



Community Engagement for Nature-Based Solutions

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Community engagement for Nature-Based Solutions

Nature-Based Solutions¹ (NBS) (which are also known as Sustainable Drainage Systems, or SuDS) offer a new approach to managing water. Whether they are focused on drought, pollution, or flood risk, they alter the places where communities live, work, or enjoy themselves.

This guide has been developed to offer ideas for water practitioners to enhance community engagement related to NBS. It is written by researchers at the Universities of Sheffield and Hull, with input from a diverse range of practitioners.

Why do community engagement?

National guidance stresses the importance of engaging communities when designing and installing Nature-Based Solutions.² There is an increasing recognition within both government and the water sector that well-planned engagement can:

- ensure that NBS meet a wide range of local needs beyond water goals by sharing some decision-making power with communities who are experts in the local area, e.g. positively impacting physical and mental health and wellbeing.
- make decision-making more open and accountable, and enable the community to have an input.
- create a sense of shared ownership and enable people to consider how NBS are helping to manage water in the area.

→ reduce vandalism, litter-clearing, and maintenance costs.

→ build trust and relationships, increase connectedness, and motivate communities to engage with water management more generally.

The principal risks of community engagement arise if it is poorly planned or executed, when it can raise expectations to unreasonable levels, generate complaints, and even disengage the community, leading to project failure and long-term reputational damage.

There is no one-size-fits-all approach to community engagement. The techniques and depth of engagement will vary from project to project, depending on scale, available resources, and local context.

Communities and community engagement

A 'community' is a **body of individuals linked together by geography, interests, knowledge, characteristics, kinship, history, social structure, economics, politics, or any other form of bond**. When considering NBS schemes, communities are experts in the local area by virtue of living, working, or passing through it regularly.

Communities are never homogeneous: people differ by class, gender, race, culture, age, disability, poverty, climate, environment, and ability to access services. In many cases, these different types of identity will overlap in complex ways. A good engagement strategy for NBS needs to engage all the different groups in a community, as well as individuals involved in service provision in a local area (e.g. GPs).

'Community engagement' is an umbrella term that encompasses any form of interaction with communities, often bringing together professionals, key stakeholders, and communities to build relationships and achieve positive change. The key to engagement is building trusting relationships. This means understanding a community's aspirations, assets and resources.

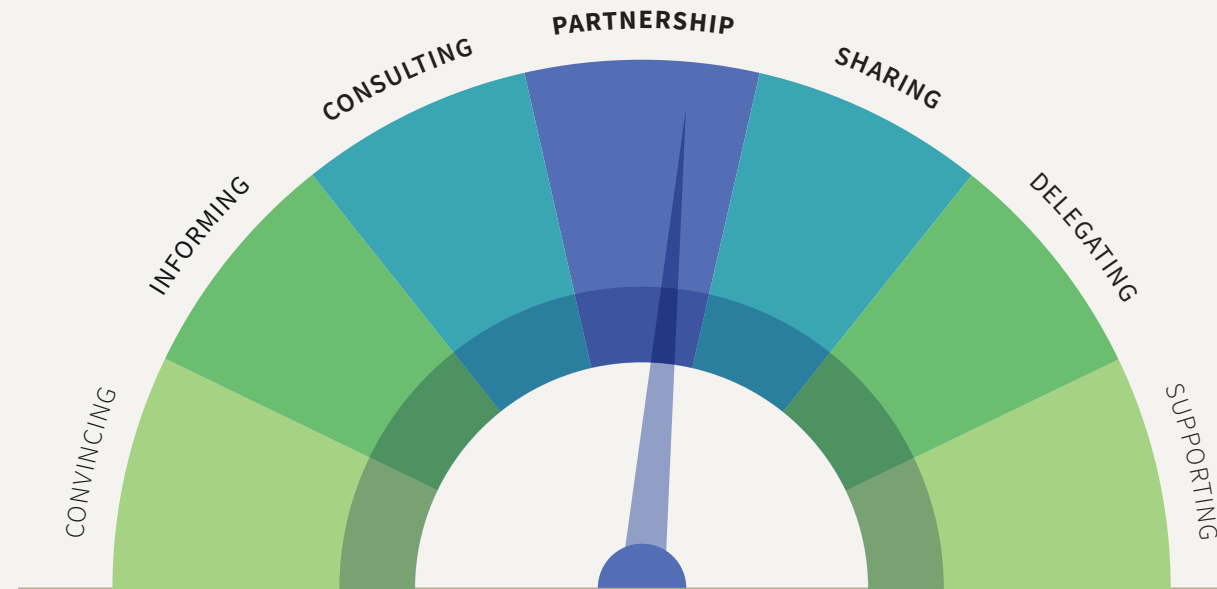


¹ NBS can also be called 'sustainable drainage', 'natural flood management' or 'blue green infrastructure'.

² For example, there are calls for collaboration with communities and use of SuDS in the Environment Agency's National Flood and Coastal Erosion Risk Management Strategy for England (2020: 58, 61); in DEFRA's Flood and Coastal Erosion Risk Management Research and Development Framework: Working with Communities (2021); and DEFRA's Recommendations to Update Non-Statutory Technical Standards for Sustainable Drainage Systems (SuDS): Final Report (2021: 56, 95). These sit alongside more general calls for public engagement in infrastructure design such as the National Infrastructure Commissions' Guide to Good Design, <https://nic.org.uk/studies-reports/design-principles-for-national-infrastructure/>

³ Sharp, Liz; Kenyon, Anna; Choe, Eun Yeong (2020): Designing Blue Green Infrastructure (BGI) for water management, human health, and wellbeing: summary of evidence and principles for design. The University of Sheffield. Report. <https://doi.org/10.15131/shef.data.13049510.v1>.

Diagram 1



The pendulum of involvement indicates how much decision-making power is delegated to communities. Problems can arise when an engagement process that is presented as a consultation is really an effort to convince local people of a preferred option. Issues can also occur when engagers underestimate the power and interest of local stakeholders, or choose an inappropriate method of engagement.

What kind of engagement?

The depth of community engagement needs to be tailored to the specific project, resources, and community. Ideally engagement starts with communities identifying their needs and aspirations. But the need for NBS may arise from elsewhere (e.g. downstream flood risk). The values and principles of community engagement (see pages 8-9) apply in these circumstances too.

The level of power delegated to the community in an engagement process can vary (Diagram 1). To the left of the diagram, decisions are made by external experts and water practitioners, who convince, inform, or consult the public about their views. To the right, decisions are made by the public as 'local experts' living or working in the community, with external experts and practitioners playing a supporting role.

Engagement modes further to the right are more likely to bring outcomes that provide multiple benefits. However, sometimes the constraints of a project mean that it isn't possible to delegate crucial decisions: for example, the NBS might need to be located in a certain place. Explaining the situation, and being honest and open that only a limited choice is available is important in such cases.



Timing and funding

Engagement requires long-term trusting relationships, and ideally these begin early, with NBS design. Engaging communities before views and plans have fully formed can lead to more creative outcomes, meeting a wider range of community needs. This has practical benefits: for example, it can open up new sources of funding (e.g. funds devoted to Biodiversity Net Gain, active travel, nature recovery, social prescribing, or nutrient neutrality). However, early engagement also carries risks, raising hopes around a project that might not happen.

It can be easier to find resources to support community engagement once funding for a scheme is in place. People may be more willing to comment on proposals that they know will definitely happen, but the fact that early decisions have already been taken may constrain the options that can be offered. In such cases, it is still worth using community engagement to identify any remaining areas where expertise from the community can inform the design and influence the final scheme.

CASE STUDY

A highly participative approach to community engagement characterised the Näsan i blöt project to construct an outdoor classroom for water education in Gothenburg. The site works as a NBS rain management scheme but also as an educational resource. Rain is an active element in the playground: the site is designed to come alive in a downpour, creating a range of multi-sensory effects and opportunities for tactile interaction with water.

The project involved local people in every stage of the site's design and development, and also in its construction. A hundred local volunteers helped to build the park, working with a Spanish architecture and design collective. An community construction team brought together skilled retired tradespeople with younger students at the start of their careers, allowing skills to be passed down the generations. Once the park had opened, a water engagement programme taught the public about rainwater management.

The case shows that community engagement can be integrated into every stage of a project, but also that a project to manage water can serve far wider objectives of enhancing health and wellbeing, creating opportunities for training, and providing an educational resource. For more information on this case, see Appendix 3.

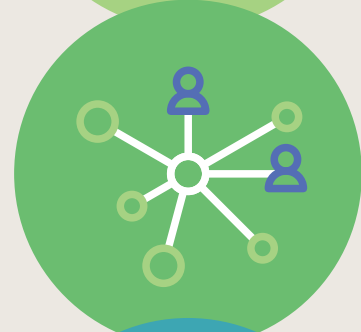


The five stages of community engagement



Stage 1: Prepare (pages 10-11)

- Why are you engaging?
- What are you offering the community?
- What are the benefits and risks of engagement?
- What level of choice are you offering?
- What resources do you have?



Stage 2: Build relationships (pages 12-14)

- Who are the community?
- Which key individuals could you ask for help?
- What is your engagement strategy?



Stage 3: Engage (pages 16-18)

- Introduce yourself to the community.
- Explain the engagement process and what you can offer.
- Use a range of tools to ask people what they want.



Stage 4: Listen and respond (pages 19-21)

- Feed back: explain how what you have heard has influenced the process.
- Evaluate: is the process working? Are there any problems arising that need a solution?



Stage 5: Celebrate (page 22)

- Celebrate what you have achieved together.
- Think about the project's legacy, including maintenance.

Fundamental principles of community engagement

Community engagement involves building long term, mutually beneficial relationships of trust with community partners. Its central principles are:



Communicating honestly and clearly in a two-way dialogue that demonstrates mutual respect.



Being inclusive, engaging all those with an interest in the site and the outcomes.



Upholding equity, recognising that some groups need more support to enable them to get involved.



Listening carefully, and adapting your plans responsively to what you hear.



Being there for the long term, building trust and respect with the community.

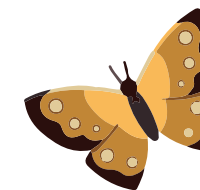
The time-limited nature of community engagement can create issues around professionals 'parachuting in' to a community, and then disengaging once a project is complete. This underlines the need to build strong relationships with local stakeholders, who can work with the community over the longer term, maintaining relationships into the future.





STAGE 1: PREPARE

Asking key questions at the start of a project can be very helpful in defining the aims and purpose of engagement for a specific project.



1

What are the overarching aims and objectives of engagement?

Answers may include:

- Creating transformational change in and with the community, for example a flood alleviation project.
- Offering clarity about the choices that are available to the community, and being open and honest about any constraints that limit these.
- Meeting professional or regulatory requirements.
- Enhancing the social and health and wellbeing benefits of the NBS for the local community.
- Inspiring local volunteers to maintain the site over the long term.
- Mitigating potential adverse reactions, e.g. vandalism, by building a sense of ownership in the project.
- Enabling local communities to understand how rainwater is managed.
- Avoiding disputes and conflict both within the community and between the community and water organisations by ensuring that project aims and objectives are clear.



3

Why would the community want to engage?

Participation takes up valuable time and effort, so thinking about what the NBS project offers to motivate local people to engage is important: what are the potential positive and negative impacts of the NBS scheme for them?

Impacts may differ across the lifetime of the project: it can be useful to break them down into three phases: during construction, the immediate aftermath of construction, and the longer-term future.

People will engage more easily with projects that seem relevant or relate to their needs, aspirations, knowledge, and skills.

2

What level of choice are local people being given?

- Where does the project sit on the scale of engagement (Diagram 1)?
- What influence can the community have on construction (design, timetabling, access to information)?
- What choices do people have about the engagement process itself (i.e. do they get to decide the channels of communication, the frequency of communication, or the overall timeframe?)

4

Who will engage the community?

- Are there people with the relevant skills and resources (including money and time) in house?
- Does the team have the capacity to run activities and organise events?
- Is it possible to contract other organisations with more expertise to do engagement work?
- Is it possible to work in partnership with local organisations who already have strong relationships with the community? Are there opportunities to obtain engagement expertise or even extra funding this way?

5

What are the wider risks and benefits of engagement at each stage of the project?

- Does engaging have the potential to make good past misunderstandings?
- Will the project generate local interest in flood resilience, and lead the community to engage more widely with other initiatives, e.g. flood alerts or ongoing maintenance of planting at the NBS site?
- Could the project act as a catalyst for connectedness between communities and organisations/institutions?
- Will the project improve the reputation of key water organisations in the local community?
- Are there risks that existing conflicts between different parts of the community or with organisations/institutions will be exacerbated?

STAGE 2: **BUILDING RELATIONSHIPS**

Who is the community?

There are many ways to find out about the community who will be affected by the NBS project. Some involve desk-based context development and others will involve face-to-face contact with local people.

Use desk-based information to find out about an area: census data, local estate agent information, neighbourhood Facebook groups, local district and parish council websites, community policing sites, and information about community spaces can all be useful. Some local councils have existing data observatories that you may be able to use.



Go on neighbourhood walks and site surveys and speak with local residents about the neighbourhood and the project. This can uncover new ways in which the NBS will be a community resource, as well as a technical solution, encouraging a solution that achieves multiple benefits. If you are offering people a choice, VR or CAD can be useful tools in helping them imagine different changes.



Speak to people and listen to what they have to say.

Different groups may visit different places, so it is useful to speak to a wide range of people across different locations. Rather than expecting people to come to organised meetings, initially it can be more productive to go to places where they already gather. Engaging with local interests and concerns can be a good way of learning about an area. Asking people what they think you need to know can be revealing.



Build relationships with key individuals

Key individuals within communities act as unofficial facilitators, knowledge-holders, diplomats, and gatekeepers to local groups. Engagement is much more likely to be successful if it has their support. Often these people have long-standing, strong relationships within the community: they include youth and community workers, faith leaders, elected councillors, head teachers, or volunteers in prominent organisations. However, they may also have less obvious roles: local activists, owners of key local businesses, or pub landlords. Whatever role they fill, because they are already trusted, they can provide a project with 'lent credibility' (see text box).

To find key individuals, ask around and introduce yourself at their convenience. There will generally be a local Council for Voluntary Service in most areas, but the local police, Citizens' Advice Bureau, local library, and local area teams in the Local Authority will also know about community groups and individuals who are well-respected in the area.

"In Hull, the Voice and Influence Team of the City Council asked young people why they had participated in a project. The answer they received was: 'The youth workers have let you come into the centre so they must trust you'. This is a good example of the way that 'lent credibility' can work to create access to a community."

Gill Hughes - community engagement specialist, University of Hull



How will the NBS project benefit local people?

Good community engagement avoids thin, transactional relationships that extract knowledge from local people. Instead, it focuses on reciprocal benefits. Listening to the community and incorporating their perspectives will demonstrate a commitment to an area, and build trust and respect with local people. It also ensures that an NBS scheme maximises the benefits it can deliver to different groups.

Diversity

Communities are never homogenous. When a proposed construction site is large, there may be many different communities surrounding the site. Engaging with key individuals from each of these is important (and each may prefer a different type of engagement).

Within and between different groups and communities there may be competition, enmity, or conflicts of interest, which require sensitive handling. Key individuals in the community will be able to offer advice and guidance on handling such situations.

Creating a community profile

Community profiles offer a way to capture knowledge about a community, mapping assets, skills, and strengths alongside needs, challenges and issues. A good community profile can become a community asset in its own right. The Jeder Institute offers advice about how to build one.

CASE STUDY

Manor Fields is a new district park in an inner city residential estate in Sheffield. It was part of a regeneration scheme that aimed to address social problems within this area, which included unemployment, vandalism, drug abuse, frequent fires, and fly tipping. The construction of new housing locally created the need for NBS to take surface runoff from the new-build development and to clean, control, and release it into a natural water course. The NBS scheme functions well and the park has been a success, with many local residents using it to run, cycle, and picnic and for a variety of social events throughout the year. Litter levels, however, remain low, suggesting a strong local value for the space.

Roger Nowell was the officer employed by the council to develop the park as part of the area’s regeneration. He stressed the need to engage the local community over the longer term, using a wide variety of techniques, and the importance of discussing wider social benefits than water management alone:

“It’s not necessarily important for people to understand NBS, but it is important for them to accept it on their own terms. Good community engagement is purely about the respect you’re giving to the community by making them aware of what is happening; this is the number one reason why you do engagement.”

For more on this case study, see Appendix 3.



STAGE 3: ENGAGE

Storyboarding the engagement strategy

An engagement strategy constructs a process to build relationships with the community. Introducing yourself to the community, storyboarding your engagement plan, and organising events are important parts of this stage.

A storyboard is a useful tool to link the vision, objectives, and desired outcomes of the NBS project to a series of activities and events (see Appendix 1). It outlines both the sequence of the project and its underlying logic, creating a pathway connecting opportunities, actions, and outcomes.

It can be helpful to start with the benefits that the project is designed to achieve, and work backwards to identify the steps that are necessary to achieve them.

Developing a storyboard with the community means that it is possible to respond to emerging issues, problems, and concerns, and to incorporate unanticipated benefits and serendipities. This may mean that it is difficult to plan in advance, which can cause problems in an institutional context that demands a lot of advance notice of communications and events. Building in as much room for manoeuvre as possible, and being honest and open about institutional constraints, is important.



Introducing yourself to the community

Introducing yourself to the community is an obvious, but important, first step, see page 16. Key individuals can advise how to reach the widest possible cross-section of local people. They may suggest running events, convening workshops, or ‘piggy-backing’ onto occasions that have already been arranged. They can also advise on local radio and social media platforms to publicise events.

Introductions are useful when they let people know what you are doing (briefly); why you are doing it; and when you are accessible for further discussion. Water management is institutionally complex, and it is important that people understand your organisation’s role and responsibilities. It can be helpful to give an overview of flooding, pollution, or water issues in the area, so that people can relate the NBS project to their experience.

Elements of a storyboard and their meaning	Example
Opportunities: What opportunities will the project provide?	The opportunity to comment on and influence a NBS project at a fun engagement event.
Actions: What are you asking the community to do?	Come to an engagement event and share their views.
Direct benefits: What direct benefits will arise to the project team and the community from this?	Community members are listened to; the NBS project can respond to local perspectives.
Wider benefits: What wider benefits might result?	Communities and individuals may connect up. Vandalism and littering might decrease. Awareness of water management might increase.

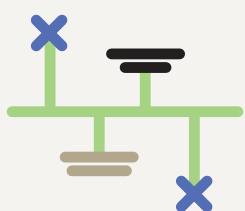
Guiding principles for introductions



- Be clear about what you offer.
- Give an overview of the project, being honest about any constraints. Will people have an influence on:
 - The details, design and social function of the project?
 - The timescales for the build?
 - Opportunities to volunteer or gain training?
 - The channels by which they are engaged?
 - How frequently they are engaged?

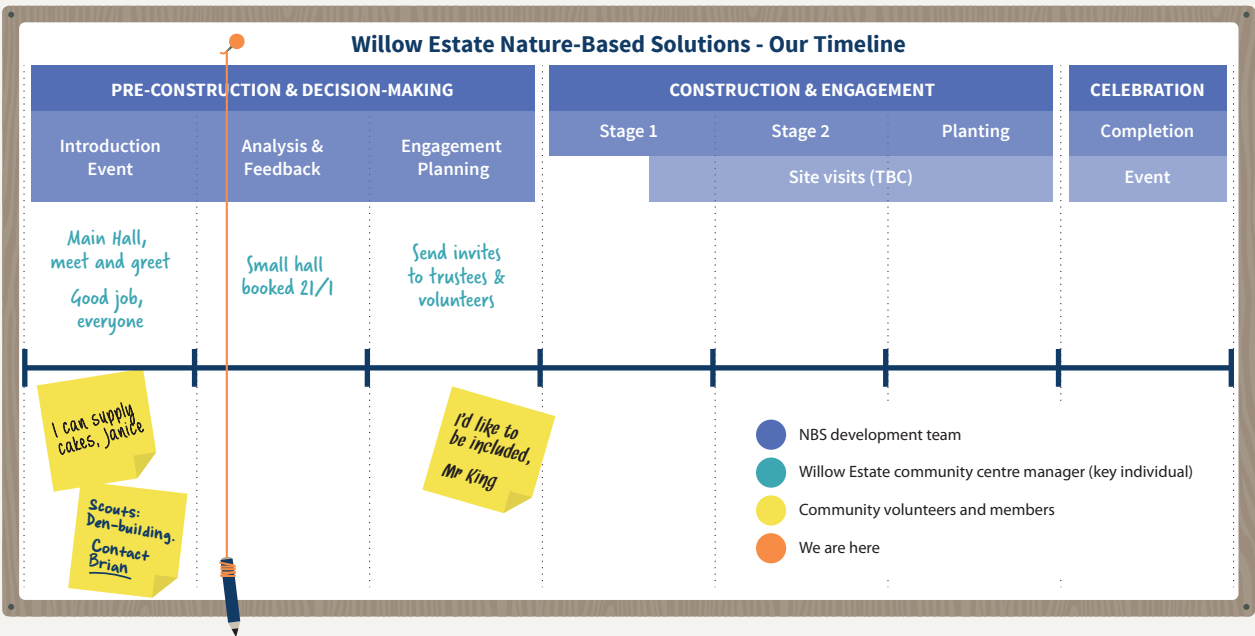


- Show that you are listening.
- The community may have been consulted previously, in a situation where they did not feel heard. This can make people feel reluctant to engage.
- An interactive “you said - we did” framework can help to show that you are listening.



- Be explicit about your timelines, including uncertainties.
- A timeline lets the community chart progress, and consider the points when they might want to engage. It provides a sense of a story and direction and clarifies when people are available to answer concerns or questions.
- It also helps to identify possible moments for engagement at all stages of the project, from design, through construction, to maintenance.
- See Diagram 2.

Diagram 2: Example of co-produced timeline



Communicating with the community

A central principle of engagement is creating two-way dialogue, not one-way information. This offers a more equitable exchange, which builds relationships, trust, and reciprocity and ensures that NBS projects can meet the widest possible range of needs and aspirations.

- Use as many different formats and channels as possible (leaflets, activity booklets, handouts, letters, social media, newspaper articles, videos, films, pictures, posters, and interviews) to reach as wide a range of people as possible.
- Tailor messages to the local community.
- Use inclusive, accessible, and transparent language, simplifying technical explanations where necessary.

- Think about varying levels of literacy in the community and consider translating materials into different languages.
- Employ pictures, maps, and diagrams where possible as an alternative way of communicating.
- Be mindful of the need to ask for permission before sharing images of people (there can be safeguarding issues around children in particular).
- Attend local events to make contact with people and listen to their views on the NBS project.



Organising events

Events are key to community engagement, building relationships, finding out what the community think and feel, and facilitating decision-making. It can be useful to employ a mixture of different types of events through the different stages of the project (meetings, presentations, discussion groups, workshops, informal gatherings, and celebrations).

- Ask key individuals what might work well for the local community: this can save time and avoid mistakes.
- Determine the budget, equipment, and personnel for the event at an early stage.
- Think about inclusivity: the venue should be a place where everyone feels welcome, in terms of cultural appropriacy, accessibility, and basic services (e.g. toilets, rubbish disposal, food preparation areas, water supply). It may not be possible to have one event that includes everyone, in which case you will need to organise several.
- Choose the right time to run an event, depending on the target audience and number of people to be engaged.
- Provide refreshments, considering dietary restrictions and needs.
- Check what else is happening locally at the same time: you want to avoid a clash with an alternative popular local event, but you could also use partner organisations as hosts, piggy-backing onto larger events to reduce work and costs, gain lent credibility, and guarantee attendance.
- Plan a range of activities: they do not necessarily have to be water-related to work. Working on something together provides opportunities for informal two-way conversations.
- Create a welcoming atmosphere, avoiding overuse of corporate branding and using local businesses wherever possible.

- Child-friendly activities can be a way to attract and engage the whole family. The perspectives of children are important in their own right, and a well-chosen activity can gather these while allowing parents to concentrate without distraction.
- Plan how to record events, bearing data protection regulations in mind (seek permission to take, use, or share images of people).
- Attending to the technicalities of health and safety can be an opportunity to build relationships. For example, a timely and thorough risk assessment can help to build relationships with a venue manager.

What to do if you don't get a response

It is relatively common for communities to be interested in a project, yet to find engagement practically, socially, or emotionally challenging. Find out about the barriers to participation, for example by asking key individuals locally. They can help to tackle and reduce them, improving attendance and encouraging dialogue.



STAGE 4: LISTEN AND RESPOND

Feedback and evaluation processes are most effective if they happen throughout an engagement strategy, not just at the end.

Two-way feedback

Feedback needs to be a two-way ongoing process throughout engagement:



Feedback is important because it:

- Allows people to feel heard.
- Shows that an organisation is listening and summarises what has been learned.
- Demonstrates responsiveness, through an effective feedback loop with concrete actions.
- Keeps the community informed about progress (timelapse videos of construction can be popular).
- Lets people know how, when and where they can get involved.
- Prevents engagement from becoming a one-way extraction of information.
- Explains why there are issues, concerns, and ideas that could not be addressed.



Evaluation

Evaluation is often seen as a summative activity that happens at the end of the project, allowing those who are paying to learn from the process. Yet a much wider group of stakeholders can benefit from a process of ongoing evaluation. Their definitions of 'success' may be very different from those of the institutions managing and delivering the project.

Summative Evaluation

- Happens after a project is finished.
- Assess the whole engagement process against outcomes and benefits.

Ongoing Evaluation

- Understands a process as it unfolds.
- Spots and resolves problems at an early stage, saving time, energy, resources, and money.
- Builds responsiveness, ensuring that people are listened to.

Indicators of success

Producing a storyboard at the start of the engagement process can help to define the indicators of success for a NBS project. Enabling the community to input can help to build relationships and emotional investment in a project.

USEFUL INDICATORS OF SUCCESS:

Opportunities:

How many events were held, and who was involved? Did these types of events work well to engage people with the scheme? Did people input in meaningful ways that enhanced the scheme?

Actions:

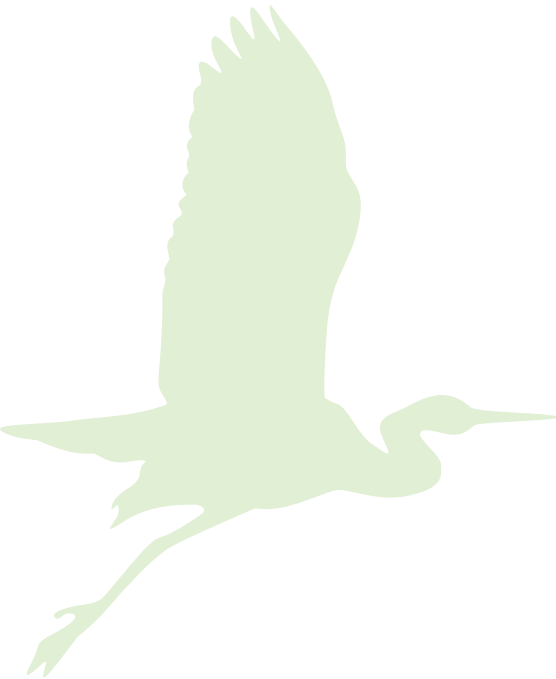
How many people came? How long did they stay? How many inputs were received? What was learnt: did everyone get to share their expertise with others and leave knowing more? With the benefit of hindsight, would a different event or strategy have worked better?

Direct benefits:

Has engagement stimulated local understanding and discussion of water management? Is there evidence of wider engagement with water? Have people committed to maintain the NBS going forward? Do people feel a sense of agency in taking action against flooding and water pollution?

Indirect benefits:

Is there evidence of synergies between water management and other community events and activities? What did everyone learn about NBS and its benefits in the area? Are they more conscious of water use and management? Is the community more connected and active now than before the project?



Evaluation methods

The choice of evaluation methods is usually decided by the resources that are available, and the types of evidence that are required (see Appendix 2)

- Think about both hard, measurable outputs and softer, more social consequences and adjust the balance of quantitative and qualitative evidence accordingly
- A mixture of methods can be useful: surveys and questionnaires; feedback kiosks; graffiti boards (walls where people can add ideas); an ideas postbox; vox pops; interviews and focus groups; user counts; participative photography; and games.
- It is important to feed back to the community: how was the information used, and what changed as a result?
- Explain how data will be processed and stored in light of GDPR regulations, including whether people's contributions will be anonymised.



CASE STUDY

When things go wrong

We seldom get to read detailed analysis of why NBS schemes fail, yet we can learn a lot from these cases.

In 2019 a fishing pond was built in a residential estate on the outskirts of a town as part of a flood resilience scheme. The fishing pond could have been a potentially beneficial asset to a deprived estate: it was intended to be filled with roof runoff and stocked with fish, providing flood resilience and environmental and leisure facilities. Instead, the pond does not receive runoff and has never been filled with fish, or indeed water.

The reasons for this failure were complex, but included a range of disagreements, mainly between politicians and officers at two local councils, and between a local flood action group and the flood risk manager at the local council. The upshot was a lack of community engagement and contractual problems in the construction process that led to design and build failures and extensive vandalism during construction.

For more on this case, see Appendix 3.



STAGE 5: CELEBRATE

The end of a construction project is often marked by a celebration. Having successfully built relationships with people, it is important to extricate yourself carefully. Planning a celebration from the start of the project ensures that any support that is needed can be put in place well in advance. Celebrations are a chance to:

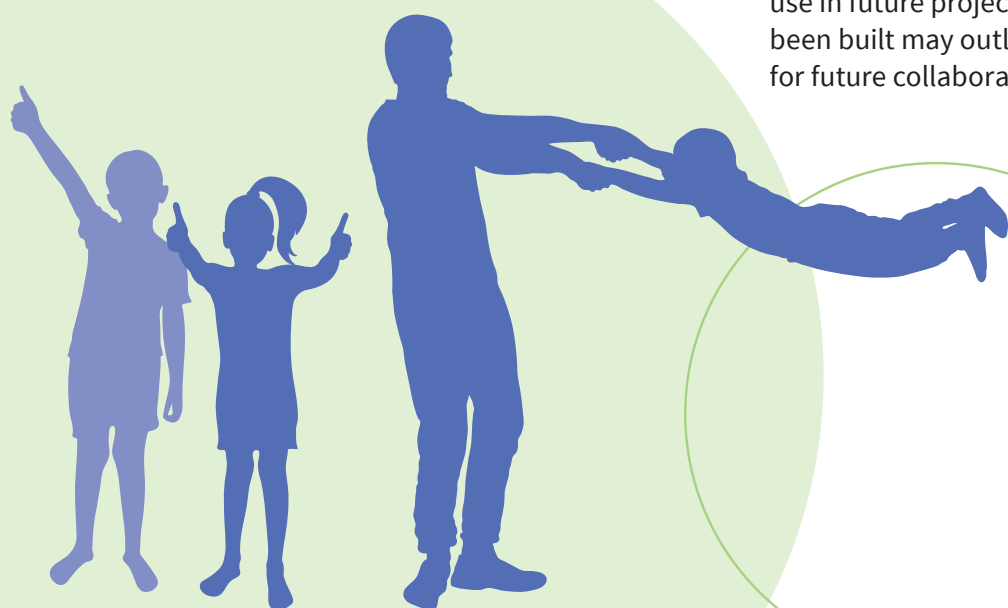
- Thank people for the important part they have played.
- Discuss what happens next at the site, communicating any ongoing plans and clarifying future roles and responsibilities.
- Calm any feelings of abandonment or anxieties about the project's end.
- Explain how the NBS fits with other developments in the area and water management more generally.
- Cement positive relationships into the future, possibly enlisting support for maintenance of any planting schemes, enrolling flood ambassadors/wardens, encouraging signup to flood alerts.
- Demonstrate ongoing commitment to the area.

What is the legacy of the project?

Engagement is not an opportunity to off-load responsibilities for NBS maintenance onto a community. It is therefore vital to support and resource communities after construction has ended.

- **Maintenance:** good engagement is likely to generate commitment towards the NBS, and people may be willing to volunteer for lighter elements of maintenance work. For the more substantial jobs, it is important to leave a clear point of contact with whom community members can raise any issues or concerns.
- **Relationships:** keeping in touch with the local community, either personally or via key contacts, will ensure that relationships do not wither away.
- **Learning:** engagement is always a learning process, and the knowledge that is generated can benefit other water professionals working on local initiatives elsewhere. It can be well worth capturing and sharing this information, using whatever media are most impactful (storytelling and writing, photographs, video, artwork, articles for trade journals).

The engagement process itself can constitute an important legacy. Tools such as a Community Profile can be handed over to key local groups for use in future projects. The relationships that have been built may outlast the project, paving the way for future collaboration.



Conclusions

Community engagement and co-production are a joint endeavour, drawing people together to share knowledge and experience in order to engage everyone concerned in decision-making. Engagement has multiple benefits for all parties involved in a project. In terms of outcomes, it ensures that efforts closely meet local aspirations, which means that a project can deliver greater economic value and health and wellbeing benefits to a community. It can build a sense of shared ownership, assist with maintenance and vandalism reduction, and improve a project's sustainability into the future.

However, **the process itself also brings rewards.** Engaging with the community can enhance technical forms of expertise with local knowledge, as well as producing valuable community assets for use in other projects. It can also build relationships that are useful in future flood alleviation initiatives, and help to increase local understandings of the water management system. This makes it a good first step towards community rainwater management.



APPENDIX 1: STORYBOARD

Example Project Storyboard - sets out the project lifestyle - keep it short and concise.

Vision	Why the consultation/co-production is required and what it will aim to achieve. Headline message!				
Objectives	Engage community with the concept of NBS and why they are needed		Set out the benefits that NBS can bring to the open space		Create new design ideas which accommodate the NBS and meet community needs
Outcomes	Local research - important community factors	NBS projects will be better valued by the community	How NBS will enhance the space	Different style of NBS design options	New design ideas which incorporate NBS, enhance biodiversity
	NBS will be better understood by the community		NBS will provide resilience to climate change		New design ideas which incorporate NBS, enhance recreational needs
Activities	Explain the actions you will take here to complete this objective - examples below: <ul style="list-style-type: none">Research and review the local community - local organisations who may have an interest - state what you will do to make sure the right actors are involved and what you want from them and whyAssess the areas needed for NBS schemeAssess the existing habitat quality, how might it be improvedAssess the recreational potential and maintenance implicationsThink about the timeline - what response do you require. If the timeline is likely to be protracted, that needs to be factored in.		Explain the actions you will take here to complete this objective - examples below: <ul style="list-style-type: none">Work with partners to plan events that will explain why the scheme is requiredGet the agreement of those who will design the NBS that they will participate in the processPlan events and consultation according to the timelines and stages of the projectKeep people informed of changes to project or timelines		Explain the actions you will take here to complete this objective - examples below: <ul style="list-style-type: none">Understand the issues that have arisen during the consultationNew designs that clearly show that the consultation has been considered (digital survey results - if appropriate)Get consensus for options (if appropriate)Hold a celebration at the end of the project that shows what has been achieved - or will be achieved
Evaluation/ Indicators	Indicators that will evidence that actions have been achieved - examples below : <ul style="list-style-type: none">Communication strategy in placeSurvey and analysis of existing space and how it is used - to be used during the consultationTimeline in placeStrategy for contingency and changes to programme planned		Indicators that will evidence that actions have been achieved - examples below: <ul style="list-style-type: none">Agreements in place with partners that they will participate and what they will doConsider use of digital surveys which capture the consultation or results of the events - quantitative and qualitative results (Survey Monkey, Snap or Quick Tap Survey)		Indicators that will evidence that actions have been achieved - examples below: <ul style="list-style-type: none">Plans and drawings of what is proposedPublish people’s opinions and views (according to GDPR)Inform all of the consensus gained, how and why and any compromises madeGDPR - sensitive data held is dealt with appropriately

APPENDIX 2: EVALUATION METHODS

Evaluation method	When to use it and other considerations
Surveys/questionnaires <ul style="list-style-type: none">paper or onlineusually short	To gain insight into a community’s attitudes towards a project, and assess their willingness to participate. To obtain information on whether an engagement process has been a positive experience, has improved community knowledge, or has changed attitudes. May deter non-English speakers and pose barriers to those with low literacy Needs careful design and analysis
Feedback kiosks/‘customer satisfaction’ terminals <ul style="list-style-type: none">push-buttons allow people to record responses	To allow large numbers of people to ‘rate’ an experience or idea (including a proposed NBS) Does not usually offer much depth or detailed insight, e.g. reasons for opinion
Graffiti boards or drawing tables at community events and in outdoor and indoor spaces <ul style="list-style-type: none">open text way for people to write their experience, responses, or worriescan be physical or digital	Allows people to record their responses at length, and to be creative about the format in which they respond (diagrams and doodles alongside written responses) Requires a culture of sharing opinions, but can be done anonymously
Ideas ‘postbox’ <ul style="list-style-type: none">anonymous way of garnering feedback, either physically or online	Encourages people to feel safe in expressing dissatisfaction or gripes with engagement or outcomes Can be designed to elicit open comments or messages of advice for a specific group, authority, or organisation Responses need to be collected, collated, and monitored
Vox pops <ul style="list-style-type: none">filming or audio recording people’s responses	May be helpful for people with little time or low literacy levels Brings the response to life but may only engage media-confident people. Needs sensitive use and handling/storage of recordings
Gamified approaches <ul style="list-style-type: none">turns evaluation methodologies into a game or role play	Can be expensive where technology is involved, may work best with outside expertise
Interviews and focus groups <ul style="list-style-type: none">longer individual or small group conversations allow insight into personal narratives and storiescan be digital or face-to-face	Rich detail can be collected, with nuance and reasons for ways of thinking and behaving. Careful sampling allows voices of those who are less heard to be sought Changes and improvements that are hard to measure numerically e.g. health and wellbeing, can be described Can be time-consuming to collect, process, and interpret
User counts <ul style="list-style-type: none">often a technological solution that measures interaction quantitatively, e.g. counting visitor numbers, internet traffic, footfall, but can be low tech (e.g. using raffle tickets taken from a book at the entrance to an event)	Offers a clear way to evaluate behavioural interaction May require costly, specialist equipment. Doesn’t record finer detail of people’s engagement with an environment or process
Photo voice /participatory photography <ul style="list-style-type: none">uses photography, but also voice recording, videoing, or drawing to respond to questions or themes	Can be easy and engaging, allows those with low levels of literacy to participate Requires interpretation and ethical management of visual data
Other creative methods <ul style="list-style-type: none">scrapbooking, poetry writing, role play, soliciting of responses on social media	Can be very inclusive, as people of all ages can offer a range of responses using almost any media to the project. However, it can also feel alienating or off-putting to some participants. Care is needed around privacy and sensitive use of social media

APPENDIX 3: CASE STUDIES

Case Study 1: Näsan i blöt, outdoor water classroom, Gothenburg

Location: Gothenburg City

Start date of project: 2017

Project leader and/or organisations

- Interviewee: Malin Finlöf
- Leader: Gothenburg City Water and Sewage Department
- Partners: City Planning Office, River City Company, Park and Nature Department
- Design of NBS: Subcontracted to an architectural firm, Recetas Urbanas, working with local artists, an arts and crafts company, and the community
- Landscape architecture: Mareld Arkitekter
- Construction: Recetas Urbanas
- Community engagement: Gothenburg City Planning Department, River City Company and City Water and Sewage Department, Recetas Urbanas
- Maintenance: Park and Nature Department, Gothenburg working with a non-profit, Passalen
- Activity organisation: Passalen, working with the City Planning Department

Overall context

“We talked with people about aspects of rain. You need places that are dry but you also need somewhere to show how rain management works. You use the water to play with and you teach how to store water.”

The Näsan i blöt was constructed as part of the BEGIN project, on a particularly challenging and muddy riverside site in Jubilee Park, Gothenburg. Transforming the location’s disadvantages into an asset, the city created an outdoor classroom for water education. The playground offers different water tools to educate and engage members of the public of all ages about rain, water management, and nature-based solutions. Rain is not merely a theme, but an active design element in the

playground: the site is designed to come alive in a downpour, as falling rain and puddles create new spatial and multi-sensory effects and opportunities for tactile interaction. Whereas many parks are designed for dry weather, the Näsan i blöt invites interaction during the frequent showers that Gothenburg experiences.

However, the Näsan i blöt is also the location for significant NBS infrastructure. It forms part of a wider project to redevelop the Frihamnen (freeport) area and to deliver new blue-green infrastructure.

Type of NBS

The NBS offers a combination of interactive play spaces and water storage. Water is piped to the play areas, then sent to an infiltrator. It is cleaned and flows into an open canal, before returning to the playground’s lake. Extra water storage is provided under a tree plantation in the event that this is full, where the water is released slowly into the river.

Reason for community engagement:

A highly participative community engagement strategy characterised the project from its outset, with the public involved in the site’s design and development. This inclusive approach moved the project beyond straightforward “public space provision” to a more democratic process that encouraged engagement and ownership by the local population. While there were pragmatic reasons for this (for example, reducing the likelihood of vandalism), the team were committed to engagement for its own sake, as a means to achieve the egalitarian coproduction of space.

“We are trying to enable something called the river-city vision. In that vision, there is a word: the ‘meeting place for all’. When you say that, you are not just saying ‘public space’; it is something more inclusive than that. And you need to think about what that means and how to do it. It is not about designing the best park, but how to do that by engaging people.”



“If public space is to be truly public, it cannot be owned by me - the representative of the city - or by a private company, but by the people of a city. When people have the type of site that they can engage with and like, it is going to be used. And they are going to shout at people who are doing something wrong! [...] In the long run you create more democracy this way.”

Community engagement

Importantly, the public were involved not only in the park’s planning but in its construction. A hundred local volunteers helped to build it, working with Recetas Urbanas, a Spanish architecture and design collective who specialise in the coproduction of space. Despite the fact that many members of the public donated their labour for free, the overall cost of this coproductive approach was higher than it would have been had professionals built the park. Issues such as training and insurance increased both the timeframe and the cost of construction:

“It is not cheap – it would be a lot cheaper to have used a construction company. It is not quick: you have insurance issues and all of these practical things which take a lot of time to organise. You have to balance that and to see the value of the work being done by all of these people. ‘I thought ‘Oh, this is beautiful, what we want for the site!’”

Once the park had opened, a water engagement programme began. The first year engaged the

wider public as a whole, while the second focused on engaging with schoolchildren. Organisers built on the popularity of existing recreational facilities for sailing amongst the young to offer a pedagogic course on climate change and water management alongside a free sports session:

“While one group was sailing and the other group was doing a pedagogical water management programme. That school programme was fully booked that spring. We know that worked and we know people enjoyed it. Most people come to sail for free. This was a way to make them aware of the site and to learn about this issue we are facing and to see that there are fun ways we can do it. Through this we can get a lot of engagement... It is not the sexiest of things to sell a water management pedagogical course. But people run to get the sailing. So we profited from that!”

Initially, organisers found that the ‘outdoor classroom’ that they had provided onsite was underused by teachers who were unsure about how it worked. They responded by hiring a teacher to develop a lesson plan and some educational resources around it. This was then shared with youth leaders, who have continued to deliver water education sessions. City-to-city learning has also enabled the results of the project to be shared with other places considering similar projects.

Outcomes of community engagement

There were clear social and educational benefits to a coproductive approach towards building the park. An intergenerational community team brought together skilled retired tradespeople and artisans with younger students who were at the start of their careers. The team overcame language and cultural barriers to work with the Spanish designers, while gaining the opportunity to pass down skills through the generations:

“We got an old welder guy – he was amazing. He was there every day for 3 weeks. It was all worth it to see him there trying to communicate with these Spanish people! Lots of meetings with coordinators, schools, lots of meetings. A sixth form group of students who were going to be carpenters took part. Their teacher was also on site.”

The co-construction of space built a sense of ownership amongst local people: *“Through engagement you get a sense of entitlement – people gaining a sense of ownership.”* However, it also provided an opportunity to rebuild strained relationships, and to work through tensions with groups who were critical of the city’s activities. Gothenburg has a strong left-wing tradition of both union engagement and wider types of radical activity. Some of these groups have formerly been opposed to the city’s decision-making, but were content to collaborate with the city on this particular project.



“When you do this with things related to climate change, you start making that everyone’s problem. It is a number one cause of anxiety for youth. We are also adding the visuality of it – you can try, you can test, and we are saying that there are solutions”.

Amongst professionals, too, the challenge of bringing together different kinds of approach was productive. In particular, community engagers and engineers had to adapt their views in response to one another’s positions:

“My colleague who was an engineer brought these lovely illustrations. The two of us thought very differently so we challenged each other to think about how to do it in a more successful way. That goes for both engineers and community engagers”.

Ongoing maintenance

Maintenance is the overall responsibility of the Parks and Nature Department, working in conjunction with Passalen (who look after the bath and sauna) and the wider community. Passalen’s programme of ongoing activities is critical to ensuring a sense of ongoing ownership, particularly amongst younger people who are trained to maintain the park and its activities:

“Every year they have education sessions for the new group of ‘first job’ people from the city. And it does create something because every person who comes there creates this notion of ‘park hosts’, then they bring their friends. It is about achieving co-ownership.”



Gothenburg has also introduced a ‘blue certificate’, which teaches young people with no previous skills to manage the activities that are on offer to children.

Things that didn’t work

The park is extremely popular, and the water facilities offer a good illustration of water management techniques. However, the organisers have argued the need to include more educational material on water treatment, since the current explanations of this are not very comprehensive.

In terms of wider networks, the organisers believe that the park could be used more effectively to demonstrate the advantages of a collaborative and engaged methodology, and to illustrate the multiple social, health and wellbeing, and technical benefits of blue-green infrastructure to political decision-makers.

“It could have been used (and could still be used) to support decision makers about how to do blue-green infrastructure. It shows that this blue-green stuff is being done. I think it could be used an example for lobbying!”

Things that worked well

Community engagement in construction, education, and maintenance has been exceptional. The park not only provides a truly unique approach to water management, but a groundbreaking demonstration of coproduction.

“The way the playground in the park is designed is really weird and different. And that is important because that is how you keep people coming back, and keep the spirit!”

Performance of NBS

The NBS is currently performing well, though there are ongoing issues with the water storage element of the design after adjustments were needed. As such, the park’s ability to contribute to flood prevention due to sea level rises is currently limited.

Legacy

The long term future of the site itself is uncertain, but eventually the park will probably disappear, making way for housing. The predicted lifespan for the current installations is around 15 years.

The major legacy of the project lies in this community engagement, and in its innovative demonstration of the principle that water play and education can be successfully united. Strong relationships with the non-profit organisation, Passalen, have been key to developing ongoing ties with the community. This illustrates the advantages of thinking about partnerships with the community in the longer term:

“It is about finding people with the right confidence. And also, for community engagement, it is good to have a long-term contact person. Make sure there is someone who remembers – especially where city officials keep switching!”

However, organisers spoke of tensions between the short- to medium-term timeframe of their engagement, and the longer timeframe used by local civil servants and decision-makers:

“This is hard because we [i.e. community engagers] work in a short-term timeframe. The permanent people have a different perspective, so they think about what is cheap or expensive to maintain. So there are different views.”

The courage of decision-makers in backing the project, and their ability to adopt a flexible attitude to technocratic and quantitative goals and to consider other, less measurable values, was a key factor in allowing this initiative to happen:

“I want to pause a bit on bravery from the decision-makers. These days everything has to be measured – a semi-rational approach. If you engage in community engagement, it is about education and thought, but you don’t really know what is going to come out of it. But you know that engaged citizens are always better than unengaged ones! You can say ‘I am not going to be able to value this in economic terms’, but how does engagement and knowledge and understanding get valued? It takes a bit of bravery from the top.”

Comments and conclusions

The Näsan i blöt illustrates the advantages of bringing community engagers and engineers together, and of considering the involvement of the community in every stage of design, construction, and maintenance.

“If you don’t have the confidence to do community engagement make sure you have the right crew at the right time and place.”

Case Study 2: Manor Fields Park, Sheffield

Location: Sheffield

Start date of project: 2000

Interviewee: Roger Nowell, Sheffield Council

Project leader and/or organizations

- Design of NBS: Robert Bray (Associate), Roger Nowell (Parks Officer) for Sheffield Council, Green Estate (Social Enterprise formed by the Wildlife Trust and Manor and Castle Development Trust)
- Construction: As above
- Community engagement: As above
- NBS consultant: Bob Bray
- Maintenance: Green Estate

Overall context

“Of course it was derelict land at the time – so there was an evolving context to the NBS. That’s an important part to it. We were putting NBS into a derelict piece of land, but a derelict piece of land with ongoing investment to try and realise it as a park.”



The Manor Fields open space is located within an inner city residential estate in Sheffield. It was assigned for the development of a new district park as part of a regeneration programme. The project aimed to address social problems within this area, which included unemployment, vandalism, drug abuse, frequent fires, and fly tipping.

The 25 hectares of land on which the park was sited included the former pit-head of a local ‘deep pit’ coalmine. When the mines closed, the area became ‘greenfield’ land, used as allotments, before falling derelict. It became a hostile ‘no-mans-land’, physically separating two parts of the local community. Yet the land’s local and historical significance, beautiful views, and natural wetlands provided the potential for it to become a useful and beautiful community asset.

Alongside the park, the regeneration project involved the construction of new public and private sector housing. This development site was elevated above the park, and this, combined with the need for significant additional drainage capacity, led to the need for NBS. The project began in 2000 and in 2002 the NBS were built to take surface runoff from the adjacent new-build development.

Roger Nowell was the officer employed by the council to develop the park as part of the area’s regeneration. His job was to find funding, to coordinate, design, and manage the project, to arrange long-term maintenance, and to engage the community.

Roger worked closely with Green Estate, a partnership organization formed between the Wildlife Trust and the Manor and Castle Development Trust. The Development Trust was very active in promoting housing and other forms of regeneration, and the Wildlife Trust focused on environmental regeneration. The land was council owned, so Roger represented the landowner as well as having responsibility for development of the site:

“I worked very closely with Green Estate; in a way we were a seamless team working together in that area, which was fantastic.”

Design and function of NBS

The Manor Fields NBS scheme was designed to address the needs of the new development that was being built around the park. Prior to the development, surface water was directed into the old combined sewer. The NBS now takes all the surface water for the area, which goes into the park where it is cleaned, controlled, and released into a water course:

“It’s re-establishing the catchment and mimicking how it used to behave, I mean it’s an urbanised catchment but it’s slowing the flow, treating the water, and its oozing through the landscape through depressions like a water course would.”

Physically, the NBS is a simple shallow depression with some permanent water always present. When full, it comprises a series of three ponds and a large basin that provides a flat, freely-drained grassy area. It has been designed to be robust and can quickly recover when it fills with water.

Reason for community engagement

Before the regeneration scheme, the area suffered from high unemployment, elevated levels of drug use, and vandalism. Consequently, it had developed a poor reputation, which in turn resulted in the younger population being suspicious and mistrustful of outside intervention.

The land on which the park and NBS were to be situated was derelict, and used for rubbish tipping and setting stolen cars on fire. It was therefore important to engage the community to minimise further damage as the land was cleared, landscaped, and turned into a drainage scheme.

Roger believes that community engagement becomes more important the more that projects impinge on individual and collective life:

“The more urbanised, the more local the immediate community, the more engagement you need for the specificity of requirement. So if you’ve got a NBS on a remote open space that’s semi-natural and you’re building a housing estate, and you’ve got a community 300 meters away, perhaps there’s not much need for engagement. But the more formal and the more integrated into the urban area the NBS are, the more you need to engage the public. For example, if you’re building a water square surrounded on three sides by housing and you’re



building houses on the fourth side, you absolutely need a full blown community engagement exercise about what that is going to look like.”

However, he recognised that engagement also requires resources:

“If you’re aiming to construct NBS with a recreational element in a challenging area, you need a person with a dedicated role to be developing that, and it needs to be a substantial lump of their time. For example, if you’re going to make something like a fishing lake successful, you need somebody putting two days a week into it for a few years.”

However, he also recognised that the project aimed at something far broader than the delivery of NBS:

“The key thing is cultural change. We were trying to develop a park culture from scratch so it did need discussion with lots of people over many years. I don’t know if you’d expect to get that type of discussion about a purely NBS development, but some communication is important and it’s how you go about it that’s important. A one-off invite to an evening consultation is not necessarily going to cut the mustard, it really isn’t. It’s how you get something out there to people, and with social media there’s no excuse really.”

Community engagement

Roger is clear that the community engagement was about getting people to understand the park, not necessarily to understand the NBS:

“We’ve done engagement all the way along. From the first sections of the parkland boundary walls, it’s just been ongoing until the end of the main investment which was after the footpaths went in. We continually ran events and kept people informed with newsletters right the way through. So we probably had six to seven years of engagement.”

One of the first things Roger and Green Estate identified was that the parkland needed a boundary that the community would identify as demarcating an attractive area rather than a barrier that excluded them. They employed local artists, who involved young adults from the area in designing a unique wrought iron fence. The team also put considerable energy into engaging individuals and groups who had influence within the community. For example, they negotiated with local youth workers to involve young people from the area in designing sculptures:

“We ran about 20 stone-carving workshops with a local sculptor. We had upturned bins with sand and rocks in them and young people carved in the workshop where we were based. And all those carvings went into the wall.”

Roger describes the community engagement during the first stage of development as:

“Really hard going, because you are fighting a lot of skepticism.”

He described running events in community rooms at weekends and evenings and getting a very low turnout. Eventually Roger built a model of the park with the NBS and took it to residents’ houses to explain the plan:

“So in the end what I did, which was crazy really, I built a model of the bit of the park we were going to be working on to scale with local children, and we took it in a box to people’s doorsteps so they could see what we were talking about.”

Understanding the NBS was part of this engagement. Roger discussed it with local people at community events, using physical models to communicate how it worked:

“It’s not an easy subject to get people to understand, it’s tricky. I think the University project that worked with local youth workers to make models of the ponds with young people was as good a way as any of getting people to comprehend what NBS are about.”

Alongside speaking to residents on the doorstep, Roger and the team also engaged the community by creating events on the parkland. To begin with, this meant scraping out pieces of land to be seeded and mown for community events. In this way, they created opportunities to speak with people, and demonstrated what they were trying to do with the land.

Outcomes of community engagement

Since Manor Fields was completed, local residents regularly use the park to run, cycle, and picnic and the space is used for a variety of social events throughout the year. Despite this usage, the park, along with its NBS, has an extremely low litter level, indicating that those using the park respect the space. Roger identifies many reasons for why Manor Fields Park is successful, one of which is good community engagement:

“It’s not necessarily important for people to understand NBS, but it is important for them to accept it on their own terms. Good community engagement is purely about the respect you’re giving to the community by making them aware of what is happening; this is the number one reason why you do engagement.”

Creating a personal connection to the place mattered:

“We included people’s carvings in the wall, so that people knew about the park. And the wrought iron railings in the boundary wall involved the older lads doing metal working and laser cutting of art designs into the metal. It all seemed to work, but it’s hard to tease out exactly why.”

Roger’s last point indicates how difficult it is to evaluate community engagement. People and communities are complex and dynamic, and therefore knowing exactly which factors create acceptance is difficult:

“And people move on don’t they, I mean the young people who were involved in contributing to the boundary wall are now probably in their 40s and parents. But that’s what’s so interesting about creating a park from scratch, you really are at the beginning of the park’s history.”

As the park developed, and footpaths were laid, the land evolved from being a barrier. It first became a link, then a social space:

“I’ll always remember seeing a family having a picnic on the park, where it had been awful before, with tons of waste, horrible fires, and they were having a picnic. And I thought: ‘Yeah, people who’ve never seen this site before, are coming here and saying this is a park. And I think it’s partly about people who lived there changing their mindset, which is quite hard to do from what it was before, and the new people coming saying: ‘God it’s gorgeous here isn’t it.’”

In terms of engaging people with NBS specifically, Roger admits that he does not think they were particularly successful in getting people to understand how the onsite water management worked. But he also argues that, in many ways, this wasn’t important. In the end, what enabled people to understand NBS was their direct experience of seeing it in action:

“NBS is not an easy concept. I mean we were talking about it for ages, but it wasn’t until the floods came in 2007 that people went: ‘Ahh! Now we get it’. You could have done education until the cows came home and people would not have known what you were talking about until they saw it full of water.”

Things that didn’t work

One way in which Roger tried to engender community acceptance of NBS was to focus on ways in which the system could provide a social function. From conversations with residents, Roger learnt that

fishing was a popular hobby amongst the young. So he explored the possibility of incorporating fishing into the park. As part of this work, he arranged a youth fishing conference:

“I had projects presenting from around the country who did really progressive youth fishing projects, for example, using fishing as a way of getting young people who had dropped out of education back into education through fishing. And it was all looking brilliant. Unfortunately, there was a character from the area, who came along to the conference and decided they were going to take the lead and then seemed to suck the life out of it. They were part of a development organization – but the youth fishing idea just died with them. It was a pretty annoying process really. Disappointing – I put a lot of work into that.”

Things that worked well

Community events harnessed community support for the park, and developed a ‘park culture’:

“‘Wet, Wild and Windy’ was really a week of events. We had all sorts of things to do with water and wind. We had a huge turbine erected on the site. We had all the kids making flags with schools that we then erected on canes around the park, fluttering in lines across the site. But the big highlight for me, which everybody still talks about, was a temporary slide that we put on a hill. I bought a 50-metre piece of thick, waterproof sheeting, with a bowser supplying water plus a bit of washing-up liquid, and everybody could slide down into a pile of straw bales at the bottom. There were some health and safety concerns, but, my word! Everybody loved it. It’s not the kind of engagement that people necessarily think about, but people still talk about it.”

Performance of NBS

Manor Fields Park was completed five years after construction began in 2005 by which time the NBS was vegetated, appearing as a subtle form of the landscape. As part of the park, the NBS enhanced wildlife and during the storms of 2007 and 2019, the system contained the excess rainfall just as intended:

“After the 2007 flooding the basin was full of water but was useable within a few days. Because of the way we designed the grass surface to drain it wasn’t a muddy nightmare for weeks. Two days later we had a cycling event in the park and the basin was the congregational area for the cyclists.”



Not only does the NBS function well in terms of flood resilience, it also appears to be robust enough to deal with potential upstream abuse, which is always a concern for NBS in highly populated areas:

“I think we might currently have a misconnection into the system, it’s hard to determine, but there is a slight smell of detergent, so somebody might have got a garage-based washing machine and popped it into their garage down pipe. However, this NBS is fairly robust in the way it manages stuff. Recently there were loads of toads at the inlet, it was incredible. So the water quality is not bad. I don’t think we’ve got many misconnections.”

Wildlife at the inlet also indicates that this NBS is enhancing local wildlife and biodiversity.

Maintenance

Roger was clear about the need to organise a secure and regular revenue for maintenance:

“At the start of the project, I had a budget of £300 per year for 25 hectares of land; and all that paid for was to move stolen cars [that had been dumped], it didn’t even cover clearing the rubbish tipping. So finding money to manage the land was crucial.”

Working with Green Estate, Roger managed to make the case to Sheffield Council that they needed to make provision for maintaining NBS to realise the park’s regenerative potential:

“Green Estate have been the body that have looked after it with a level of grant from the council which is probably quite generous in terms of their revenue spend on typical parks. But I’ve always made the case that it needs it. And actually it’s done the job, the higher investment has meant that we’ve been able to put the work in to establish a park culture.”

Having made a success of incorporating NBS into Manor Fields Park, Roger and Green Estate have been able to extend this process to other sites across Sheffield, developing the means by which a revenue for NBS maintenance can be achieved:

“The Council give a grant to Green Estate to do all the park’s maintenance. The Manor Fields NBS gets about a £10,000 index-linked figure earmarked for the park annually to look after the environment of the NBS, which is quite a substantial piece of the park. This was negotiated from the developer as

a large commuted sum. And we’ll get the same for the new NBS we’re developing in the park. I have set up a rental charge on every resident, so all the residents that will be served by the new NBS will pay the Council a small sum of money in perpetuity, secured through the deeds from each household. We now have three NBS run on that basis that are bigger than Manor Fields, much bigger. Pipworth serves about nine hectares of housing – about 600 houses – and that’s all on a charge system from each household; it’s £27 a year so it’s quite affordable.”

Conclusions and comments

Roger argued that NBS should ‘blend in’ not only to the landscape, but to the surrounding community, something that is achieved by a combination of good design, and working closely and participatively with the community to ensure that any scheme meets local needs:

“A key thing to me is that these NBS are simple soft-engineered landscape features that are almost invisible in the land, that’s how they should be. They should be seamless and so really they’re not imposing on people as features, they’re just accessible landscapes that have water in them every now and then. That to me is an overriding importance to putting NBS into existing or new spaces that are being built as part of a development – it’s absolutely critical.”

“I know community engagement is important, but the success of NBS is as much about good design. Good subtle design (not engineering design) that is attractive. For example, head-walls with tubular metal railings around – I just say: ‘No, we’re not doing them’. We ripped one out the other day. I said I want boulder features with nice big rocks so they can’t be chunked, and the water emerges out of the rocks, breaking the velocity. Boulders hide the mechanics, you can climb on them, they’re a hibernaculum for amphibians, and they’ll look better and better with age; so what’s not to like about that? If a scheme is well designed, using good materials, and is almost invisible, it’s hard to make a case against it – even if you’re not consulted. Good design is absolutely critical.”

Case Study 3: When engagement goes wrong

In order to protect the individuals in this story, we have changed identifying aspects, including the names of places (fake names used), organisations, events and some specific hydrological and geographical details. Notwithstanding these changes, it is a personal account, which is told, as far as possible, in the words of a professional, to whom we are grateful for their honesty.

Introduction

Despite our awareness of failed NBS projects across the UK, we seldom get to read detailed analysis of why failure happens. This is because of the risk to individual professionals and organisations if they speak openly. The following story describes how NBS can be directed as much by political context, institutional process, and the personality, emotions, and egos of individuals as by technological expediency.

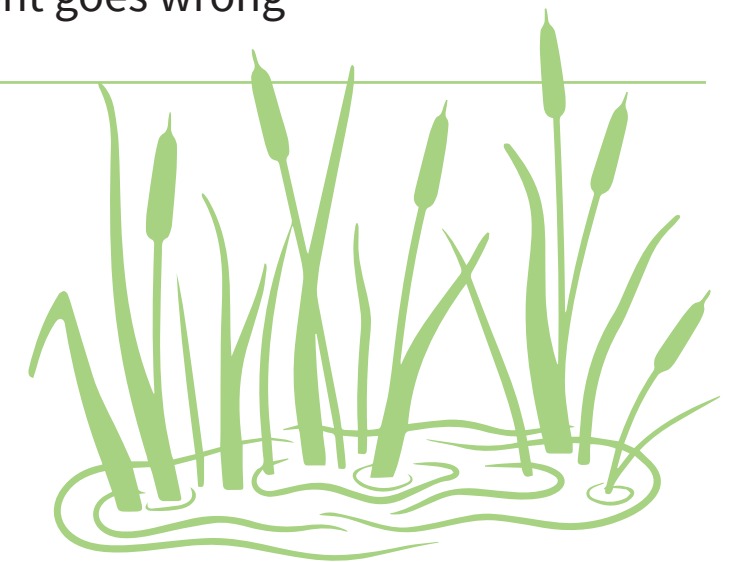
Summary

In 2019 a fishing pond was built in a residential estate on the outskirts of a town as part of a flood resilience scheme. The estate had a high degree of deprivation and related challenges. The fishing pond could have been a much-needed asset; it could have been filled with roof runoff and stocked with fish, providing flood resilience and environmental and leisure facilities. Instead, the pond does not receive runoff and was so badly vandalised during construction that, at the time of writing, it has never been filled with fish, or indeed water.

The history

Before 2007, surface water flooding was relatively rare, or if it did happen, people didn’t realise or think about it. People had heard about river and tidal flooding but not really surface water flooding.

In 2007, the UK was subject to huge amounts of rain over a prolonged period of time. This was particularly true in Rindle and the surrounding area of Heming Rise. Because Rindle is situated below Heming Rise, the water ran down various



catchments in Heming Rise, flooding villages as it went. When it reached Rindle, it quickly filled the sewers and began ponding in low spots. One of these was an estate on the outskirts of Rindle called Meadow Farm, which was badly flooded.

The relationships between Heming Rise and Rindle had never been brilliant. The councils represent opposing political parties, and there have been some strong personalities involved. Flooding had not previously been discussed between them.

However, after 2007, Rindle decided to create a surface water management plan. Representatives from Heming Rise sat on the committee. They looked into locations for NBS to hold back water from the sewers and prevent flooding. However, after a year of feasibility work, the Heming Rise flood risk manager announced that such NBS were not needed in Rindle because Heming Rise was doing “some very large schemes”, making other interventions unnecessary.

After this, there was an agreement that Rindle and Heming Rise Councils would work together on these schemes at an officer level. However, during 2010, it became clear that while Heming Rise had the land and the space to store the required volumes of water, it would not get the funding to build them because they didn’t have enough properties that would benefit to justify the cost. The only way to solve the problem was to link the Rindle and Heming Rise schemes together because Rindle had the deprived areas that brought government funding and Heming Rise had the space.

So a plan was developed to construct two large schemes, one of which was for Meadow Farm and a nearby area called Blinkington. It was started in about 2012 and was the more hydrologically complicated of the two. Many people in Rindle were not convinced about the scheme, and did not feel that it was in the right place to store water. Part of the problem was people did not fully understand where the 2007 flood water had come from: they had seen water flowing across fields in some areas, but did not realise that some of the flooding had occurred because the sewers were full and the water had come up from the ground.

Another aggravating factor, was the Blinkington Flood Action Group, a group of retired engineers many of whom had worked for or with the water company. For a number of reasons, this group strongly disliked the flood risk manager at Heming Rise. He was also an ex-water company employee who had been flooded very badly in 2007. As a result, he'd given up his job at the water company in order to work for Heming Rise. He was an exceptionally clever man who had expertise on the water company side of things, and was the main driver behind the schemes.

However, he wasn't good at listening to communities. Indeed, he didn't like working with them at all. When he'd worked for the water company, he'd been particularly scarred by a project that had ended in a fine over biodiversity issues. Consequently, he didn't like nature-based and multi-benefit schemes. In his mind, he was an engineer and built engineering flood schemes. He saw community influence as something that would jeopardise their functionality.

So the Blinkington Flood Action Group tried to engage with him about the scheme at Heming Rise because they felt it was wrong, and he snubbed them. They became frustrated and told the Rindle Councillors that there was no way the scheme would work and that it was a waste of money. They attended planning committees and because they were all highly qualified with strong opinions, the Rindle Councillors found their views quite powerful. The group very nearly stopped the Meadow Farm and Blinkington flood scheme from happening at all. Thankfully, the modelling evidence, showing the scheme would work, and the unacceptability of the alternatives, won the day.

Our interviewee explained their position in relation to these conflicts:

"I had just started with Rindle Council, who at that time had a number of disputes over boundaries with Heming Rise. This had led to some very bitter fights between the councils, and there was quite a lot of aggro between the two leaders. So when I went to my first council meeting in Meadow Farm to talk about the scheme I was told by the more vocal of the three councillors that we were 'at war with Heming Rise', his actual words, and there was no way we were going to work with them, regardless of any flood situation.

I was quite shocked. I had moved from the Environment Agency, where I'd worked on this project and I knew how beneficial it would be for both the Rindle and Heming Rise communities. I'd witnessed disputes between Rindle Council and Heming Rise officers, but I didn't think that it would be that bad amongst the councillors. I'd worked with councillors before and they'd never come across that way.

Another factor affecting decisions was the experience of the three Meadow Farm councillors, none of whom actually lived in the area, and only one of whom had any experience of flooding. However, the councillor who was took the lead was vocally opposed to the Blinkington and Meadow Farm scheme.

In response, I explained that Rindle council couldn't afford to do their own version of the scheme, and that if we went ahead with the existing proposal, it would benefit 4,000 properties in both Meadow Farm and Blinkington. I said: 'Are we really saying we don't want that? If we have to go back and create our own scheme, it's going to take a lot of time and we don't have the space.'

Rindle Council owns a lot of land within Heming Rise. The land I was asking permission to use actually sits within Heming Rise's boundary, but is owned by Rindle Council. In the past, when Rindle Council was more affluent, they'd had a policy of buying sections of land in Heming Rise, which Heming Rise was never happy about. At an officer level, Rindle worked very well with Heming Rise and had done for years, but at a higher level, there was a lot of antagonism.

Therefore, when the Blinkington Flood Action Group told the Rindle Councillors that there were no benefits to be had from the scheme, the Meadow Farm councillors decided they didn't need it. I

suppose they also thought they could get the water company to sort it out because they knew the sewers were the water company's responsibility.

This was a common mindset after 2007. There wasn't the understanding that the reason the sewers can't cope is because the sewers are dealing with much higher volumes of water than they were designed for, including the runoff from the parks and highways. In fact, if the water company played hardball, they could say to both councils: 'You get your road water out of our sewers because that's not what our sewers are designed for.' Across both areas, there's been decades of development, and unfortunately there has been very little thought about the additional pressures on the sewer system from extra runoff.

Thankfully, one of the councillors, the one who had personal experience of flooding, provided a voice of reason and agreed they did need this flood scheme. However, they also introduced a bit of a curve ball into the negotiations, by adding that they would only go ahead with the scheme if they could have a fishing pond too. I think this was a way of steering the discussion from absolutely no scheme at all, to getting the other two councillors to see the benefits. They were acting as a peace broker.

So, I had one councillor who was adamantly against the scheme: 'We're at war, over my dead body'. Another was just quiet; I don't remember them ever saying anything really apart from just nodding and agreeing with the others. And then there was the third, who was trying to move the situation on to get the best outcome."



Why a fishing lake?

"It just so happened, that the councillors had previously done some feasibility work for a fishing pond. There is a community-fishing pond in a neighbouring estate, which is very successful. It had been one of those projects that had taken a space from being very unloved to being a community asset. The pond is well looked after and policed by locals, is always busy, and is not only used for fishing but for nature walks etc.

There was and is a big demand for fishing in this area, and there's a lot of research linking it with a reduction of antisocial behaviour in young people. I assume that's why the fishing ponds in the neighbouring estate were developed, and why the Meadow Farm councillors thought this would be welcomed there too. Also, Meadow Farm Youth Group have very close links with Rindle District Angling, who have a facility nearby which is full. The kids there are sat literally shoulder to shoulder.

So it seemed to make perfect sense to have a fishing pond in Meadow Farm. I've little doubt the councillors spoke with Rindle District Angling, but whether they spoke to anyone else locally, actually asked the community about it, I really don't know.

However, It turned out that the land they had been looking at wasn't ever going to be viable, because a high-pressure water main ran through the middle. But they said: 'We've done some feasibility for a fishing pond, so if you, as part of your flood scheme, pay for our fishing pond, then we will agree to you doing the flood scheme.'

So I had to go back to the project board and tell them the situation. I ran some drop-in events and the vocal councillor who was against the flood scheme was very hostile to Heming Rise staff. This particular councillor also made it clear that without the fishing pond, there would be no scheme, that he would personally make sure it didn't go through planning and be approved by Cabinet.

I knew I had to take a paper to Cabinet to get approval to use our land for this fishing pond. Because I was new in the council, I didn't really understand the politics or how much power this particular councillor had, and the thought that they could stop the whole scheme was quite concerning.

I went back to the project team and said: 'Look, I think if we can do a fishing pond it's probably the

best way forward.’ And that’s when we changed the design and the spec. There were various groups that spoke about the site’s potential use for other leisure facilities, but as far as we knew, none of them had been successful. The councillors more or less just said ‘This is where we want it’. They did not consider that there was already some sports provision on there: in their minds this was land no-one was using, so we could just go ahead and put a fishing pond there.

The only way we could create this fishing pond was by labelling it ‘environmental enhancement’ because we knew we wouldn’t get funding to build a fishing pond as part of the flood resilience scheme. It just doesn’t work like that. The government would want a fishing pond to be paid for by council money. So, we created an ‘environmental enhancement’ which was also a fishing pond, just not a commercial fishing pond. Meadow Farm actually has quite a lot of protected species e.g. great crested newts, so alongside the fishing pond we included pond-dipping facilities and created habitats for different wildlife such as bat boxes. The area has huge biodiversity, it’s amazing, we’ve got everything, even water voles, and we would have had to do something for biodiversity anyway.

Actually, we were all very proud of the fishing pond when construction started. However, instead of keeping it simple, Heming Rise did something quite elaborate with the shape and planting, or at least their consultants did, and to my mind, they went a bit over the top.

I realised there was going to be an issue with the fishing pond, when we started getting very high levels of vandalism before we had even filled it with water. In fact, we had tens of thousands of pounds worth of vandalism within a month. This included burning fishing platforms, pulling out every single newly planted tree, and burning the coir matting that was around the edge of the pond. Anything that could be burnt was burnt, everything that could be thrown was thrown into the pond, and things like lifejackets and lifebelts just disappeared.

However, by the time the pond was under construction the three Meadow Farm councillors responsible for initiating the fishing pond had moved on. So I went to talk to the three new councillors about it and they admitted that, while they were grateful for the fishing pond, they weren’t

quite sure why it was there. In fact it’s been really difficult for them. Instead of being a lovely asset, it has just been one issue after another. And if you speak with people in the community, they say: ‘We never wanted this in the first place, why didn’t you come to us, why didn’t you ask us if we wanted a fishing pond?’

It’s just been a big lesson for everybody. We should have done a lot more community consultation ourselves and not just relied on the councillors. However, at the time, I was told that council officers worked for councillors and did what they were told. I’ve subsequently learnt that not all councillors have that attitude, but some really do.

The particular councillor, the one who was so antagonistic in this situation, proudly told me that he had got rid of my predecessor. Actually, I know my predecessor very well, and he changed jobs to reduce his commute, not because of anything the councillor did. But the councillor clearly intended to intimidate me by saying this. I’m not easily intimidated, but I was too new in the role to stand up to him then.

I did go to my boss and explain what was happening. He was very supportive and said he was backing me 100%. He also said that if we could do the fishing pond then we should do what the councillors were asking, because he could see no harm in it. I don’t think he wanted to rock the boat.



When it comes down to it, councillors are elected, so you would like to think that they speak on behalf of their residents. Obviously, I’m paid to work for the Council, which is supposed to be doing what the residents want it to do. So, it’s a sort of chain of command. I trusted that the councillors knew what their communities wanted. I think I am wiser now.

That said, I would just like to add that a lot of our councillors have full-time jobs, as well as being a councillor. I admire them. No matter how bad some of them are, I admire them for putting in that dedication because you know, if they didn’t do it, who else would?”

The situation in 2022

“We now have a new council community development officer for Meadow Farm. It’s a shame they weren’t in post before, because I don’t think the situation would have happened as it did if they had been. They completely get Meadow Farm and work with all the groups there. The appointment of the three new councillors coincided with this council officer beginning their new role, and they work well together.

We’ve had various meetings with the Police and Antisocial Behaviour people and it appears that it’s only a minority who are vandalising the pond. They’re very keen to say: ‘Look this isn’t the majority of people in Meadow Farm; we do know who it is who’s doing this but we’re unable to do very much about it.’ However, they have begun dealing with the individuals; and the level of vandalism has reduced.

In fact, the new council community development officer is reporting that people are now using the pond and actually really enjoying it. There’s actually a little group of residents that go in and clear the area. I spoke to one of the ladies recently and she was saying she doesn’t want it stocked with fish. Her husband’s an angler, so at first she was wanting it full, but now she says she quite likes it as it is.

I get the sense that residents are using the pond now. Ideally, children will use it for pond dipping. The educational side of things, with schools involved, was what we really wanted to happen. Unfortunately, the handover period when you establish things like school usage etc. was taken up with all the vandalism. Once vandalism happens, it becomes an area where schools don’t want to go and that’s been really difficult; but hopefully it’s heading in the right direction now.

I just think if we had involved the community in the scoping, and asked them what they wanted, with suggestions of benches and bins and tree-planting and all of that sort of thing, I think that would have made people feel so much more included. I think that would have made a big difference to the way things happened.”

Half fishing pond, half NBS

“In terms of NBS, the pond isn’t functioning in any meaningful way. This is another very frustrating thing, which people don’t understand. The fishing pond won’t hold water. The reason for this is a lot of contractual issues between Heming Rise and the contractors who built the fishing pond because they didn’t build it properly. I think that’s because it wasn’t actually part of the flood scheme and so probably wasn’t inspected properly. From the start, every time we’ve filled it up it’s leaked, which means it can’t be stocked with fish.

We now think we’ve found the problem in the pond and plugged the leaks. So we’re now waiting for some floods and then we will over-pump it from the main NBS scheme. Ironically, since all this work was built, we haven’t had the floods to be able to over-pump and fill the blasted thing – it’s currently still half-full. So, from the local community perspective, they’ve had all this work done on their doorstep because they’re at high risk of flooding, but there isn’t enough water to fill the fishing pond they never asked for. Really, you couldn’t make it up, could you?

In retrospect, we could have done so much more. If the different authorities could have worked as partners when we were doing the feasibility for the scheme, we would have been able to look at taking the roof water from all of the surrounding houses and directing it into the pond. But it was built purely as a fishing pond, because we had expert fishing pond designers build it who had no idea of how NBS works. It would have been so much better for the community if it had been just a pond that we could put fish in, a sort of half NBS, half fishing pond.”



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