and Scout groups and further school engagement in other communities. With the updated warning service now live, we will work with community contacts, local newsletters and outreach events to make sure residents know about the changes and feel confident signing up.

Equipping communities for the long term

Since December 2024, the engagement team has managed a small seed fund for community flood resilience activities, covering things like venue hire, printing and basic equipment.

Take-up has been lower than hoped, so we have reviewed the offer and are developing a Project Groundwater flood kit bundle – likely to include



two-way radios, head torches, high-visibility jackets and whistles – giving flood groups and wardens practical tools they can keep using beyond the life of the project.

Delivering the community elements of the legacy plan will be a priority, including continued support to existing flood action groups and skills-building through community training, flood plan workshops and a new groundwater flooding "mini module". We also hope to support communities that want to set up new flood groups or develop their own flood plans for the first time.

In the time we have remaining on the project, we want to strengthen connections between communities so they can share ideas and experience with each other directly – not just through us. Our ambition is that those relationships carry on after Project Groundwater ends, forming a meaningful part of what the project leaves behind. A final community survey is planned for autumn 2026, giving us time to analyse the findings and report on the project's impact before the programme closes.





Monitoring

The monitoring workstream is responsible for building and improving the groundwater level monitoring network that underpins Project Groundwater. Its work provides essential data for our modelling and mapping, the development of the new groundwater flood warning service, and for communities who need to understand what rising groundwater levels mean for them. Working with partners including the Environment Agency, Thames Water, the British Geological Survey (BGS), Cardiff University and Jacobs (UK) – which leads the modelling, monitoring and warning workstreams – the team focuses on making best use of existing networks while testing new approaches where they could add value.

2025

Making the most of existing monitoring networks

In 2024, the monitoring workstream worked with the Environment Agency to maximise the availability of chalk borehole data online, providing a stronger basis for groundwater hazard mapping and for the trial warning service.

In 2025, this data continued to provide the backbone for both activities, with daily groundwater level readings and borehole-based forecasts informing the development of the groundwater flood warning web application and helping to show residents how current conditions compare with previous flood events.

The team also continued to make use of Thames Water's monitoring of foul sewers where groundwater can infiltrate sewer systems. This data can help identify locations where high groundwater levels cause practical problems for communities and may be useful for future groundwater flood modelling.

Extending monitoring into nature-based schemes

Alongside the chalk network, 2025 saw important progress in monitoring for nature based solutions.

Working closely with Cardiff University, the programme installed baseline monitoring equipment in the Pang and Lambourn winterbourne catchments – including shallow groundwater boreholes, soil moisture sensors, rain gauges, monitoring cameras and initial water quality sampling.

This baseline data will give a clear picture of pre-restoration conditions, so that when the schemes are built, we can make meaningful comparisons and understand both their groundwater-related impacts and wider environmental benefits.

Exploring monitoring options in permeable superficial deposit (PSD) areas

In line with the plans set out in 2024, the workstream also began to explore how best to monitor groundwater flooding in communities located on permeable superficial deposits (PSD), where there is little or no dedicated groundwater monitoring.

Building on work in Hinksey Park and other locations where both groundwater and river monitoring are available, the team began using existing Environment Agency river level data to explore how far river levels can be used as an indicator for groundwater behaviour in PSD areas. Alongside this, the work has drawn on local knowledge of how flooding happens on the ground, combining community understanding of where and when water emerges and moves with river and groundwater level data.

This is informing the development of a conceptual model of groundwater behaviour in PSD areas, to be displayed visually, which will help determine where new boreholes are most needed and where making better use of existing river gauges may be sufficient.



Exploring drone technology for groundwater monitoring

The monitoring workstream is also investigating whether emerging technologies can provide new ways of measuring groundwater, particularly in places where traditional monitoring is difficult.

Working with ISS Aerospace, which specialises in uncrewed aerial systems, and BGS, the project is testing whether drones equipped with Ground-Penetrating Radar (GPR) and other sensors can detect groundwater levels in a way that could support future monitoring and flood forecasting.

In 2024, ISS Aerospace carried out a series of test flights using drone-mounted GPR equipment to investigate whether it could detect the depth of the water table, alongside comparative surveys using the same GPR system towed on the ground. During 2025, BGS continued the analysis of data collected from these trials.

Early findings suggest that:

- Drone-mounted GPR can detect underground features, but the signals are weaker and noisier than those collected from the same equipment towed along the ground.
- Ground-based GPR produces clearer results, although the water table itself is only faintly visible in this data.
- A key technical challenge for the aerial trials is knowing exactly how high the drone is flying above the ground, especially over uneven terrain, making it difficult to compare aerial readings with ground-based surveys and to interpret results reliably for groundwater monitoring purposes.

BGS is now exploring ways to improve height control and data correction so that drone-based results can be compared more accurately with ground-based measurements.

In parallel, BGS has begun a separate but closely related project in Chesham that uses a slightly different drone-based sensing approach to investigate groundwater levels. This work will provide additional insight into what role drone-mounted technologies might realistically play alongside more conventional monitoring networks in the future.

"Drones offer the tantalising prospect of seeing groundwater in places that are hard to reach – but our trials have underlined just how technically challenging that is. The combination of ISS Aerospace's flight capabilities and BGS's analysis has helped us move beyond the hype and understand what drone-mounted GPR can and cannot do for groundwater monitoring."

– Luciano Lopes, Project Groundwater – Project Manager, Buckinghamshire Council

2026



Towards a long-term monitoring legacy

In 2026, the monitoring workstream will continue to support both local delivery and programme-wide legacy.

The detailed chalk hazard mapping report and the PSD community studies will inform recommendations on how to invest in hazard mapping, monitoring and information in the longer term, particularly for areas where groundwater flooding is currently under-recognised. The PSD work will also leave behind a transferable method for other communities, showing how river and groundwater level data can be combined with local knowledge to build a clear, visual picture of where water comes from and where it flows during a flood event.

Ongoing monitoring in the Pang and Lambourn Valleys will track how the catchments respond once restoration works are complete, while the chalk borehole and river networks will continue to support both the groundwater flood warning service and wider modelling work.

The drones workstream will also publish detailed analysis of the GPR trials in a final report at the end of the programme. In 2026, the focus will be on:

- Completing BGS's analysis of the 2024–25 trial data and setting out clear conclusions on the feasibility and limitations of drone-mounted GPR for groundwater monitoring.
- Drawing together learning from the Chesham work and other related projects, so that any potential role for drone-based measurements can be understood in the context of wider monitoring and modelling needs.
- Sharing findings with partners and the wider sector, so that future decisions about investing in drone-based monitoring are informed by robust evidence rather than assumption.

By the end of the project, the aim is to leave partners with a clear view of what a robust, proportionate groundwater monitoring network should look like, one that brings together boreholes, rivers, nature based scheme monitoring and, where appropriate, more innovative methods such as drones, in a way that can be maintained beyond the life of Project Groundwater.



Modelling and Mapping

The modelling and mapping workstream is developing new ways to understand where groundwater can emerge, how it moves across the land surface, and what this means for communities at risk. Building on earlier work analysing groundwater levels across the chalk aquifer – the band of chalk bedrock underlying much of the Chilterns and Berkshire Downs – 2025 focused on bringing specialists together to test our approaches, and on learning from communities located above permeable superficial deposits (PSD), where groundwater behaves differently and interacts closely with river flooding.

2025

Bringing specialists together at the Modelling Summit

In April 2025 we held the Project Groundwater Modelling Summit, one of the first events of its kind dedicated to groundwater flood modelling and mapping.

It brought together leaders from across the field for what turned out to be an open and productive exchange on recent advances and shared challenges. We used it as an opportunity to present the detailed chalk hazard mapping work being developed for the Chilterns and Berkshire Downs and test our methods with peers. The discussions gave us strong validation of our overall approach for communities located on top of chalk, as well as a clearer sense of how to tackle the remaining technical challenges as we move towards making groundwater hazard mapping freely available.

Learning from communities in permeable superficial deposit areas

Groundwater hazard mapping for communities underlain by PSDs can be more complex than for chalk, but there are useful overlaps with information already available for the large rivers that drive PSD groundwater flooding.

To explore this, we worked with the Hinksey Park community to review their experience of using existing information, including Environment Agency flood maps – assessing together which elements were most useful, where the gaps were, and how groundwater flooding could be represented in a way that makes practical sense locally. Those lessons are now being applied in similar work in Marlow and Colnbrook with Poyle, helping us build a clearer picture of how best to invest in hazard mapping and information for PSD communities more widely.

2026

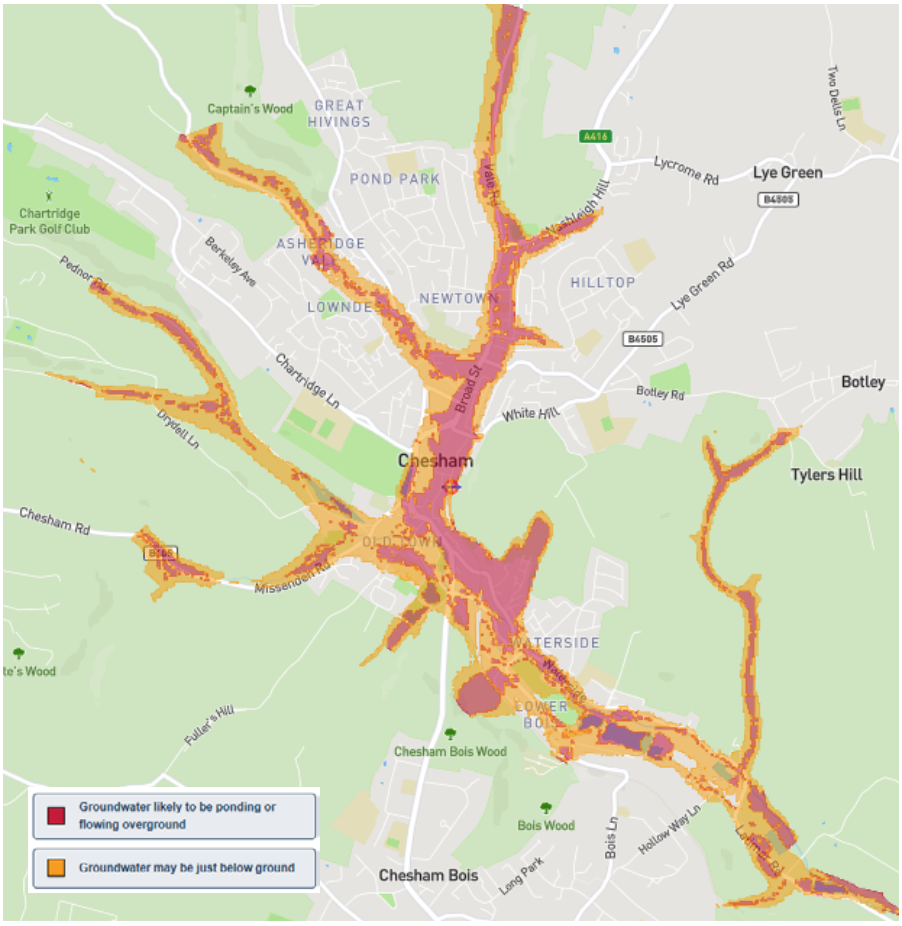
Next steps for hazard mapping

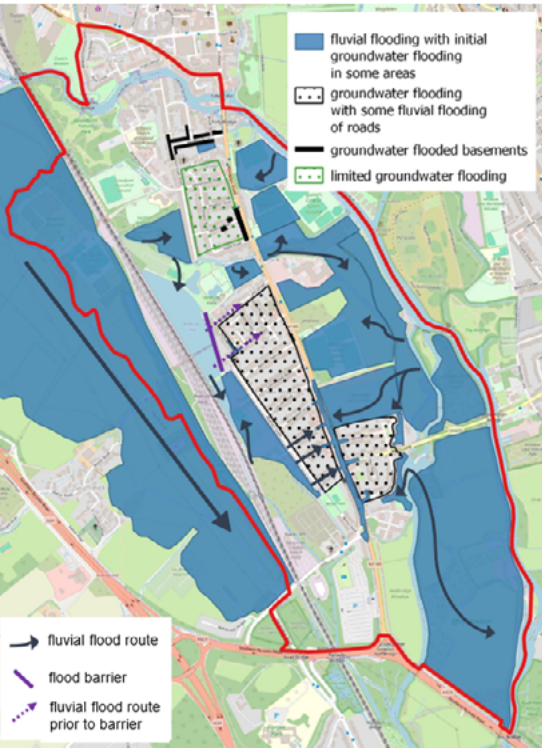
In 2026, the technical report on detailed chalk hazard mapping, showcased at the Modelling Summit, will be finalised and will form the basis for discussions with the Environment Agency about how this work can continue and evolve beyond the life of Project Groundwater.

We will also complete the PSD community studies and share recommendations on how best to represent and manage this often overlooked form of groundwater flooding. These findings will help steer future investment in hazard mapping, monitoring and information for PSD areas, ensuring that the insights gained with communities like New Hinksey, Marlow and Colnbrook with Poyle can benefit other places facing similar risks.

"The Modelling Summit was one of the first events of its type to bring together a diverse range of leaders in this specialist field. The meeting was characterised by openness to share technical challenges and solutions for the benefit of communities at risk. As Project Groundwater looks to report findings back to the Environment Agency and Defra to steer future investment in Flood and Coastal Erosion Risk Management, having a strong, diverse and focussed group of technical specialists will be extremely valuable."

- David Cobby, Jacobs (UK)







Flood Warning

The flood warning workstream is developing and trialing a dedicated groundwater flood warning service for communities in the Project Groundwater area. The aim is to give residents clear, timely information about rising groundwater levels, how current conditions compare with past flood events, and what this means for them, so they can take practical action to prepare.

2025

Improving the trial groundwater flood warning service

In 2025, the workstream concentrated on refining the trial service in response to user feedback and technical advances, and the updated version that launched on 4th December 2025 reflects both.

The interface is cleaner and clearer, making it easier for users to understand what is happening and what they need to do, while the sign-up process has been simplified so that more residents can register quickly and confidently, knowing their personal data is held safely and securely.

The updated application now shows how current groundwater levels relate to past flood events, helping users judge whether conditions are typical, unusually high, or comparable to previous flooding. A dynamic flood map and borehole location information give a more intuitive picture of where groundwater may emerge and spread. Behind the scenes, the British Geological Survey (BGS) completed a thorough review of which boreholes are most useful for monitoring and warning in each community, strengthening the technical foundations the service relies on.

The BGS also worked with app developers 3 Sided Cube to develop ways of displaying information about the confidence users can place in groundwater level forecasts. This recognises that no forecast is perfect and aims to help users interpret what they are seeing based on the best information available.

2026

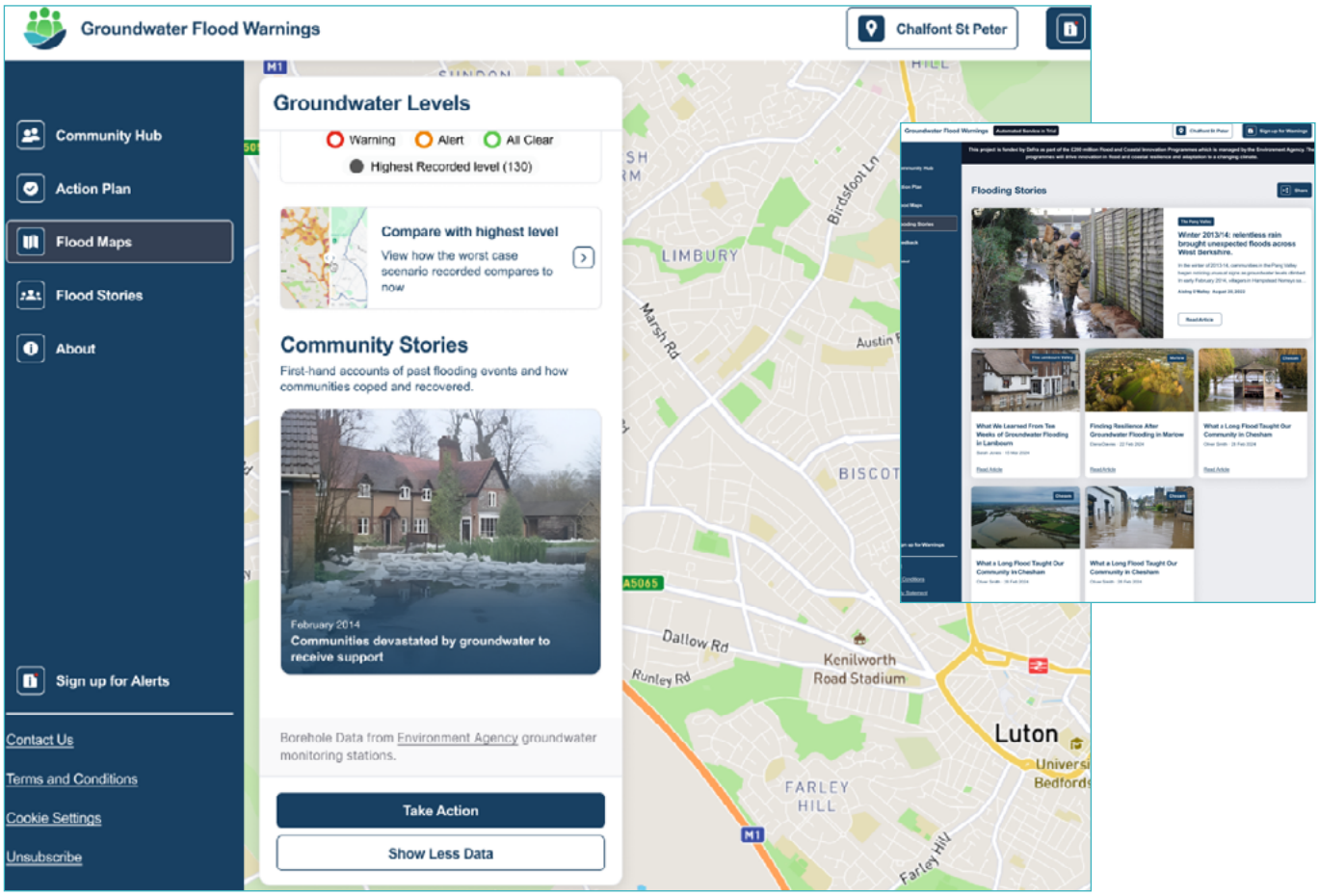
Next steps for the warning service

In 2026, the workstream will continue to develop the web application and work towards agreeing the long-term arrangements for groundwater flood warnings, with the trial service running through to the end of March 2027.

Integrating the confidence information developed with BGS into how forecasts are displayed will be an early priority, so that users can see at a glance how much weight to place on what they are reading. The team also plans to bring community stories into the service, adding real-world context alongside the data to help people understand what a warning actually means for their street and their neighbourhood.

Alongside the technical work, the workstream will focus on building users' understanding of flood data more generally, so that the service supports informed decisions rather than just delivering numbers. In parallel, ongoing conversations with the Environment Agency will work towards agreeing the strategic direction for groundwater flood warnings, including how the trial service can align with and contribute to national approaches, and how the lessons learned through Project Groundwater can shape how groundwater flood risk is communicated more widely in future.

Our trial groundwater flood warning service was awarded 'Highly Commended' for Digital Excellence at Flood & Coast 2025, recognising our work to make warnings more visually accessible, intuitive and easy to use, with everything people need to prepare for groundwater flooding at their fingertips.





Resilience

The resilience workstream focuses on understanding where groundwater flooding causes the greatest impacts, and on putting in place measures that help households and communities prepare, respond and recover. In 2025, the workstream concentrated on distributing the Flood Experience Questionnaire (FEQ), using the findings to identify households most at risk, and carrying out detailed Property Flood Resilience (PFR) surveys. By the end of the year, a ringfenced pot of funding was in place and the groundwork laid for installing measures from 2026 onwards.

2025

Understanding who is most at risk

A major milestone in 2025 was completing the FEQ across all nine pilot communities, with 276 responses received, including a number from residents living outside the original project boundaries.

Responses came from every community, reflecting a wide range of experiences and concerns. The questionnaire captured people's past exposure to flooding, the scale of the impacts they had faced, and the steps they had already taken to prepare. This information, combined with technical data on groundwater flood risk, gave the team a much clearer picture of where resilience measures could have the greatest benefit.



Using this insight, the workstream carried out a screening exercise to identify properties that were both at higher risk of groundwater flooding and likely to offer valuable opportunities for introducing innovative resilience measures. Rather than treating all households in the same way, this approach allowed the team to focus on those locations where measures could meaningfully reduce risk and where learning would be most useful for other areas.

Surveying properties for resilience measures

On the basis of the screening work, more than 120 offers of Property Flood Resilience surveys were issued to eligible households.

Between spring and autumn 2025, RAB Consultants carried out 71 surveys across eight of the nine pilot communities, each involving a detailed assessment of the property, conversations with residents about their experience of flooding, and consideration of the most appropriate resilience options.

The team used this as an opportunity to strengthen the existing survey methodology. Property Flood Resilience (PFR) reports now include clearer information about groundwater flood risk, drawing on new data developed by Jacobs



through Project Groundwater, and signpost residents to the groundwater flood warning service where it is available. All reports were shared directly with residents, giving each household a tailored summary of their risk and the measures that could help.

Once the majority of surveys were completed towards the end of summer, the workstream brought together project partners and external specialists in a technical working group to review what was emerging. Discussions focused on opportunities for bespoke groundwater resilience measures, including how designs might need to differ from those developed for other types of flooding. The findings are helping to shape both the next phase of work and the eventual guidance materials.

Preparing for installation

In autumn 2025, attention turned to the practicalities of getting measures installed.

A ringfenced pot of funding was created to cover PFR works across the pilot communities, and a tender was prepared and issued to a select number of specialist contractors in December 2025. Two responses were received and evaluated in late January and early February, and a contractor has now been appointed. Work is expected to commence in March 2026.

"On a project this scale it can be easy to feel far removed from the people we're trying to help. Undertaking PFR surveys in person has grounded our work in the real-world risks and impacts of groundwater flooding, and helped us focus on our core objective: increasing resilience for those who need it most."

- Rob Pike, RAB Consultants

2026

Installing measures and sharing learning

In 2026, the Resilience workstream moves from assessment to installation.

With a contractor now appointed, the programme aims to finalise options and install PFR measures by early autumn 2026. RAB Consultants will carry out Post-Installation Audits to verify that measures have been installed correctly and provide confidence they will perform as intended.

Alongside the physical works, the team held community engagement events in in February 2026, with 64 attendees across three days. The sessions gave eligible property owners a chance to find out more about the measures being proposed and how they can help, and were open to the wider community too. The quality of conversation at all three events was encouraging, with residents engaging seriously with both the practical options available and the broader realities of groundwater flood risk.

Building a legacy of practical tools

A key focus for 2026 will be drawing together the learning from the FEQ, the PFR surveys and the technical discussions, into materials that others can genuinely use.

The team will finalise and publish the FEQ Summary Report and develop a Case Study and Gap Analysis Report setting out the main findings and lessons learned. These will highlight where measures are likely to be most effective, where barriers remain, and what further work may be needed.

The workstream will also prepare groundwater flood toolkits, bringing together practical advice, examples and tools to help people understand and manage groundwater flood risk. Intended as a key legacy output from the workstream, these toolkits are designed to ensure that the knowledge built through Project Groundwater can continue to be applied by the communities impacted by groundwater, and flood risk professionals, after the project ends in 2027.









Nature Based Solutions

The nature based solutions (NBS) workstream explores how natural processes can help manage groundwater and deliver wider benefits for rivers, land and communities. In May 2025, the Project Groundwater Board approved three shortlisted concept schemes, two of which have been taken forward to design and build. The year was spent refining these ideas through local engagement, progressing technical designs and putting monitoring in place so we can understand how the schemes perform once built.

2025

Developing schemes with local partners

The two schemes taken forward were winterbourne restoration projects in the Upper Pang and Upper Lambourn Valleys.

A sustainable drainage scheme at Gold Hill Common in Chalfont St Peter was also considered but, following further community consultation, this scheme was not taken forward. An application was submitted to Thames Water for funding for a rainwater planter scheme in Market Place as an alternative.

In the Upper Pang Valley and Upper Lambourn, moving from concept to design meant working closely with local stakeholders, landowners and residents to share initial ideas and listen to what mattered to them. A series of in-person and online engagement events in autumn 2025, held in both catchments, helped identify local priorities, questions and concerns, and the evolving designs have been shaped by what came out of those conversations.

Building on this engagement, JBA Consulting produced design packs for the two winterbourne restoration schemes. The designs aim to restore more natural flow paths and wet habitats while also helping to manage emergent groundwater, balancing technical requirements with what communities value about their rivers and landscapes. The contract to finalise the detailed design and to build the winterbourne restoration schemes was awarded to FiveRivers.



We also developed a technical guidance note on "Sustainable Drainage Systems (SuDS) in groundwater risk areas", led by JBA Consulting in collaboration with Bridget Woods-Ballard of HR Wallingford, author of the Construction Industry Research and Information Association SuDS Manual. The note reviews current best practice and explores how guidance could be developed further to enable better SuDS design in areas affected by high groundwater, feeding directly into the outputs of the Planning workstream and helping planners and developers make more informed decisions.

Monitoring change in winterbourne catchments

To understand the effects of the schemes, we worked with Cardiff University to develop a monitoring plan for the Upper Pang and Upper Lambourn.

In November 2025, baseline monitoring equipment was installed across both catchments, including shallow groundwater boreholes at approximately two metres below ground surface, soil moisture sensors, rain gauges and wildlife field cameras, with initial water quality sampling also getting underway. Water quality monitoring is focused initially on agricultural runoff pollutants and microplastics from road runoff, with the potential to broaden the scope of analysis as the monitoring programme develops. This baseline data is essential, giving us a clear picture of conditions before restoration so we can make meaningful comparisons once the works are complete and assess both groundwater interactions and wider environmental benefits.

> ***"It was a real highlight to see our winterbourne schemes align with sustainable farming and river restoration. Working with stakeholders showed us that, while nature-based solutions can't 'solve' groundwater flooding, they can help manage it while delivering wider benefits for nature, water, and community resilience under climate change pressures."***
>
> *- Yui Khatti, Buckinghamshire Council*

Sharing learning with practitioners

Throughout the year, we shared emerging findings from the workstream with the wider flood and water management community, presenting at the Temporary Rivers Conference 2025, Flood and Coast 2025 and presented a conference paper at the Irish National Hydrology Conference 2025.

These presentations helped raise the profile of groundwater-related challenges in chalk catchments and opened up useful discussion about where nature based approaches can and cannot play a role.



2026



Building and monitoring the schemes

In 2026, the focus moves from design to delivery. FiveRivers have been appointed to deliver the Upper Pang and Lambourn winterbourne restoration schemes, with contracts now in place.

Detailed design work gets underway in March 2026, with construction due to complete by early autumn 2026. Cardiff University will continue baseline monitoring through the first half of the year, using the installed sensors and field visits to build a detailed picture of pre-restoration conditions, with additional monitoring equipment installed once the works are complete to track how the catchments respond.

The learning from this programme of engagement, design, construction and monitoring is expected to be valuable well beyond Project Groundwater, supporting partners and the wider sector as they consider nature based solutions in groundwater-affected areas - especially in chalk catchments - providing a useful reference point for future projects.





Planning

The planning workstream aims to ensure that groundwater flood risk is properly understood and addressed in the development planning system. It does this by clarifying the current legal and policy context, developing practical principles and guidance, and working with planners, developers and other professionals who shape how places grow. In 2025, the workstream refined and tested its principles for managing groundwater flood risk in planning, completed a major phase of research, and expanded its influence through targeted engagement with key parts of the planning community.

2025

Developing and testing principles for managing groundwater flood risk

During 2025, the workstream built on the initial set of principles it had developed for managing groundwater flood risk in the planning system.

These principles are intended to underpin future guidance, setting out how groundwater flooding should be recognised and considered at different stages of plan-making and decision-taking.

Working with the Planning Working Group, the team refined the principles by drawing on the practical experience of planners and flood risk specialists from partner authorities. They were also tested with a wider audience at the Flood and Coast Conference, where two workshops explored how the UK Government's ambitious growth plans can be made groundwater flood resilient. The feedback from those discussions helped to strengthen the principles and clarify where they could add most value in practice, and by the end of the year they were finalised and ready to inform the next phase of guidance development.



> ***"A real highlight has been gaining traction with the wider planning community, contributing groundwater flood risk content and a case study to the TCPA's Planning for Flood Risk and writing an RTPI blog on tackling groundwater risk in planning policy, giving our work direct access to planners through two of their key institutions."***
>
> *- Fola Ogunyoye, TJAY Consultancy*

Understanding the current planning context

A key output in 2025 was the completion of a Phase 2 report and a Phase 3 plan for the workstream.

The Phase 2 report brings together findings from a detailed literature review and engagement with practitioners, painting a clear picture of where groundwater risk is recognised in the planning system, where it tends to get overlooked, and what barriers stand in the way of it being properly considered. It also identifies the gaps, challenges and opportunities that the workstream can respond to.

Building on this, the Phase 3 plan sets out how the workstream will turn those findings into action, through guidance development and targeted influencing. It outlines the intended scope of the guidance, the audiences it will serve, and the routes through which the workstream will seek to secure lasting change in policy and practice.

Wider engagement and influencing

In 2025, the workstream broadened its engagement to reach more of the people who shape the planning system, particularly planners and developers.

In March, the team ran a workshop with the Home Builders Federation's south regional planning forum, exploring how developers currently think about groundwater flooding and what support they would need to do more.

At the Flood and Coast Conference in June, the workstream ran two workshops and took part in a panel session focused on making government growth ambitions groundwater flood resilient. These sessions helped build awareness of the specific challenges groundwater flooding presents and generated genuine interest in the forthcoming guidance.

The workstream also made inroads into key publications and professional platforms. It provided significant input and a case study on groundwater flood risk for the Town and Country Planning Association's (TCPA) "Planning for Flood Risk" publication, part of its Planning for Climate Crisis series, published in December 2025. A blog titled "From unknown to action: tackling groundwater flood risk in planning policy" was also published for the Royal Town Planning Institute (RTPI). Together, these give the workstream's findings direct access to a much wider planning audience through two of the sector's most influential institutions.



2026



Agreeing the scope of guidance

In 2026, the workstream will focus on turning its principles and research into practical guidance that can be used across the planning system.

An early priority will be a workshop with key users to test the proposed focus and structure, gather input on what people need most, and agree the overall direction of travel before development begins in earnest.

Developing and testing guidance

Once the scope is agreed, guidance will be developed in batches, with draft sections shared with the Working Group and other key users for review, examples and steer.

This iterative, co-created approach is intended to produce guidance that is both technically sound and grounded in real planning practice, making it more likely to be picked up and used. Case studies and illustrative examples will show how the guidance applies in practice.

Widening engagement and securing legacy

Alongside developing the guidance, the workstream will deepen its engagement with organisations that can help secure a lasting legacy for the work.

This includes conversations with government departments such as Defra and the Ministry of Housing, Communities and Local Government on potential policy and legislative changes, and with agencies and professional bodies that produce national guidance and tools, including the Environment Agency, Construction Industry Research and Information Association (CIRIA), the TCPA, the RTPI, Chartered Institution of Water and Environmental Management (CIWEM) and the Home Builders Federation.

By working with these organisations, the team aims to ensure that the lessons from Project Groundwater are reflected in future national and sectoral guidance, design tools and professional practice, so that groundwater flood risk is more consistently considered in planning decisions in the years ahead.

Disseminating guidance and learning

As the guidance takes shape, the workstream will share interim learning through articles, blogs, conferences and workshops, both within and beyond the Project Groundwater area, helping to prepare the ground and encourage early adopters.

Following publication, a more focused phase of dissemination will use professional networks, events and online channels to reach the widest possible audience.

The aim is that, by the end of the project, planners and other professionals across the country have access to clear, practical advice on how to recognise and manage groundwater flood risk through the planning system.



Evaluation, Learning and Innovation

The evaluation, learning and innovation (ELI) workstream ensures that innovation, honest evaluation, and continuous learning run through everything we do. It supports workstreams to reflect, challenge assumptions and share learning in ways that strengthen Project Groundwater's impact and legacy. In 2024, the workstream also began shaping a Community Flood Resilience Framework, led at the time by McGregor Coxall, building on early scoping work by AxiaOrigin. The Framework brings together what we know about different parts of community life so that communities and partners can see how well prepared they are for groundwater flooding and where they may need more support.

2025

Setback and recovery

A significant setback in 2025 was the loss of McGregor Coxall, the delivery partner responsible for the Resilience Framework.

Having completed Step 1 in 2024 (definitions, indicators and gap analysis), they were unable to continue, meaning planned progress towards Steps 2 and 3 (evaluation, scoring and sharing results via maps and dashboards) did not move forward as scheduled.

Despite this, Workstream Leads continued to collect and organise the data needed for the framework, stabilising the evidence base so work can resume once a new partner is in place. The core principles underpinning the framework - understanding resilience across different "Capitals", developing meaningful indicators and ensuring community-centred evaluation - remain unchanged.

Negotiations underway with a new delivery partner

Discussions began in late 2025 with potential new delivery partners with the expertise to complete the analysis and finalise the Resilience Framework.

The current expectation is that a new partner will be appointed by end of Year 6, Quarter 1, allowing the framework development to restart with minimal loss of momentum.

This revised programme still aligns with the overall timeline for Project Groundwater's legacy planning, ensuring that the framework can be completed, tested and shared before programme close.

2026

Restarting the Resilience Framework and securing legacy outputs

With a new delivery partner expected to be appointed by end of Y6 Q1, the ELI workstream will focus on:

- Restarting development of the Resilience Framework, including analysis and structured evaluation of resilience indicators.
- Working with communities and workstreams to test and refine framework outputs once analysis resumes.
- Preparing final learning packages and best-practice guidance on innovation, evaluation and reflective working, supporting Project Groundwater's long-term legacy.
- Ensuring that insights gathered across multiple workstreams – including social innovation research, monitoring, hazard mapping, resilience measures and community engagement – are synthesised and shared through accessible guidance, case studies and sector presentations.

By programme close, the aim remains the same: a robust set of tools, learning and evidence that supports communities, practitioners and decision-makers to understand and strengthen groundwater flood resilience.



"Losing a key delivery partner is always challenging, but the strength of the ELI culture we've built meant teams kept moving – continuing to collect data, refine indicators and collaborate on what comes next. It has been encouraging to see how committed everyone remains to producing a Resilience Framework that communities and practitioners can genuinely use."

– Luciano Lopes, Project Groundwater – Project Manager, Buckinghamshire Council





Research and Education

The research and education workstream brings together Project Groundwater's academic partners to build an evidence base on groundwater flooding, resilience and social innovation. It supports PhD and Masters research, collaborative studies on how communities and institutions respond to flood risk, and the sharing of learning through conferences and publications. In 2025, this work came to fruition in several areas, with a major PhD thesis completed, new research on climate change and groundwater flooding, and an accepted journal article on social innovation in flood risk management.

2025

Advancing research with university partners

Project Groundwater's research partnerships with the Open University and the University of the West of England (UWE) continued to bear fruit throughout 2025.

Our funded PhD researcher, Claude Nsobya, completed the third and final year of his programme and submitted his thesis on community involvement in flood risk management, while Masters-level research at UWE examined how groundwater flooding might change under future climate scenarios. The Research Practice Partnership on social innovation also delivered findings that are already beginning to shift thinking across the sector.

Claude's PhD on community involvement and resilience

During 2025, Claude brought together years of fieldwork and analysis into a thesis of around 100,000 words.

His research compares Project Groundwater with a government-led project in Uganda, exploring how community involvement shapes flood resilience in very different settings, and finds that knowledge, skills, leadership, relationships and networks within communities are all central to building resilience.

The thesis makes a strong case for permanent structures linking community and government actors, increased and sustained community funding, and ongoing collaboration between flood risk managers and specialists in social and community work. These are findings that will inform

Project Groundwater's legacy work, but they speak to much wider practice in community engagement and flood risk management too.

Alongside writing his thesis, Claude continued to share his work internationally with his supervisory team. In 2025 he presented at events including the International Sustainable Development Research Society (ISDRS) conference "Sustainability and Beyond" at the University of Budapest, and at the Universitat Politècnica de Catalunya in Barcelona. His presentations focused on the role of social structures – such as flood forums and community groups in England, and co-operatives in Uganda – and on the wider significance of community involvement in flood risk management.

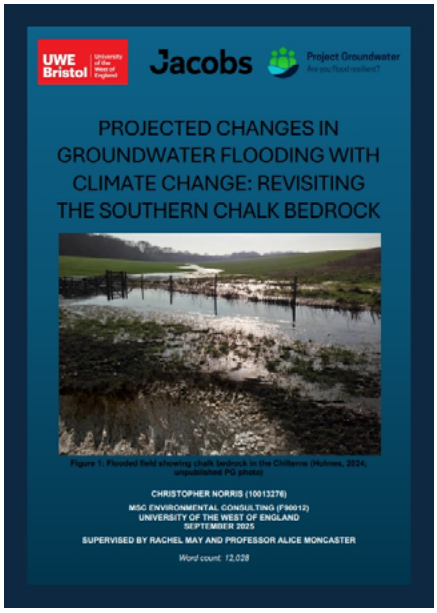
Claude has also been lead author on an article in Hydrolink, the journal of the International Association for Hydro-Environment Engineering and Research (IAHR), co-authored with a participant from Uganda's Ministry of Water and Environment. The paper examines the roles and benefits of community involvement in implementing natural flood management in the Maziba catchment, strengthening international links and highlighting the transferability of lessons between contexts.

"Claude's PhD brought together years of study, time spent with communities in Buckinghamshire and Uganda, and a strong commitment to keeping people's voices at the centre of flood resilience research."

- Karen Potter, The Open University

Masters research on climate change and groundwater flooding

The 2024–25 Project Groundwater MSc student, Chris Norris, worked with Jacobs and a previous MSc student, Rachel May (now at Jacobs), to produce a dissertation titled "Projected Changes in Groundwater Flooding with Climate Change: Revisiting the Southern Chalk Bedrock".



Supervised by UWE, Chris assessed six boreholes and investigated how groundwater flooding might change under different climate projections.

His analysis suggests that groundwater flooding is likely to change in the boreholes studied as a result of climate change. In particular, rates at which groundwater levels rise are projected to increase from around 2050, especially under more extreme emissions scenarios.

Although the findings on flood duration are less conclusive, there are indications that duration may decrease in some locations. Chris recommends further research across a wider set of chalk boreholes, underlining the need for ongoing monitoring and analysis as the climate changes.

Social innovation and sector influence

The participatory research on social innovation, delivered through the Research Practice Partnership between the Open University, Aurora Engagements (Dr Sarah Fitton) and Groundwork, also moved forward significantly in 2025.

This work makes the case that building community resilience is a social as well as a technical challenge, one that requires new forms of collaboration and relationship-building that often go unrecognised in day-to-day practice.

The research highlights the role of dissemination skills in the project – demonstrating how the podcast series and Aardman/Darcy's Tale animation help communicate effectively with communities who may have little awareness of their risk, by enabling a more personalised connection and helping to make technical knowledge more accessible and meaningful.

It also finds that what made Project Groundwater distinctive was the way technical and engagement workstreams worked alongside each



"Being selected for Research Image of the Month is deeply meaningful to me. It validates the work these communities are doing and helps amplify their voices. It's imperative to utilise local knowledge and hear lived experience in our research to ensure the sustainability of solutions."

- Claude Nsobya, The Open University

other and with communities, rather than separately. This combined approach meant that technical knowledge could be communicated effectively, and that communities were genuinely involved in decisions rather than presented with conclusions – something that rarely happens when the two disciplines work in isolation.

The team presented their findings at the Flood and Coast Conference in Telford, and at an Association of Directors of Environment, Economy, Planning & Transport (ADEPT) webinar focused on moving from awareness-raising to authentic dialogue, trust-building and empowering communities in decision-making - sharing real-world lessons with local authority place directors and their teams across the country. Their paper "Surfacing hidden social innovation for a hidden form of flood risk: the story of Project Groundwater" has now been published as open access in the Journal of Flood Risk Management and is freely available to read, providing a useful reference for others working at the intersection of technical and social aspects of flood risk.

Karen Potter also contributed to wider sector debates as a panellist at CIWEM's Rivers and Coastal Group 75th Anniversary Technical Conference in London, in a session on "Planning Policy to Resilience: Unpacking Flood Risk and Insurance". For Project Groundwater, she has produced a draft report outlining concerns about exclusions from the Flood Re insurance scheme (for example, properties built from 2009), and about affordability for tenants and low-income households when premiums rise after a flood event. These concerns highlight how difficulties accessing insurance, or insurers not supporting "build back better", can undermine the uptake of property flood resilience and point to the need for better understanding of communities' experiences of insurance and flood risk.



2026

Completing and extending the research

In 2026, Claude's supervisory team will convene an examination panel for his viva voce, where he will defend his thesis and, subject to a successful examination, receive his doctorate, marking the formal completion of Project Groundwater's flagship research programme.

Further Masters students at UWE will begin dissertations drawing on the project's data and case studies, keeping groundwater flooding and community resilience on the academic agenda beyond the lifetime of the project itself.

Disseminating social innovation learning

Karen and Sarah have developed a dissemination plan for their social innovation research, spanning presentations, webinars and written outputs for both academic and practitioner audiences.

In 2026 they will continue sharing Project Groundwater's learning and making the case for culture change within flood risk management, particularly around the value of community engagement and genuine collaboration between technical and social expertise.

By the end of the project, the research and education workstream aims to leave behind a substantial body of published research, international and national presentations, and enduring relationships with universities and research networks, providing an evidence base that keeps social and community dimensions at the centre of how flood resilience is understood and built.



Our Partners

Project Groundwater is made up of a variety of partners whose expertise are contributing to the knowledge and delivery of the project.

Aurora Engagements is a small, responsive consultancy working at the interface between academia and industry, delivering people-centred stakeholder engagement and social value advice to clients in the built environment. Aurora Engagements leads the Engagement workstream for Project Groundwater and works closely with Groundwork to deliver engagement activities across the pilot communities.

AxiaOrigin is a values-driven management consultancy specialising in complex strategic and analytical problems, through innovative approaches to data science and analytics. AxiaOrigin leads the Evaluation, Learning and Innovation workstream for Project Groundwater, embedding these principles consistently across all workstreams.

British Geological Survey (BGS) are a world-leading independent research organisation providing objective, expert geoscientific data, information and knowledge. With deep expertise in hydrogeology and groundwater modelling, and as the supplier of the national groundwater flood forecasting service for the Flood Forecasting Centre, BGS is helping to develop the groundwater forecasting system that underpins our early warning service

The River Chess Smarter Water Catchment aims to protect the health of the Chess as a rare chalk stream, from conservation on the river to more sustainable water consumption across the catchment. As our project areas overlap, we are working together on joint engagement opportunities and research.

Andrew Rainsford is an experienced project fund builder who explores all dimensions of a potential project to maximise reach for funders, working in both a reactive and proactive capacity and aiming to leave partner organisations with greater capacity than when he found them.

Environment Agency funds Project Groundwater through Defra's £150 million Flood and Coastal Resilience Innovation Programme. We work closely with the Environment Agency throughout the project, reporting our progress and ensuring we meet our targets.

Our Partners

Groundwork South works across the South of England to create stronger, healthier communities, responsible businesses and greater prospects for local people. For Project Groundwater, Groundwork South engages with communities to ensure that the measures developed and activities undertaken are collaborative and participatory across all nine pilot areas.

Hertfordshire County Council is the local authority for one of our pilot communities, Kimpton, supporting delivery and engagement in their region.

FloodMary is a flood consultancy established by Mary Long-Dhonau OBE to champion property flood resilience. Having personally experienced flooding and built up a wealth of experience supporting communities at risk, Mary supports Project Groundwater in an advisory capacity.

The Open University, based in Milton Keynes, is partnering with Project Groundwater as an academic institution conducting empirical research on groundwater flood resilience, strengthening the evidence base in an area that has not been extensively studied.

Oxfordshire County Council is the local authority for one of our pilot communities, Hinksey Park, supporting delivery and engagement in their region.

RAB Consultants was established in 2006 with a dedication to increasing resilience and reducing flood risk. RAB leads the Resilience workstream for Project Groundwater, co-developing, testing and implementing cost-effective and innovative property flood resilience techniques and community measures to improve resilience to groundwater flooding.

Slough Borough Council is the local authority for one of our pilot communities, Colnbrook, supporting delivery and engagement in their region.

Thames Flood and Coastal Committee (RFCC) brings together Lead Local Flood Authorities and independent members with the Environm Regional ent Agency to ensure effective collaboration. We report our progress to the RFCC, ensuring we meet our targets.

Thames Water is the water and sewerage provider for the Chiltern Hills and Berkshire Downs. As groundwater flooding frequently impacts sewer systems, Thames Water has partnered with Project Groundwater to support groundwater management opportunities across the area.

Our Partners

JBA Consulting is a multidisciplinary consultancy combining analytical, engineering, social and nature-inspired solutions to help clients adapt to and build resilience to climate change. JBA has supported the Nature Based Solutions and Planning workstreams of Project Groundwater, helping to explore how nature based solutions can be applied in groundwater risk areas and how groundwater risk is addressed through the planning system.

Jacobs aims to make the world smarter, more connected and more sustainable through consulting, technical, scientific and project delivery services. As Senior Supplier on Project Groundwater, Jacobs leads the modelling, monitoring and warning workstreams and provides advice on communications.

West Berkshire Council is the local authority for two of our pilot communities, Lambourn Valley and Pang Valley, supporting delivery and engagement in their region.

Luton Council is the local authority for one of our pilot communities, Luton, supporting delivery and engagement in their region.

HR Wallingford are experts in how water moves, behaves and influences communities and industries. As a non-profit distributing company and registered research institution, they reinvest profits into research and bring specialist expertise in sustainable drainage systems to support the Nature Based Solutions and Planning working groups.

ISS Aerospace is a UK-based company specialising in autonomous uncrewed aerial systems, with applications across energy, defence, security, utilities and surveillance. ISS Aerospace leads our drone research, investigating whether sensor-mounted drones can be used to detect groundwater levels across a wide area.

Our Partners

3 Sided Cube is a technology partner for world-changing organisations, on a mission to use technology to improve millions of lives. 3 Sided Cube is designing and building the portal for our groundwater flood warning service.

TJAY Consultancy delivers consultancy services in flood risk, water and environmental management. TJAY Consultancy leads the Planning sub-working group, working to improve how groundwater flooding is considered in the planning system.

Project Groundwater Northumbria is working to transform understanding of and response to groundwater flooding in the former coalfield areas of Northumbria. Also funded by the Flood and Coastal Resilience Innovation Programme, it is a member of the Project Groundwater Network.

Project Groundwater Greater Lincolnshire is working to deepen understanding of groundwater and its impact on Lincolnshire as a county, its people, communities and farmlands, both now and into the future. Also funded by the Flood and Coastal Resilience Innovation Programme, it is a member of the Project Groundwater Network.

Participatr creates bespoke, intuitive and accessible digital platforms for public participation in built environment projects. Participatr hosts the Project Groundwater website, supporting us to engage with our communities and raise awareness of groundwater flooding.

University of the West of England (UWE) is partnering with Project Groundwater to conduct empirical research on groundwater flood resilience, supervising MSc dissertations related to groundwater flooding and contributing to the evidence base in an area that has not been extensively studied.

Our Partners

Risk & Policy Analysts Limited (RPA) is an employee-owned, B Corp certified consultancy based in Norfolk. Established in 1990, RPA advises on the environmental and social impacts of public policy, planning and regulation. Its work covers social, cultural, environmental and economic impacts, including qualitative, quantitative and monetary assessment. RPA works with clients including the European Commission, UK Government, local authorities and major international companies.

Cardiff University is collaborating with Project Groundwater as an academic partner to investigate innovative Nature-based Solutions for groundwater flood resilience. This research will aim to understand and assess the benefits of Nature-based Solutions for flooding, water quality, and biodiversity.

Groundwork London takes practical action to create a fair and green future in which people, places, and nature thrive. We support local communities and businesses to build capacity and resilience as this is vital if we are to tackle hardship, achieve a just transition to net-zero and help nature recover in a way that reduces inequality and leads to better work and healthier, happier lives.



Project Groundwater

Are you flood resilient?

Chiltern Hills & Berkshire Downs