

Draft design principles

February 2026



Grand Union
Canal Transfer
Moving water together



Introduction

The Grand Union Canal Transfer (GUCT) is a vital new scheme to bring water from the Midlands to the Southeast.

It's a joint water transfer project between two water companies, Severn Trent and Affinity Water, and the Canal & River Trust (the Trust) charity, who are the owner and navigation authority of the canals in England and Wales.

This partnership is crucial to securing a sustainable and reliable water supply for the future, which is currently under increasing pressure from population growth, climate change and the need to protect our fragile environment.



Ornamental air vent at Dunstable Downs Visitor Centre

What are we proposing?

The scheme will transfer highly treated recycled water from the Midlands to the Southeast to ensure future drinking water supplies for the region, and to strengthen the UK's water infrastructure.

We'll need a combination of new pipelines, water treatment plants and other infrastructure for the scheme, as well as improvements we'll need to make to existing infrastructure along the canal to enable water to be transferred along it.

We're proposing to start our scheme at the existing Minworth Wastewater Recycling Centre (WwRC) near Birmingham, where water is planned to be transferred via a new underground pipeline to Atherstone in Warwickshire.

It will then begin its journey along the Coventry, Oxford and Grand Union Canals, where we'll need to build some additional infrastructure. The water from Minworth's WwRC is treated recycled water, which would usually be discharged into the River Tame.

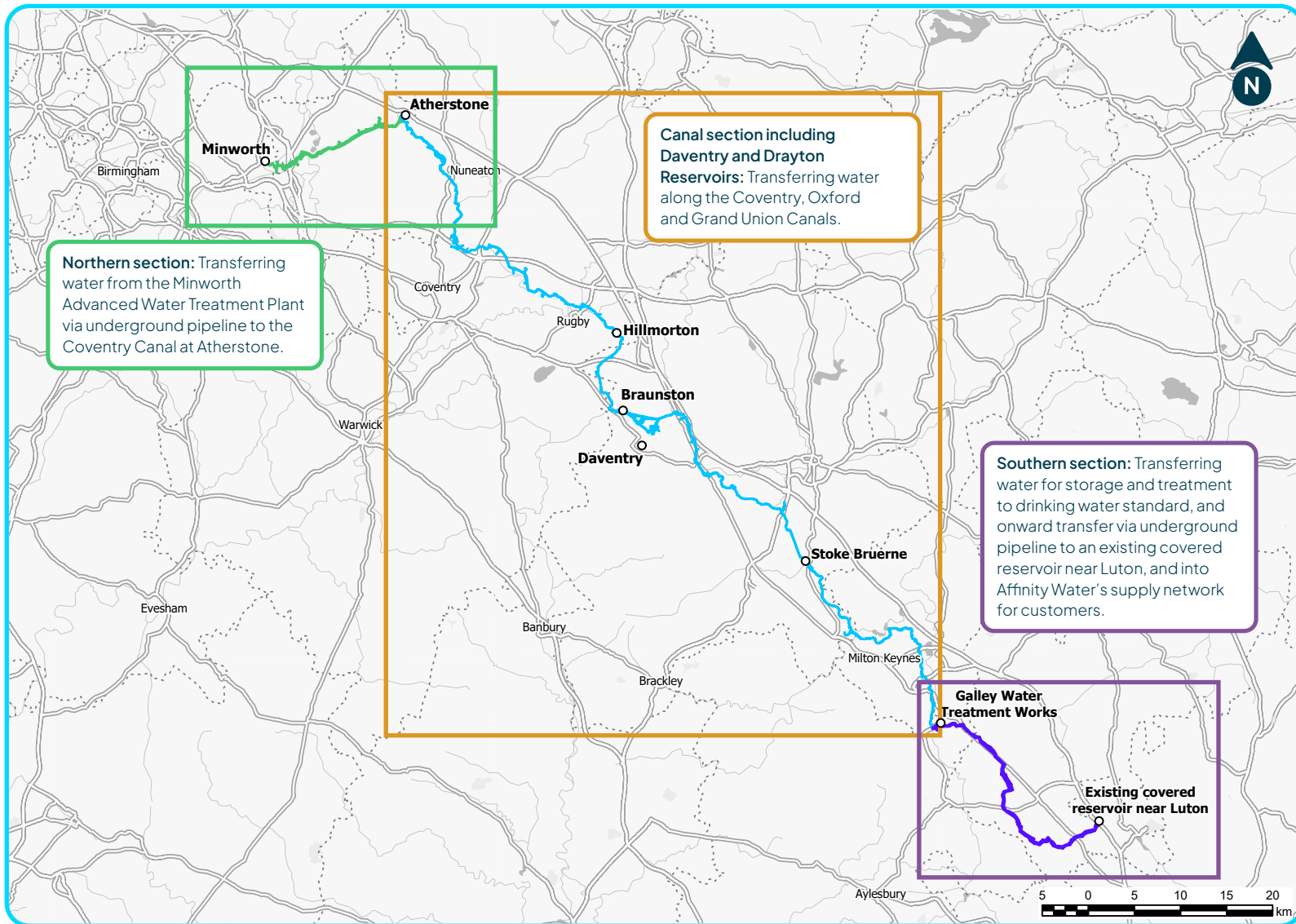
Under the scheme, some of this recycled water will be diverted to a new Advanced Water Treatment Plant (AWTP) to bring it to the required quality for transfer through the canal and to ensure the safeguarding of fish and wildlife is maintained.

Once it's been transferred through the canal network, the water will be piped from the canal, stored and treated again at a proposed new water treatment works near Great Brickhill, southeast of Milton Keynes. It will then be transferred via a new underground pipeline as clean drinking water into Affinity Water's supply network for customers, from an existing covered reservoir near Luton.

Engineers building pipeline



Grand Union Canal Transfer scheme route overview



Key

- Canal
- Northern section pipeline
- Southern section pipeline
- Northern section
- Canal section
- Southern section

To view this map in more detail, please visit our interactive map on our website: www.guctransfer.co.uk

Where are we in the scheme's development?

Due to the scheme's size and importance, we must apply to the Secretary of State via the Planning Inspectorate, for a special type of consent known as a development consent, for the scheme to be constructed, operated and maintained.

This is granted in the form of a Development Consent Order or DCO. You can find out more about this process on the National Infrastructure Planning website at: <https://national-infrastructure-consenting.planninginspectorate.gov.uk/decision-making-process-guide>.

The DCO process puts an emphasis on early engagement with communities and stakeholders, to allow for the opportunity to influence a scheme before a DCO application is submitted to the Planning Inspectorate.

We completed our first public consultation in 2024 and presented the early proposals for the scheme and gathered views and feedback to inform our proposals.

Since then, we've continued our engineering and design work and environmental assessments and had ongoing discussions with landowners and other stakeholders, all of which has helped to shape the next stage of development for the scheme. We've also continued to engage with those who live and work along the canal and canal users, to inform the development of our proposals, to ensure we're sensitive to the canal environment and community.

We've now reached the next important milestone where we can share our updated proposals and more details about the scheme. Our Phase Two Public Consultation will take place for seven weeks from Wednesday 11 February to Thursday 2 April 2026.



Engine house at Hawkesbury Junction

Following design principles guidance

National Infrastructure Commission guidance

In 2020, the National Infrastructure Commission (NIC) issued guidance on the use of design principles for National Infrastructure projects around the four themes of Climate, People, Places and Value.

The guidance states that: 'These principles should guide the projects which will upgrade and renew the UK's infrastructure system. They should be applied to all economic infrastructure: digital communications, energy, transport, flood management, water and waste'. The Planning Inspectorate also issued guidance on good design in 2024. This guidance explains the importance of good design.

<https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-good-design>

The use of design principles such as these is supported by Section 3.6 of the National Policy Statement for Water Resources Infrastructure (the NPS), which states: "Design principles, such as those published by the National Infrastructure Commission, in the government's response and the

National Planning Policy Framework should be established from the outset of the project to guide the development from conception to operation."

All Company Working Group guidance

The All Company Working Group (ACWG) is a steering group for water companies and was set up to ensure that water companies with Strategic Resource Options (SROs) were adopting a consistent design approach where possible. In 2023, the ACWG issued guidance to water companies on how they expect design principles to be applied to SRO projects.

The ACWG guidance builds on the NIC design principles and reinforces the importance of good design, and includes principles associated strongly with landscape and environmental value.

<https://www.wrse.org.uk/media/cumkcxyg/acwg-design-principles-methodology-document.pdf>

The Phase Two design has been shaped by our overarching design principles and informed by the ACWG publication on design principles.

The design we're presenting at our Phase Two Public Consultation will continue to be refined, with alignment to Planning Inspectorate guidance and the NPS for water resources infrastructure demonstrated in the DCO application.



Building near Long Buckby Wharf

Independent design champion

We've appointed an independent design champion to review our progress and ensure we maximise design opportunities as we progress towards our DCO application submission.

The role of a design champion is to champion the value of design on a scheme or project. This means that they understand and care deeply about good design, promoting a holistic approach and driving the value that a scheme or project will bring. This should be both in terms of meeting the design objectives of a specific infrastructure scheme or project and in terms of the wider, longer-term outcomes. Their role is therefore accountable, with clear benefits to the public.

What is the purpose of this document?

This document provides key information about our design vision for the scheme which sets out our ambitions and our draft overarching design principles, how they've been developed, and how we intend to take them forward.

As part of our Phase Two Public Consultation, we're consulting on our draft overarching design principles.

These principles set out our design philosophy and will be used to help develop more specific scheme-wide, location and site-specific principles as our design progresses, including our canalside design principles, which are provided as an Appendix to this document.

We'll further develop our draft overarching design principles following this consultation, taking on board any feedback we've received. We'll submit them as part of our DCO application to explain how we've incorporated them into our design for the scheme and they'll be further developed after this point.

We've developed our draft overarching design principles across five themes: Safe and Well, Climate, People, Place and Value. These are summarised opposite.



Grand Union Canal Transfer
Draft design principles

Our draft design principles

Safe and Well

- Public safety and wellbeing
- Safe and healthy environment for our workers

Climate

- Nature knows no boundaries
- Resource and carbon efficient
- Resilient and adaptable

People

- Understand and take account of community needs
- Engage widely, early and meaningfully
- Improve access and inclusion



Place

- Consider and reflect local contexts
- Protect nature and promote its recovery
- Design all features beautifully and appropriately, with honesty and creativity
- Enhance the visitor experience
- Respond to historic canal context

Value

- Maximise embedded value
- Understand how to provide additional value
- Capture and measure embedded and additional value

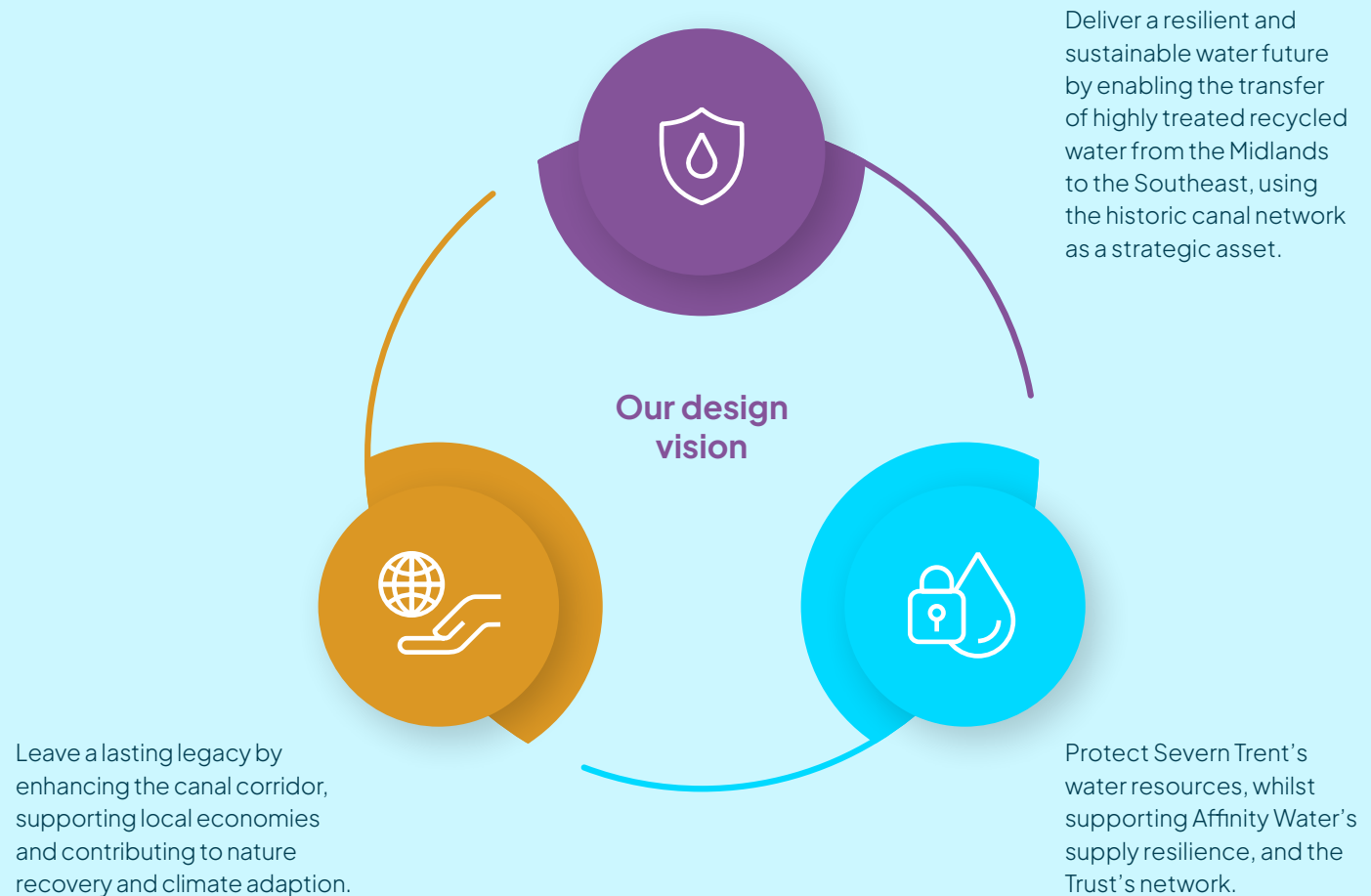
Our design vision

The scheme is founded on the principles of environmental stewardship, inclusive design and meaningful collaboration with communities and stakeholders.

Our design vision aims to secure a resilient and sustainable water supply for Affinity Water customers and create wider benefits for regional and local communities. It reflects an ambitious 'moving water together' initiative and places value on resilience, partnerships, environment and communities, whilst helping to protect the historic canal network forming part of the route.

As the design develops, we'll continue to review it to ensure it fulfils its purpose and reflects our intended outcomes of the scheme.

Design vision



Our draft overarching design principles

Our draft overarching design principles consider the scheme as a whole, including the design of the water treatment works, transfer pipelines, and canal-based infrastructure. They'll help ensure we blend any new buildings and infrastructure, such as the new water treatment works, into the local environment.

The draft overarching design principles cover five themes, set out on page 7, that are embedded across the scheme to ensure we respond sensitively to the unique character of places along the route, including the canal corridor, while also addressing the broader functional and environmental challenges of the scheme's wider infrastructure. They've been developed to guide the early stages of design and set out our design philosophy, which isn't specific to a particular place but to the requirements and challenges of the scheme.

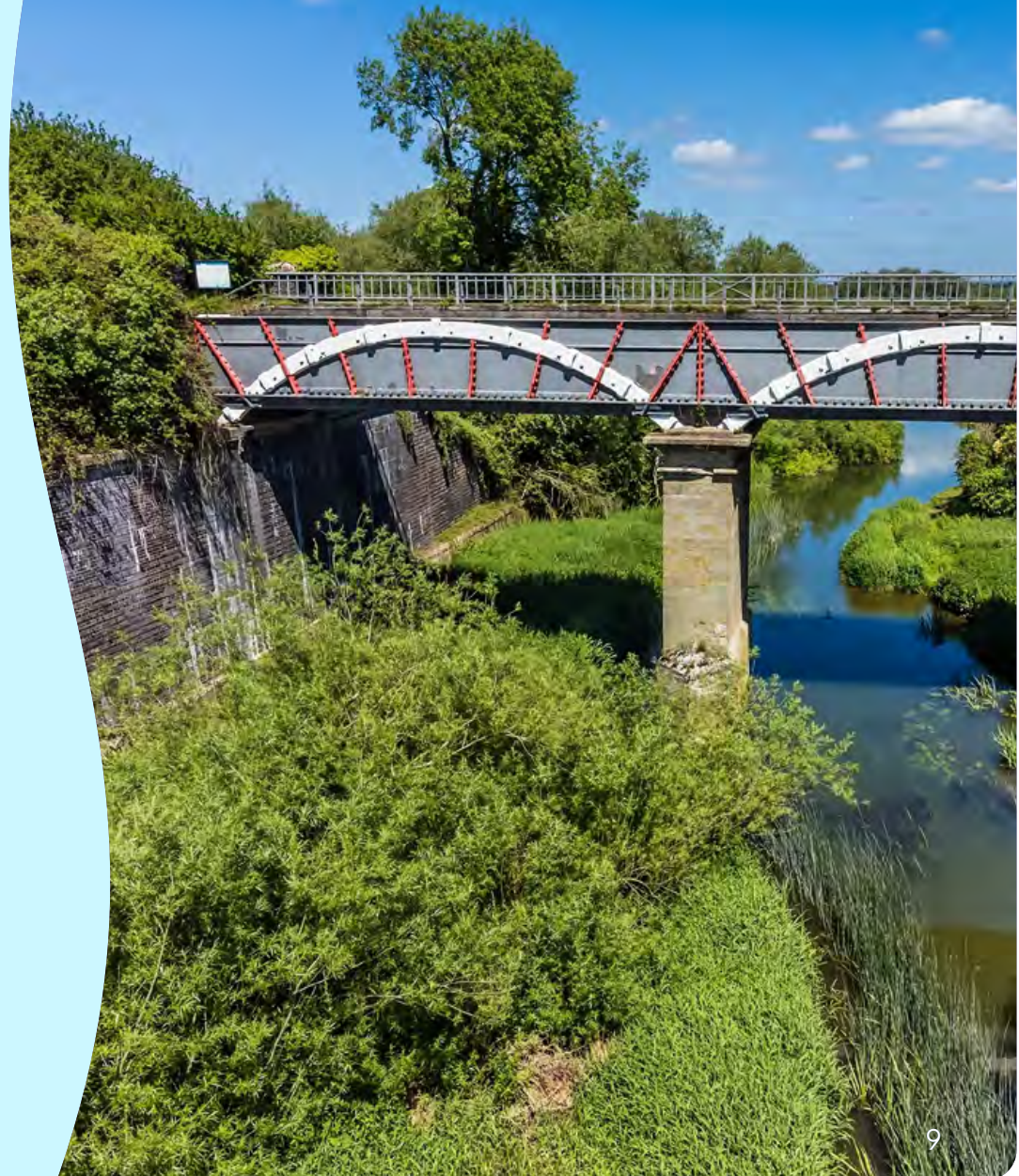
Alongside our canalside design principles they also take account of those design principles which are particularly important to the canal setting, and along the canal corridor, emphasising the importance of heritage and cultural value, community and environmental value.

You can read more about our canalside design principles in the Appendix to this document. They serve as a checklist to guide the design of canalside buildings and structures, to ensure that new interventions are locally appropriate and connected to their setting.

Our design principles will be developed further to create site-specific principles as the scheme progresses.

We've set out our draft overarching design principles in more detail on the following pages.

Iron Trunk Aqueduct, Cosgrove



Safe and Well

Health, safety and wellbeing are at the core of everything we do and are fundamental to the success of the scheme. Our project partners are working together and committed to ensuring that no one is harmed or made unwell by the work we do.

Public safety and wellbeing

We're committed to ensuring robust protection to the public and recreational users from potential harm through careful planning and responsible design. Public safety and wellbeing remains a priority whilst delivering lasting benefits.

A safe and healthy environment for our workers

We're taking a proactive and collaborative approach to developing designs that are safe to build, use, and operate. Our focus is on minimising health and safety risks, particularly in hazardous construction and operational activities.



Reinstating road after installing pipeline



Installing new valve structure for pipeline

Climate

The scheme promotes collaboration between the partner water companies and the Canal & River Trust, to deliver nature-based, low-carbon, and future-ready solutions that enhance biodiversity, reduce environmental impact, and adapt to changing water treatment needs.

Nature knows no boundaries across the scheme

We aim to encourage collaboration across project partners and stakeholders to implement nature-based solutions that enhance biodiversity and deliver broader benefits.

Resource and carbon efficient

Our focus is on material reuse, energy recovery, and utilising and seeking to improve existing infrastructure to minimise environmental impact, reduce the carbon footprint, and ensure energy-efficient operations.

Resilient and adaptable

We're aiming to design in a way that can accommodate evolving water-quality standards, emerging treatment technologies, and the challenges of a changing climate, helping support the long-term resilience of the canal.



Example of solar panels on industrial building



Ancient tree

People

The scheme is committed to early, inclusive engagement with communities and stakeholders to shape outcomes, enhance accessibility, support local economies, and deliver meaningful social, environmental, and economic benefits.

Understand and respond to community needs

We're engaging with communities and stakeholders to inform the development of the scheme, reduce impacts, and support local employment, alongside wider environmental, social and economic benefits. Where appropriate, we'll explore opportunities to align with or sit alongside existing community infrastructure (i.e. facilities and spaces valued locally) and support places that strengthen social cohesion and local identity, taking account of the needs and concerns communities raise.

Engage widely, early, and meaningfully through design and construction

We're fostering proactive collaboration, ensuring stakeholder interests are considered in design, construction, and long-term operations, with transparent communication on the integration of feedback we receive through consultation.

We'll also ensure that the design process considers and minimises disruption to canal users and local communities, using good design to reduce visual, noise, and access impacts, wherever possible.

Improve access and inclusion

We're exploring transport and accessibility enhancements, ensuring open dialogue with local groups to maximise community engagement. We'll seek to include, where appropriate opportunities arise, enhancements to amenities for canal users such as boaters, anglers, walkers, and wheelists. This may include the provision of seating, signage, and other facilities that support leisure and wellbeing.

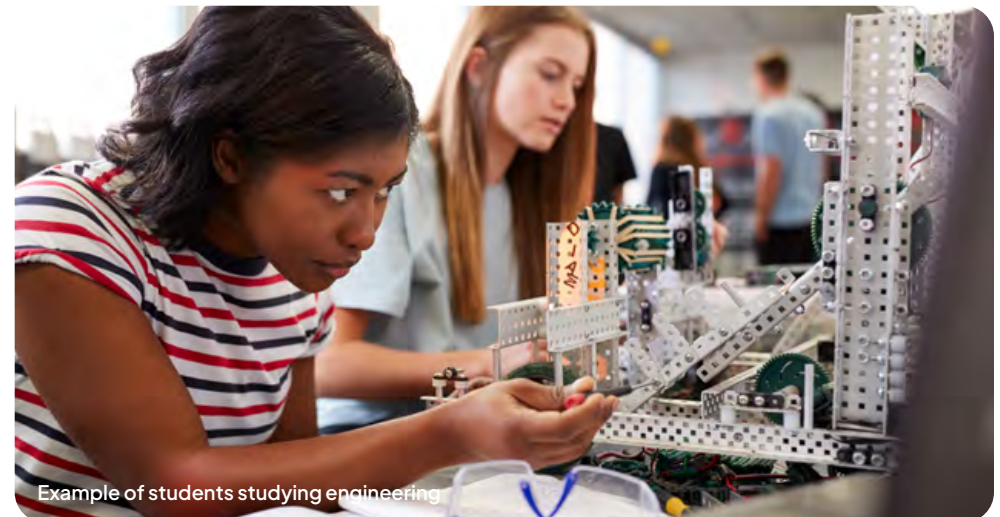
We'll also aim to improve access to the canal's corridor by enhancing sightlines, wayfinding, access routes, and physical connections, helping to ensure the canal remains a welcoming and inclusive space.



Example of shared use along towpath



Rubys Yard Community Interest Company



Example of students studying engineering

Place

The scheme champions thoughtful, creative design that safeguards and enhances the canal network through sustainable water management, biodiversity recovery, and a deep respect for cultural and environmental heritage, which considers and reflects local contexts.

Take care

We're promoting water recycling and sustainable stewardship of the canal network by integrating cultural, historical, and environmental considerations. This includes celebrating the canal's rich history and local heritage through interpretation, design cues, and material choices that reflect the character of each location. We'll carefully manage any potential impacts on heritage assets, ensuring that new interventions are sensitive to their historic context and contribute positively to the setting.

Protect nature and promote its recovery

We'll adopt landscape-scale approaches to infrastructure that enhance biodiversity, ensuring long-term success through collaboration and holistic planning.

Enhance the visitor experience

We'll incorporate design interventions that contribute positively to the leisure and recreational experience of canal users, including interpretation, rest areas, and visual interest that reflect the canal's identity.

Design all features beautifully, with honesty and creativity

We'll develop proposals that celebrate and enhance the local canal's character, leaving a positive legacy that complements its surroundings.

You can find out more about our canalside design principles in the Appendix to this document.



Image of Blisworth Tunnel



Iron Trunk Aqueduct, Cosgrove



Canal Museum, Stoke Bruerne

Value

The scheme seeks to maximise, quantify and evaluate both embedded and wider value through cross-disciplinary collaboration, strategic investment, and a focus on regional water sustainability and societal benefit.

Design infrastructure beyond the canal

In addition to canal-related interventions, the scheme includes significant infrastructure such as water treatment works and transfer pipelines. These elements will be designed to integrate sensitively with their surroundings, prioritising low-carbon construction, operational efficiency, and minimal visual and environmental impact.

Design will reflect the same principles of resilience, community value, and environmental stewardship that underpin the canal corridor approach.

Maximise embedded value

We're collaborating across disciplines to optimise the scheme's benefits, ensuring strategic placement of physical elements and mitigation within budget.

Understand how to provide additional value

We're seeking broader regional opportunities beyond the scheme's core scope, drawing insights from other successful initiatives to enhance water sustainability.

Capture and measure embedded and additional value

We'll clearly articulate the scheme's wider societal contributions, quantify these benefits for informed discussions on value, financing, and risk, and share insights broadly. These will be monitored and evaluated throughout the scheme's lifecycle.



Example of chalk stream

Have your say

As part of our Phase Two Public Consultation, we want to hear your views on our draft overarching design principles. We'll use your feedback to shape our final design principles before we submit our DCO application for the scheme.

Question 15 in our feedback form refers to our design principles. You can provide your feedback to this question and any other questions in the form if you wish, in the following ways:



Visit our website: complete and submit a feedback form at www.guctransfer.co.uk/consultation



Email us at: contact@guctransfer.co.uk



Write to us at: Freepost GRAND UNION CANAL TRANSFER (no stamp needed)



Any questions?

If you have any questions before submitting your response to the consultation you can contact the team by emailing us at contact@guctransfer.co.uk or by calling us on 0121 270 5920, Monday to Friday 9:00am to 5:00pm.

All responses must be received in writing by 11:59pm on Thursday 2 April 2026. Responses received after that date may not be considered. We can't guarantee acceptance of consultation responses submitted via other channels.



Hazel dormouse

Appendix

Canalside Design Principles



Grand Union
Canal Transfer

Moving water together



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Executive Summary

The Grand Union Canal Transfer (GUCT) Canalside Design Principles address the National Infrastructure Commission's ambition to promote design excellence in nationally significant projects, with a focus on Climate, People, Place, and Value. These principles are also aligned with the All Company Working Group (ACWG) Design Principles, and with the Grand Union Canal Transfer (GUCT) project wide Design Vision. These Canalside Design Principles sets out design principles for the new canalside water transfer infrastructure buildings and structures that will be required to deliver the proposed GUCT project.

The first section of this document, Character, sets out a character analysis for key sites across the canal corridor of the GUCT project, exploring design cues, environmental and conservation parameters and stories for each place.

A series of numbered and thematic Design Principles then emerges. These principles have been developed to inform the design of all canalside buildings and structures delivered as part of the GUCT project. The three headings that the principles are grouped under - Heritage & Cultural Value, Community Value and Environmental Value have developed from, and map across to, the principles of the wider GUCT project. As such, each and every principle should be considered to some extent in the case of each intervention, though a bespoke approach is likely to be necessary in each instance. Principles are phrased as questions so they can easily work as a 'checklist' of quality.

A final section, Scenarios, then explores how these principles might be applied, using real sites and conditions but exploring potential design strategies and solutions. These are intended as exemplars rather than as prescriptions, but they show how the principles might be applied successfully with different weightings in order to fulfil the opportunities and constraints of particular sites.

Good design cannot be legislated or forced, but it can be encouraged and frameworks established to support its delivery. It is vital that architectural, community engagement and urban planning expertise, of a high quality and with an appropriate sensibility relative to the inland waterways and to infrastructure delivery, is part of the delivery of canalside interventions within this project. We therefore recommend not only the right expertise is present within design teams but also an ongoing process of design review and design championing in order to ensure consistency of approach and quality throughout the project. This is in line with the 'Project Board Level Design Champion' role and Independent Design Panel already recommended.

Introduction



This Canalside Design Principles document was commissioned by the Canal & River Trust in order to deliver well-evidenced design principles for the new water transfer infrastructure buildings and structures that will be required to deliver the proposed Grand Union Canal Transfer (GUCT) project. Accordingly the focus is on visible buildings and structures along the canal corridor, not upon all structures delivered by the GUCT project.

The GUCT project is a vital new scheme to bring water from the Midlands to the Southeast. It's a joint water transfer project between two water companies, Severn Trent and Affinity Water, and the Canal & River Trust.

The document is structured into three main sections. The first, Character, explores the place character, local distinctiveness and architectural typology along the canal corridor within the GUCT scheme area. It also sets out a framework identifying places where particular themes – set out in the following section – are particularly important, thereby providing a structure for decision-making across this extremely long and complex site of intervention.

The second section, Design Principles, sets out a series of design principles organised under three overarching themes (Heritage & Cultural, Community Value and Environmental Value). The themes have emerged in direct response to the wider principles of the GUCT project (Value, Place, People, Climate), and each is supported within this document by a number of relevant international case studies which showcase global best practice.

The principles themselves, framed as a series of questions, are intended to serve as a quality assessment and decision-making framework. In each location where visible buildings and structures are required, it is likely that a bespoke solution, balancing these principles against the particularities of place as well as technical requirements, will be needed.

The final section, Scenarios, takes the three overarching themes and explores, using three 'real' places along the GUCT canal corridor, how the relevant design principles might be implemented. These are intended to spark rather than constrain the imagination, offering example processes, methods and outcomes rather than a single route to delivery.

This document, finalised in December 2025, was by necessity delivered in advance of many important design processes and engagement activities. It has been composed to have relevance and purpose beyond what is known at this time but may be updated and modified as the project develops.

Chapter 1

Character

The GUCT canal corridor

Canal character: locality & infrastructure

'To step down from some busy thoroughfare on to the quiet tow-path of a canal, even in the heart of a town, is to step backward a hundred years or more and to see things in a different, and perhaps more balanced perspective... the canals have their own inns and their own shops, and because they follow their own independent, tortuous routes about England, often seemingly purposely to avoid towns, the places whose names are household words to the boatman mean nothing to the landsman.'

– L T C Rolt, 'Narrow Boat' (1944).

Whether passing through a busy urban or industrial area, or through open countryside, the 'canal corridor' (by which we mean the canal itself and the spaces and buildings immediately associated with it on either side) is a distinct space from the surrounding environment, inflected by its context but also distinct from it. Once the arteries of industrial revolution, canals today offer access to a different pace and way of life, whether we spend our lives afloat or are on the towpath for a moment's relaxation. Canals change remarkably along the length depending on their context but they are also, always, their own space; a winding thread of water offering heritage, wellbeing, peace, biodiversity and much more besides.

There is a rich, characterful tension between the identity of the canal and the identity of the places it passes through, and this should form the basis of any character analysis of the canal network. On the one hand, when thinking about the

'character' of the canal we need to think about the canal as a piece of infrastructure and industrial design that, during construction, disregarded county lines, navigated across valleys and through hills, threaded through cities, created and transformed whole settlements, and otherwise impacted (and was impacted by) the places it passed through. This requires an approach similar to that used when studying railways or drovers roads – elements in our collective built landscape that transcend locality and reach dramatically beyond what we can see and where we stand. On the other hand, we need to acknowledge that the canal is always inflected by the local distinctiveness of the places in which it exists, whether expressed through local materials or economies, social movements, particular individuals, patterns of building and much more besides.

The character of a given stretch of canal can be seen, therefore, as the product of both its immediate local context and of its autonomy as a work of infrastructure design. In relation to the current GUCT project, this fact is especially important as the project seeks to bring a new (or expanded) infrastructural use to the existing network.

The GUCT canal corridor is part of the Grand Union Canal, which was formed in 1929 out of previously distinct canal operations: the Coventry, Oxford and Grand Junction canals. This developmental history, combined with the relationship between canal and context, helps us build a framework with which to understand character.

Canal character: historical development

The length of canal which will form part of the Grand Union Canal Transfer (GUCT) Project is the primary navigable artery between the Midlands and the Thames and which was created to form a single point of connection between London, Birmingham, Leicester and many other industrial centres along the way. The Grand Union Canal as an entity dates only from 1929 (indeed single ownership of the whole series of navigations was only really achieved with nationalisation in 1948) and originated as a commercial proposal to remain competitive with the railways and road haulage through amalgamating and modernising a series of previously distinct canals into a single network. The canal corridors that form the Grand Union Canal therefore have a series of distinct identities that relate not only to their localities but to their piecemeal and occasionally parallel development. Whilst the full story of these amalgamations (which take in 13 distinct navigations) is beyond the scope of this study, the area of canal corridor to be used by the GUCT project incorporates three originally distinct 'pieces' of canal development, namely:

- **The Coventry Canal** (constructed 1768–89)
- **The Oxford Canal** (constructed 1769–90)
- **The Grand Junction Canal** (constructed 1793–1805)

Each of these canals have their own stories, peculiarities, building methods and designers, and indeed subsequent stages of development following their initial construction and understanding this is key to building a proper understanding of the character of the canal corridor across the GUCT project. The character analysis that follows therefore, having mapped at the corridor as a whole, then splits it into these 'character sections' for more detailed consideration, also working to integrate how the specifics of locality inform canal character across the length of the project.

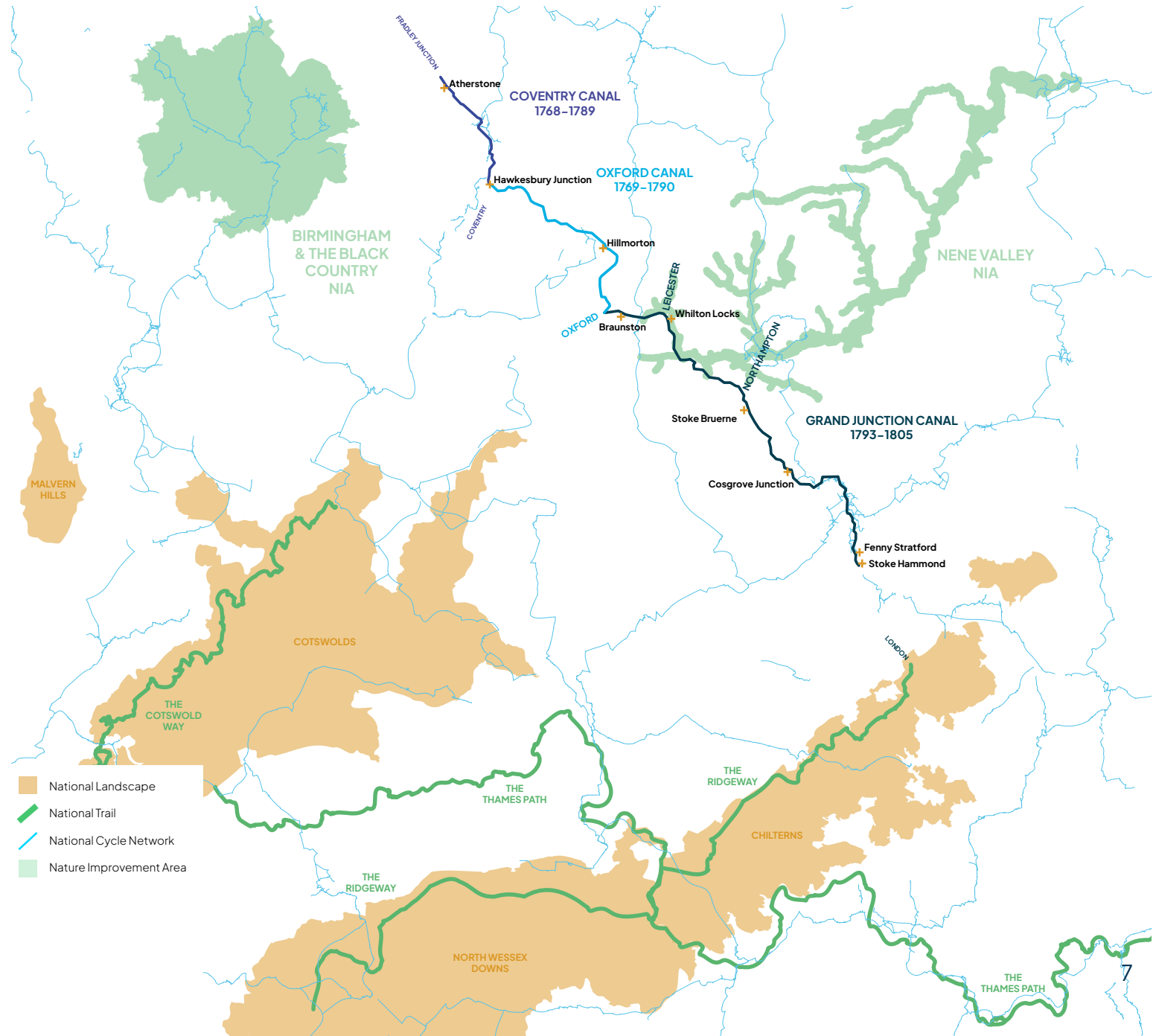
Community	Each 'place' is labelled by special characteristics that might make particular design principles particularly relevant.
Heritage & Cultural	
Environmental	
Particular policy designations are noted here.	

Landscape designations

The GUCT area approaches, to the south, the Chilterns National Landscape and the Ridgway National Trail. It intersects with and forms part of the National Cycle Network (NCN) frequently. A long stretch of towpath on both the Coventry Canal and Grand Junction (S) sections are part of the network, and multiple key GUCT sites are close to NCN intersections with the towpath. A long extent of Grand Junction (N) is within the Nene Valley Nature Improvement Area (NIA). The NIA is a 41,350h area comprising statutory and non-statutory sites, including the Upper Nene Valley Gravel Pits SPA/SSSI. The designation aims to create a resilient ecological network here, through five key objectives:

- Growth and development will support, value and benefit the natural environment resulting in a sustainable funding source /and delivery of improvements to the ecological network
- Enhance awareness of, access to and benefits from the Nene Valley for growing local communities in a sustainable and sympathetic way, while ensuring that the designated sites at the core are brought into/remain in favourable condition
- Improve ecological status of the river and enhance ecosystem service provision
- Through effective engagement with farmers and landowners maintain, restore and create BAP habitats and implement sustainable land management practices to strengthen the ecological network
- Investigate the potential to market ecosystem services provided by the Nene Valley by developing and trialling tools and models for Payments for Ecosystem Services

There is potential for GUCT interventions in the Whilton Locks area to make a positive contribution to these objectives.



Historic Counties

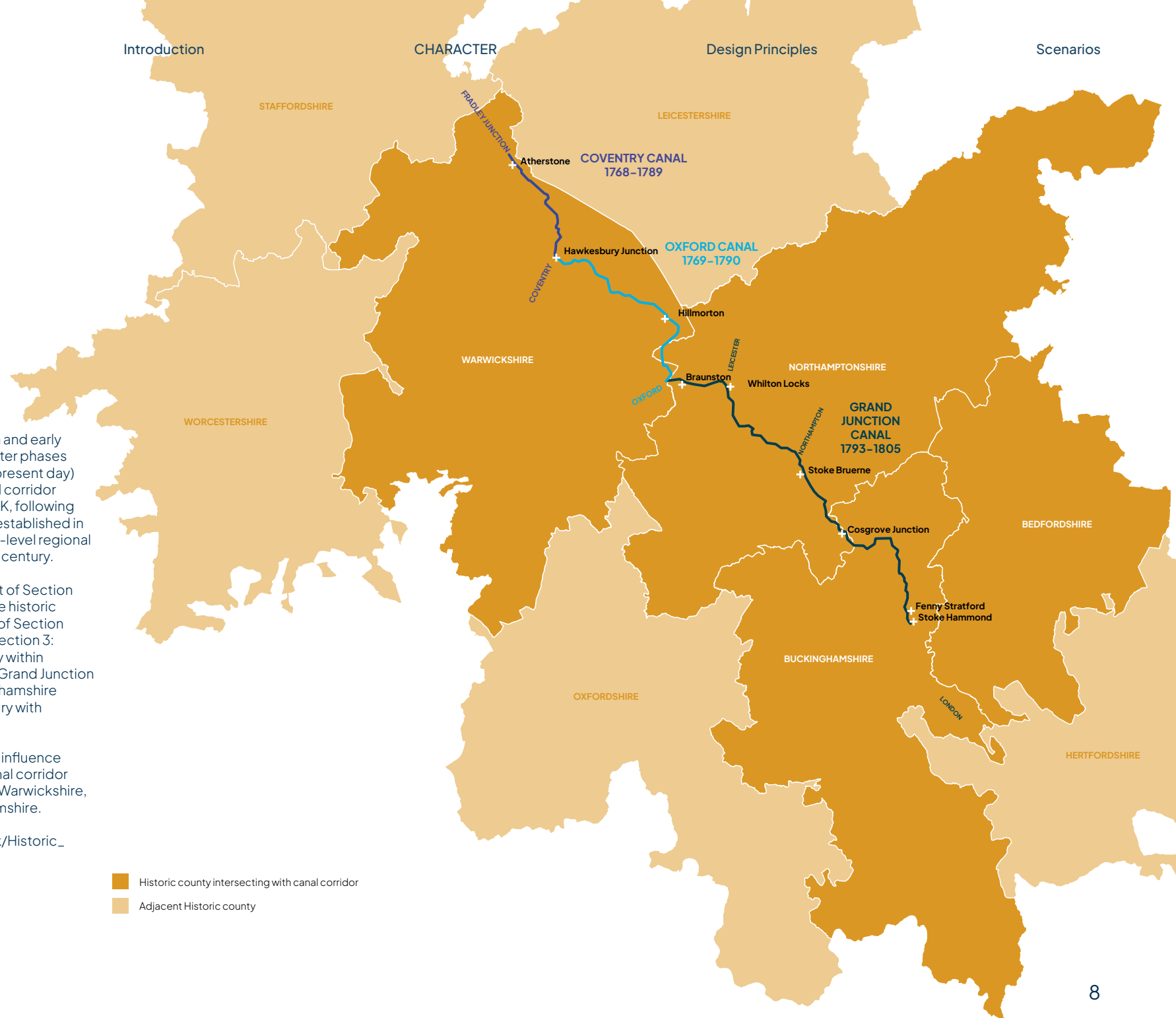
Built primarily in the late eighteenth and early nineteenth centuries, (albeit with later phases of development stretching to the present day) it is useful to locate the GUCT canal corridor within the historic counties of the UK, following the Historic Counties Standard as established in 2015. This gives a picture of county-level regional identity prior to the late nineteenth century.

Section 1: Coventry Canal and most of Section 2: Oxford Canal were built within the historic county of Warwickshire, but some of Section 2 cuts across Northamptonshire. Section 3: Grand Junction (N) was built entirely within Northamptonshire, and Section 4: Grand Junction (S) was built entirely within Buckinghamshire though skirting the historic boundary with Bedfordshire.

The historic counties with the most influence over the character of the GUCT canal corridor are therefore, from north to south, Warwickshire, Northamptonshire and Buckinghamshire.

https://historiccountiestrust.co.uk/Historic_Counties_Standard.pdf

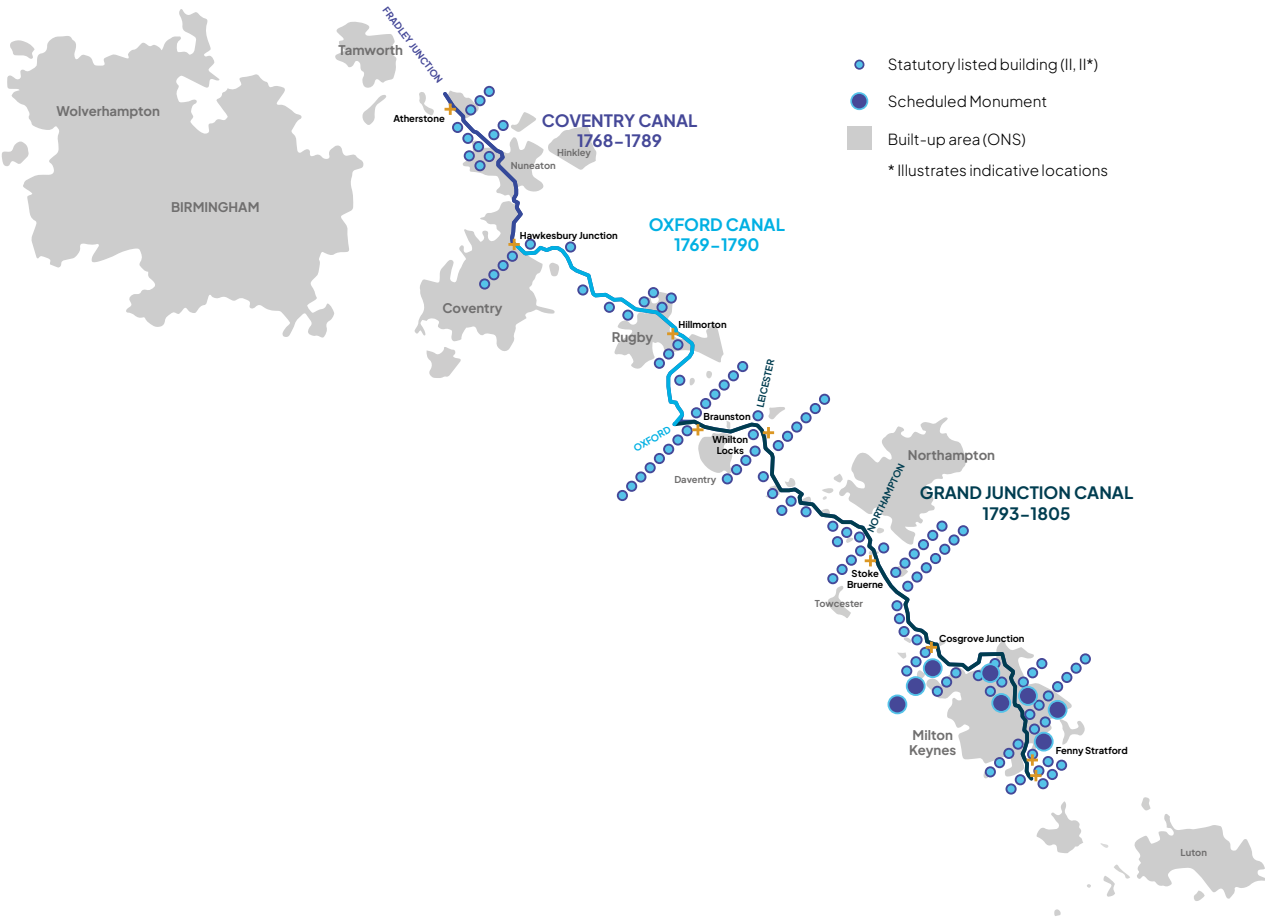
- Historic county intersecting with canal corridor
- Adjacent Historic county



Heritage

There are a large number of Statutory Listed Buildings (II and II*), Conservation Areas (not mapped at this scale), and Scheduled Monuments along the GUCT canal corridor, including a great many structures which are fundamental to the operations of the canal, for example locks, pumping infrastructure and canalside dwellings. The development of the canal corridor is such that the majority of these heritage assets are located as part of, or adjacent to, lock gates, junctions or boat yards – the hubs or junctions of the canal network. These tend to be the same locations where some of the above-ground interventions are needed for the GUCT project, therefore the majority of these interventions are taking place in a historic environment that will require careful consideration.

An overview of the types of heritage structure along the GUCT corridor, organised typologically.



Canalside dwellings (Whilton Locks/Long Buckby)



Canalside commercial premises, including shops and pubs. (Hawkesbury Junction)



Canalside pumping stations and engine houses (Fenny Stratford)



Premises associated with tolls and management, including lengthman's huts (Whilton Locks/Long Buckby)



Canalside industrial, storage, warehousing and stabling (Braunston)



Bridges (including roving, swing, lift and other types and of various materials) (Hawkesbury Junction)



Locks and associated pounds, side ponds and infrastructure (Grove Lock)



Historic 'furniture' including signage, distance markers, and mooring infrastructure (Fenny Stratford)

The Coventry Canal

In 1768 an Act of Parliament was passed which triggered the formation of the Coventry Canal Company and thereby the construction of the Coventry Canal. Beginning at Coventry, canal construction ran north to the designs of noted engineer James Brindley (1716–1772), though by the time construction had reached Atherstone (below) funds had been exhausted and Brindley was replaced by Thomas Yeoman, notable for the design of the Limehouse Cut in London.

The canal was designed to intersect with the Trent & Mersey Canal at Fradley Junction, which it finally achieved in 1789, though complications in delivery meant that portions of the route were delivered and owned by other canal companies until purchased later on by the Coventry Canal Company, though a stretch remained in the ownership of the Birmingham and Fazeley Canal until nationalisation in 1948 and retains that name to this day. However the stretch of the Coventry Canal that will form part of the GUCT project is entirely made up of the 'early' part of the Coventry Canal.

In its heyday the Coventry Canal was a well-used and profitable canal, heavily utilised by adjacent coalfields and quarries (for example at Bedworth), some of which built dedicated branch canals connecting the main route directly to their sites. Today, the sites of these industrial concerns have either returned to rural conditions or become part of expanding urban settlements, and a journey along the Coventry Canal includes both urban and rural stretches, with the 'first five and a half miles' out of Coventry designated a Conservation Area in 2012, intersecting with the extant Conversation Area at Hawkesbury.

In 1957 the Coventry Canal Society was formed to protect and promote the canal. The society operates the Mercia Canoe Club out of Coventry Basin and Wyken Basin moorings, located on the Oxford Canal south of Hawkesbury.

- | | |
|--------------------|--------------------------|
| 🔍 Locks | 🟢 Canal |
| 🚰 Water Point | 🟢 National Cycle Network |
| 🚻 WC | 🟡 Listed Buildings |
| 🚮 Elsan | 🟡 Scheduled Monuments |
| ♻️ Refuse Disposal | 🟡 Conservation Area |
| 🌀 Winding Hole | |
| 🚶 Open Access | |
| 🍽️ Food & Beverage | |
| 🏢 Businesses | |
| 🚢 Boat Yard | |
| 🏠 Accommodation | |
| 🚤 Private Marina | |

Built to join the industrial city of Coventry with the Trent & Mersey Canal, the stretch of the Coventry Canal forming part of the GUCT project includes Hawkesbury Junction, a focal point for the wider network and today the junction between the Coventry and Oxford canals.



Atherstone c1970
BW200/1/26/17



Atherstone c1970
BW200/1/26/17



Community

Atherstone

The Coventry Canal reached Atherstone – already an ancient Warwickshire market town – in 1769, and from then on played a key role in the town’s economy and industry. The town built a particular reputation for millinery, with a millinery works known as Britannia Works built alongside the canal at Coleshill Road (II-listed, 1184912). Immediately to the north of these works is a flight of two locks (II-listed, 1184993 and 1034782) and associated basin. In the nineteenth century a gasworks bordered the locks to the south, as did an (older) lime kiln.

South of Atherstone town, the canal corridor passes through rural landscapes that were once a network of quarries and sand pits that also benefited from the canal. Some of this landscape is now on the National Forest Inventory as Deciduous Woodland, and the Atherstone Golf Club is also based here. On the southern edge of the current settlement sits Ruby’s Yard, a former canal boatyard now repurposed as a community garden and open for various community uses since 2021.



Colour photographs:
Marcus Chaloner.



BW200/1/26/11



DK-CM



BW197/2/35/46

Hawkesbury Junction

Hawkesbury Junction, also known as Sutton Stop after the name of a long-term lock-keeping family, is the junction between the Coventry and Oxford canals. The creation of the junction had a tortuous history thanks to legal and financial wranglings between the two canal companies, eventually opening in 1803.

In the early days of the junction the surrounding landscapes were dominated by coal mining, and latterly by a substantial power station to the south, though little evidence remains of this industry today. The junction is home to a cluster of historic buildings with collective significance: a footbridge of 1837, designed by J. Sinclair, engineer to the Coventry Canal Company (1319924), a roving bridge crossing the Oxford canal (1365056), a row of cottages now occupied

by the Greyhound Inn (1265692), an adjacent row of cottages (1226778) and an Engine House (1365077), probably also designed by Sinclair and originally containing a Newcomen pumping engine used to maintain the canal level. The engine house is now out of use and later additions have been demolished.

The Junction is a Conservation Area (Hawkesbury Junction) and to the south-west connects with the Coventry Canal Conservation Area. To the north, both stretches of canal and the land between them sit within designated Green Belt.

Community
Heritage & Cultural

Hawkesbury CA,
Coventry Canal
CA

Environmental



Clockwise from top left: BW197/4/2/2/75
BW197/4/1/1/108
BW200/1/26/13
DK-CM

The Oxford Canal

Construction of the Oxford Canal began in 1769 to the designs of notable canal engineer James Brindley, with the aim of conveying coal (and secondarily stone and agricultural produce) from the Midlands to Oxford and (via the Thames) to London. The Oxford served as the only artery between the Midlands and London until the construction of the Grand Junction Canal when the two concerns became rivals, triggering a complex history of tolls and compensation.

Construction began at the northerly end, and later stretches built between Banbury and Oxford (beyond the scope of the GUCT project) have a notably different, more cost effective, design, employing wooden lift or swing bridges rather than the more elaborate masonry bridges of the northerly stretches.

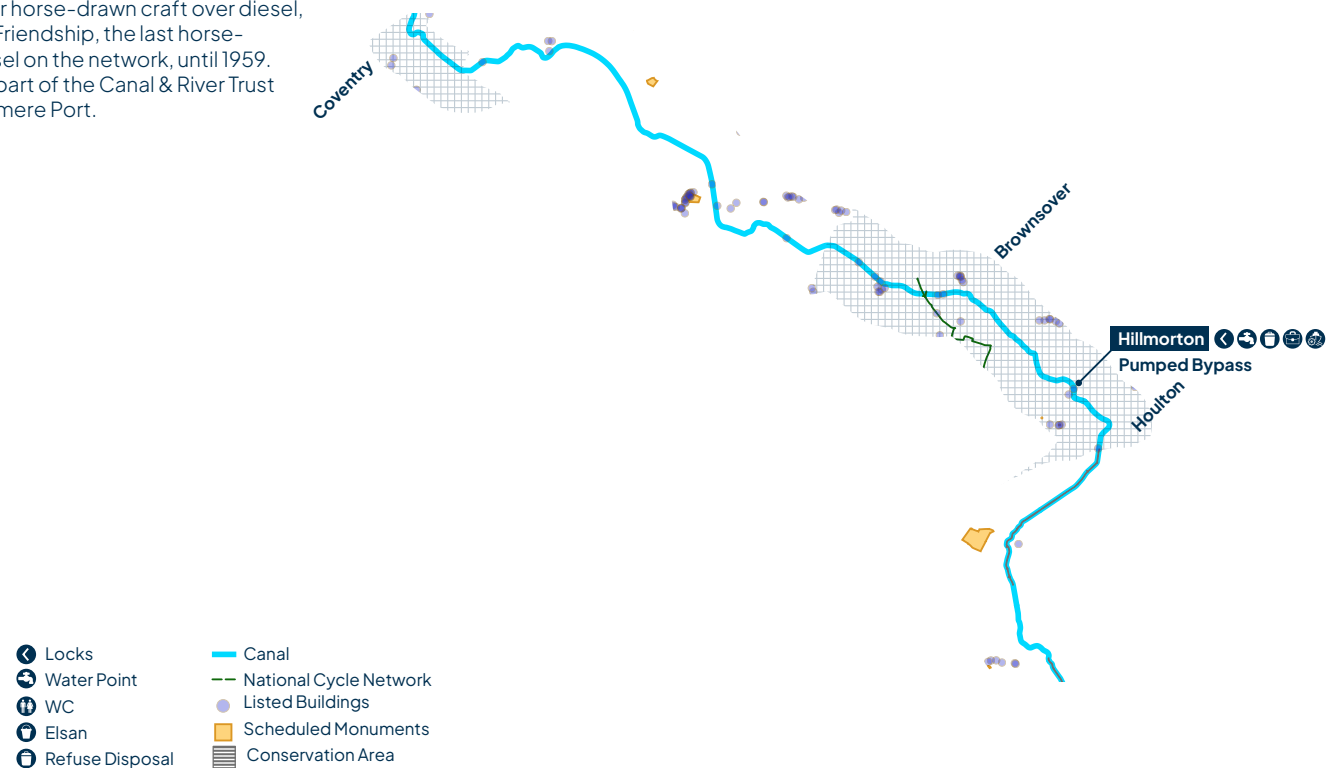
The original design for the Oxford had largely followed the contour, leading to a contorted route. In the 1830s the stretch between Hawkesbury Junction and Braunston was redesigned to straighten the route, reducing its length by nearly 15 miles and leading to a variety of disused arms, private wharfs where the former, more convoluted route had travelled - plus a disused tunnel at Newbold.

The stretch of the Oxford from Hawkesbury to Braunston and Napton remained a heavily-used artery until the last days of industrial traffic on the canal network, with the stretch through Braunston frequently described as one of the busiest canal stretches on the network. As a result the stretch between Braunston and Napton was widened following acquisition by the Grand Union Canal in 1934, however the southerly stretch between

Napton and Oxford saw a large decline in usage and was nearly abandoned, with the Oxford terminus sold and filled-in in the 1950s. However the Inland Waterways Association successfully campaigned for its preservation as a leisure and cruising route.

The Oxford Canal is also notable for its unusually late preference for horse-drawn craft over diesel, and was home to Friendship, the last horse-drawn freight vessel on the network, until 1959. Friendship is now part of the Canal & River Trust collection at Ellesmere Port.

Whilst southerly parts of the Oxford Canal have become a peaceful leisure route, the stretch that now forms part of the Grand Union remains a key waterway connection between London and the Midlands. Hillmorton, once an important yard on the Oxford Canal, remains a busy lock and a small hub of canal-related activity.



BW197/4/1/2/6



DK-CM

Heritage & Cultural

Hillmorton Locks Conservation Area

Environmental

Rugby AQMA

Hillmorton Locks

Hillmorton is home to a workshop, dry dock and related buildings, all originally built by the Oxford Canal Company; this small complex of buildings and structures, alongside the locks, forms the primary character of the place. Only St John the Baptist church (1035023), with origins in the 13th century, predates this canalside development, and is understood to have sat at the heart of a now vanished settlement here. Today Hillmorton Locks is isolated from the wider settlement of Hillmorton by a railway embankment. The key canalside spaces are not closely related (in perception terms) to the ancient church, and the qualities of the place derive chiefly from the canal, the canalside architecture, and the strong landscape qualities of field system and trees - including some important specimens in the churchyard and along the canal.

The Hillmorton Locks area is a Conservation Area, and aside from St John's church, the only listed structure is Hillmorton Bottom Lock (Locks 2 and 3, 1393797); these locks were modified in the 1840s to double their capacity.

Hillmorton is significant in canal history terms for its industrial significance to the Oxford Canal Company and subsequent inheritors of the network's management (including as the drawing office of British Waterways for a period). It also retains a trace of the original route of the Oxford Canal, following the contour, immediately north of the main cluster of buildings, and the ongoing use of the dry dock and workshops for canal-related and industrial purposes is also considered significant, representing a continuous use of the site for canal-related industry for over 200 years.



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CRT/BW/DDX/4

CRT/BW/DDX/4

The Grand Junction Canal

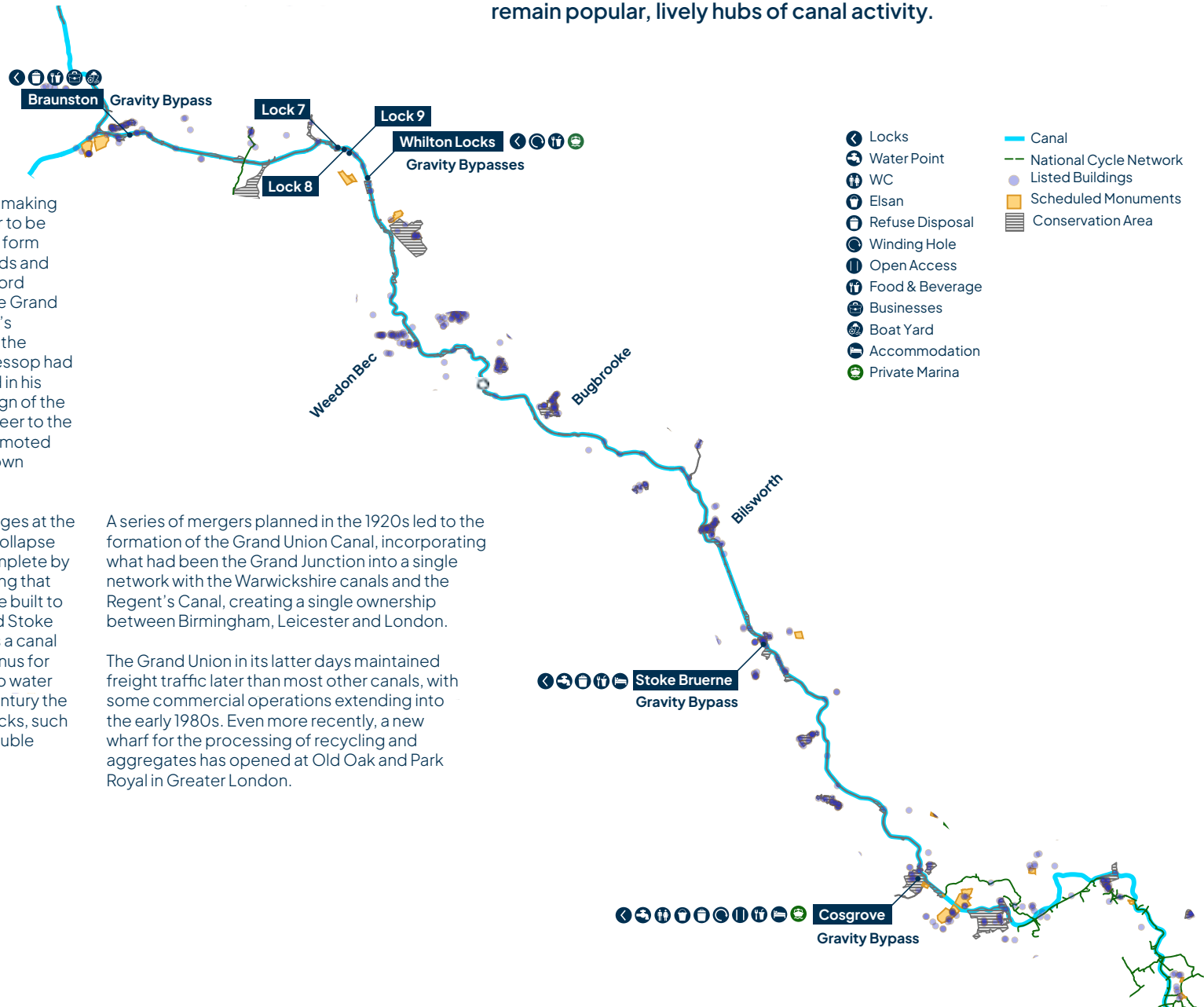
A fundamental connection between London and the Midlands, the Grand Junction Canal was one of the busiest parts of the whole canal system in the canal's heyday. Canal communities such as at Braunston and Stoke Bruerne remain popular, lively hubs of canal activity.

The Grand Junction was built 1793–1805, making it the last part of the GUCT canal corridor to be constructed. The aim of the canal was to form a direct connection between the Midlands and London, initially via the Thames at Brentford and latterly via the Paddington Arm of the Grand Union and the Regent's Canal to London's industrial east end. The main engineer at the outset was William Jessop (1745–1814). Jessop had designed the Grand Canal of Ireland and in his later years, as well as leading on the design of the Grand Junction, he was consulting engineer to the Ellesmere Canal Company where he promoted the designs and ideas of the then-unknown engineer Thomas Telford.

On the Grand Junction, technical challenges at the proposed Blisworth tunnel, including a collapse in 1796, meant that the route, though complete by 1800, was not open in full until 1805. During that period a road and latterly a tramway were built to convey goods over Blisworth Tunnel, and Stoke Bruerne, just south of the tunnel, grew as a canal community as a result, serving as a terminus for moving goods and materials from land to water and vice versa. In the early nineteenth century the intensity of traffic was such that some locks, such as Stoke Bruerne, were duplicated to double their capacity.

A series of mergers planned in the 1920s led to the formation of the Grand Union Canal, incorporating what had been the Grand Junction into a single network with the Warwickshire canals and the Regent's Canal, creating a single ownership between Birmingham, Leicester and London.

The Grand Union in its latter days maintained freight traffic later than most other canals, with some commercial operations extending into the early 1980s. Even more recently, a new wharf for the processing of recycling and aggregates has opened at Old Oak and Park Royal in Greater London.



Braunston

‘Braunston, junction of four major canal routes, is an ever busy commercial and pleasure nucleus, yet the village itself, set on the slopes above, remains quietly isolated from all this activity.’ – Harris (1980)

For canal users Braunston has been a hub of activity since the Grand Junction canal was built here in the late 18th century, taking advantage of an easy connection between canal and the adjacent turnpike road. Slightly to the north, separated from the canal by green fields and on higher land, sits the settlement of Braunston itself, which incorporates ancient buildings of sandstone and ironstone as well as a later (c19 onward) predominance of red brick, historically using locally-dug clay. A sequence of buildings (residential, commercial and industrial) built to support canal traffic faces the canal corridor, almost forming a high street with the canal as its highway. Many of these still serve their original purpose and many are statutorily-listed.

The current marina, built to the immediate south of the canal, was originally built as reservoirs by the Grand Junction Canal Company. It now serves as a boat marina and is fringed with subsequent residential development. Original buildings are of painted brick with weather-boarding, contrasting with the red-brick built form of other canalside buildings here. There is a sequence of bridges crossing the canal, including a listed (1076440) example built by Horseley Ironworks c1830.

The canal corridor forms one of four character areas within the overall Braunston Conservation Area, which notes its distinct identity from the village. The green spaces between canal and village, and to the south of the canal corridor and marina, are allocated as Important Open Space in the adopted Braunston Conservation

Area Appraisal. The identity of the canal corridor here is as a place orientated fundamentally on the canal itself, framed by landscape and with a still-ongoing history of canal-related industry, commerce and sociability.

Community DK-CM

Heritage & Cultural

Braunston CA, Grand Union & Oxford Canals CA

Environmental

BW192/3/2/2/12/1/331

Centre: BW197-2-24-12



R2236



R0793



DK-CM



R2318

BW200/1/40/95/2



DK-CM

Long Buckby Wharf/Whilton Locks

Whilton Locks is a sequence of seven locks, descending in a southerly direction south-east of Norton Junction. The dominant character here is of the canal as a narrow, winding waterway corridor through open country (albeit with the M1 motorway bordering closely at points). There is a series of designated and undesignated heritage assets marking particular moments (and providing interest and wayfinding value), among them locks, bridges, mileposts, and canalside buildings. Long Buckby Wharf grew with the Grand Junction Canal as a small canalside settlement, somewhat scattered along the canalside, and in its heyday featured a sequence of public houses, commercial premises, dwellings, and a brewery, the Anchor. This had its own dedicated wharf, remains of which are still visible at the canal's intersection with the aptly-named Brewhouse Lane. For many years the wharf was notable as the location of a small canal shop selling the 'Buckby Can', a water can fabricated in Birmingham but decorated locally. The most notable artist of the cans was probably Matilda (Mat) Woodhouse (1902–1934) who decorated the cans in the traditional manner in a timber building adjacent to the New Inn. L. T. C. Rolt, pioneer of leisure cruising, described stopping off to purchase a can here in his influential book *Narrow Boat* (1944).

The 'canalside village' character of Long Buckby Wharf is important to the wider character of this stretch of canal. Though many canal-related businesses are long gone, commercial canalside activity remains, such as at the New Inn and at Whilton Marina, at the bottom of the lock flight. The marina opened in 1971 and provides around 250 moorings as well as chandlery, brokerage and a repair workshop. Many private homes are located adjacent to the canal, contributing to its character, and in places there is evidence of latter-day (probably post Grand Union Canal) pumping infrastructure.

The whole stretch of canal in this location is part of the Grand Union and Oxford Canals Conservation Area, and also falls within the Nene Valley Nature Improvement Area (NIA) (see p.7).

Heritage &
Cultural
Grand Union &
Oxford Canals
CA
Environmental



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BW192/3/1/33/2/4



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R2226

BW192/3/2/2/13/1/505

R0765



DK-CM

Community
Heritage & Cultural
Grand Union Canal CA, Stoke Bruerne CA



CRT/BMT/60

Stoke Bruerne

The village of Stoke Bruerne precedes the canal by several centuries but was changed dramatically by its arrival. An agricultural settlement, early buildings were of limestone and many (including some associated closely with the canal) retain original thatching, though red brick predominated in the nineteenth century.

For a short time the Grand Junction Canal terminated at Stoke Bruerne during the construction of the Blisworth Tunnel, with the settlement providing an inland port whereby goods were transferred between boat, road and tramway. This was the beginning of Stoke Bruerne as hub of canalside activity, a role which it continues to play today. A former mill (1294154), subsequently a warehouse, has since 1962 been home to a waterways museum now managed by the Canal & River Trust and originally spearheaded by Charles Hadlow, district engineer for this stretch of canal and latterly honorary curator of the museum. Facing the museum across the lock is the thatched Boat Inn (1189664), a c18-origin public house still in operation.

By comparison with places like Braunston or Long Buckby, the ‘canal village’ character of Stoke Bruerne is closely integrated with, indeed overlaps with, the wider and more ancient village, with the parish church of St. Mary the Virgin (1040946) a short walk uphill from the towpath. Reflecting this, the Grand Union Canal Conservation Area and the Stoke Bruerne Conservation Area intersect and overlap here. South of the ‘heart’ of Stoke Bruerne, the flight of locks continues ‘downhill’ through a series of statutorily listed locks until Stoke Bottom Lock is reached, at which there is a secondary cluster of canalside structures, among them a pair of canal cottages (1040950) and a pumping station (completed 1939) built immediately adjacent to the bottom lock. At the top of the flight, adjacent to the Boat Inn, is a dewatered narrow lock chamber.



DK-CM



DK-CM



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BW192/3/2/2/13/1/432

DK-CM

Cosgrove Lock

Heritage & Cultural
Cosgrove CA

The site is situated at the junction of the former Grand Junction Canal and the Stratford Cut, now disused but which once linked the Grand Junction to the road network via Watling Street at the village of Stratford. The canal here borders the estate of Cosgrove Hall (1371636), a county house originating in the early eighteenth century.

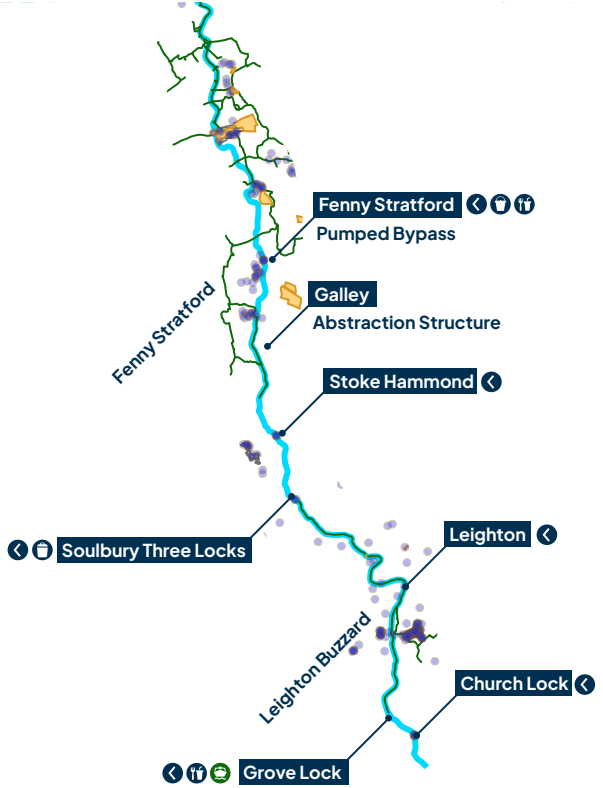
The disused Stratford Cut bisected the archaeological remains of a Roman villa and temple complex which was excavated in 1958–9 and is now a Scheduled Monument (1003874). The Grand Union Canal Conservation Area follows the canal corridor at this location and is bordered by the Cosgrove Conservation Area, which is in two parts focussed upon the hall and church (west) and the green (east). Use of limestone, openness of landscape, trees and the presence of stone walling are all key contributors to the character of the space.

Somewhat to the north of the junction is an usually decorative 'gothick' bridge of c1800 (1190608), which reflects picturesque garden design practice of the time more than it reflects the industrial design of the canal network. This probably reflects the impact of the canal on adjacent private estates. Somewhat to the south is Wolverton Iron Trunk Aqueduct (1006934) of 1811, over which the canal crosses the Great Ouse river.

Cosgrove Lock, and the adjacent canalside cottages, are unlisted. The cottages are much modified but appear to have a 19th century origin, and are recorded as places where tolls were collected from the mid nineteenth century onward.



BW192/3/2/2/12/1/34,
BW192/3/2/2/3/1/457,
BW197/2/8/2/1.



- Locks
- Water Point
- WC
- Elsan
- Refuse Disposal
- Winding Hole
- Open Access
- Food & Beverage
- Businesses
- Boat Yard
- Accommodation
- Private Marina
- Canal
- National Cycle Network
- Listed Buildings
- Scheduled Monuments
- Conservation Area

Heritage & Cultural

Fenny Stratford

Fenny Stratford has been part of Milton Keynes since the latter's designation in 1967. The Grand Junction Canal reached here in 1800. Fenny Lock (1125401) has an unusually shallow level change (of around 30cm), and gathered around the lock are a small group of statutorily-listed buildings which form a coherent group and provide a strong sense of canal character, plus the swing bridge that crosses the lock. These are the Red Lion public house (1125440), adjacent cottages (1332233) and a pump house (1125402).

The pump house is one of a sequence on this stretch of the Grand Junction built as a coherent set. These were known as the 'northern engines' and were built c1838–1841, with a distinct quality including buff brick, hipped roofs and iron-framed, arched windows. The Red Lion was built in 1901 and in the early twentieth century pleasure boats were hired here.

This part of Fenny Stratford has been dominated by heavy industry and logistics for many decades, stretching back to timber and goods yards in the early twentieth century. Immediately to the east of this quite enclosed location is a vast John Lewis fulfilment centre, though tree cover means this impacts little on the place at present.

DK-CM



DK-CM



DK-CM

RO639



BW192/3/2/2/13/1/493

BW192/3/1/21/2/4

Stoke Hammond

Stoke Hammond Lock is an isolated location in quite open countryside quite far from the established settlement of Stock Hammond. Buildings in this location owe their existence entirely to the canal and form a group of statutorily-listed buildings, including a pumping station (one of the Northern Engines, 1115975, and now in residential use), the adjacent lock house (1115974), the bridge (1320176) and the lock itself (1115973).

Stoke Hammond village is one of 53 Thankful Villages in England, meaning that all of its citizens in the armed forces survived World War I - a fact commemorated on signage at the lock.

Heritage & Cultural



DK-CM



BW197/2/2/4/3



c1980. BW162/28/14

Soulbury Three Locks

A flight of three locks in rapid succession, in open country around a mile north of the village of Soulbury, and thanks to the presence of adjacent roads feels less isolated and more accessible to visitors than other parts of this stretch of canal.

The trio of locks is listed (1116006) and they date from the initial construction of the Grand Junction, with later modifications. Typical of a flight of locks the site is bordered to the west by a pub, the Three Locks, of long standing, which is part of a linear sequence of buildings (surfaced in brick, roughcast and render) all of which are painted white, including a cottage (1320150), of 19th century origin but with c1906 alterations that may have coincided with modifications to the wider run of buildings.

In contrast to this group, slightly to the south, stands the buff/brown brick pumphouse (1219325). This is another of the Northern Engines of 1838, a larger than average example with a lower range to the north-east. It has details typical of this family of buildings (a hipped slate roof, circular arched window heads with decorated cast iron glazing bars) and was carefully restored by the Canal & River Trust 2014-19, with opportunities taken to train apprentices in the use of lime mortar, to build new Douglas Fir roof trusses in the Trust's own workshops, and to install new electric pumping equipment.

Heritage & Cultural



DK-CM



DK-CM



DK-CM



Lock-keeper at Three Locks, 1960s. BW192/3/2/2/13/1/81



951.206

Heritage & Cultural
Environmental
Green Belt

Leighton Lock

Though on the fringes of the market town of Leighton Buzzard, Leighton Lock feels secluded; it is bordered by quite tall vegetation (and a wide extent of grazing marshland) to the east, and similarly by trees and hedges to the west, protecting the canal somewhat from suburban housing. At the lock is an early nineteenth century cottage (1300788) of white-painted brick with a pumphouse (one of the northern engines) built alongside, also of white-painted brick but with strong similarities to the rest of this family of buildings. This building, which is listed through connection to the adjacent cottage, was fire-damaged in an arson attack in 2024.

The grazing meadows to the west of the site, which contribute to its sense of seclusion, are recorded as Priority Habitats (coastal and floodplain grazing marsh) in the Priority Habitats Inventory, and the whole site excepting the extant buildings is designated as Metropolitan Green Belt.



DK-CM



992.1043

Grove & Church Locks

These two locks, lying just outside the Metropolitan Green Belt to the south-west of the market town Leighton Buzzard, are about half a mile apart. Both sit in quite open countryside with long views into the wider Bedfordshire landscape. Grove Lock, unlisted, has a former lock-keeper's cottage and public house, both unlisted and in white-painted brick facing the lock. A marina and caravan site sit immediately south, with the moored craft having the most impact on the place's character.

Church Lock, more remote and half a mile south, has a similar landscape character but has a stronger sense of the canal as a place thanks to a group of listed buildings. These include the lock itself (1310162), adjacent brick bridge (1117834, with two arches as the original double lock was later filled-in), a pumping station in the 'northern engines' family (1161297, distinct for having a more extensive arrangement of surrounding walls), a lock-keeper's cottage (1117833) of white-painted roughcast to the west, and south of this, unusually, a former church, St. Michael and All Angels, (1117832) elements of which date from the fourteenth century though with apparently extensive refurbishment in 1883. The church became redundant in 1971 (according to a plaque on site) and has since been converted into a home. The lane crossing the bridge terminates quickly to the east; it once served a corn mill but stables now occupy the approximate site.

Community
Heritage & Cultural
Environmental
Green Belt

DK-CM



BW200-1-40-88

BW200-1-40-88



Typologies

The GUCT project represents an innovative approach to water management and an innovative additional purpose to this part of the Canal & River Trust's canal network, and will use cutting-edge technology to achieve the GUCT vision. However, the interventions needed to make the project happen are not without precedent, and the canal has always been concerned with the efficient management and flow of water as well as of goods.

Accordingly, there are useful precedents throughout the canal network that tell us of how previous generations have tackled similar engineering or infrastructural challenges. These are set out according to four overarching categories, namely **Pumping Stations & Engine Houses**, **Small Canalside Buildings**, **Deck and rail**, and **Signage and wayfinding**. In these sections we draw attention to exemplary as well as typical examples from across the national canal network.

There are also precedents globally for how these have been tackled in today's world, some relevant examples of which are included in the final part of this section.

Pumping Stations & Engine Houses

This brief typology study ranges across the UK canal network and is focussed upon pumping stations that are part of the 'ordinary' network, i.e. located alongside locks or junctions and concerned with the maintenance of water levels and flow rather than any external uses. Port or dockyard pumping stations, which tend to be of a much more substantial scale, are therefore excluded.

During the heyday of the canal network, the predominant typological arrangement of a pumping station was as a two-storey brick enclosure, often with elegant but simple brick-based classical detailing (such as dentiles), scaled to accommodate the vertical nature of the appropriate steam engines of the day. Windows and bay design tended to reflect this, with arched windows and robust metal window frames predominant. Chimneys, often also employing simple classical detailing and form, were typically formally distinct from the main volume of the building, partly for safety reasons. If a larger surface area were needed than simply enclosing the engine, this appears to have been typically achieved by the additional, subservient building in matching materials, at ground level.

Later pumping stations, such as the run of nine on the Grand Junction Canal known as the 'Northern Engines', were of a lower, more horizontal (appearing single storey) character. These all originally had brick exhaust chimneys but these have been lost over the years, the exception being at Seabrook.

On the Grand Union Canal in the twentieth century a more municipal, tower-like structure was adopted, again without formal expression of exhaust or steaming – though by this time it is possible that power had shifted to diesel.



c1800
Bowyer Street
pumping station
on the Birmingham
Canal Navigations.
(BW192/3/2/2/2/8)



1803
Pumping Station at
Ryhill, on the Barnsley
Canal. (R0083)



1805
View of Pump House
at Braunston showing
demolition of original
chimney. (R0793)



?1800s
A pump house on the
Grand Junction Canal.
(BW192/3/1/4/12)



?1800s
Rough Hay pump house
on the Birmingham
Canal Navigations.
(BW192/3/1/36/1/4)



c1810
Crofton Pumping
Station on the
Kennet & Avon Canal.
(BW200/1/47/32)



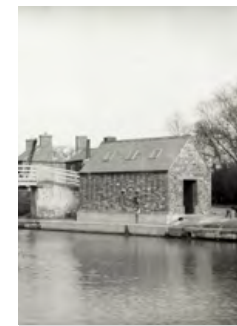
c1837
The Engine House at
Hawkesbury Junction.
(BW197/2/29/31)



1841
One of the 'Northern
Engines' by Grissell
& Peto for the Grand
Junction Canal.
(BW177/4/16/5/3)



1849
Lea Wood Pump House
on the Cromford Canal.
(BW200/1/27/14)



c1930
Pump house below a
lock at Stoke Bruerne.
(BW192/3/2/2/13/1/
600)



1946
Pump house built
by the Grand Union
Canal at Cowroast
(BW177/4/16/5/3)



c20
A small pump house
and outlet at a Grand
Union Canal wide lock,
possibly Dudswell.
(BW197/2/26/46)

Small canalside buildings

'A lock-keeper's hut was his bolt hole and base. He kept the tools of his trade... slung under its eaves. His hours were often cold and lonely, especially after dark in the winter... Huts like that at Napton Top Lock were somewhere to shelter from the rain, get a fire going and cook some breakfast.' – Crowe (1994)

This typology study explores small canalside buildings that are neither pumping stations (at least primarily), permanent dwellings or commercial premises (for examples pubs, shops, warehousing). Uniting them all is providing shelter for a canal worker and their tools and/or record keeping equipment, as to varying degrees the buildings were (a) a base from which to maintain the canal network (lengths/pounds) or locks in particular, (b) a base at which to pay tolls or (c) a combination of the two. Across the network, they have been known as 'lock lobbies', 'lock-keeper's huts, lengthman's huts, linkman's huts, or simply as huts, hovels or lobbies. Formally, they have much in common with the looker's huts of Romney Marsh farming practises and with the lengthman's huts of the railway network.

Whilst some exceptional examples of the type are complex designs, most are highly simple structures with an elegance derived from this. Chimneys, partly for safety reasons, are treated as distinct elements formally, and often of a different material (usually brick) from the rest of the enclosure, which might be of sheet iron or, in at least one notable example, re-used railway sleepers. Whilst many of these structures along the network have fallen out of use, or become derelict, many (such as at Braunston and Claydon Middle) are still fulfilling a version of the role they were designed for, which is to provide a bit of shelter and protection for those caring for the waterways; for example the Canal & River Trust and its volunteers, or local community groups.



Lengthman's Hut/
Lock-keeper's hut on
the Grand Junction at
Whilton, with concrete
roof. (DK-CM)



Lengthman's Hut/
Lock-keeper's hut on
the Grand Junction
at Whilton – a hub for
volunteer activity and
Trust messaging.
(DK-CM)



Restored lengthman's
hut on the Grantham
Canal, built with a
brick chimney stack
and reused railway
sleepers. (DK-CM)



Circular lock-keeper's
'hovel' at Beeston on
the Shropshire Union
Canal, assumed early
c19. (BW200/1/88/1/74)



Gothic revival lock-
keeper's hut at Bray
Lock. The keeper was
Edward Morris and he
sold ginger beer from
the same building.
(R1898)



Lengthman's Hut/
Lock-keeper's hut at
Hillmorton. (DK-CM).



Mess house for workers
alongside the slipway
at Ellesmere Port,
the terminus of the
Shropshire Union. Built
in timber with battens.
(DK-CM)



Toll house at the
junction of the
Coventry and Oxford
canals, at Hawkesbury.
(DK-CM)



Lock-keeper's
hut at Claydon on
the Oxford Canal.
(BW200/1/72/65)



Lock-keeper's hut at
Claydon Middle Lock
on the Oxford Canal
– now a volunteer hub
with a community
noticeboard. (DK-CM)



Lengthman's/
lock-keeper's hut
at Braunston, now a
volunteer hub. (DK-CM)



Lock-keeper's hut at
St Pancras Lock on the
Regent's Canal, 1921.
(BW192/3/2/2/28/96)

Deck and rail

Whilst a network-wide study of decks and railings – elements that enable humans to move over machinery or space – has not been feasible, it is possible to draw some general conclusions from a partial study – referring particularly to tangible and in-situ examples. For railings and walkable infrastructure of the canal heyday, ironwork predominates, with some fabricators, e.g. Horseley Ironworks in Staffordshire, designing and making elements for installation for multiple canal companies. In the spirit of the 'functional tradition', the surfaces tend to be functional before they are decorative; their decoration closely derived from their function, for example achieving an effective grip for walking, but with attention paid to aesthetic effect. Solid wooden decking – on lock gates, on bridges, covering engine pits – is the most predominant surface material for situations without a solid ground below.



Cast walking surface surrounding a hydraulic capstan, Ellesmere Port. (DK-CM)



Pattern for cast iron fire hydrant cover at Ellesmere Port (DK-CM)



Cast iron bridge c1830 at Braunston. Fabricated at Horseley Ironworks – fabricator stated in the iron work. (BW200/1/40/3)



Iron aqueduct at Cosgrove, built 1811 and fabricated at Coalbrookdale. (BW197/2/8/2)



Timber decking is a typical surface for swing bridges, lift bridges, decking across engine cavities etc. Here at Fenny Stratford. (DK-CM)

Signage and wayfinding

It is expected that Canal & River Trust contemporary signage and wayfinding designs will be used in relation to the GUCT project as they are across the Trust's network.

Therefore, here we have looked at regional variations in signage from the canal heyday and immediately after. This signage is predominantly aimed at boaters and towpath users, and though design varies (those along the Grand Junction have a very distinctive visual style) signage is unified by its highly durable cast metal construction. Vital messaging is typically picked-out in contrasting paint but has been set in relief such that the message 'survives' even when paint has faded or worn away. This typology of signage is highly durable and enduring, with examples often surviving in-situ decades or centuries after their original installation.



Simple mile post at Braunston (DK-CM)



Cast iron mile post on the Caldon Canal (BW200/1/18/14)



Mile post on the Monmouthshire Canal (BW200/1/64/2)



Grand Junction mile post close to Leighton Lock, with later dedication added. (DK-CM)



Grand Junction legal notice, now on display at the NWM at Ellesmere Port. (DK-CM)



Signage at Fenny Stratford addressing motor vehicle users. (DK-CM)

Chapter 2

Design Principles

Introducing the principles



These principles have been developed to apply to all canalside buildings and structures delivered as part of the GUCT project. The three headings that the principles are grouped under – Heritage & Cultural Value, Community Value and Environmental Value are easily mapped across to the wider principles of the whole GUCT project. As such, each and every principle should be considered to some extent in the case of each intervention, though a bespoke weighting or balancing of principles may be necessary in each instance, dependent on site-specific

constraints and opportunities including, but not limited to, those presented in this document. Locations where one set of principles may be of more relevance than elsewhere, for example a particularly significant historic environment, are noted as such in the Character section. This is intended as a guide to which principle may be most relevant in any given situation.

Principles are phrased as questions in order to easily form a checklist and help design teams consider the weighting of their response to the full set of Principles.

Equally important is that the GUCT interventions, like the canal itself before them, read to some extent as an identifiable family of parts, and ultimately that each intervention is not merely an isolated element but works as part of a varied but consistent family of parts, however site and context specific they might also need to be.

DESIGN PRINCIPLES (Design Stage B* identification of preferred site/ route)			
Climate	People	Place	Value
A. Nature knows no boundaries: - Collaborative working across Severn Trent, the Trust and Affinity Water project team and external stakeholders. - Promote nature-based solutions to achieve biodiversity net gain. - Pursue wider benefit opportunities for the scheme.	A. Understand and respond to community needs: - Work with communities to understand those that may be impacted or could help influence throughout the lifecycle of the project. - Involve wider stakeholders to help define and deliver solutions for communities impacted by the project. - Create employment opportunities and demonstrate the environmental, social and economic benefits of the project.	A. Take care: - Develop water recycling proposals that provide better environmental outcomes. - Incorporate and improve appropriate aspects of the canal network in the spirit of stewardship looking to both the past and future to understand and develop the landscape, cultural heritage, health, and sustainability. - Work together to achieve sustainability-related policies and principles associated with the canal network.	A. Maximise embedded value: - Work across specialisms and with stakeholders to identify and maximise the benefits of the scheme. - Be smart with the location and arrangement of physical scheme elements, and design of mitigation within the project scope and budget.
B. Resource and carbon efficient: - Maximise the potential for reuse of site won materials and energy recovery. - Taking benefit from the high level of water treatment at the existing Minworth site. - Maximising the benefit of using existing canal infrastructure to transfer water. - Emphasis on the use of materials that will help reduce the carbon footprint and construction effort. - Energy efficient operation of the scheme. - Green policies for construction.	B. Engage widely, early and meaningfully: - Proactive and collaborative discussion with a wide variety of groups to understand their interests and vision for consideration within the scheme design. - Explain how community feedback has been implemented, or where it hasn't explained why. - Engage not only during early and detailed design but also during construction and following commissioning. - Pursue opportunities to partner with wider environmental stewardship groups and develop an integrated strategy to design and manage the project infrastructure.	B. Protect and promote the recovery of nature: - Focus on the role of landscape, its capacity to accommodate infrastructure and shape places in the scheme design and consenting processes. - Work collaboratively and employ holistic, landscape scale approaches that support the delivery of biodiversity net gain as well as multiple other benefits. - Work with partners to ensure the long term success of all measures, including reinstatement and new landscaping areas.	B. Understand how to provide additional value: - Identify opportunities to contribute wider regional benefits outside of the project scope. - In particular, look for lessons to learn from other proposals that support the delivery and enjoyment of a healthy water environment.
C. Resilient and adaptable: Consider future proofing in site design and layout, to provide flexibility in accounting for future tightening of water quality standards as well as advances in treatment technology.	C. Improve access and inclusion: - Explore opportunities to enable access to recreational and environmental areas through improved transport and access links. - Work with local stakeholder groups to attempt to incorporate sustainable transport measures for construction and operation. - Look for opportunities to engage and collect feedback from the community.	C. Design all features beautifully, with honesty and creativity: - Develop proposals that highlight and celebrate appropriate aspects of the canal, recognising their importance and contributing towards leaving a positive legacy. - Identify scheme features that can contribute positively within the context of their location and benefit the areas within which they are located.	C. Capture and measure embedded and additional value: - Have a clear narrative about how the project is contributing to society beyond securing future water supplies. - Quantify these benefits so they can be considered meaningfully in conversations on value, financing and risk. Share the experience and knowledge widely.

Diagram showing how the overarching GUCT Design Principles map across to the Canalside Design Principles in this document.

Heritage & Cultural Value

The canal corridor is a precious historic environment made up of a sequence of designated and undesignated heritage assets, historic buildings (including an array of Grade II and II* listed buildings and Scheduled Monuments) and Conservation Areas. The canal is also of strong cultural value – tangible and intangible – in the places it passes through. Accordingly new canalside buildings should make a positive contribution to their particular heritage context.

- **H1** Has the potential adaptive reuse of any redundant or underused buildings, especially redundant or at-risk heritage assets, been considered as a priority from the outset?
- **H2** Have opportunities to celebrate canal and local history been explored and embedded in the design? This might include providing interpretation signage but should also be explored in terms of the building itself, for example how its form, scale and massing have resonances with canal and local heritage.
- **H3** Does the intervention make a positive contribution to the visitor or leisure user experience, for example by contributing positively to the historic environment or by enhancing access or wayfinding to heritage assets?
- **H4** Has the potential impact of new interventions on the significance and setting of existing heritage assets been carefully considered and designed for?
- **H5** Does the design enhance local distinctiveness by responding positively to particular building materials, typologies & making processes typical to this place?
- **H6** Where a removable roof is a useful part of design, have these been designed such that they echo the forms and materials of the context?
- **H7** Have door and window proportions been carefully considered such that they echo, or respond positively to, those of nearby canalside heritage buildings?
- **H8** Have opportunities been taken to subtly acknowledge the role of the intervention in the wider GUCT project, such as by including a date marker or by the subtle integration of branding and identity into e.g. grilles, vents or decking?
- **H9** Historic canalside pumping stations have often featured tall structures that aid wayfinding or navigation, and act as landmarks. Has the potential to introduce new versions of this idea been considered?
- **H10** Does any new heritage interpretation celebrate the canal communities who worked and lived on the canal?



Heritage & Culture Case Studies



Ditchling Museum of Art + Craft

Adam Richards Architects

- New structures in the context of multiple heritage assets create a coherent new whole.
- Forms, materials and construction methods echo historic forms without direct pastiche or copying, achieving a nuanced balance between old and new.
- The new buildings enhance perceptions of, and access to, existing heritage assets.



Bruce Grove Public Conveniences

DK-CM

- The building had been out of use and in increasing disrepair for 40 years, and was a statutory listed building on the 'heritage at risk' register.
- Re-use in any capacity was challenging as most of the existing building is underground and composed of highly particular spaces, necessitating the creation of new buildings.
- A significant but carefully-composed extension to the rear dramatically increases usable interior space, and a conservation-grade restoration of the original building has brought it back into use as both a public convenience and as a commercial premise with a social lease - ensuring the spaces can be used without spending money.
- An extensive community involvement programme underpinned the design throughout.



Newark Riverfront Park, New Jersey

HECTOR

- Interpretation was designed in an integrated way, and is a fundamental part of sculpture, signage, and 'protection from falling' elements. This avoids the risk of interpretation feeling like an afterthought.
- Interpretation content combines contemporary practicalities with place history, the stories of real people and moments of poetry and commemoration. It was generated through substantial and long-term community engagement and storytelling.
- Interpretation is legible and beautifully-designed.



Vuosaari Heat Pump Station, Helsinki

Kivinen Rusanen Architects

- An award-winning design that places a simple, elegantly designed enclosure for new equipment in the context of a well-executed existing industrial complex.
- A simple, box-like form, richly-clad in handmade variegated red brick and carefully detailed to achieve a simple but compelling design solution.
- Materials and design 'humanise' what would otherwise be a stark structure, and the material selection embeds the project in the longer-term history of the site - it feels like it has been there for years.

Community Value

Canals have a major positive impact on the social lives and wellbeing of the people who live on or close to them. They are vital commuter routes, places of leisure, places to live and dwell within, and also crucial to a multitude of sports, community and leisure activities. Accordingly new canalside buildings should aim to further support the lives of the communities they engage with, especially in places with a clear close relationship to existing communities.



- **C1** What opportunities to engage and interact with the local community have been taken? Has the process tapped into local expertise, knowledge and insights, for example through education programmes, co-design or co-production?
- **C2** What does the intervention 'offer' to the public who pass by it? Have all opportunities to create this offer been considered? Offer might include provision of shade or shelter, an engagement with canal history, space for community activities etc.
- **C3** Where appropriate, have chances been taken to create new, or enhance existing, community infrastructure? In the spirit of small canalside buildings over the centuries, it may be possible to colocate uses such that small but impactful spaces can be created that support or enhance canalside community activity.
- **C4** Does the intervention enhance access to the canal? This might be achieved through improving sight lines, providing wayfinding or lighting, creating passive surveillance or easing level transitions.
- **C5** Where appropriate, does the intervention provide amenity or facilities for canal leisure users such as cyclists, walkers, boaters? This might be in the form of equipment or simply a sheltered bench, cycle stands, boater facilities and so on.
- **C6** Does the design of interventions, and access to them, ensure that disruption is minimised to towpath users and canal navigation including lock operation and moorings. In certain situations disruption might be necessary but the role of good design in minimising impacts should be explored.
- **C7** Where they are necessary, have changes in ground surface become opportunities to celebrate, in subtle and well-designed ways, the presence of the GUCT project?

Community Case Studies



Laggan Locks

Sean Douglas & Gavin Murray (SD&GM)
and Oliver Chapman Architects

- A series of contemporary interventions alongside a historic lock
- The buildings, in a crafted and carefully-designed fashion, provide a series of facilities including a kiosk and toilets, as well as small bookable holiday pods – but they also provide shelter and canopy to the public at large.
- The main shelter frames views of the wider landscape and promotes the lock as a visitor experience.
- The character and aesthetics of the intervention echo the adjacent lock infrastructure without mimicry.
- The project is part of Scotland's Scenic Routes initiative.



Wembley WCs

Gort Scott Architects

- The building, on a busy public corner of Wembley, provides public toilets in a challenging context – durable enough to cope with large crowd numbers on event days
- After dark, the perforated elevations illuminate the street from the inside, providing a reassuring street presence.



Public access cycle repair stand

Turvec

- A durable and integrated stand and tools, including pump, for bicycle repair.
- A single location that provides for the majority of cycle maintenance tasks – a useful hub for a local community and for long-distance leisure users and commuters
- An off-the-peg intervention but would be particularly effective as part of a site-specific design that also provides, for example, seating or shelter.



Harbour Storytellers

DK-CM with Rising Arts Agency

- DK-CM were commissioned by Bristol City Council to deliver a Place Shaping Strategy for the entirety of Bristol's harbour, a complex urban environment that intertwines with diverse parts of central Bristol.
- DK-CM commissioned local arts agency Rising to deliver Harbour Storytellers, a series of creative commissions where young, diverse creatives explored and learned about the harbour from multiple perspectives.
- The method utilises local skill, knowledge and creativity, opens up opportunities for emerging creatives and ensures that multiple viewpoints, not traditionally aired, are central to the now-adopted strategy.

Environmental Value

Canals provide habitats and corridors for wildlife and can play a significant role in climate adaptation and mitigation, flood resilience, biodiversity, nature recovery and environmental quality. Accordingly, new canalside buildings should aim to be exemplary in environmental terms, making a positive contribution to a net zero future and a tangible impact on biodiversity, access to nature and resilience.



- **E1** Particularly in urban contexts, but also more exposed or open situations, has the potential to provide shelter from the wind, rain and sun been considered in the design? This might be particularly important in locations subject to the urban heat island effect.
- **E2** In the architecture or surrounding landscape, have opportunities been taken to increase the biodiversity of the immediate environment, with an eye on what habitats might be most important to create, protect and enhance in this particular location? This might include habitat creation within buildings and building facades.
- **E3** Does the intervention protect, enhance or create linear biodiverse spaces? The canal is a valuable linear wildlife corridor and can provide long, linear migration routes for species who cannot find them elsewhere, especially in urban and suburban contexts.
- **E4** Wherever possible, have 'living barriers' such as trees, hedges and landscaping been prioritised when the public needs to be excluded from a space, instead of walls and fences?
- **E5** Has the potential of the intervention to contribute to renewable energy generation been considered? Is there the possibility of the intervention 'powering itself' through solar panels or similar technologies?
- **E6** Has a low-carbon approach been adopted, for example be designing for disassembly, de-construction or re-use, either on site or in a new location?
- **E7** Has noise impact been tackled in the design, with mitigation measures put in place where necessary, carefully integrated with the overall design?
- **E8** Has the possibility of using the canal for haulage and transportation of goods, materials and waste been explored? This is particularly important in locations with poor road access.
- **E9** Has light pollution been managed to protect nocturnal species, such as bats?

Environmental Case Studies



Meilahti Traction Station, Helsinki

Kivinen Rusanen Architects

- The design ambition was to blend with an urban natural landscape.
- Elevations have a simple, textured concrete form that echoes the form and colour of adjacent cliffs.
- The building is designed to be seen from adjacent residential buildings. A biodiverse green roof helps it merge with its landscape.



Arklow Wastewater treatment plant

Clancy Moore

- Infrastructure design which stacks treatment equipment allows substantial part of the brownfield site to be returned to nature
- Locally-specific planting strategy has been developed for the wider site
- The set of buildings has been composed to communicate the public value of water treatment and celebrate this important amenity – a careful landscape-led response supported by a family of high-quality buildings with a civic quality that integrate equipment like cranes within the envelope.
- Roofs are used as an expansive photo-voltaic farm.



Pumping Station, Nyhamnen

Norell/Rodhe

- A live exemplar of future-proofing by design.
- The original commission was for a temporary pumping station. The city planning team at Malmö instead requested a building that could take on new public uses after obsolescence.
- The competition-winning design, which recently achieved planning, is designed for both immediate industrial need and for future public uses, with adaptable panels at ground floor.
- Whilst fulfilling its role as a pumping station, the building provides shelter through an oversailing roof and heritage narratives on its elevations through textured panelwork.



Design Museum, Gent

Carmody Groarke, Local Works, Atama, BC Materials

- A bespoke material for this important new public building in Gent.
- Uses 63% municipal waste material (crushed concrete and glass), and uses 1/3 of the embodied carbon of a normal Belgian clay brick.
- The project uses the creation of a new building to prototype new materials and material processes.

Chapter 3

Scenarios

These scenarios have been developed to show worked examples of how the Design Principles might be used in three speculative (but realistic) situations, each one responding in particular to one of the themes. They are not intended as designs but as exemplars, and to give a sense of how the principles might be implemented in practice. In delivery it will be vital to ensure that appropriate architectural, design and technical expertise is present.

Scenario 1: Achieving heritage & cultural value at Hawkesbury Junction

The approach in this scenario is to explore an 'adaptive reuse first' approach (H1), with new infrastructure designed to be highly responsive and enhancing to the historic environment and/or carefully located such as to minimise impact.

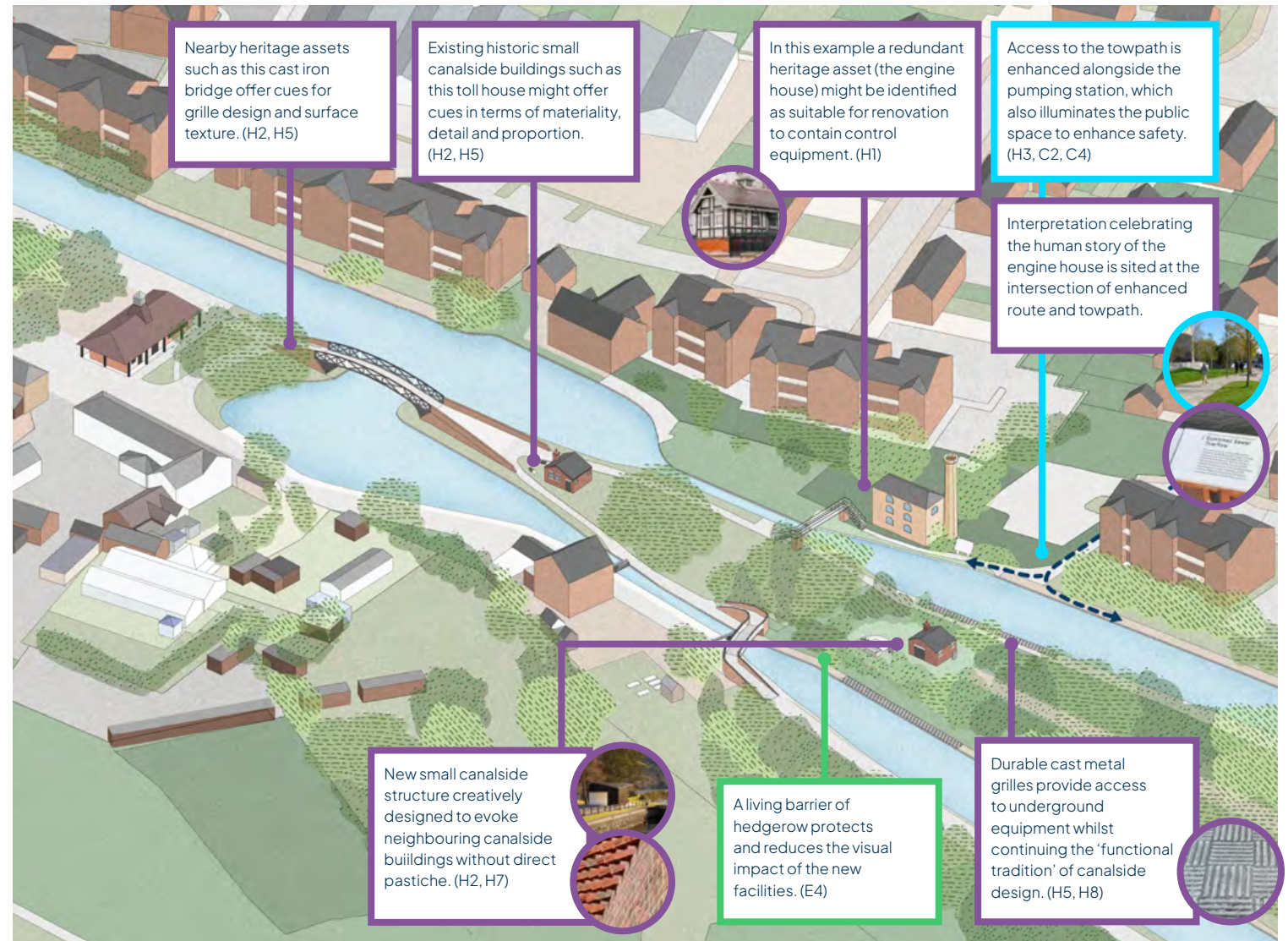
The statutorily-listed engine house is restored to store control systems for the new infrastructure (H1). The engine house can be accessed easily by road via Heritage Drive, immediately adjacent.

The opportunity is taken to provide interpretation on the history of the Engine House and the history of the engine it once contained - the engine still exists but in a new location (H2, H3, H8, H10).

Site boundaries are green wherever possible (E4). To enhance access to Hawkesbury generally an enhanced pedestrian route from Heritage Drive to the towpath is created along the existing line, and interpretation sited accordingly (H3, C2, C4).

A thorough audit of design cues from existing heritage buildings - designated and undesignated, is carried out to establish proportions, details and material palettes for new interventions (H2). The engine house and nearby 'small canalside buildings' (for example the toll house) take precedence in terms of design cues.

New in-ground grilles are designed in a highly durable fashion - perhaps cast metal - that communicates subtly the GUCT project but also relates to tectonic cues around the site and canal corridor (H5, H7, H8).





This drawing hones in upon the existing Engine House as a space that could reasonably contain control systems for the GUCT project at this location (H1, H2, H3, H8, H10, C2, C4, E4).

Scenario 2: Achieving community value at Braunston

The approach in this scenario is to create an intervention which offers something to its local communities (H1) in a locally-specific manner.

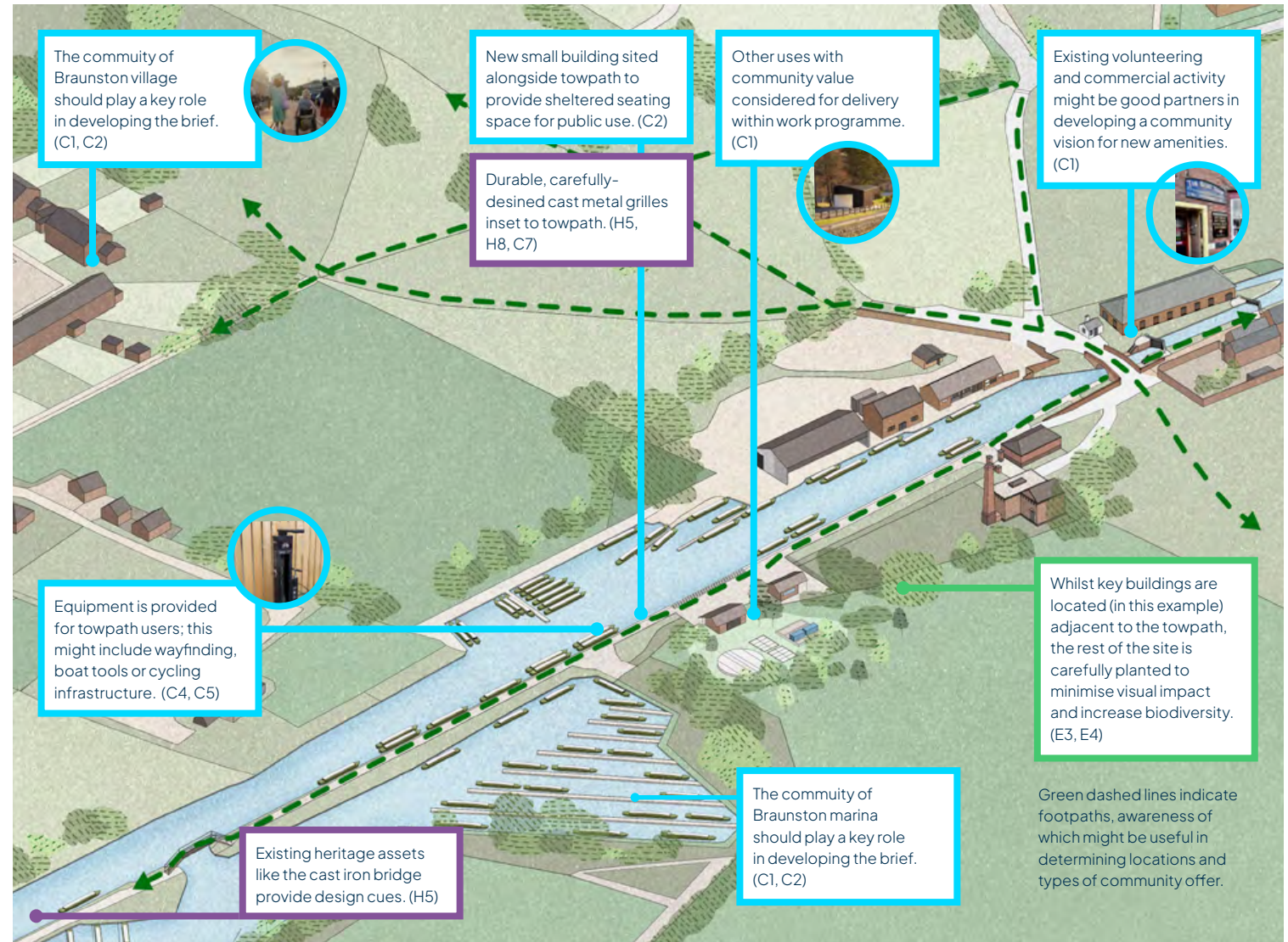
Where appropriate in this context, small canalside buildings or control enclosures are designed such that at least one 'face' of the building is accessible by the public and therefore able to offer a sheltered and/or shaded bench for canal users, supported by amenity (such as bicycle tools or useful equipment for boaters) provided alongside. The proposal therefore makes an 'offer' to both land and boater populations, and to both locals and visitors (C2).

New buildings have a simple pitched form taking design cues from adjacent and nearby small canalside buildings (H5).

Through extensive community engagement, and dialogue with canalside and waterway businesses, perhaps in the form of building a local community steering group (represented by people and businesses from all nearby communities), the public 'offer' is tested and refined in order to feed into a brief (C1, C3). Examples of 'offer' requested by the community might include community amenity, enhanced volunteer facilities, or a small bookable holiday space or bothy.

Green boundaries are deployed and extensive tree planting to the rear of the site to bed the new buildings in their context (E4).

The site sits at the conjunction of multiple leisure routes and footpaths. Opportunities are taken to enhance the accessibility of the towpath and the local footpath network, and provide wayfinding (C2, C4, C5), well-integrated with any required in-ground grilles or decking (C7).



Scenario 3: Achieving environmental value at Hillmorton Locks

The approach here is to deliver a minimum impact solution – minimal in terms of disruption, carbon emissions, visual intrusion – whilst also offering positive environmental benefits.

The necessary infrastructure uses the natural rise and fall of the landscape, and existing planting, to conceal itself from public view, aided by extensive tree planting and green boundaries (E4).

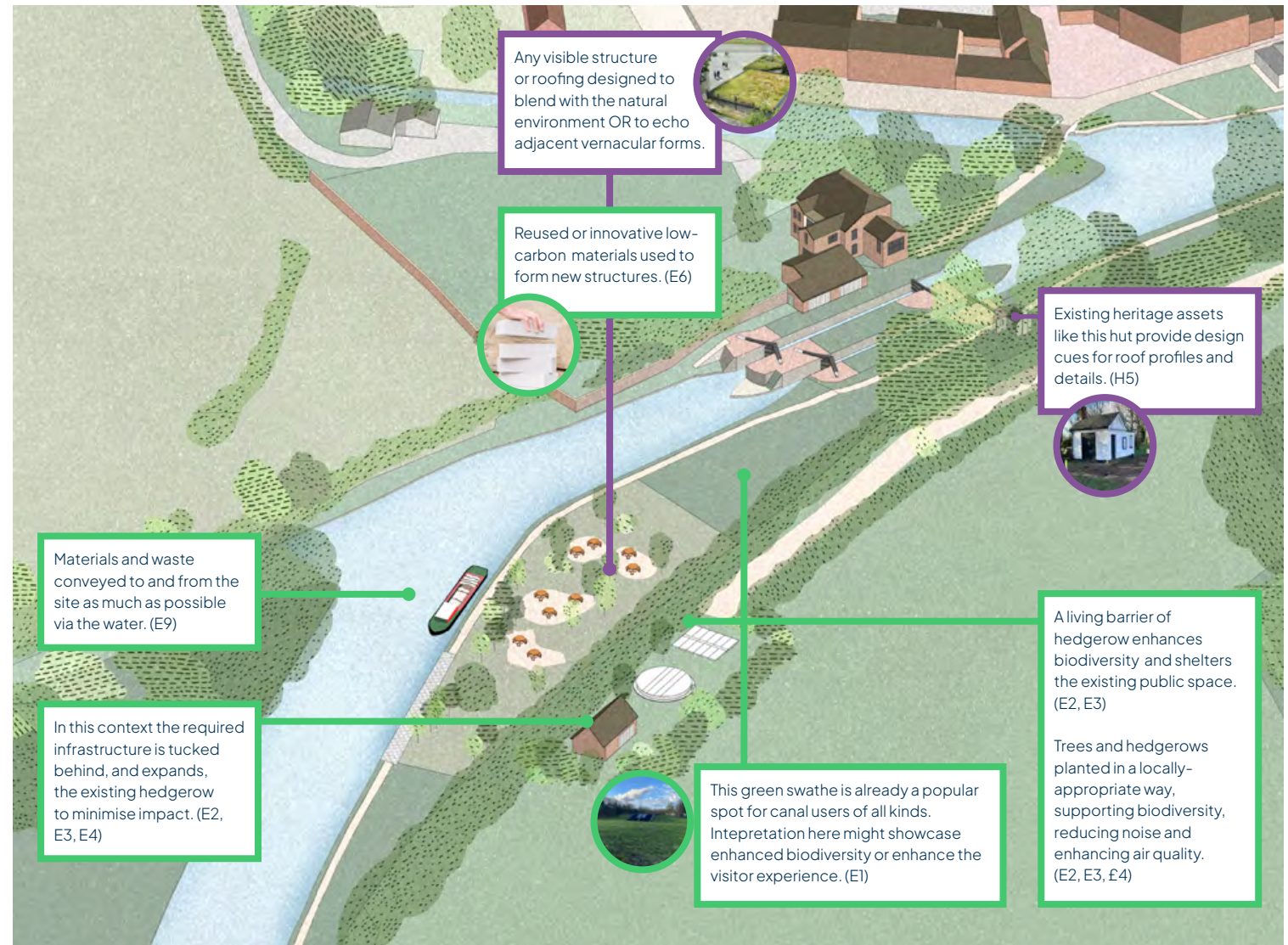
The planting strategy (of trees and other specimens) should be soundly rooted in local biodiversity requirements and therefore based on an understanding of local habitat need (E2, E3). It should also take into account the potential to make a positive impact on air quality – bearing in mind that the site is part of an Air Quality Management Area (E1). This is matched with wider habitat and amenity improvements along the canal corridor.

The potential for solar or wind energy generation to be used to support the functioning of the infrastructure has been explored and sensitively implemented (E5)

Adjacent public facilities such as picnic benches might be sensitively enhanced, with interpretation provided to note the environmental improvements achieved, and the design ensuring that benefits delivered, e.g. protection from noise or shelter, benefit those public facilities (E1).

In terms of process, as elsewhere and when feasible, deliveries of material (and removal of waste) are by boat (E8).

Heritage considerations are also incorporated in this scenario, for example with adaptive reuse of redundant structures considered.



Indicative example pumping station design



Whilst there is no single method of delivering an exemplar pumping station or other above-ground structure using these Design Principles, it feels useful to provide one possible interpretation. Based loosely on Scenario 2 (Achieving community value at Braunston)

Landscape design for the pumping station's immediate environs planted with trees and plants that aide biodiversity, and stitch the structure into its context. (E3, E4)

Tiled roof providing shade and shelter, potentially made using reused materials or ones that can be reused. (E6)

A simple, elegant rectilinear form with a pitched roof evoking nearby structures or those performing similar roles along the corridor. (H2) and offering public value along the towpath. (C2)

In this case, and evoking an approach used elsewhere on the network, redundant railway sleepers have been used in an innovative manner to provide the structural enclosure. (E3)

Site- and -user- appropriate amenities provided. (C5)

Boundaries are green, living barriers (where necessary with other secure boundaries within or behind them, with minimal visual impact). This is good practice for biodiversity and other environmental reasons but also helps the new intervention to read as a singular presence in the environment rather than a complex enclosure of disparate elements. (E4)

Grilles in towpath and bank edge are durable, functional and beautiful. (H2, C7)

Green space and migration routes are preserved. (E3).

Other examples

Heritage & cultural value

Where else might a heritage & culture -led approach be the right one?

Leighton Lock

The existing 'northern engine' pumping house at this location is listed through connection to the adjacent cottage and is in a very poor condition due to recent arson-related fire damage. This is also an ideal chance for an adaptive reuse approach.

Soulbury Three Locks

The existing 'northern engine' pumping house at this location was subject to a highly successful Trust-led heritage restoration, though a large part of the building remains underused. There is a strong opportunity for the GUCT project to provide that use.

Cosgrove

This location is a strong example of a heritage environment with widely diverse heritage assets as part of its character including two bridges with very distinct design and architectural qualities. In this location a Scheduled Ancient Monument in the form of a roman villa, is not easily visible but should frame how the site is approached in terms of design and in terms of delivery process and site access.

Community value

Where else might a community -led approach be the right one?

Atherstone

Atherstone is an example of a location where there is an established community programme which could benefit from the added social value that a project like the GUCT project could provide: Ruby's Yard CIC is a former boatyard on the 'off side' of the canal (away from the towpath) that provides affordable canalside space for community organisations, youth clubs, schools, businesses and family groups. At appropriate times of the year the project offers canoeing, kayaking, rambling, orienteering, fitness sessions, yoga and meditation, weekend camping, arts and craft, and club or community events. Careful co-location of GUCT infrastructure might help support or expand Ruby's Yard's existing programme.

Stoke Bruerne

This location is one where there is a notable intersection between the canal corridor and the wider village community around it. The pattern of development has been such that the canal is a key public space and amenity for the village, almost a waterborne high street and certainly a public 'hub' thanks to a canalside pub, restaurant and museum, as well as boater facilities. As such it is a place where an open-minded conversation about community need with a representative group of the local community might yield clear, locally-specific social value needs and ambitions. This might include interventions that support, enhance or complement the activities of the canal museum.

Environmental value

Where else might an environmentally-led approach be the right one?

Long Buckby/Whilton Locks (NIA)

Long Buckby is in the Nene Valley Nature Improvement Area, and is therefore part of a complex landscape designation where there is a clear vision for natural improvements including along the canal corridor. It is a location where biodiversity improvements delivered by the GUCT programme have the opportunity to closely align with, and support, that clear vision.

www.wildlifebcn.org/nene-valley-nia

Leighton Lock

This location is predominantly situated within the Metropolitan Green Belt, requiring a particularly rigorous approach to development of any kind. As the grazing meadows to the west of the site, which are recorded as Priority Habitats (coastal and floodplain grazing marsh) in the Priority Habitats Inventory, this suggests a particularly sensitive approach to the siting of infrastructure and biodiversity measures that might be implemented.

Soulbury Three Locks

Thanks to the existing layout, Soulbury is a location with easy access to delivery and access by road. Subject to more thorough analysis and feasibility it may be a location where interventions can help provide wharfage for users beyond the GUCT programme; this is a frequent request from canal users.

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Where they exist, relevant Conservation Area Appraisals have been consulted.

For more information on the project and wider references please visit:

**guctransfer.co.uk
canalrivertrust.org.uk**

Acknowledgements

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All information is believed to be correct at time of production and adheres to sound research and design methodologies.

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Grand Union
Canal Transfer

Moving water together

Speak to the team

If you would like to ask any questions about the scheme, please feel free to get in touch with our engagement team:

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