A proposed reservoir in the Fens

Design Refinement Report

October 2025

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1.1 Introduction

1.1.1 Anglian Water and Cambridge Water are proposing a new reservoir in the Fens to help meet the growing demands on water supply in the East of England. The new reservoir is at the heart of a whole new water supply project. Together with the associated water infrastructure we need to transfer water to the reservoir, and from the reservoir to homes and businesses, it will secure a reliable water supply for generations to come.

1.1.2 Our vision for the Fens Reservoir and its associated water infrastructure (the Project) goes beyond simply creating a new public water supply. The project will create a place where water, people and nature come together. That means creating space for wildlife, such as wetlands, alongside enabling new recreational and educational facilities and natural places for people to explore. It also means creating new jobs and providing opportunities for local businesses and tourism. This is a significant investment in England's water infrastructure and a once-in-a-generation opportunity to deliver lasting benefits for people, place and the environment.

1.1.3 This Design Refinement Report for our phase three consultation presents our current design for the Project. It summarises how we have progressed the design of the Project since our phase two consultation (held 30 May – 09 August 2024), including how the feedback that was received, our regular engagement with stakeholders and our ongoing assessment work have helped in shaping our phase three design.

1.1.4 This report is part of a suite of consultation materials for our phase three consultation. Its purpose is to provide a greater level of technical detail than in our main summary brochures, enabling stakeholders and interested members of the public to find out more about detail on our proposals ahead of providing feedback.

1.1.5 This chapter introduces the Project, outlines its strategic need and sets out the consultation and design progression influencing further development of the Project.

1.2 The Project

1.2.1 A new storage reservoir in Cambridgeshire, referred to as the Fens Reservoir, has been identified as one of several strategic resource options required to address increasing deficits in future public water supply.

1.2.2 The reservoir, promoted by Anglian Water and Cambridge Water, is being progressed through the delivery framework overseen by the Regulators' Alliance for Progressing Infrastructure Development (RAPID) and has been designated by the Secretary of State for the Department of Environmental and Rural Affairs (Defra) as a project of national significance that requires development consent through the Development Consent Order (DCO) regime[1].

1.2.3 A comprehensive site selection process was concluded in 2022 to determine the preferred location of the reservoir. The proposed location of the Fens Reservoir is approximately 2.2km north of the town of Chatteris, to the east of the A141 and the settlement of Doddington and 4.5km south of March in the Fenland District Council area as depicted in Figure 1.1.[2]

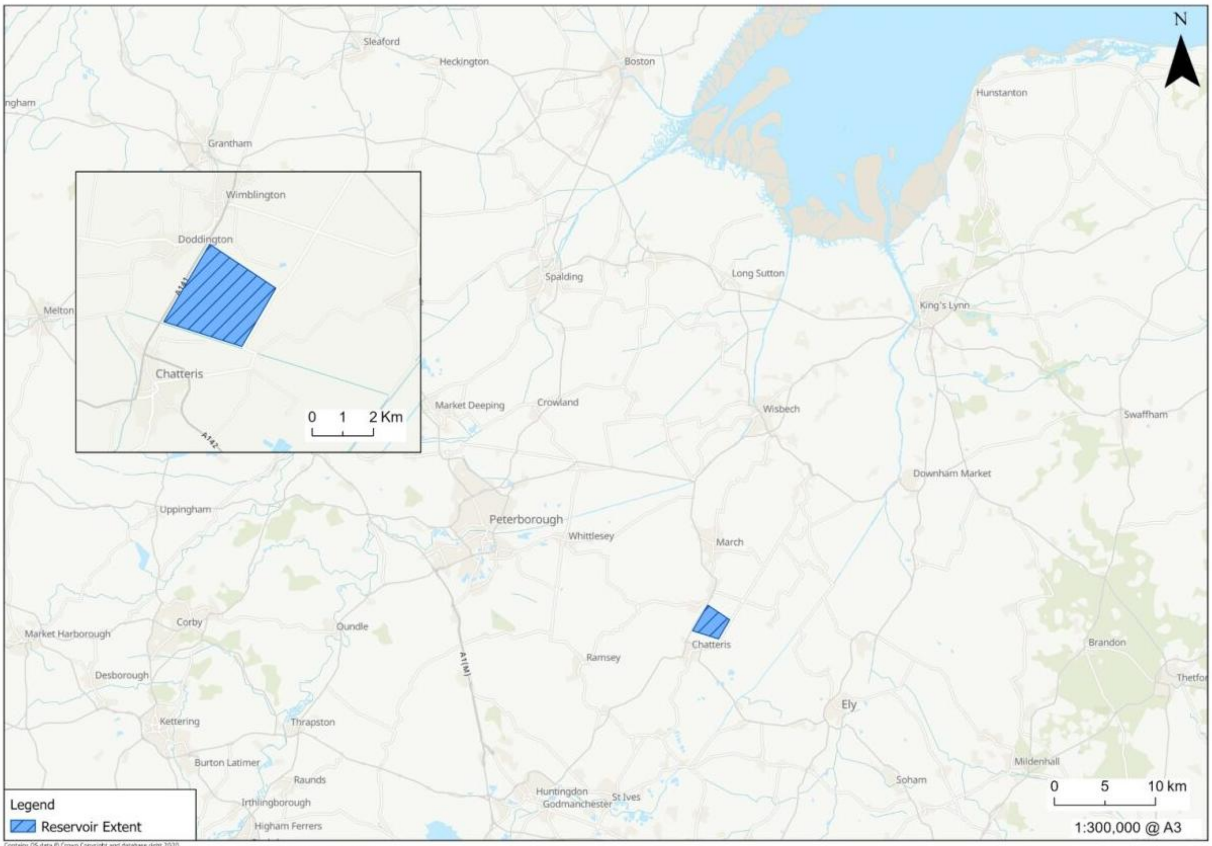

Figure 1.1: Location plan of the Fens Reservoir site

[1]A direction pursuant to section 35 of the Planning Act 2008 was issued by the Secretary of State on 29 May 2025 for the Project. Accordingly, development consent for the Project will be sought through the DCO regime.

[2] Further detail on the reservoir site selection process is set out in the site selection report for the Fens Reservoir (Anglian Water and Cambridge Water, 2022), which was published as part of the phase one consultation between October and December 2022.

1.2.4 Following selection of the proposed location, we undertook a comprehensive options appraisal process to identify the preferred options for the associated water infrastructure, including locations and corridors, for raw water and treated water transfer infrastructure and disposal routes for flows from an emergency drawdown event of the reservoir[3]. Further details on this process are set out in the associated water infrastructure options appraisal report (Anglian Water and Cambridge Water, 2024), which was published as part of our phase two consultation between May and August 2024.

1.2.5 Considering feedback from our phase two consultation, ongoing stakeholder engagement and further assessments, we have continued developing our proposals as presented in this report. A description of the Project as currently proposed is presented in Chapter 2.

1.3 Strategic need

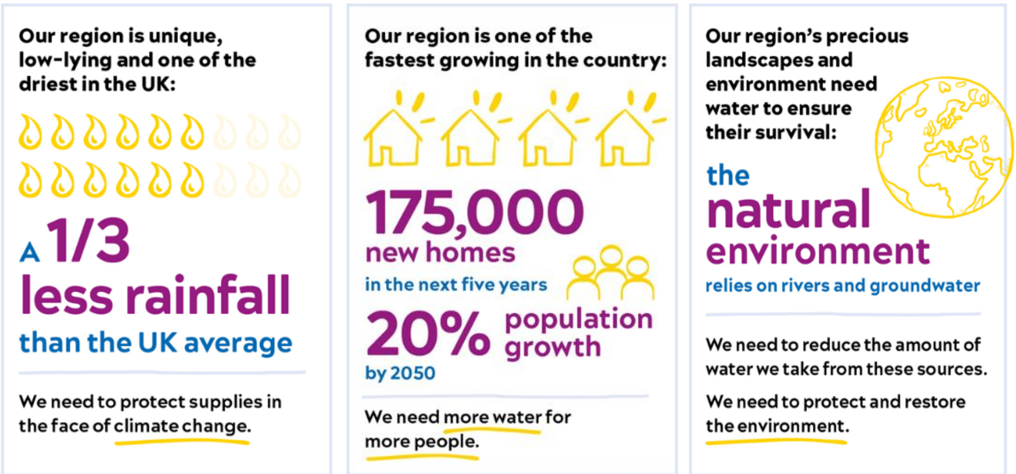

Figure 1.2: Strategic need for Fens Reservoir

1.3.1 As highlighted in Figure 1.2, the East of England is one of the driest and fastest-growing regions in the country and is home to many unique and precious landscapes that rely on water. This creates particular challenges for water management. Weather is becoming more extreme and an increasing population and ambitious growth strategies place greater emphasis on the need for water supply resilience during extreme drought. Water abstraction from environmentally sensitive areas also needs to be reduced as set out in the National Framework for Water Resources (Environment Agency, 2020 as updated in 2025)

3 While the failure of an embankment, designed and constructed to current standards, is a highly unlikely event, a clear plan for managing emergency situations is a further vital part of operating the reservoir. In addition to high quality design, construction and surveillance, a requirement for the reservoir is to be able to lower (in a controlled way) the reservoir's water level quickly in the event of an emergency (drawdown).

1.3.2 The Water Resources East (WRE) Regional Water Resources Plan (Water Resources East, 2023) and final 2024 Water Resource Management Plans (WRMPs) for Anglian Water (2025) and for Cambridge Water (2025) set out a best value plan for meeting these challenges. All the plans have considered options to reduce demand for water, such as leakage reduction, and options to provide additional water. The scale of the challenge is such that it cannot be met through demand management solutions alone. The WRMPs, as well as the WRE Regional Water Resources Plan, are supported by water resources modelling that has identified the need for two new strategic raw water reservoirs in the region to address part of the supply deficit – the Fens Reservoir and Lincolnshire Reservoir.

1.3.3 The Fens Reservoir would provide a safe, clean, resilient drinking water supply for future generations and allow Anglian Water and Cambridge Water to reduce or cease abstractions from sensitive sources, helping to protect and restore the environment as well as enhancing the region's drought resilience for future generations.

1.4 The phase three consultation

1.4.1 This phase three consultation presents our latest proposals for the reservoir and associated water infrastructure. It also shows our early thinking around proposed construction plans for the reservoir and its associated water infrastructure, as well as early information on potential environmental impacts of the Project.

1.4.2 Specifically, in our phase three consultation we are sharing updated and new information on:

- our indicative phase three design proposals for the reservoir (main site), including environmental and recreational features and their indicative locations, potential access points to the reservoir and the preliminary locations for the operational infrastructure we need;
- updated proposals for the infrastructure to transfer water to the reservoir, including the equipment we currently consider we may need, proposed locations, indicative sizes and how it could look;
- updated proposals for the infrastructure needed to treat and supply water, including the equipment we currently consider we may need, proposed locations, indicative sizing and how it could look;
- proposed construction plans for the reservoir and its associated water infrastructure
- proposed options for transporting construction materials, including our initial assessment of traffic movements; and
- potential opportunities related to the reservoir including the local and regional economy, environment and wider benefits.

1.4.3 The consultation materials also show how we have evolved our designs since our phase two consultation, including how we have used feedback to improve our proposals.

1.4.4 Our current intention is to carry out a further public consultation before submitting an application for development consent in accordance with the Planning Act 2008 as it currently stands.

1.4.5 Further information about our consultation can be found in our Approach to Community Consultation document (Anglian Water and Cambridge Water, 2025a).

1.5 Supporting information

1.5.1 We have published a series of documents for this phase three consultation as listed in Table 1.1.

1.5.2 All of these can be viewed online at www.fensreservoir.co.uk/documents.

Table 1.1: Supporting information

Information brochures	
Main Reservoir Site Proposals	Information on our phase three design proposals for the main reservoir site, including potential features and opportunities for recreation and the environment. This brochure also outlines the operation of the reservoir and our approach to managing traffic and transport, construction, power and renewable energy.
Associated Water Infrastructure Proposals	Information on our proposals for the associated water infrastructure needed to transfer water to and from the reservoir and into supply. This includes information on potential locations for the infrastructure, emerging design proposals and our approach to construction.
Approach to Community Consultation	This document sets out how we are carrying out our phase three consultation, including who we will consult, how we will publicise the consultation, how people will be able to take part and how feedback can be provided.
Supporting technical information	
Supporting Environmental Information Report	This report explains what we already know about the environment in relation to our proposals and what we're doing to identify and assess any impacts as part of the Environmental Impact Assessment process. It also outlines the types of solutions we could implement to reduce and manage these impacts during construction and operation.
Design Refinement Report	This document which explains in more technical detail the work we've done to develop our proposals between our last phase of consultation and now. It includes information about the decisions we've made as part of the design proposal journey for both the main reservoir site and associated water infrastructure.

2 Project description

2.1 Introduction

2.1.1 This chapter provides a high-level description of the Project as proposed at this phase three consultation.

2.2 The need for flexibility in the design development, consenting and construction processes

2.2.1 Developing a new reservoir and its associated water infrastructure is a complex task. Our iterative design development process requires careful assessment of technical design solutions and, as we go through this process, we gain a better understanding of the technical, environmental and value for money performance of our proposals.

2.2.2 We have prepared this report and the accompanying consultation materials to help explain our indicative phase three design as it currently stands. We are seeking feedback at this stage so we can continue to take account of your views as our proposals develop.

2.2.3 It is important that we retain flexibility to properly consider this evolving understanding, to address uncertainties, allow for technological development and innovation and to respond to feedback received through consultation, to ensure we develop a Project capable of successfully proceeding into construction and operation beyond consent.

2.2.4 This need for flexibility will continue once we are ready to apply for development consent. It is important that the development consent granted has sufficient flexibility to enable the Project to be constructed efficiently and in a manner that delivers good value for money and respond to site circumstances that may only be discovered as design progresses and when ground works begin. Those and other factors mean that flexibility is necessary so that the contractor can respond appropriately when carrying out the detailed design for, and building, the Project.

2.2.5 When seeking development consent, we intend to use the ‘Rochdale Envelope’ approach (Planning Inspectorate, 2025a). This is an established approach for projects of this scale where development consent is sought for the parameters of the proposed project (e.g. its maximum height, width, length etc.) based on a reasonable worst-case assessment of those parameters. This enables the consent to be secured on the basis of those parameters – giving flexibility to build the Project within them and ensuring that the environmental effects do not exceed that worst case (and will likely be better than reported).

2.2.6 As such, as we continue to move forward with our proposals, we will develop our Rochdale Envelope approach and describe the parameters of the development for which we intend to seek development consent and the engineering detail will lie within those parameters. The DCO application documents will explain the need for the flexibility sought and they will be sufficiently detailed to enable a proper assessment of the likely significant environmental effects and to allow for the identification of necessary mitigation.

2.2.7 Alongside this parameters-based approach to assessment, will be a Design Code and Design Principles, which together with other controls, will set clear environmental, safety and community requirements, to guide the Project during delivery.

2.2.8 The description of the Project that follows in this and subsequent sections, must be viewed in this context.

2.2.9 Section 4.6 of the report provides further detail on design development.

2.3 Project summary

2.3.1 The Project involves the construction, commissioning and operation of a new non-impounding reservoir with an approximate capacity of 55 million cubic metres (Mm^3) together with the associated water infrastructure required to convey water to the reservoir, treat it and facilitate the supply of potable (drinking) water to Anglian Water and Cambridge Water customers, as well as other associated development.

2.3.2 A non-impounding reservoir is a reservoir that does not obstruct the flow of a river and is normally filled by pumping water into it. In the case of the Project, embankments would be created from excavated material, creating a substantial raised feature in the landscape.

2.3.3 The term 'associated water infrastructure' is used by us to mean the infrastructure required to abstract and transport water from local sources, water treatment works and water supply infrastructure. In this way, raw (untreated) water from watercourses is transported to the proposed reservoir for storage before treatment to create potable (drinking) water that is stored before supplying it to homes and businesses.

2.3.4 The process required to enable the provision of water into supply can be summarised by the following simplified steps:

- water will be abstracted from identified sources. These sources are existing watercourses from which available water would be abstracted for transfer to the reservoir
- water will be transferred to the reservoir. Water would be transferred from these sources via existing watercourses or by direct pipeline
- water will be stored in the reservoir until needed
- water will be abstracted from the reservoir and treated to drinking water quality

- treated water will be transferred via new pipelines to connection points within the existing supply system, with localised storage in service reservoirs.

2.3.5 The infrastructure related to these steps and required as part of the Project, is outlined further below.

2.3.6 Figure 2.1 shows the reservoir and associated water infrastructure as proposed. A more detailed depiction is provided in Appendix B, showing our proposals for construction and transport related to the Project.

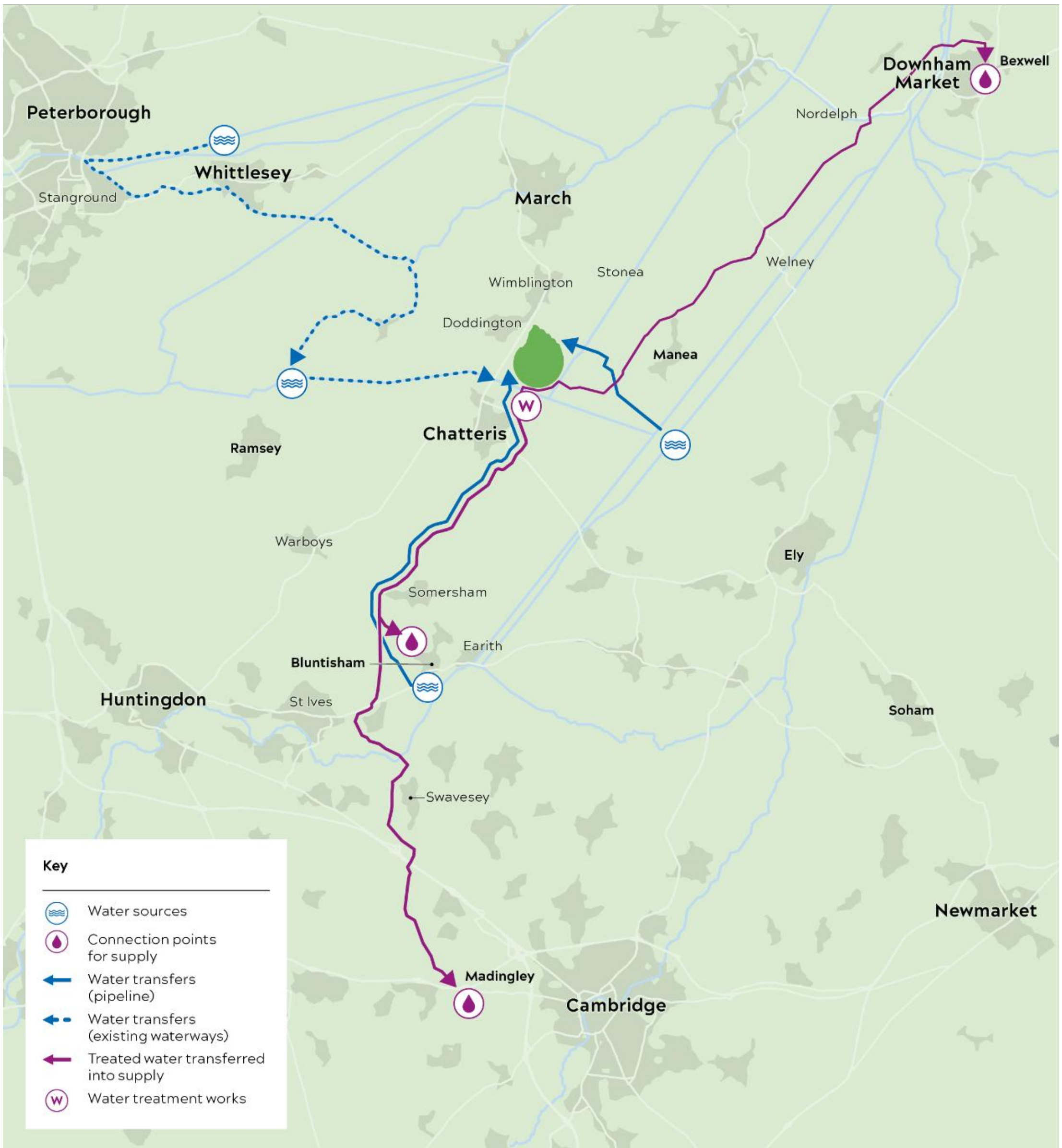

Figure 2.1: Geographical extent of the Project

Sources of supply and raw water transfers

2.3.7 The Project requires new infrastructure to abstract raw water and transfer it from identified sources to the proposed reservoir. The required water source infrastructure is likely to include:

- intake structures
- pumping stations
- screening and filtration systems
- inter-catchment treatment measures, and
- raw water transfer systems, which may consist of open channels, pipelines, or a combination of both.

2.3.8 We are currently proposing abstracting water for the reservoir from up to three sources.

- From the River Great Ouse system – either from the Ouse Washes (River Delph) via direct pipeline or the River Great Ouse (at Earith) via direct pipeline.
- The Middle Level System, via the Sixteen Foot Drain adjacent to the reservoir site.
- The River Nene into the Middle Level System, via the Sixteen Foot Drain adjacent to the reservoir. To compensate for the water taken from the River Nene, if required, water could be transferred from the Counterdrain (Nene), following intermediate treatment, into the River Nene.

Reservoir site

2.3.9 The proposed reservoir would be formed by engineered embankments to provide a minimum storage capacity of approximately $55Mm^3$. This storage capacity would provide a minimum useable volume of $50Mm^3$ to meet public water supply requirements, as set out in the WRMPs for Anglian Water (2025) and Cambridge Water (2025).

2.3.10 Our indicative phase three design includes proposals to use surrounding land for construction and infrastructure for operation, monitoring, and maintenance, as well as for environmental mitigation (including habitat creation) and recreation.

2.3.11 The appearance and shape of the proposed reservoir illustrated in our consultation materials is indicative. For the reasons discussed in section 2.2 the final landform of the Project may vary from that illustrated at this stage. Allowing variability in the landform in the DCO is essential to facilitate effective procurement, to address uncertainties and to allow for efficient construction.

2.3.12 The design shown in this consultation material, including the ammonite-inspired form, embankment height, and profiles, may evolve as the project continues to develop. However, the current proposals offer a realistic interpretation of the project's design principles (see Section 4.9) and operational requirements in the following ways:

- We included a peninsula as a landscape feature to create a point of interest and orientation for visitors. This feature acts as a landmark and facilitates construction by minimising HGV movements through the efficient onsite use of excess excavated materials.
- We preferred a broadly circular (curvilinear) layout for the embankments over straight lines. This layout optimises the reservoir footprint by improving the ratio of surface area to embankment length, reduces visual intrusion from long straight structures, and provides an accessible geometry that enhances the site's landmark character as a recreational destination. The clear geometric design also references the direct engineering logic of sixteenth-century drainage channels.
- We chose variability in bank height and profile to introduce complexity and visual interest into the landscape, rather than adopting a more austere, engineered landform.
- Where possible, we prioritised habitat creation and landscaping in the foreground of the embankments. This approach supports a "zonal" development strategy, reduces the need for technically challenging and costly habitat creation within the embankments, and integrates the reservoir into the landscape by reducing visual impact for users of the Sixteen Foot Bank and A141.
- We have included a lagoon to support recreational access by maintaining a consistent water level.

2.3.13 As discussed in section 2.2 the concepts encapsulated in these design principles will be set out in a Design Code and secured through the inclusion of a DCO Requirement (condition). The Design Code will be developed with input from key stakeholders, including Fenland District Council as the local planning authority.

Water treatment works

2.3.14 Before we can transfer reservoir water to the supply network, we must treat it to drinking water standards to ensure it is safe for consumption. The proposed water treatment works will screen, filter, and treat raw water to produce potable water, which will then be transferred to the existing supply network.

2.3.15 We are proposing a single water treatment works to treat water before transferring it to supply both Cambridge Water and Anglian Water customers.

2.3.16 The proposed location for the water treatment works is south of the reservoir just north-east of Chatteris. It is bordered by the A142 Isle of Ely Way on its western edge and New Road (B1098) to the south.

2.3.17 The water treatment works would be housed in large buildings, to eliminate exposure to the environment, as is standard practice for potable (drinking) water treatment in the UK.

Treated water transfers and service reservoirs

2.3.18 We will install water supply infrastructure to transfer treated water to connection points within the existing Anglian Water and Cambridge Water supply networks. This infrastructure will include underground pipelines and service reservoirs, which provide storage at the connection points. The Project does not include upgrades to the existing supply network, except where necessary to facilitate connections and integrate with existing network control systems.

2.3.19 We will construct service reservoirs at the connection points to store treated water. These reservoirs will help manage daily fluctuations in water demand and maintain supply in the event of an upstream interruption at the water treatment works or along the pipeline. Locating service reservoirs close to the networks they serve will reduce the risk of supply failure caused by upstream issues.

2.3.20 We have identified two potential pipeline routes supplying:

- water from the water treatment works to a new supply reservoir at Bexwell, to the east of Downham Market
- water from the water treatment works to a new supply reservoir adjacent to existing facilities at Madingley, near Cambridge).

Other associated proposed works

2.3.21 A variety of additional works will be required to support the construction, commissioning, and operation of the Project. This would include:

- establishing construction areas
- creating new access points
- improving the transport network to allow the safe and efficient movement of construction materials, workers, operational staff and visitors
- creating new public rights of way or the diversion of existing routes
- installing renewable energy generation
- delivering environmental mitigation measures and recreation proposals.

3 Policy context

3.1 Introduction

3.1.1 On 14 May 2025 the Secretary of State for Environment, Food and Rural Affairs directed (under section 35 of the Planning Act 2008) that the proposed reservoir is to be treated as development for which development consent is required and that any such application for development consent may also include any matters that may properly be included in a development consent order (in accordance with section 120 of the Planning Act 2008) including associated development and ancillary matters.

3.1.2 The Planning Act 2008 requires applicants to develop proposals in detail, including thorough environmental assessments, prior to submitting an application. A key part of this pre-application process is consultation with communities and stakeholders so their feedback can influence the proposals and identify opportunities to mitigate potential effects.

3.1.3 The Secretary of State is the authorising body who will make the decision on whether to grant development consent for the project. His decision must have regard to a number of considerations including relevant national policy, the views of host local authorities (as expressed through local impact reports and informed by local planning policy), any prescribed matters and any other matter which the Secretary of State thinks are both important and relevant. Where a National Policy Statement (NPS) has effect, the Secretary of State's decision must be made in accordance with that NPS.

3.2 Alignment with national policy

3.2.1 In the case of the reservoir proposals, the relevant NPS is the National Policy Statement for Water Resources Infrastructure (Defra, July 2025). It provides a clear framework for the need for new infrastructure, provides assessment principles against which an application for development consent should be examined and determined and sets out more detailed guidance on construction and operational impacts.

3.2.2 The NPS for Water Resources Infrastructure has played a central role in shaping our proposals. It informed the initial site selection process for the reservoir and guided the optioneering for associated water infrastructure. Since our phase two consultation we have continued to use the NPS for Water Resources Infrastructure to influence and shape our proposals – particularly Section 3.6 which outlines clear expectations for reservoir development.

3.2.3 Our masterplanning process and the emerging design concepts outlined in Chapters 4, 5 and 6 of this report for the reservoir and associated water infrastructure follows the approach advocated in Section 3.6 of the NPS for Water Resources Infrastructure. The NPS sets out criteria for good design in water resources infrastructure, recognising that good design is a key aspect of sustainable development, creates better places and helps make infrastructure projects acceptable to communities. We aim to be clear about design expectations and how these will be tested, undertake effective engagement, be transparent about our design principles, how the design process is being conducted and how the proposed design has evolved through the assessment of alternatives and the reasons why the favoured choice has been selected.

3.2.4 Good design is embedded within the management structure of the project. A project board level design champion is engaged, and we are commencing an exercise to test our emerging design through a representative design panel. We are also drawing on Nationally Significant Infrastructure Projects: Advice on Good Design (Planning Inspectorate, 2025), which emphasises the importance of delivering both good processes and good outcomes.

3.2.5 The NPS for Water Resources Infrastructure recognises that nationally significant infrastructure projects present very different design challenges in terms of their specific visual impacts and the need to incorporate engineering, safety and operational considerations. We need to maintain flexibility in aspects of the project to facilitate innovation and efficiency in its delivery, but not at the expense of missing opportunities to demonstrate good design in terms of site layout and design measures relative to existing landscape and historical character and function, landscape permeability, landform and vegetation whilst integrating biodiversity and nature conservation interests.

3.2.6 The Traffic and Transport Strategy, detailed in Chapter 7, is guided by Section 4.14 of the NPS for Water Resources Infrastructure which outlines clear expectations for transport planning.

3.2.7 The NPS for Water Resources Infrastructure encourages a shift from road to more sustainable freight transport modes such as rail and inland waterways, when safe and cost-effective. Our strategy reflects this by prioritising sustainable modes in early-stage assessments and retaining flexibility to pursue rail solutions where feasible. It supports the wider policy for decarbonisation and inclusive access by incorporating active travel routes (walking, wheeling, cycling and horse riding) and public transport users in both the construction and operational phase.

3.2.8 The NPS for Water Resources Infrastructure requires us to consider how infrastructure impacts during both construction and operation, such as job creation and increased local spending, may affect communities and amenities and to demonstrate how construction and freight impacts have been minimised and mitigated (Chapters 8 and 9). Our strategy addresses this through route selection, traffic modelling and early indication of sensitive receptors with mitigation and management measures to be developed through the Environmental Impact Assessment (EIA) process.

4 Approach to design

4.1 Introduction

4.1.1 This chapter summarises how we have incorporated feedback received since the second phase of consultation into our project design and how we have added more definition to our proposals.

4.1.2 It also outlines our vision for the Project and the design principles that have guided its development to date. We will continue to apply these principles as the Project evolves to ensure the reservoir delivers broader value and benefits beyond water storage, treatment, and supply.

4.2 Incorporating new information into our design proposals

4.2.1 Since we completed our second phase of consultation, we have gathered additional information that has helped us further develop our proposals. We have collected:

- water quality data from sampling we carried out in our source water bodies
- ground condition data from investigations we conducted across the main reservoir site
- feedback from the second phase of consultation
- insight from other projects and developments that interface with our proposals.

4.3 Continued engagement with our stakeholders

4.3.1 As we have incorporated this new information and refined our proposals, we have continued to work closely with our stakeholders. Our activities include:

- holding bilateral workshops and engaging regularly with stakeholders such as the Middle Level Commissioners, Environment Agency, Fenland District Council and Natural England
- inviting all our statutory stakeholders to regular forums, known as the Section 42 forum
- providing updates to the Fens Water Partnership, which includes members from our statutory stakeholders and key environmental and interest groups
- discussing new bulk power supply connections with the Distribution Network Operator, UK Power Networks
- providing updates to the Community Liaison Forum
- running regular workshops with Technical Working Groups, which include stakeholders with expertise in areas such as the Historic Environment

- facilitating stakeholder workshops on specific issues. For example, discussions with Fenland District Council (see Figure 4.1) about access to the reservoir for the people of Chatteris. In this workshop, we identified Short Nightlayers Road as the preferred location for junction access to the water treatment works. This location offers additional benefits:
  - It enables a new walking, wheeling, cycling and horse riding crossing along the desire line between Furrowfields Open Space and the new visitor facilities by slowing traffic and making an at-grade crossing safe.
  - It improves connectivity between land parcels north and south of the A142 and supports sustainable development opportunities at the town's edge.

Figure 4.1: Photograph from the Design Workshop for Fenland District Council at Grafham Water (January 2025)

4.4 How we have incorporated new information into our proposals

4.4.1 In some instances, the new information we received prompted us to revisit previous decisions to ensure they remained appropriate considering the updated evidence. For example:

- we had previously preferred to move water from one waterbody to another to bring it closer to our reservoir. However, sampling data from the waterbodies indicated that this transfer could risk contaminating the receiving waterbody.
- we received information about other developments or projects along the routes we had previously identified as preferred pipeline corridors. This new context has influenced whether we would still select those routes.

4.4.2 In these instances, we revised the assessments that informed our previous decisions and then reviewed those decisions in line with the approach set out in the Associated Water Infrastructure Options Appraisal Report (Anglian Water and Cambridge Water, 2024a).

4.5 How we have built definition into our proposals

4.5.1 We identified several key areas where we wanted to add more definition to our proposals.

- **Transport and access**: We developed more detailed plans for how we will bring construction materials, workers, operatives, and visitors to our main site and, where applicable, to our associated water infrastructure sites and routes. We describe the approach and outcomes of this work in more detail in Chapter 7 of this report.
- **Construction methodology**: We refined our plan for carrying out the construction of the Project. We provide further detail on this work and its outcomes in Chapter 8 of this report.
- **Associated water infrastructure**: We added definition within the sites and corridors identified for our associated water infrastructure. We achieved this by analysing aerial imagery and incorporating consultation feedback to identify additional constraints and to develop the conceptual design of our infrastructure.

4.6 Ongoing design development post-phase three Consultation

4.6.1 We have developed an outline design for the Project, which we have presented during this third phase of consultation. Although the design is still evolving, it is now at a suitable stage to share with the community and stakeholders so we can seek feedback and further refine our proposals. As we continue to develop the design, the final appearance of the Project may differ from the indicative illustrations shown at this consultation. More detail on design flexibility can be seen in section 2.2 of this report.

4.6.2 Several key components of the Project remain subject to refinement after this third phase of consultation, including:

- **Indicative Project Boundary:** Our current boundary is likely wider than what will be required at the time of submission of an application for Development Consent, particularly for the pipeline corridors, which are currently shown as up to 500m wide. Keeping the corridor broad at this stage ensures we have space to finalise the siting and design of project components in response to consultation feedback and further investigations. This wide boundary also gives us flexibility to accommodate later design changes, where possible, without needing to redraw the boundary. We would expect to further reduce pipeline corridors widths as the design progresses although a proportionate degree of flexibility will be required to respond to conditions on the ground.

- **Reservoir shape:** We have evolved the initial ammonite-inspired masterplan into an indicative reservoir shape, which will continue to refine through later stages of design and consultation. We will deliver the final design in line with the parameters of the DCO, using the Rochdale Envelope approach (setting maximum limits within which the final scheme can sit) and a supporting Design Code.
- **Embankment height:** Our current masterplan is based on a typical embankment height ranging between 6 and 15 metres, relative to existing ground conditions, and reflects our current understanding of site-specific ground conditions. The maximum heights of the reservoir embankment may need to increase as we gather more survey data, including geotechnical investigations, and as we respond to feedback.
- **Embankment slopes:** We have not yet fixed the slope gradients and will refine them following further investigations and detailed design work. Even with additional investigations and design work, we will likely need a degree of flexibility within the DCO to allow for slope gradients to respond to conditions on the ground.
- **Water Treatment Works (WTW):** The WTW design presented at this stage is based on maximum forecast need, but the final design will depend on the treatment solution chosen. As part of this process, we have also been assessing the quality of water coming from our sources into the reservoir, and the type of treatment that would be required to treat this to drinking water standards. Some treatment processes we are exploring may need a waste pipeline, to transport waste to a suitable Water Recycling Centre or other receptor, and we are continuing our work to assess if this will be required. . If required, this would be reflected through a change to our Indicative Project Boundary and subject to appropriate consultation.
- **Wetland area:** Our indicative masterplan currently includes up to around 275 hectares of wetland. However, we cannot define an exact size at this stage as several factors remain under consideration, including emerging environmental requirements and, in particular, the management of peat. We are still developing our approach to peat management, which will directly influence the final extent and configuration of wetland provision.
- **Pipelines:** We have not yet fixed the diameter, number or size of pipelines within the designated corridors. These details depend on the sources of water supply and the volumes of water we will ultimately need to transfer.
- **Service reservoirs:** Similarly, we have not yet determined the precise siting and sizing of proposed service reservoirs within the chosen polygon locations. This leaves scope for optimisation in later stages, following consultation and further technical investigations.
- **Sources of supply capacity:** We have not yet set the capacity of abstraction infrastructure within the defined polygons. We will adjust this as our water resource modelling progresses.

- **Construction compounds:** We have shown indicative compound locations for consultation, but we have not fixed their size or configuration. We will refine these based on community feedback and site-specific conditions. It is likely that the DCO will need to allow a proportionate degree of flexibility so we can modify compound locations, sizes and configurations within the assessed Rochdale Envelope.

4.6.3 Feedback from communities and stakeholders on the key Project components listed above, along with results from our ongoing surveys and technical investigations, will directly inform how we continue to refine the Project following phase three consultation.

4.6.4 By continuing to refine the Project, we ensure that the version we present at DCO submission not only delivers the best technical solution, but also reflects local knowledge, environmental considerations, and value for money for customers.

4.7 Design Vision

4.7.1 We use a design vision to clearly set out what the Project aims to achieve. It captures the big ideas and aspirations behind the Project and expresses them in a way that is easy to understand inspires people, while reflecting the Project's distinctive location and context.

4.7.2 We shared our design vision, shown in Appendix E, during phase two consultation in the Main site design report (Anglian Water and Cambridge Water, 2024b).

4.8 Approach to Placemaking

4.8.1 Beyond its core function of supplying water, the Fens Reservoir has the potential to become a new leisure destination. To support this vision and unlock associated socio-economic benefits, our design team has shaped and configured the reservoir's elements to create a unique and engaging place that promotes health, wellbeing and educational opportunities for local and regional communities.

4.8.2 In our phase three design proposals, we have included several features aimed at establishing the reservoir as a destination. These may include two new visitor hubs offering community and recreational facilities. We are also exploring the concept of a recreational lagoon with stable water levels to create a more accessible shoreline. This area could feature beaches and jetties to provide inclusive and accessible access to the water.

4.8.3 Additionally, we are proposing a network of active travel routes, supporting walking, wheeling, cycling and horse riding, that will loop around the reservoir and pass through new, varied and naturalistic landscapes. The following sections describe these features and the different landscape zones in more detail.

4.8.4 We plan to use surplus excavated material to form landforms around the embankments, supporting tree planting and helping to integrate them into the surrounding landscape. These landforms will shelter visitors from the wind, create microclimates for niche habitats, and add visual diversity, contributing to a distinctive and engaging visitor experience unlike other natural and recreational landscapes in the region.

4.8.5 By creating a strong identity and sense of destination, we can unlock a wider range of socio-economic benefits. These include attracting tourism and inward investment to Fenland—currently the second most deprived local authority in Cambridgeshire and Peterborough, and the most deprived district in Cambridgeshire.

4.8.6 From an engineering perspective, the indicative shape of the reservoir with its near-circular form maximises storage efficiency relative to embankment length. In contrast, a non-circular shape would require longer embankments to achieve the same volume. The design also promotes effective water circulation, reducing dead zones and helping to maintain water quality.

4.8.7 A strong geometric design reflects the historic, pragmatic approach to earthworks that define the Fenland landscape—evident in straight watercourses like the Forty Foot and Sixteen Foot Drains.

4.8.8 The current indicative reservoir shape fits well within the broadly square zone bordered by the Forty Foot Drain, Sixteen Foot Drain and A141. This layout leaves sizeable areas at the four corners of the reservoir footprint, which we plan to use for recreation and visitor facilities (particularly in the northwest corner), spoil placement and wetland and habitat creation. These areas will connect with existing habitats, delivering significant biodiversity benefits.

4.8.9 The varied zones around the reservoir will enrich the visitor experience while keeping visitors close to the reservoir crest.

4.9 Our design principles

4.9.1 Our design principles guide us in shaping the Project to meet its aspirations and objectives, minimise harm to the environment and local communities and deliver multiple benefits and positive outcomes throughout its lifecycle.

4.9.2 During phase one consultation, we presented the broad principles that guided the reservoir design, focusing on climate, people, place and value. At phase two consultation, we published the initial indicative design principles for the project (Anglian Water and Cambridge Water, 2024b).

4.9.3 We have updated the design principles in Table 4.1 to distinguish those that apply to the whole project, the main site and the associated water infrastructure. We expect these principles to evolve further, becoming more detailed and extensive as the project progresses toward consent, to capture specific design commitments.

Table 4.1: Indicative Design Principles

Indicative Design Principle
Project Wide Principles
Wetland first Where required, consider the opportunities and wider environmental benefits of creating wetland habitat, which was the defining habitat of the historic fenland landscape. Adapt the existing channel features to establish wetland landscapes with a network of marshes and waterways that supports a high diversity of fenland species and a resilient network of wetland habitat types whilst creating new carbon sinks and storing more water within the landscape. Consider the capacity of wetland to deliver beneficial environmental and socio-economic outcomes as alternatives to engineered / carbon intensive solutions, as encouraged by planning policy and best practice. This could include exploring the use of nature-based solutions, to improve quality of the water within the reservoir and as part of the water transfer and treatment process and using wetland to reduce carbon emissions, while increasing storage of both carbon and water and, potentially, mitigating flooding.
Moving the earth Work with the subtle level differences in the existing landscape, landform, soils and geology to be efficient in the amount of earthmoving required in the construction of the reservoir. Where reasonably practicable, make beneficial use of the material excavated within and close to site and reduce the carbon footprint of the earthworks and their impact on local communities. Where it is necessary to move it, carefully handle any peat found on the site to limit its release of greenhouses gases into the atmosphere.
Contribute to a restored Fenland landscape Create habitats that contribute and connect to the wider and growing network of restored habitats in the locality. Design and locate areas of required habitat creation to most effectively support local ecological networks. Create a rich and varied mosaic of the required habitats identified through the EIA both within and surrounding the reservoir. This may include wetland, grassland, woodland and scrub. Connect the new habitat created by the reservoir into the evolving network of nature restoration projects that are connected by the Middle Level system. Carefully design the reservoir embankments on both inner and outer faces, and wetland habitat within and outwith the reservoir, to optimise their connection with habitat corridors along these adjacent watercourses.
Decarbonised in operation Design the reservoir to be constructed and operated to not just meet legislative and planning policy requirements to reduce greenhouse gas emissions but also support Anglian Water's and Cambridge Water's objective to achieve net zero carbon emissions by 2030.

Indicative Design Principle
The reservoirs and associated infrastructure would be designed to maximise efficient siting, positioning and use of materials, including maximising reuse of soil arisings on site. Wherever practicable, opportunities would be explored to apply innovative new low-energy and nature-based processes and to use renewable energy generation infrastructure as sensitively as possible.
NEW PRINCIPLE: ***Respect the Water Environment*** Respect the geomorphology, ecology and heritage of existing watercourses and surrounding landscapes. Avoid adverse impacts on flow regimes or habitats as far as reasonably practicable.
NEW PRINCIPLE: ***Future Climate*** All design should consider climate trends and projection data for hotter, drier summers and warmer, wetter winters as well as sea level rise and storms, to build resilience into the new water infrastructure. Consider resilience in asset design, water supply and treatment operations, safe future conditions for workforce and visitors, and adaptable habitats. Embed the capacity for infrastructure, site users and habitats to respond and recover rapidly from increasing extreme weather events such as floods, droughts, and heatwaves. Identify opportunities to build increased resilience for site users and local communities.
Main Site
A narrative landscape The reservoir will be designed to celebrate the convergence of natural and man-made elements, drawing inspiration from the Fens' rich history of landscape-scale transformation and adaptation involving water. The reservoir, and the associated landscape works required to integrate it, will create a unique and complex landscape that helps to define this new era in water management; one where the Fens need to transform once again in response to the challenges of climate change.
A destination where people enjoy water and nature The reservoir will deliver the foundations for creating new multi-purpose and nature rich destination that will attract people from local communities and further afield. In doing so the reservoir would deliver opportunities to create many benefits for health and wellbeing, nature recovery, education and the local economy. These benefits could be achieved through a mix of passive and active recreational activity from inclusive and varied walking, cycling and horse riding routes, to water-based recreation and facilities that maximise people's enjoyment of close physical and visual interaction with the water. Accessible areas will be designed so people can engage appropriately with nature whilst ensuring there is a balance between undisturbed and accessible areas to maintain ecosystem health and viability.

Indicative Design Principle
The landscape around the reservoir will be designed to add visual interest and provide moments of enclosure and shelter that counterpoint the predominant character of openness in the fenland landscape.
A landmark Take a distinctive and confident approach to the form and silhouette of the reservoir structures and earthworks so that they contribute to it becoming a new landmark in the region. Within the flat fenland landscape there is the potential for the new reservoir to be prominent in local views. It will provide new vantage points for long views across the fenland landscape, its dramatic skies and newly restored fenland habitats and to other regional landmarks on the horizon. The design approach should be to celebrate the reservoir as a new intervention and point of wayfinding, rather than attempting to conceal it or prevent it from being a feature in the landscape.
A focus for socio-economic growth Consider opportunities in the design of the reservoir and location of its supporting infrastructure (such as access routes and essential mitigation), to support socio-economic opportunities for local communities. The core offer for recreation should provide a platform upon which others can build to provide additional amenity and local benefits.
Connecting nearby communities The reservoir would seek to enhance connectivity between the neighbouring communities such as Chatteris, Doddington, Wimblington and March using the reservoir land as the conduit and as a destination, providing dedicated safe and attractive routes and crossings over busy roads and watercourses. Where practicable, the reservoir design could promote active travel, including walking, cycling and horse riding, providing routes that connect into the wider Public Rights of Way network and align with local and regional Green Infrastructure strategies. Where necessary, improvements to existing highways would be considered to create safe environments for users.
Consistent and resilient access to the water Designate areas within the reservoir that maintain, until the most persistent drought conditions, a consistent water level, promoting inclusive recreational access to the water and favourable conditions for the establishment of marginal and wetland habitat. The creation of dedicated lagoons within the reservoir where water levels can be maintained will help facilitate access to the water via features such as beaches, jetties and pontoons and will also allow a range of wetland habitats to become established. From an earthworks and materials perspective, the optimal areas for creating weirs and lagoons to hold water are those associated with the higher ground, located in the north-west corner of the Fens Reservoir site.

Indicative Design Principle
Well planned and seamlessly integrated operational infrastructure Design and deliver integrated proposals that allow safe and secure access to these facilities for both operational staff and, where appropriate, the public. Where practicable features should be reflective of the civic importance of the reservoir infrastructure. Maximise opportunities to use operational features to promote recreation and create intriguing places that also tell the story of how essential water management is and how it is delivered.
NEW PRINCIPLE: Placemaking In addition to its water supply function, the reservoir will be designed to create a unique and stimulating place to provide health and wellbeing and educational benefits for local and regional communities where visitors will be keen to return and where they can enjoy an accessible, safe and nature-rich environment for leisure and recreation in perpetuity.
NEW PRINCIPLE: Water Treatment Works The new water treatment works sits on the edge of the raised ground of the Chatteris Fen Isle. To its southern and western boundaries, it should be screened with landscape approaches relevant to the more enclosed historic character of the fen isle. To the north it will be possible to view it from the drained fen landscape, new areas of wetland and the reservoir embankments. Design new buildings to be appropriate to both contexts in layout, massing, form and materials mindful of local vernacular forms of architecture. Buildings shall be designed to form part of a composed and attractive background to their broader setting and not be designed to draw attention to themselves.
Associated Water Infrastructure
NEW PRINCIPLE: Sit appropriately in context Locate buildings and surrounding landscaping to respect existing land uses and field boundaries and filter views as far as practicable. Design new buildings to be appropriate to context in layout, massing, form and materials mindful of local views and vernacular forms of architecture. Buildings shall be designed to form part of a composed and attractive background to their broader setting and not be designed to draw attention to themselves.

5 Main Site

5.1 Introduction

5.1.1 This chapter explains how we have progressed the main site design since phase two consultation. Like other aspects of the design, the reservoir concept will continue to evolve as the Project develops.

5.1.2 The main site includes the reservoir, its operational infrastructure and the surrounding landscape. This landscape serves several environmental functions, including visual integration, renewable energy generation, access and recreation, and habitat creation. The main site also includes the water treatment works, as shown in Appendix 0.

5.2 Phase two consultation feedback – You Said, We Did

5.2.1 Feedback from local communities, residents, landowners and stakeholders highlighted several key comments and priorities as summarised in Table 5.

Table 5.1: What you said and we did on the main site

You Said	We Did
Design of reservoir – You raised concerns about the height of the embankments and shape, some commenting they felt the design did not fit within the surrounding landscape.	While we are committed to creating a landmark design in accordance with our design principles, we have explored different ways to develop the landscape design of the embankments to vary their appearance and better integrate them with the new areas of landscape around the new reservoir.
Recreational activities – You wanted us to make sure we get the right balance of recreational activities and protecting existing wildlife.	We have zoned the reservoir to ensure we have provided a balance between providing undisturbed habitats in the eastern zone, and recreational access more focused to the western area of the main site.
Safe access – You referred to the need for safe access to the reservoir for all visitors. Some commented that non-vehicle access, such as cycling and walking, from Chatteris to the reservoir should be included in the design.	We have been working with local highways authorities and community groups to explore options for safe access to the site. For example, our phase three design proposals for the reservoir includes ideas for a new all user bridge (i.e. for walkers, cyclists and horse riders) connecting Wimblington and Doddington over the busy A141 and a new route from Chatteris with a controlled crossing of the A142.

You Said	We Did
Environmental impacts – You commented about the potential impacts on existing wildlife habitats and wetlands, including Fenland species, such as the bittern and crane. You commented that they wanted us to minimise any effects on wildlife.	Our work to assess environmental impacts is ongoing and we are developing a more detailed understanding of our impacts on wildlife with a view to minimising these wherever possible. Our phase three design proposals for the reservoir shows some ideas of how we might address our impacts. For example, through increased areas of wetland habitat on the main site. More information is in our Summary Environmental Information Report.
Carbon footprint – You said we should try to achieve carbon neutrality while making sure any renewable energy infrastructure does not impact local wildlife.	We have continued to develop our carbon and renewable strategies to align with the water industry's commitment to achieve net zero in operation, and to ensure the carbon from construction is as low as reasonably practicable.
Renewables - Some expressed support for renewable energy connected into the site and local grid. Some considered solar to be a more favourable option compared to wind turbines on the grounds of environmental and visual impact.	We are continuing to assess the impact, including the environmental and visual impact, of wind and solar options. Our assessment is considering feasible renewable energy sources produced on the main reservoir site and associated infrastructure as well as links to local renewable energy initiatives.
Siting and design of Water Treatment Works – Some raised concerns about what the water treatment works will look like and exactly where it would be located. Some people feel that it could have an adverse impact on the landscape of the local area.	We have considered various layout options, including consideration of building heights and density to minimise visual impact within our identified polygon.

5.3 Design development

5.3.1 Following phase two consultation, we reviewed feedback and began refining the reservoir design as set out in Table 5.1. We also carried out ground investigations across the site, gaining a clearer understanding of ground conditions. In addition, we progressed our socio-economic strategy and developed our understanding of the water quality in our source water bodies and, by extension, the potential water quality within the reservoir.

5.3.2 This chapter provides an overview of the design developments since our phase two consultation in the following areas:

- associated water infrastructure
- operational infrastructure
- water treatment works
- pipelines
- ensuring reservoir safety
- earthwork design and lagoon footprint
- wetland design
- habitat design
- landscape design
- proposed recreational activities
- renewables.

Associated Water Infrastructure

5.3.3 Since phase two consultation, we have further defined how new water supplies would reach the reservoir, including identifying potential pipeline routes from the east.

5.3.4 We propose moving the spillway and outlet valve test pond to the west of the site, connecting it to the Sixteen Foot Drain instead of the Forty Foot Drain. This connection would supply water to the northern and eastern wetlands, maintaining suitable conditions for fenland species. Connecting to the Sixteen Foot Drain also may further reduce any risks associated with the unlikely release of water from the reservoir in an emergency.

5.3.5 In phase two, our design showed an inlet channel running north to south from the Forty Foot Drain to the lagoon. Our updated proposals move the intake northeast to the Sixteen Foot Drain, aligning it with pipelines from the Ouse Washes. This location, on higher ground in the north of the main site, reduces constraints on wetland habitat provision in the lower-lying southern areas. The final alignment would depend on further archaeological investigations, as potential remains of a Roman settlement lie near the Sixteen Foot Drain and the B1098.

5.3.6 To improve water quality, our indicative design places water inlets on the northern boundary of the reservoir, almost directly opposite the outlet tower. This layout promotes circulation within the reservoir. All incoming water would enter along the northern edge, with most discharging directly into the main reservoir body and some into the recreational lagoon.

5.3.7 Our initial design featured a combined supply and drawdown tower, with a culvert transferring water to the water treatment works. In the updated concept, we have separated these functions. The supply tower, located to the south, houses valves at different levels within the main waterbody to enable offtake to the water treatment works. A second outlet tower, positioned on the east side, contains the drawdown valve, which is essential for reservoir safety as it allows the reservoir to be emptied if needed. This design also retains flexibility to revert to a single tower later in the design process, if required.

Operational Infrastructure

5.3.8 Since phase two consultation, we have further defined the buildings and structures needed to operate and maintain the reservoir system. This includes infrastructure for:

- pumping and discharging water into the reservoir and transfer it to the water treatment works
- drawing down water from the lagoon into the main reservoir body during drought conditions or for maintenance and testing
- pre-treatment and supply
- controlling the inlet from the Middle Level system
- reconfigured pumping and control arrangements for the affected Internal Drainage Board (IDB) systems
- monitoring and instrumentation and housing substations for power supplies
- visitor facilities
- fuel storage.

Water treatment works

5.3.9 Since phase two consultation, we have developed an indicative design for the water treatment works to show how it might look and integrate into its surroundings. While the final size, number, and appearance of the buildings will depend on the selected treatment process, the layout illustrates potential impacts and suggests strategies for integrating the facility into the site.

5.3.10 Our preferred location for the water treatment works remains to the south of the reservoir, at the edge of Chatteris Fen Island where the landscape transitions into drained fen.

5.3.11 Security is a priority, as the water treatment works are a fundamental part of the drinking water system. Due to the importance and sensitivity of this supply, access to the facility would be restricted, with tall fencing and other integrated security measures.

5.3.12 We have developed the layout with careful consideration of local topography to minimise the need for pumping between treatment processes. As a result, the treatment works are not as tall as some others, as the processes are generally spread out across the site rather than stacked vertically.

5.3.13 We plan to install a low-lift pumping station in the Lagoon and Central area to transfer water from the reservoir to the treatment works. Under normal conditions, especially when the reservoir is full, gravity would drive the flow. During low reservoir levels, particularly in droughts, additional pumping would be required.

5.3.14 We have considered how best to manage the sludge produced by the water treatment works. At this stage, we have allocated space for a sludge treatment process that includes reed beds, a passive and relatively carbon-efficient solution.

5.3.15 In response to feedback from phase two consultation, we have located the treatment works within the previously selected polygon to make best use of the existing hedgeline and enhance screening from Chatteris. We have also positioned the process buildings with consideration for views from the A142 and access routes to the proposed secondary visitor centre south of the Forty Foot Drain.

5.3.16 The proposed design reflects the industrial character of the area north of the A142.

Figure 5.1: Example of potential layout for the water treatment works

5.3.17 To the west and south, facing Chatteris, we will use tree planting and hedgerows to screen the treatment works and restore the finer-grained historic field pattern.

5.3.18 To the north and west, we have designed the site to maintain a more open aspect across the surrounding wetlands. Reedbeds, the service reservoir, and smaller buildings will sit in the foreground, softening views of the larger treatment buildings beyond. Ditches and wetland planting will further integrate the infrastructure into the landscape.

5.3.19 The scale of the proposed treatment buildings matches those at the Isle of Ely Industrial Estate, which occupies the former dockside site near the intersection of the A141 and the Forty Foot Drain.

5.3.20 As shown in the indicative layout (Figure 5.1), we have conceived the largest treatment buildings as high-quality agricultural units. They are arranged on an east–west axis with south-facing roofs to maximise the opportunities for solar panel here. We anticipate cladding the buildings in low-carbon materials and supporting sustainability through rainwater harvesting, which will be channelled to adjacent wetlands.

5.3.21 We will continue improving our understanding of the quality of water entering the reservoir, including seasonal fluctuations and the level of treatment required to meet potable standards.

5.3.22 We will also continue working with to optimise how the reservoir supplies both Anglian Water and Cambridge Water networks and to design the treatment works accordingly.

Coordination of pipeline routing around the reservoir

5.3.23 We have been reviewing potential pipeline routes around the reservoir and exploring how best to integrate them into the main site. Several key constraints must be considered when designing the pipeline alignment:

- avoid routing pipelines under wetlands created by the Project
- avoid routing pipelines under or through the reservoir or its embankments
- keep pipelines clear of the Mid Level Commissioners' reserve
- maintain a safe distance between the edge of pipeline excavations and the toe of the reservoir embankment
- offset pipeline routes from A roads to minimise disruption and ensure safety.

5.3.24 Figure 5.2 provides an indication of the various pipeline and service routes proposed within the main site, including:

- A raw water pipeline and maintenance flow pipeline from the Ouse Washes to the reservoir inlet pump station that are likely to comprise of a pipeline corridor running parallel from the Ouse Washes abstraction point to a pump station and balancing pond on the north east of the reservoir. At this stage, the pump station would then transfer water to both the main body of the reservoir and the constant level lagoon. A maintenance flow pipeline, also known as a sweetening flow, would run parallel, circulating a smaller volume of water to maintain the system.

- Raw water (including from the River Nene) being conveyed to the reservoir using the Middle Level system via the Sixteen Foot Drain which runs approximately south to north along the eastern side of the reservoir site. An abstraction channel on the eastern edge and pump station to the north would transfer water to the reservoir.
- Water being transferred from the reservoir to the water treatment works through pipelines running approximately south from the southern edge of the reservoir. The pipelines would connect to an abstraction tunnel at their end close to the reservoir embankment toe.
- Treated water pipeline from the water treatment works to the Bexwell service reservoir northward past the reservoir.
- Various ancillary waste-stream and drain down pipelines from the water treatment works discharging either to water treatment works or existing Middle Level system.
- High voltage power supply buried cable routes that would be required to connect the Distribution Network Operator system to new sub-stations located around the reservoir site at several locations, and specifically at pump stations. Although the routes and voltages are not yet determined, the buried cable routes are likely to comprise cable ducts linking substations. They are expected to run around most of the edge of the reservoir.

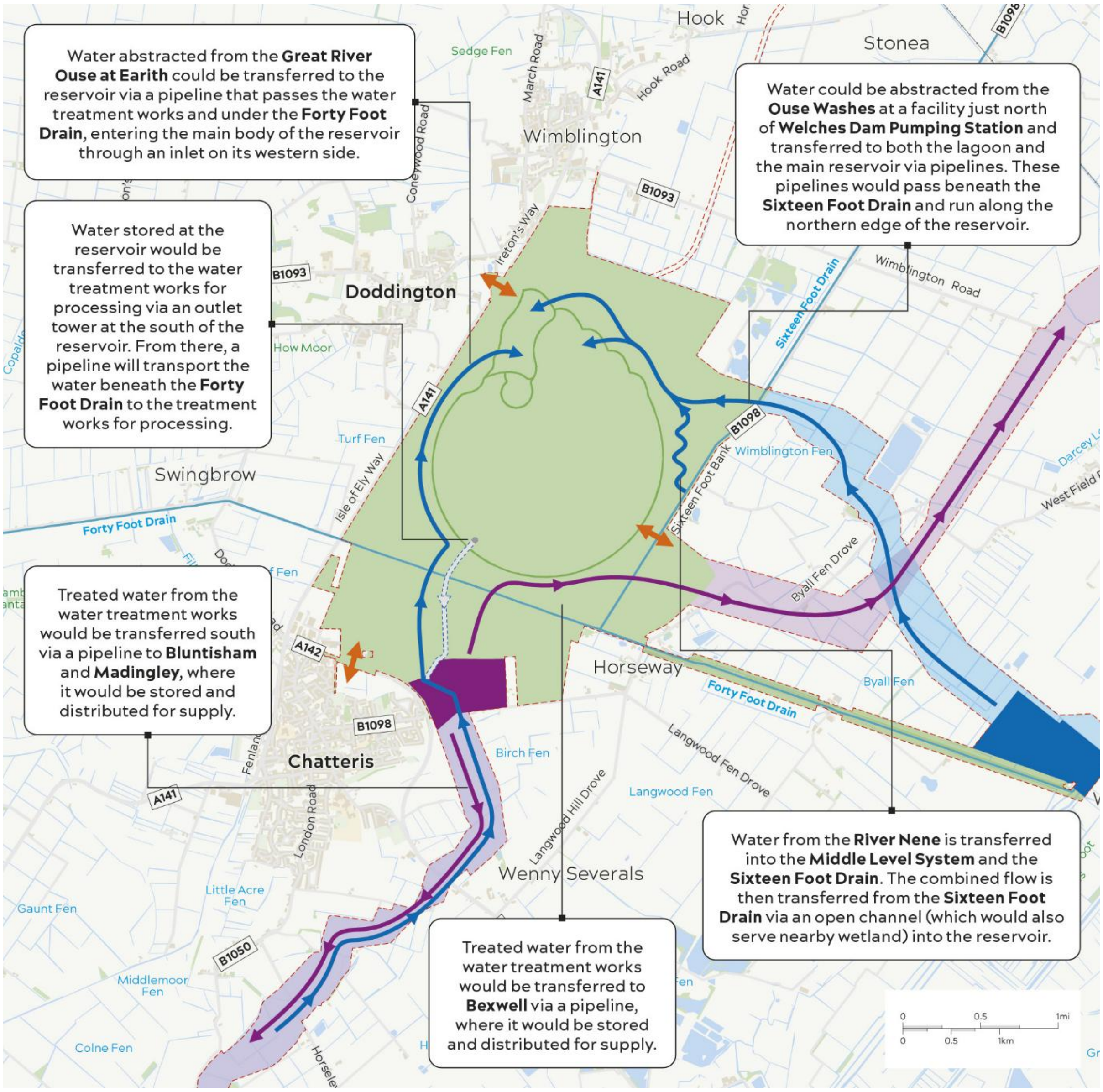

Figure 5.2: Schematic showing pipelines and services and their indicative routes around the reservoir

Ensuring reservoir safety

5.3.25 As required under the Reservoirs Act 1975, the Reservoir Engineer and a team of independent panel engineers must supervise the reservoir’s design and construction to ensure safety. This includes post-construction certification, ongoing monitoring, and maintenance to minimise safety risks, including flooding. The Act and its associated regulations also require specific mitigation measures, such as emergency drawdown facilities and planning for dam breach scenarios.

5.3.26 We have continued to develop the design of the drawdown valve and spillway, along with the connection to the Middle Level system. As noted earlier, we have relocated the connection from the test pond to the Sixteen Foot Drain, east of the reservoir site. This change aligns with other developments in how we supply water from the Middle Level system to feed the wetlands and further mitigates potential downstream flooding risks in the highly unlikely event of an emergency requiring rapid drawdown.

5.3.27 We have retained the ability to return water from the drawdown valve test pond to the reservoir during routine testing.

5.3.28 In the highly unlikely case of an emergency drawdown event, the ultimate destination for released water is The Wash (the sea). The preferred route, as presented during phase two consultation, remains discharge to St Germans Pond in the Middle Level system, with an outfall into either the Sixteen Foot Drain or Forty Foot Drain, and onward discharge via St Germans pumping station.

5.3.29 We will continue to refine the reservoir design in collaboration with the Independent Reservoir Expert Panel, who review safety aspects and have confirmed that all calculations and technical checks meet safety requirements for the downstream community at this stage of design development.

Earthworks design and lagoon footprint

5.3.30 Recent ground investigation has given us a deeper understanding of the site's ground conditions. Notably, we identified a widespread layer of peat across much of the site, particularly concentrated to the south and west of the site, away from Wimblington and Doddington.

5.3.31 We now know the clay bedrock, used to construct the structural portion of the embankments, is significantly closer to the surface in the northwest of the site, but lies beneath softer material and peat in the southern and western areas. This would increase the proportion of site materials that can be reused.

5.3.32 Bulk earthworks, including excavation for the reservoir embankment footprint and borrow pits, would disturb some of the peat.

5.3.33 Because peat soils sequester large amounts of carbon and hold valuable paleoenvironmental information, we have studied ways to reduce peat excavation. This includes optimising the location and extent of excavations, particularly in the northwest corner of the site.

5.3.34 Our phase three design proposal shows one way of improving the efficiency of excavations by shifting the mid-embankment separating the main water body from the recreational lagoon, westward to higher ground. This change could reduce the height and volume of material needed for construction. With increased wetland provision elsewhere, we have shown the central wetland of terrace of our Phase Two proposals with a smaller sculptural island, which could further reduce lagoon earthworks and allow easier access to the clay bedrock near the surface in this area. This reduces the estimated amount of earth movement required to form the embankments.

5.3.35 This design change would reduce excavation requirements, lower the carbon footprint, and shorten the construction period for this part of the site. Our assessments show a significant reduction in borrow pit volumes, and the revised layout creates a larger main reservoir area.

5.3.36 Although the lagoon footprint has decreased, it remains substantial at 28 hectares, large enough to support a wide range of potential recreational activities.

5.3.37 While these changes reduce the need to remove peat, they do not eliminate it entirely. To manage this, we are developing a hierarchical approach to peat excavation. Where possible, we would reuse excavated peat to create wetlands and explore methods to minimise greenhouse gas emissions from peat drying during transit.

Wetland design

5.3.38 Since our phase two consultation, we have further developed our estimates for how much wetland habitat may be needed on the main site. This has seen an increase in potential areas of wetland driven by two key areas of consideration:

- the environmental benefits of retaining excavated peat soils within a wetland setting. Saturating peat in conditions like those in which it formed could help preserve sequestered carbon, reducing the risk of releasing carbon dioxide and other greenhouse gases. In contrast, drying peat can lead to partial oxidation, producing iron ochre, a rust-like substance that can degrade water quality and can obstruct infrastructure.
- a revised estimate of the habitat required to compensate for the loss of ditch habitats and to support protected species such as water voles. Current assessments suggest the Project may need to deliver up to 275 hectares of wetland habitat.

5.3.39 It is important to note that these figures and proposals remain indicative and subject to change. The final extent, location and design of wetland habitat will depend on ongoing technical assessments, stakeholder input, and environmental approvals. Flexibility in the design process is essential to ensure the wetlands are deliverable, effective, and aligned with broader project objectives.

5.3.40 Wetland creation is closely linked to our habitat design methodology, flood strategy, water quality strategy, and peat management strategy. However, designing wetlands in an actively drained and water-scarce landscape like the Fens presents significant challenges. Discussions with environmental stakeholders regarding wetland operation and water sources are still at an early stage. As such, the wetland design remains highly flexible and may evolve considerably as proposals are refined, and further evidence is gathered.

Habitat design

5.3.41 Environmental considerations, particularly Biodiversity Net Gain (BNG) and Environmental Net Gain (ENG), have played a central role in shaping the habitat design for the reservoir. It is anticipated that new habitats will be required to mitigate potential adverse environmental effects resulting from the proposal. These habitats will not only serve as mitigation but will also contribute positively towards meeting BNG and ENG objectives. Further information on habitat design, BNG, and ENG is provided in Appendix B of the Supporting Environmental Information Report (Anglian Water and Cambridge Water, 2025c).

5.3.42 BNG ensures that habitats for wildlife are left in a measurably better condition than before development begins. In line with emerging statutory requirements under the Environment Act 2021, expected to come into force in May 2026, the Project proposes to deliver, and where practicable exceed, the requirement to deliver 10% BNG for projects consented under the DCO regime. The Project’s BNG figure will be calculated in accordance with the legal requirements and metric that apply at that time.

Figure 5.3: Indicative extent of land and habitat types proposed at the main site

Landscape design

5.3.43 Based upon the current indicative design, the reservoir embankments will likely range from 6 to 15 metres in height. They will appear lower to the north of the reservoir, on the high ground near Doddington and Wimblington, and higher to the south near Chatteris. We are considering taller landforms as landmarks and destination points, such as the mound featured in the north west of the site, features unique in the Fens and which would offer expansive views.

5.3.44 During our phase two consultation, we showed how a non-impounding reservoir differs significantly from natural waterbodies or impounding reservoirs like Rutland and Grafham Water, which feature naturalistic shorelines and vegetation extending to the waterline, called a “naturalised edge.”

5.3.45 For our non-impounding reservoir, we would line the internal face of the embankment with large stones (riprap) to prevent bank erosion.

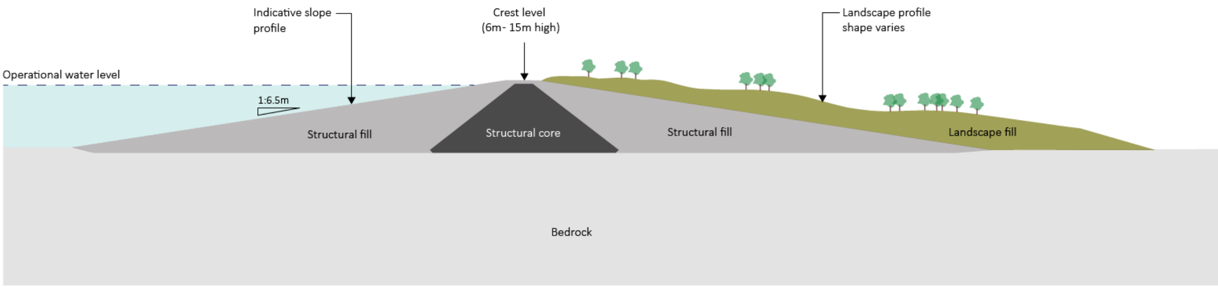

Figure 5.4: Cross section through landscaped embankment

5.3.46 We have designed the route along the embankments to include extensive views across the fenland landscape. As the route spans over 8km, we will vary the landscape experience to keep it enjoyable and encourage repeat visits.

5.3.47 The proposed reservoir and new wetlands offer exciting potential for a variety of recreational experiences. Figure 5.4 illustrates the extent of land and habitat types being considered around the reservoir. We have already developed several strategies to make the site varied, interesting, and enjoyable:

- Recreational Lagoon – we are testing the concept for a recreational lagoon to support placemaking for communities and visitors. By maintaining a stable water level, we would:
  - Introduce marginal planting to mimic a "naturalised edge"
  - provide inclusive access to the water through features like pontoons and beaches
- Land Sculpting with Excavated Material: Proposals to sculpt the land forms above the structural embankments include:
  - add at least 2m of soil depth for tree planting, protecting embankments from root damage and creating shade, shelter and diverse habitats
  - create varied levels of enclosure and shelter forming peaks and valleys that reveal and conceal views and encourage exploration
  - design a variety of walking, wheeling, horse riding and cycling routes at different terrace heights around the embankment. These routes could guide people to and from the crest, sometimes obscuring the water's edge and incorporating diverse planting styles.

5.3.48 On higher ground near Doddington and Chatteris, we have proposed more tree planting, including woodland, hedgerows, and orchards.

5.3.49 Our design includes significant wetland areas required for habitat creation, offering restorative walks and rides through nature and opportunities to observe flora and fauna in quieter reservoir zones.

Proposed recreational facilities

5.3.50 Since phase two consultation, we have further defined the ambition and scale of potential recreational facilities at the reservoir. The earlier indicative masterplan presented a range of ideas for different types of recreational amenities. We have continued to refine the designs to propose the facilities the Project could deliver directly and those that could be brought forward by third parties and this remains under consideration. In response to community and stakeholder feedback, our updated masterplan now includes an additional formal visitor centre with an educational focus, located at the secondary recreational hub near Chatteris.

5.3.51 We have developed the masterplan to ensure the proposed recreational elements are appropriately scaled to meet anticipated demand.

5.3.52 To support the design and planning of the Fens Reservoir, our team has adopted a working assumption of around 400,000 annual visitors once the reservoir is established and the core recreational offering is fully developed. This figure is based on scenario modelling that draws on regional demographic trends, recreational demand forecasts, accessibility analysis and benchmarking against comparable UK reservoir and nature-based destinations.

5.3.53 We are designing strong, direct and safe access routes to the new park from nearby towns and villages including Chatteris, Doddington and Wimblington, with potential for further active and public travel connections to Manea and March.

5.3.54 Visitors arriving by car will use the primary recreational hub and visitor hub located off the A141. A secondary visitor hub focused on community and education would be situated just south of the Forty Foot Drain and accessed from the A142. A third small car park and toilet block would be accessible from the Sixteen Foot Drain.

5.3.55 A comprehensive network of footpaths, cycleways, and horse riding routes would connect to the wider Public Rights of Way network, creating new opportunities for off-road active travel.

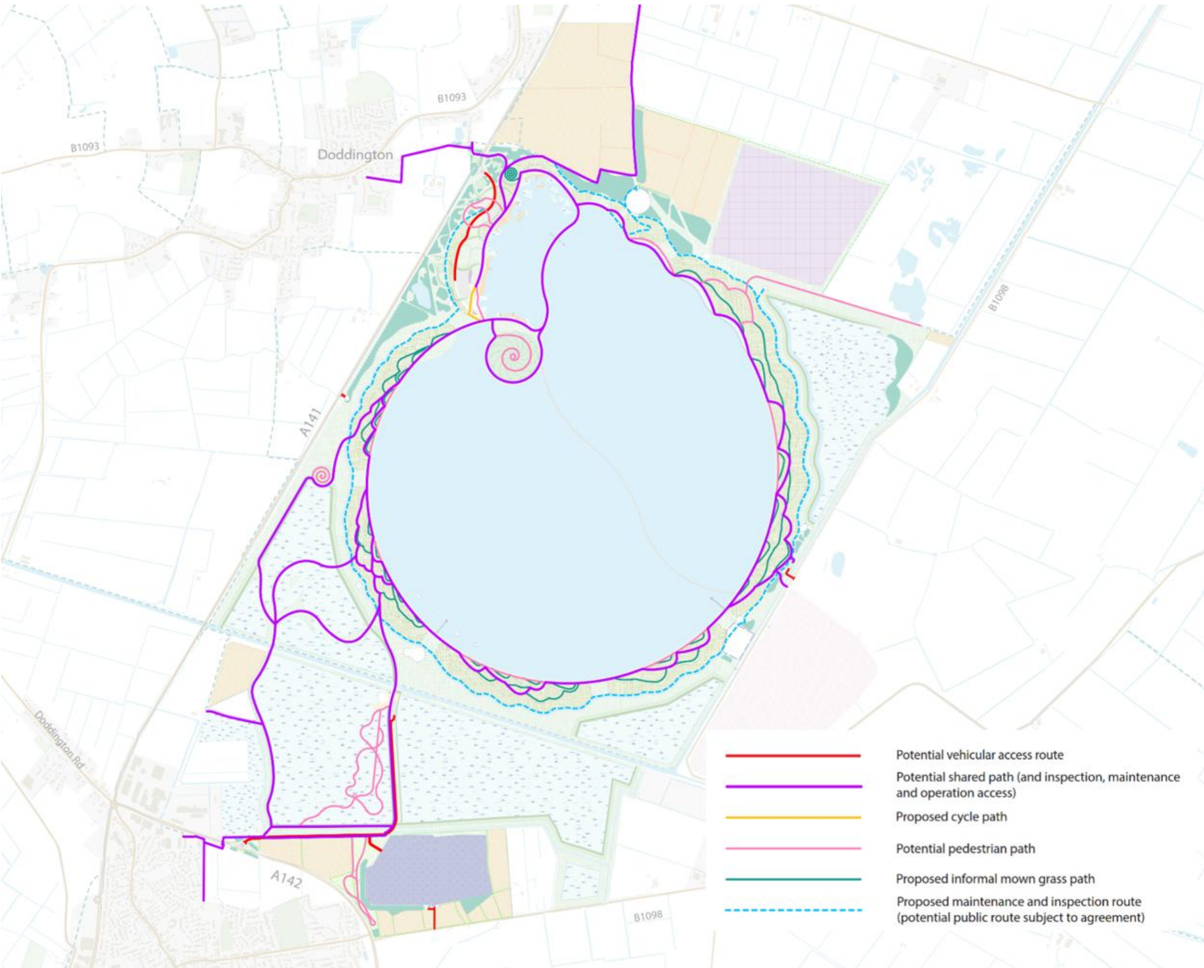

Figure 5.5 Indicative access routes into and around the Main Site

Renewables

5.3.56 We have developed our renewable energy strategy to meet the requirements of the National Policy Statement and achieve the water industry's commitment to becoming operationally net zero.

5.3.57 Through our strategy, we aim to:

- identify and pursue renewable energy supply opportunities
- contribute to the Project's carbon strategy, aligning with the broader water industry's commitment to net zero.

5.3.58 Since phase two consultation, we have evaluated various renewable energy options for the main reservoir and associated sites. We updated our technology assessment and mapped constraints to identify suitable locations for wind, solar and battery storage. As part of this evaluation, we considered the following technologies:

- onshore wind
- floating solar panels

- ground mounted solar panels
- a Battery Energy Storage System or BESS

5.3.59 We have discounted wind turbines from the Project because the potential environmental risks (bird collision risk and visual impact) outweigh the potential benefits.

5.3.60 Following this public consultation, our next steps will be evolving our plans for the use of solar energy (floating, ground-mounted or mixed) with or without a battery energy storage system.

5.3.61 Up to 40 ha of either, ground-mounted, floating or a mix of the two technologies is currently being considered with further information set out in Appendix D provides an example of providing the full 40 ha of solar energy as a floating option.

5.4 Reservoir Zones

5.4.1 We have identified three “Reservoir Zones”, each forming the heart of a distinct character zone. To better reflect the connections between the reservoir and the wetlands south of the Forty Foot Drain, we have moved away from the quadrant-based definition used during phase two consultation.

5.4.2 We envision the central peninsula as the focal point of the reservoir. Around this, we propose dividing the reservoir and associated wetlands into three zones.

5.4.3 The northwest would host the most active areas, including the primary visitor centre and recreation hub. The eastern zone would offer a tranquil, nature-focused experience. The southwest edge would provide a balanced environment where visitors could enjoy nature in a relaxed, engaging setting.

5.4.4 The new proposed zones as depicted in Figure 5 are:

- the recreational hub
- western zone – community connection and fenland experience
- eastern zone – nature priority wetland

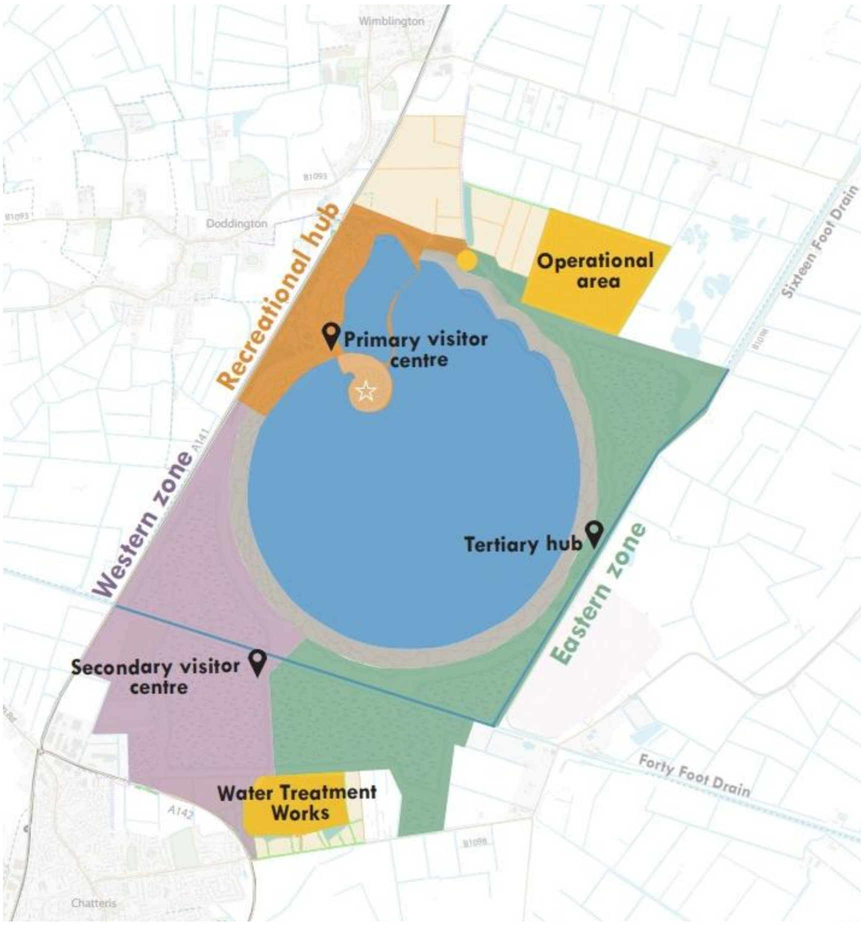

Figure 5.6: Proposed reservoir zones

The recreational hub

5.4.5 Our indicative designs centre the recreational hub around a 28-hectare concept lagoon. We have designed this lagoon to maintain a consistent water level, enabling year-round recreational access and allowing visitors to enjoy close proximity to the water.

5.4.6 We have positioned the hub for convenient vehicular access from the A141, which we expect to become a key strategic route for visitors. Our proposal includes a new roundabout connecting to the A141. North of this roundabout, we plan to build a bridge that offers safe step-free active travel access from Wimblington and Doddington. On the western side of the A141, this will link with existing Public Rights of Way and Brickmakers Arms Lane.

5.4.7 The proposed location for the Recreational Hub has higher existing ground levels, reducing the difference between the embankment crest and surrounding terrain. This allows us to widen the embankment and incorporate potential recreational areas above crest level, creating broad green spaces overlooking the water, similar to natural lake settings. These areas may include play zones and treed grasslands for shaded informal recreation.

5.4.8 We are considering a sculptural design approach for the embankment in the recreational hub. These landforms could serve multiple purposes:

- creating routes to the embankment crest with moderated gradients
- accommodating various land uses at different levels, including car parking and potential future recreational development (to be delivered by others),
- screening visual impacts of proposed land uses
- providing informal play areas
- curling into mounds that offer elevated viewpoints.

5.4.9 On the higher ground of the Doddington/Wimblington Fen Isle, where trees already feature prominently, we plan to introduce additional tree planting beyond the embankment. This planting, along with retained vegetation, would:

- separate the hub from the A141
- screen nearby residential areas
- improve the microclimate within parts of the hub.

5.4.10 On the lagoon’s west shore, we propose a large beach adjacent to the visitor centre. Further north, in quieter areas, we would intersperse small beaches with emergent vegetation. We also plan to create small islands in the north of the lagoon to enhance habitat diversity, support water-based recreation and reduce wave action on the northern shore.

5.4.11 We have relocated the visitor centre further south than shown during phase two consultation. It now sits on the peninsular between the lagoon and the main reservoir, providing access to both waterbodies.

Figure 5.7: Visualisation of a view south across the lagoon in the recreational hub zone

5.4.12 A new access road would connect the A141 roundabout to the visitor centre. This road would lead to a car park in the site's north, briefly rising above the reservoir crest to offer a glimpse of the water before descending to the main car park. We propose positioning the car park slightly below crest level but above existing ground, maximising accessibility while minimising visual impact. The Recreational Hub would accommodate 80% of the reservoir's visitor parking.

5.4.13 Visitors arriving via walking, wheeling, cycling or horse riding would enjoy early views of the water from the bridge over the A141 before gently descending into the site and joining the lagoon's main crest path.

5.4.14 Subject to more detailed earth work design including the feasibility of construction we could deliver a potential land mark feature rising up to 18m above the embankment crest and approximately 30m above the surrounding fenland. This landform would offer a dramatic landscape experience and panoramic views, serving as a distinctive destination and focal point. At its base to the north, we could enable an area that could be used for community festivals, markets, sports events, informal play and waterside recreation.

5.4.15 The recreational hub, with its lagoon and gentle gradients, could support a wide range of additional activities. Options could include kayaking, paddleboarding, and children's play, to be introduced later by third-party enterprises.

5.4.16 In sections 5.4.17 to 5.4.21, we outline our initial ideas for aspects of the recreational offering, on which we welcome feedback. These proposals remain subject to refinement and may evolve through further design development and stakeholder engagement. It is also possible that some elements of the recreational offering may be brought forward by third parties should development consent be granted.

5.4.17 We designed the primary visitor centre as a single complex which could potentially offer activities focused on water access. The building is loosely zoned into three areas, which could potentially offer the following activities (introduced later by third parties):

- Outdoor water activity: The opportunity for a boathouse with hire facilities for kayaking and paddleboarding, equipment storage, changing rooms, and toilets.
- Indoor activity: A main entrance at crest level, public toilets (internal and external), an information area, and room to accommodate other facilities that could potentially include a shop, indoor play, and back of house facilities.
- Transitional space: With potential for a double-height café at water level with floor-to-ceiling glazing, offering immersive views and a dropped floor for eye-level water perspectives.

5.4.18 We would propose having the boathouse separated from the café with a split in the building, where multiple step-free access routes converge at a 50m-wide “water room” on the lagoon edge. This semi-enclosed area could enable opportunities such as aqua-play and paddling pools (introduced later by third parties) that span indoor and outdoor spaces under a canopy.

5.4.19 South of the visitor centre, we plan a formal public space at the junction of the lagoon and main reservoir designed to take advantage of the waterscape view and the approach to the landform experience.

5.4.20 Further south, we earmarked a projection into the reservoir for a future sailing club. This area could include waterside boat storage, parking and hard standing for a potential building development (to be delivered by others).

The western zone

5.4.21 We designed the western zone to span the west to southwest portion of the reservoir site, including areas both north and south of the Forty Foot Drain. Alongside the lagoon, this zone forms the people-focused western edge of the proposal. Here we could provide essential habitat mitigation and enhancement, along with recreational opportunities adjacent to Chatteris. This zone would create key connections between Chatteris and the main visitor hub, and help link Chatteris with Doddington, Wimblington, and ultimately March via walking, cycling, and horse riding routes.

North of the Forty Foot Drain

5.4.22 We envision north side of the western zone, located between the main visitor centre and the Forty Foot Drain, as a space offering varied recreational experiences. Routes would run along the embankment crest, through sculptural landforms on the embankment slope and into wetlands beyond the embankment toe.

5.4.23 We propose a walking, wheeling, cycling, and horse riding route along the western edge of the wetland.

5.4.24 We have refined the sculptural design of the embankment's outer face to support routes that move away from the crest and interact with the water and landscape in diverse ways. On the western edge, we propose smaller 'scallops'—the primary geometry of the sculptural embankment. These scallops would form gentle gradients for paths, intricate terracing, and tree groupings. Closer to the main hub, tree planting would become more formal, while further south, the tree arrangements would appear more naturalistic but still follow the scallop framework.

5.4.25 To enrich the visitor experience, we propose a primary path loop in the western zone that follows these routes:

- along the crest beside upstream wetland habitat lagoons in the northeast
- between the wetland and main waterbody at the lagoon's edge
- across more open crest sections
- on landforms above crest height, with sweeping paths toward the waterbody
- within tree clusters and landforms below crest height
- along the scallop edge, offering broad views of the wetlands and fenland landscape.

5.4.26 We have designed the proposed route to vary how it interacts with views of the waterbodies, habitat types, and the broader landscape. Because the scallops would be smaller on the western edge, the path's character and views would change more frequently.

5.4.27 We propose two new bridges over the Forty Foot Drain to support longer looped routes from Chatteris and create interesting, varied connections between the primary and secondary visitor hubs. The eastern bridge would also provide operational vehicular access across the drain, while the western bridge would form part of a direct active travel route between Chatteris and the main visitor hub and northern settlements.

5.4.28 At the reservoir’s southern extent, the supply tower would serve as a feature of the southern operational hub and a visible reminder of the site’s water supply function. This hub includes the supply point to the water treatment works via a culvert beneath the embankment. A pumping station at the embankment toe further emphasises the reservoir’s infrastructure role. Pipelines will remain hidden underground, and the new bridge over the Forty Foot Drain will guide visitors away from these operational components and associated structures.

South of Forty Foot Drain

5.4.29 We have designed the area in the south of the western zone to bring recreational opportunities to the edge of Chatteris and serve as a gateway to the reservoir site. Located about a 30-minute walk from Chatteris town centre, this area will feature a new public walking, wheeling, cycling and horse riding route from Furrowfields open space toward the reservoir.

5.4.30 We propose a signalised crossing at a new roundabout to enable level access across the A142 from the Furrowfields link. Looping routes through the proposed wetland will include play spaces, public art, and archaeological interpretation based on history of the area. These loops would offer shorter walks from Chatteris and connect with the secondary visitor centre.

5.4.31 We envision the proposed secondary visitor centre as a community and educational hub focused on nature, landscape heritage, local culture, and archaeological discoveries. It could also promote local enterprise and fenland/peatland-based industries. The centre would potentially include opportunities for community spaces, educational and exhibition areas, a café, and facilities for local activities.

Figure 5.8 View of the secondary visitor centre buildings from the south

5.4.32 We positioned the visitor centre at a strategic junction—where the new walking, cycling, wheeling and horse riding route meets the new access road, the Forty Foot Drain, the new bridge to the reservoir and the edge of the new peat wetland area—where it could deliver excellent connectivity.

5.4.33 We allocated 15% of the reservoir's visitor parking to the secondary hub, reflecting its local focus compared to the regional scale of the primary visitor centre.

5.4.34 In addition to recreation-focused wetland loops, we could create routes along the wetland edges that offer more direct access to the reservoir and serve as active travel links between surrounding towns and villages.

5.4.35 The wetland mosaic design near the secondary hub could be more intricate than the broader wetland. Varied vegetation could enhance the experience along these routes. By concentrating diverse habitats here, visitors would be able to explore a range of wetland environments without needing to venture into the more remote, nature-focused areas. The broader wetland is likely to also feature open water, riparian herbs and reeds, fen marsh and wet grassland.

5.4.36 The western zone in the Phase 3 designs would contribute significantly to habitat mitigation and enhancement. At the same time, it could strengthen greenspace provision near Chatteris, provide active travel routes to the reservoir, and improve connectivity between local settlements.

The eastern zone

5.4.37 The eastern zone sits farther from local population centres and connects more strongly with the Ouse Washes. It also borders the Sixteen Foot Drain and Forty Foot Drain, key habitat corridors in the wider landscape. As a result, the eastern zone would serve as a quieter, more nature-focused area.

5.4.38 Our plans show three distinct wetland areas in the eastern zone: two to the northeast and southeast of the reservoir, and one south of the Forty Foot Drain, east of the secondary hub access road. On the reservoir's inner face, we could also include areas of habitat-focused wetland lagoons. Subject to further feasibility studies, these could fill when the reservoir reaches operational water levels and retains water during drier periods as levels drop in the main reservoir.

5.4.39 We grouped the tertiary hub and associated operational infrastructure on and around the higher ground located centrally on the eastern edge of the reservoir. This visitor access point could include 5% of the reservoir's public car parking, a toilet block and space for a potential pop-up or mobile kiosk offering small-scale food and drink. We would look to provide looping routes up to and along the crest to support shorter walks.

5.4.40 South of the tertiary hub, we positioned the drawdown tower, spillway, and outlet valve test pond. We may allow public access to the drawdown tower via a pedestrian pathway and viewing platform over the water, using the connecting bridge, subject to further safety assessments. North of the tertiary hub, we could connect the Sixteen Foot Drain to a new raw water inlet channel, which would run north before transferring to a piped connection into the reservoir.

5.4.41 To protect sensitive species from disturbance, we do not plan to allow public access to the three wetland areas in the eastern zone. However, visitors may enjoy expansive views over the wetlands from the reservoir embankments. There would be an opportunity to potentially install hides along the embankment path network and the southern hub access route. By using existing ground levels and introducing subtle landform changes, we aim to establish a broad mosaic of habitats, including open water, riparian herbs and reeds, fen marsh, sedge fen, wet grassland and drier grassland and woodland.

5.4.42 We have designed larger ‘scallops,’ the primary geometry of the sculptural embankment on the eastern edge of the reservoir. These would form gentle gradients for paths and accommodate larger tree groupings at higher elevations.

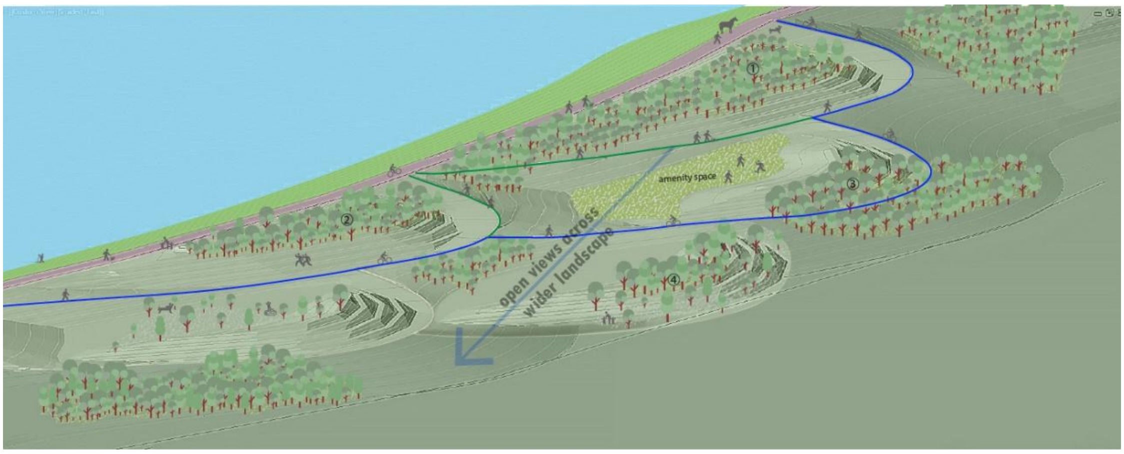

Figure 5.9 Showing how land sculpting on the embankments might work

5.4.43 To minimise disturbance, we would limit public routes in the eastern zone to the embankment.

5.4.44 To enrich the visitor experience, we propose a primary path loop in the eastern zone that follows these routes:

- along the embankment crest beside the upstream wetland lagoon
- between the wetland lagoon and main waterbody
- across more open crest sections
- on landforms above crest height, with paths sweeping back toward the waterbody

- within tree clusters and landforms below crest height
- along the scallop edge, offering broad views of the wetlands and expansive fenland landscape.

5.4.45 This varied path design would change how visitors interact with views of the waterbodies, habitat types, and the broader landscape.

Figure 5.10: Visualisation of proposed access route around the reservoir

6 Pipelines, transfers and distribution infrastructure

6.1 Introduction

6.1.1 This chapter explains how we have developed the designs for the associated water infrastructure since phase two consultation. Like other aspects of the design, the associated water infrastructure will continue to evolve as the Project develops.

6.1.2 The associated water infrastructure includes abstraction infrastructure from the raw water sources of supply, transfers of raw water from the source to the reservoir by pipeline or open channel, treated water pipelines and storage at service reservoirs into the surrounding landscape.

6.2 Our scheme and how it's changed

6.2.1 Feedback from local communities, residents, landowners and stakeholders has highlighted a number of key comments and priorities, resulting in refinements to our proposals since our phase two consultation.

Raw water infrastructure

6.2.2 The following refinements have been made to our proposals regarding raw water infrastructure, further details of which can be found within this chapter of the report:

- raw water pipeline from Ouse Washes to support a greater volume of water being transferred from this source to the reservoir
- raw water pipeline from River Great Ouse transferring directly to reservoir instead of via the Forty Foot Drain
- selection of location for raw water infrastructure for River Nene Source (removing one of two options presented previously)
- using water from the Middle Level System, when it's available and pumping it into the reservoir via the Sixteen Foot Drain.

Treated water infrastructure

6.2.3 The following refinements have been made to our proposals regarding treated water infrastructure, further details of which can be found within this chapter of the report:

- more information on design of the Water Treatment Works, including landscape integration
- removal of need for service reservoir at Bluntisham

- review of pipeline route between Holywell and Madingley to respond to feedback and align with another Anglian Water project
- more clarity on size of the Madingley service reservoir within land area identified previously
- co-locating the new service reservoir at Bexwell with existing service reservoir in the area
- identifying pipeline routes to reduce 500m in certain locations and identifying best engineering route.

6.3 Design development

6.3.1 Below we set out how we have developed our designed since phase two consultation.

6.3.2 The potential effects of the Project on environmentally sensitive sites such as the Nene Washes, RSPB Ouse Fen, Ouse Washes, Fen Drayton Lakes, Swavesey Meadow Country Wildlife site and Middel Fen are being considered within the EIA and Habitat Regulations Assessment. Further details regarding the environmental assessments being carried out influencing our design progression is provided in the Supporting Environmental Information Report.

6.3.3 Figure 6.1 provides an overview of the overview of raw water infrastructure and treated infrastructure as proposed at this phase three consultation.

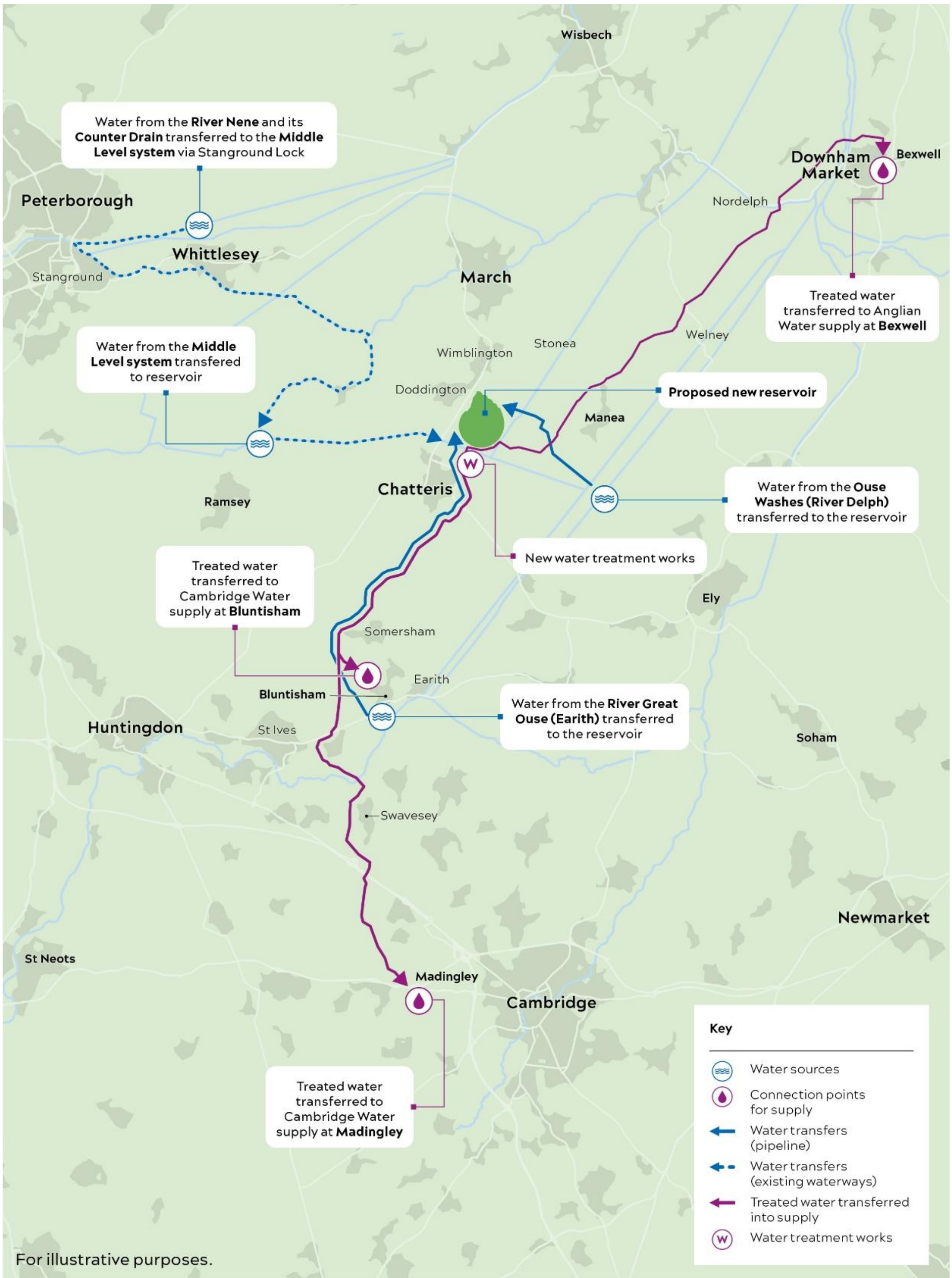

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Figure 6.1: Overview of raw water infrastructure and treated infrastructure proposals

Sources of supply and raw water transfers

Middle Level system abstraction and transfer

6.3.4 We would continue to pump raw water directly from the Middle Level system into the reservoir. As we have progressed with the design of the main reservoir site, we have identified the preferred location for the pumping station along the Sixteen Foot Drain in the northern section of the site, adjacent to the eastern embankment of the reservoir. This location would allow us to make better use of the land available within the main reservoir site, as described in Chapter 5.

6.3.5 We are continuing our water quality assessments, and the information is evolving as the design develops. Based on our current understanding, we can reduce the need for inter-catchment treatment by keeping water from various sources separate from the Middle Level system. This approach allows us to prioritise source water that requires less treatment to meet potable water standards at our treatment works.

The Ouse Washes (River Delph) abstraction and transfer

6.3.6 During our second phase of consultation, we presented a design that included transfers from the Ouse Washes (River Delph) and River Great Ouse (Earith) via the Middle Level system to the reservoir. Based on our ongoing water quality assessments and the available sources of supply, we have not yet identified a preferred abstraction location.

6.3.7 Given our understanding of the Middle Level system's water quality, we consider it advantageous to increase the volume of raw water transferred from the Ouse Washes to the reservoir. This abstraction offers improved yield and higher-quality water, which supports our overall supply strategy.

6.3.8 To accommodate the increased volume of water abstracted from the Ouse Washes (River Delph) and the relocation of the reservoir inlet from the northwest to the northeast corner, we reassessed our proposed transfer infrastructure and arrangements. This reassessment included evaluating the size, corridor and number of pipelines required to facilitate the transfer.

6.3.9 We propose the Ouse Washes (River Delph) abstraction near the existing Welches Dam pumping station, likely within the Middle Level Barrier Bank. The abstraction arrangement may include screens to prevent debris entering our infrastructure and protect aquatic life, including fish. From this point, water would flow into an underground intake tunnel beneath the Counter Drain (Ouse), which would transport it to a microfiltration plant and pumping station located northwest of the Ouse Washes. From there, we would pump the treated water to the reservoir.

6.3.10 We are involved in ongoing design development of the Ouse Washes (River Delph) abstraction infrastructure and working collaboratively with the Environment Agency and Natural England through this process.

6.3.11 Figure 6.2 provides an indicative depiction of our proposals for abstraction infrastructure at the Ouse Washes (River Delph).

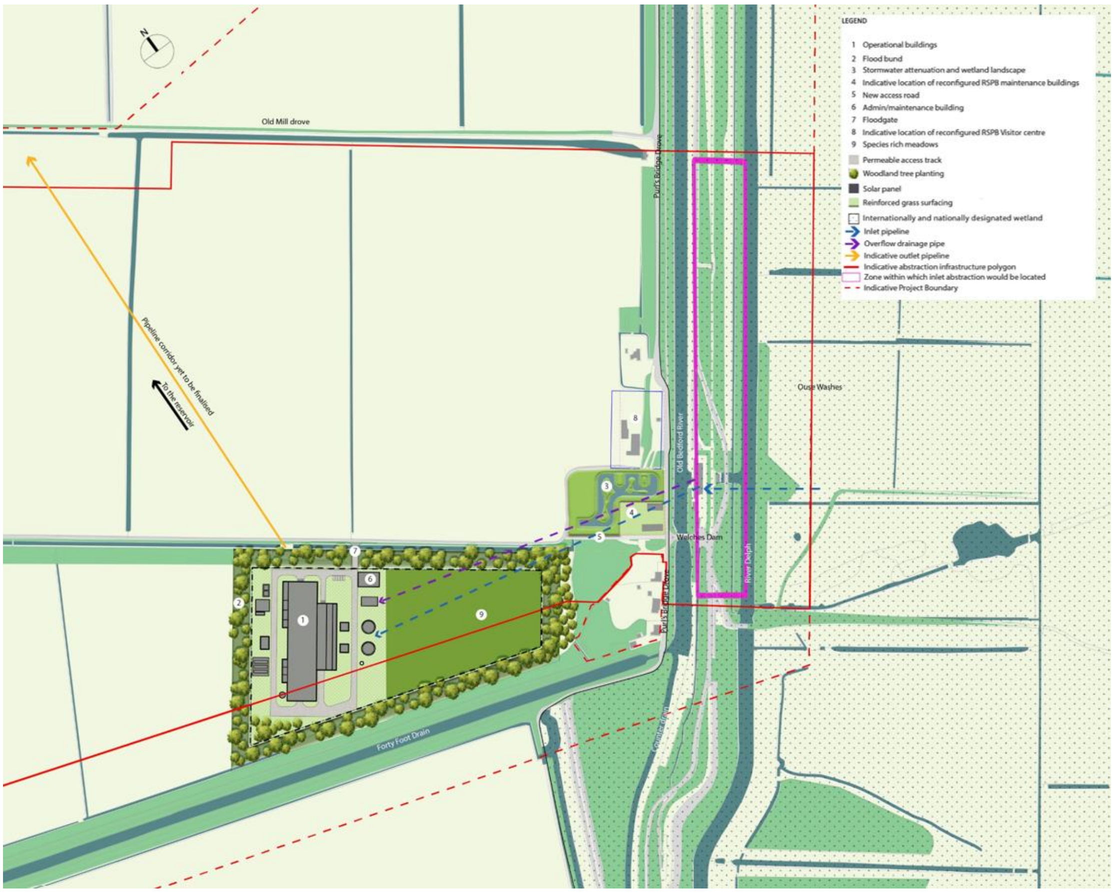

Figure 6.2: Proposed Ouse Washes design. Area for raw water infrastructure to draw water from Ouse Washes

6.3.12 We reviewed our options for transferring water to the reservoir based on our understanding of water quality and treatment requirements, particularly when moving water between different waterbodies and catchments.

6.3.13 We assessed a range of options including:

- transferring water via an open channel using the Forty Foot Drain, as presented during phase two consultation
- using a pipeline exclusively to transfer water
- hybrid options that split the flow between the open channel and a direct pipeline to the reservoir.

6.3.14 Our assessments identified the pipeline-only option as the most effective method for transferring increased flows. This conclusion was based in two key factors:

- The Middle Level system, including the Forty Foot Drain, lacks the capacity to handle the increased maximum flow without extensive upgrades

- The water in the Ouse Washes contains different contaminants than the water in the Middle Level system. Transferring water between these systems would require carbon-intensive and costly treatment processes to prevent negative impacts on Middle Level water quality.

6.3.15 We reviewed our preferred abstraction location in light of the new transfer option and updated water quality and flow data. Our assessment reconfirmed the site presented during our phase two consultation, near the existing Welches Dam pumping station, as the preferred location.

6.3.16 We identified the preferred location for the abstraction infrastructure on the Ouse Washes (River Delph) embankment, within a highly designated environmental area. To build infrastructure in this location, we must carry out further design work to meet both reservoir safety and environmental standards.

6.3.17 We have selected a new pipeline corridor route for the transfer, as depicted in Figure 6.3. The pipeline corridor, approximately 5.5 km long, will likely run in a north-easterly direction from the abstraction infrastructure to the reservoir, entering through the north-eastern inlet via a balancing pond and pumping station. Based on the peak transfer volume from the Ouse Washes, we expect to require multiple pipelines, which we will locate within the identified corridor.

6.3.18 At this stage of design development, we have identified a pipeline corridor that is generally 500m wide. In areas where environmental, land or engineering constraints exist, we have reduced the corridor width accordingly. Within this typical 500m wide corridor, we have identified a Best Engineering Route for the pipeline.

6.3.19 We have informed the Best Engineering Route primarily through desk-based studies, aerial and topographic surveys (where available), and stakeholder feedback. This route represents an indicative alignment along which we expect to lay the pipeline. The corridor remains subject to ongoing design development, including environmental surveys, site walkovers, and continued stakeholder engagement.

6.3.20 The pipeline corridor may also include associated access points and construction working areas as described in Chapters 7 and 8.

6.3.21 We may include associated fittings within the pipeline corridors, depending on the system hydraulics. We have not yet confirmed the exact number, location or size of these features, as they remain subject to ongoing design development. These fittings may include:

- air valves positioned at high points along the pipeline within buried chambers, which may partially extend above ground level
- washout valves, located in buried chambers at low points along the pipeline to allow drainage when required
- line valves, which enable us to control sections of the pipeline as needed. We expect to bury the valves below ground, with control kiosks positioned above ground

- personnel access points, designed to support operations and maintenance activities.

6.3.22 Although we propose a direct pipeline transfer to the reservoir, we have retained the existing Forty Foot Drain, originally presented during phase two consultation, as a potential environmental mitigation measure. We also consider it for a possible access road and services corridor along the higher ground within the wider sections of the channel.

6.3.23 Our preferred option strikes the best balance between known environmental constraints and the engineering requirements needed to construct the pipeline.

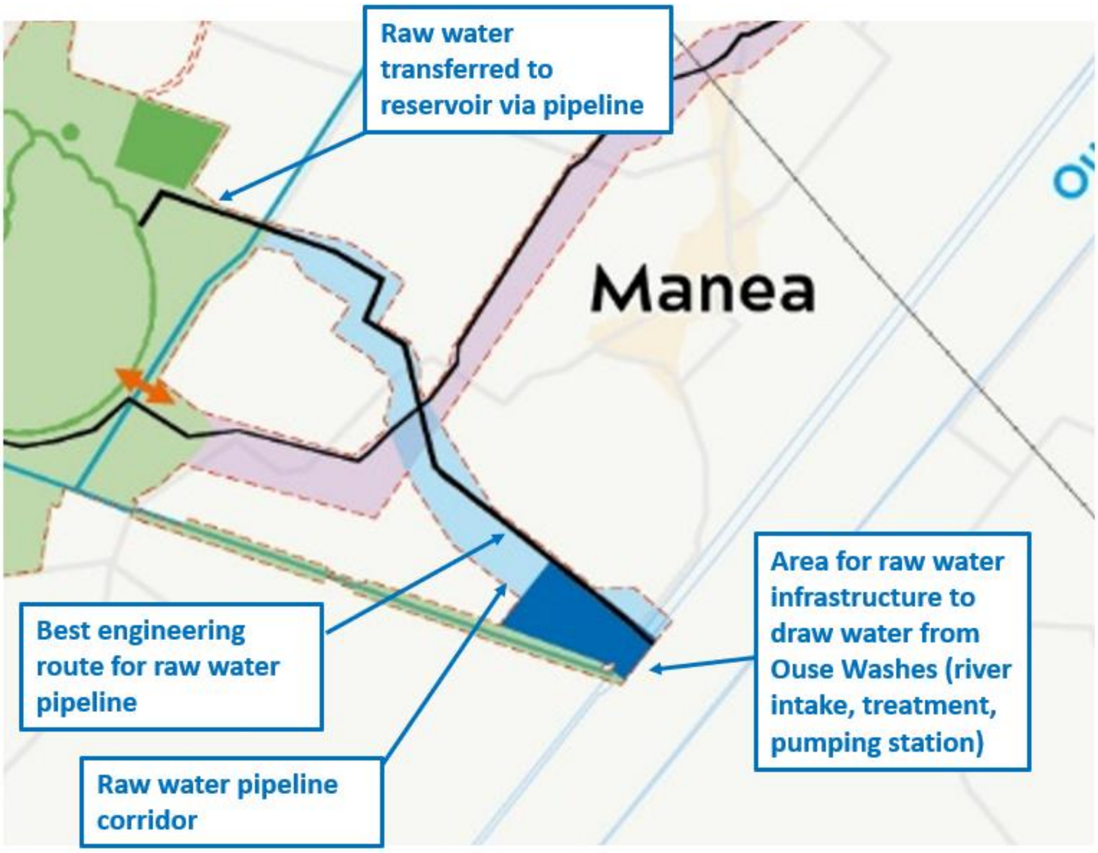

Figure 6.3: Our proposals near Manea

The River Great Ouse (at Earith) abstraction and transfer

6.3.24 We have reassessed our preferred option for the River Great Ouse (at Earith), considering our updated understanding of water quality and the treatment requirements when transferring water via a secondary waterbody. As a result, we now propose to discharge raw water directly into the reservoir, rather than into the Forty Foot Drain as proposed during phase two consultation.

6.3.25 We expect to locate the River Great Ouse (Earith) abstraction point in the watercourse bank near Earith, south of Bluntisham. The abstraction intake infrastructure may include screens and will connect via a gravity pipeline to a microfiltration plant and pumping station, which will transfer water to the reservoir through a dedicated pipeline.

6.3.26 Although we have retained the proposed approximately 14 km transfer pipeline corridor routing, we have refined the alignment to avoid sensitive receptors.

6.3.27 Figure 6.4 provides an indicative depiction of our proposals for abstraction infrastructure at the River Great Ouse (Earith).

Figure 6.4: Our proposals near Bluntisham and Earith. Area for raw water infrastructure to draw water from River Great Ouse

The River Nene supported by its Counterdrain abstraction and transfer

6.3.28 In response to feedback from our phase two consultation, we have advanced our options appraisal to identify the preferred location for infrastructure required to abstract water from the Counter Drain (Nene) to support flows in the River Nene.

6.3.29 We expect the River Nene to supply water into the Middle Level system via the existing channel connection at Stanground Lock. To compensate for this transfer, we propose to abstract water from the Counter Drain (Nene) and discharge it into the River Nene.

6.3.30 During our phase two consultation we proposed two potential locations for abstraction infrastructure into the River Nene: one east of Anglian Water's Flag Fen Water Recycling Centre near Peterborough and another downstream near the Dog-in-a-Doublet sluice. Following stakeholder feedback and further design work, we understand that both locations present similar risks in terms of Habitats Regulations Assessment (HRA). Both options may result in a small area of permanent habitat loss within the SPA/Ramsar site, a larger area of impact on functionally linked habitat, and temporary habitat loss during construction.

We have acknowledged the heritage concerns raised by Peterborough City Council and Historic England regarding potential adverse impacts on the Flag Fen Scheduled Monument, as well as cumulative impacts from other operational developments at Flag Fen WRC. Following further assessment of the two location options, we now prefer the site near Dog-in-a-Doublet, as it presents a lower risk to designated historic environment assets.

6.3.31 Figure 6.5 depicts our current proposals for abstraction infrastructure and transfer of raw water within the area of Whittlesey.

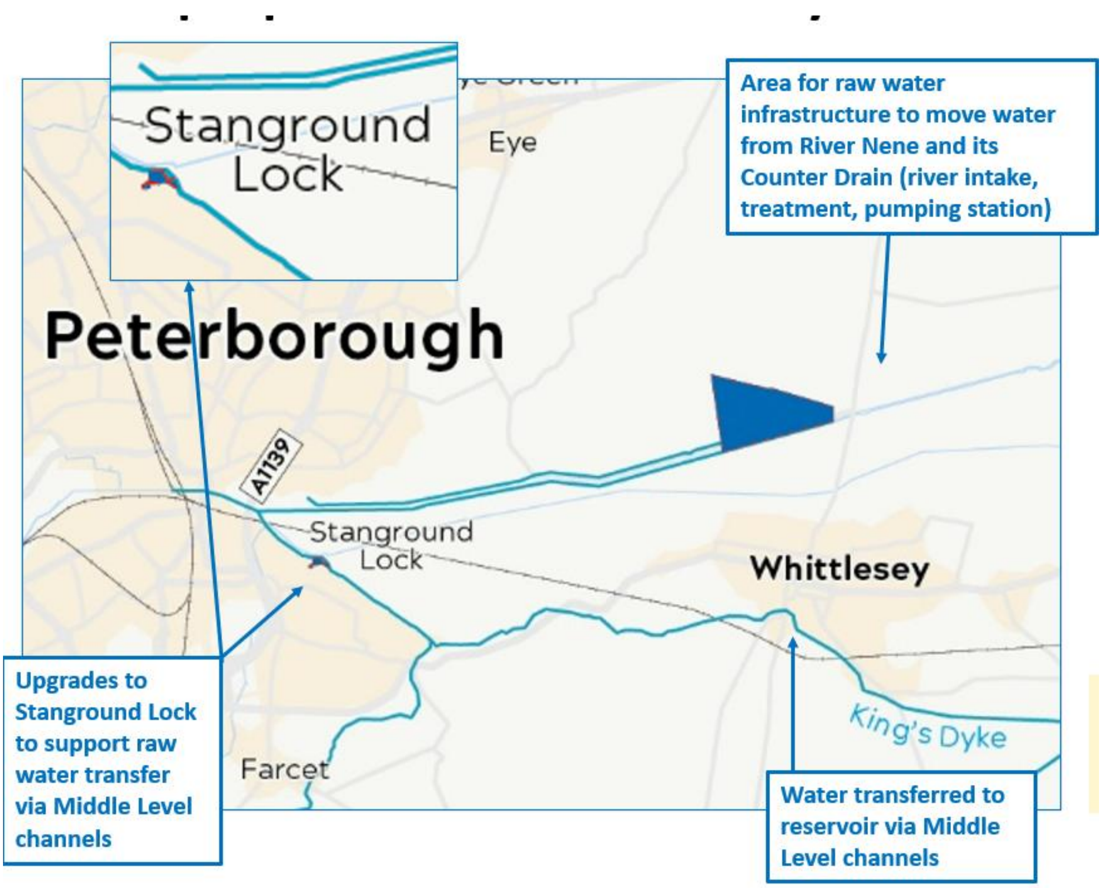

Figure 6.5: Our proposals near Whittlesey

6.3.32 To enable the transfer of water from the River Nene into the Middle Level system, we propose a new bypass culvert at the existing Stanground Lock. This would require modifications to the channel banks near the lock structure.

6.3.33 We are working with the Environment Agency to explore the option of transferring water without requiring replenishment to the River Nene. We prefer this option because it involves the least infrastructure, making it the most cost-effective and carbon-efficient solution. However, several issues still need further investigation before we can confirm its viability and secure the necessary consents.

6.3.34 As we continue working to resolve uncertainties around transferring water without replenishment, we are progressing the phase two consultation option to abstract water from the Counter Drain (Nene) to replenish the River Nene. We propose to locate the abstraction along North Bank, northeast of Stanground in Peterborough, near Levitt's Drove and close to the Dog-in-a-Doublet sluice. Similar to the River Delph and River Great Ouse abstraction options, the Counter Drain (Nene) abstraction is expected to include screens, an inter-catchment treatment plant, and a pipeline connecting the intake structure to a proposed abstraction pumping station located to the north.

6.3.35 We expect a pipe bridge to convey pumped water over the Counter Drain (Nene) toward the River Nene, connecting to a discharge structure on the riverbank to allow water to flow into the River Nene. A vehicle bridge over the Counter Drain (Nene) may also be required to provide maintenance access to the pipe bridge from the pumping station compound.

Figure 6.7: Our proposals near Whittlesey. Area for raw water infrastructure to abstract water from the Counter Drain (Nene) and discharge it into the River Nene.

Treated water transfers and service reservoirs

6.3.36 We would transfer treated water from the Fens Reservoir water treatment works to connection points within the existing water supply networks serving Anglian Water and Cambridge Water customers. We have identified two treated water pipeline corridors: one to Madingley via Bluntisham and another to Bexwell.

6.3.37 Our treated water supply begins at a high-lift pumping station, which transfers water from the storage tanks at the Fens Reservoir water treatment works through treated water transfer pipelines. These pipelines deliver water either to proposed additional service reservoirs or directly into the existing storage system.

6.3.38 We propose the Bexwell pipeline corridor to transfer treated water from the Fens Reservoir water treatment works to the existing water supply system at Bexwell, northeast of Downham Market.

6.3.39 We propose the Madingley pipeline corridor to deliver treated water to the existing system at Madingley, northwest of Cambridge. This corridor would include a short spur that connects the main north–south corridor to the existing Bluntisham service reservoir.

6.3.40 We propose treated water transfer infrastructure that includes pumping stations, underground pipelines and associated components such as air and scour valves. These elements align with the raw water transfer pipelines described earlier and remain subject to ongoing design development. The treated water transfers would terminate at service reservoirs, which provide water storage at the connection points. We do not anticipate upgrading existing supply network points, except where necessary to facilitate connections between the proposed infrastructure and the existing systems.

6.3.41 We have aligned the design development of the treated water pipeline corridors with the refinement work carried out for the raw water pipeline corridors described in section 6.3.18.

6.3.42 Service reservoirs store treated drinking water to ensure a reliable supply into the treated water system when needed. These reservoirs are fully enclosed, typically constructed as partially buried concrete tanks with grassed earth embankments and planting to reduce visual impact. We have considered access, overflow infrastructure, surface water attenuation measures, parking, and safety and security requirements in the design proposals.

6.3.43 We have included overflow infrastructure in the design to allow safe drainage of service reservoirs during operation and maintenance. The overflow pipeline would attenuate water within the service reservoir compound before slowly discharging it into identified watercourses through a headwall located at the end of the overflow pipeline corridor.

Fens Water Treatment Works to Bexwell

6.3.44 During our phase two consultation, we proposed locating the treated water pipeline corridor, running from the Fens Reservoir water treatment works to Bexwell, on the western side of the reservoir site.

6.3.45 As we progressed with the reservoir's design and masterplanning, we realigned the start of the pipeline corridor to the eastern side of the site. This adjustment avoids the toe of the reservoir embankment and the proposed wetland habitat creation, which would have made pipeline monitoring and maintenance more challenging.

6.3.46 By routing the pipeline outside the reservoir extent we reduce engineering constraints, such as potential conflicts with other pipelines and reservoir infrastructure. The new alignment also avoids priority habitats and local wildlife sites, which the previous route did not, and lowers the likelihood of encountering archaeological remains in an area of high archaeological potential.

6.3.47 We anticipate the Bexwell pipeline corridor to be approximately 30km long, running in a north-easterly direction from the main reservoir site, passing between Christchurch and Welney. We propose that the corridor crosses the A1122 south of Nordelph before continuing north-east, passing north of Downham Market, to connect with the proposed new service reservoir at Bexwell.

6.3.48 As the pipeline corridor passes north of Downham Market (shown in Figure 6), we identified several live planning applications for development in the area. In response, we made minor adjustments to the pipeline alignment to accommodate these developments.

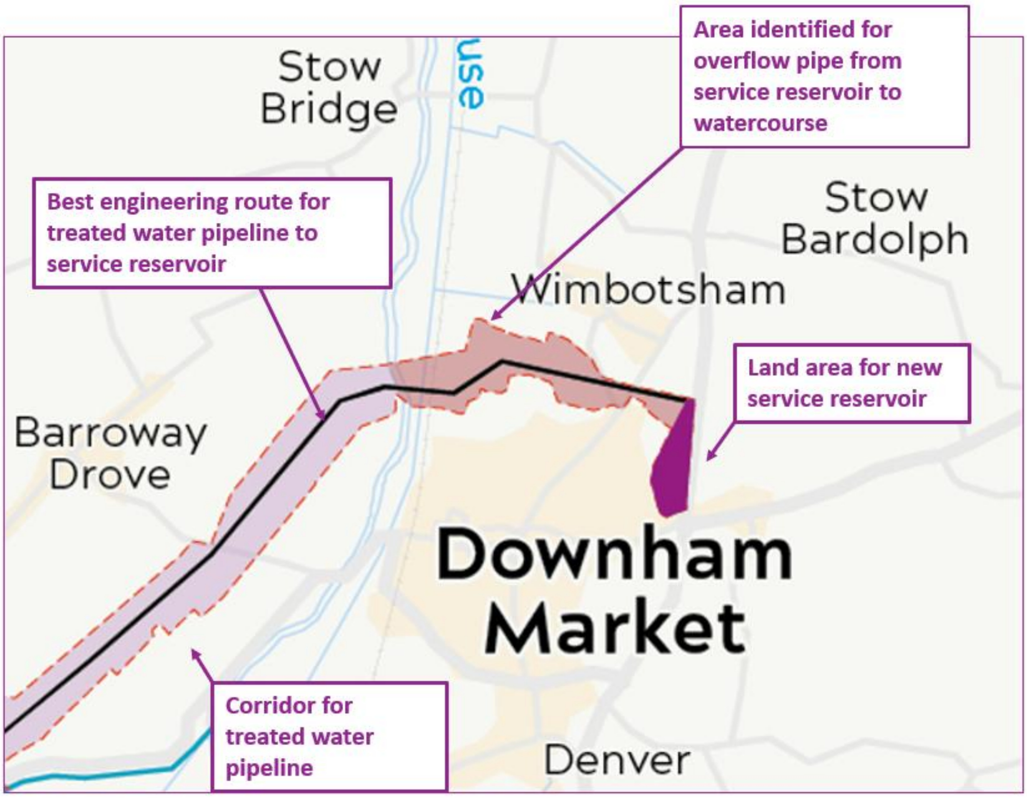

Figure 6.8: Our proposals near Downham Market

6.3.49 Following discussions with the local planning authority and Anglian Water's Strategic Pipeline Alliance, which is responsible for delivering strategic water pipelines across the region, we have relocated the area of land initially identified for the new service reservoir at Bexwell to the west of the A10. This new location brings the service reservoir closer to the existing reservoir and connection point, improving integration with the current system and enhancing operational efficiency. It also removes the need to cross the A10 and avoids potential conflicts with a new employment allocation in the recently adopted Kings Lynn and West Norfolk Council's Local Plan, as well as with an extant planning permission.

6.3.50 We have identified a pipeline corridor for the service reservoir overflow infrastructure from the proposed Bexwell service reservoir to the River Great Ouse. This corridor is located within the treated water transfer corridor described above and remains subject to ongoing design development.

Fens Reservoir Water Treatment Works to Madingley Via Bluntisham

6.3.51 Figure 6 depicts our proposals from the Fens Reservoir water treatment works to Madingley.

6.3.52 We anticipate the proposed pipeline corridor, transferring water from the Fens Reservoir water treatment works to Madingley, to be approximately 45km long. It runs in a south-westerly direction from the main reservoir site, west of Somersham, generally heading south towards Elsworth, and then southeast to the existing Madingley service reservoir site compound.

6.3.53 We propose a pipeline spur to the existing Bluntisham service reservoir, branching off from the Madingley pipeline corridor. This Bluntisham spur pipeline is expected to be approximately 1.5km long, branching south of Somersham and running along the northern side of The Heath towards Bluntisham. At the spur location, we would install a cross-connection of valves and flow control infrastructure to manage water flow between the two pipelines.

6.3.54 Madingley and Bluntisham remain our two connection points between the Fens Reservoir and Cambridge Water's supply network, due to their strategic positions within the existing treated water infrastructure.

6.3.55 To meet system requirements and improve operational efficiency, we propose introducing a new service reservoir at Madingley. This reservoir would occupy a larger area within the existing service reservoir compound than previously presented during our phase two consultation. At Bluntisham, we now propose only a drop-off point from the Bluntisham spur pipeline into the existing storage reservoir, removing the need for a new service reservoir at that location.

6.3.56 By locating the new service reservoir within land currently owned by Cambridge Water at Madingley, we can enhance both operational and construction efficiency. The proximity of the proposed and existing reservoirs allows us to better utilise existing infrastructure, including access routes and power supply. Incorporating these assets also significantly reduces the scale of construction activities and long-term maintenance requirements.

6.3.57 We have identified a pipeline corridor for the overflow infrastructure from the proposed Madingley service reservoir to discharge into the existing Bin Brook watercourse, located south of the reservoir site.

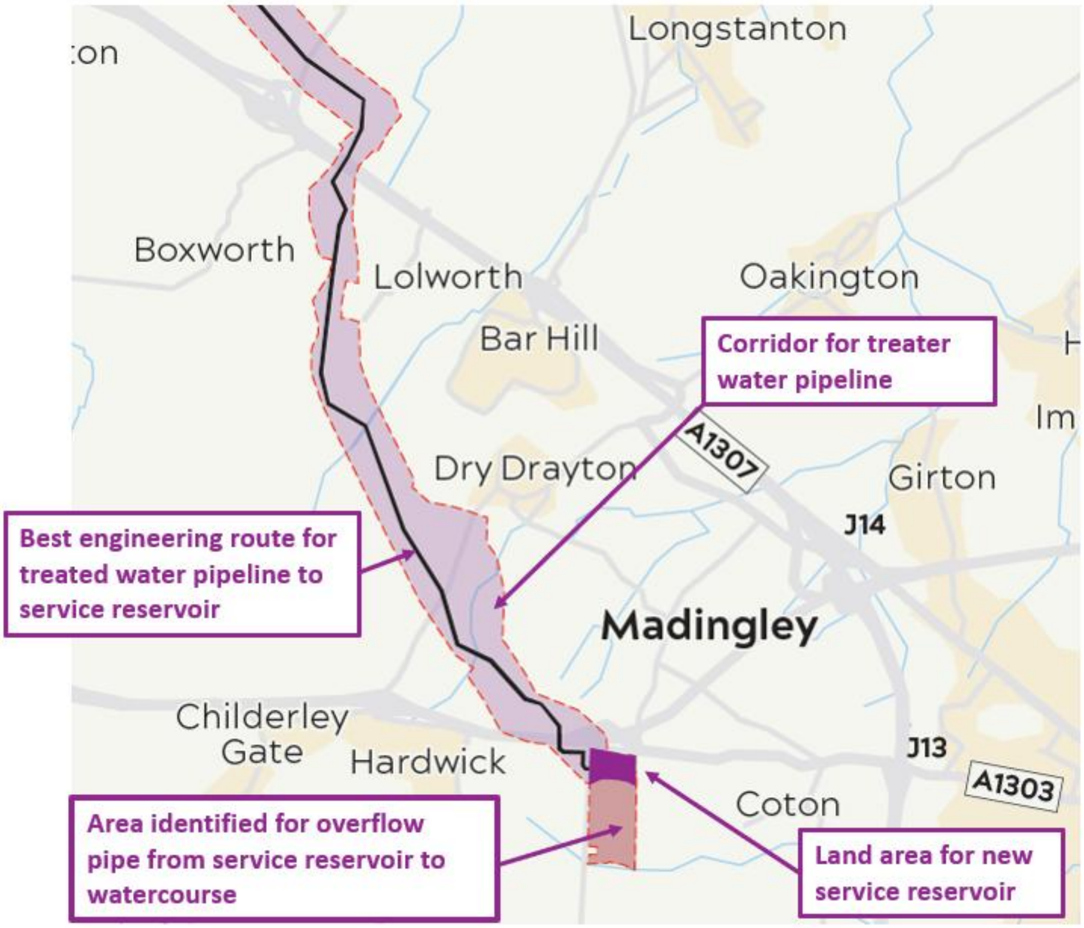

Figure 6.9: Our proposals near Madingley

6.3.58 During our phase two consultation, we identified an opportunity for a section of the pipeline corridor to follow the same alignment as the proposed Grafham to Rede Project (which includes the Grafham to Cambridge and Cambridge to Rede sections). This separate scheme comprises a 70km pipeline from Grafham via Cambridge to Rede, including a 7km spur from Holywell to Madingley.

6.3.59 Following a detailed review, we decided to realign the southern section of the Fens Reservoir to Madingley pipeline from Holywell, south of the A14, to Madingley to better align with the proposed Grafham to Rede pipeline route. This change avoids the need for an additional trenchless crossing under Mare Fen Local Nature Reserve and eliminates the requirement to route construction vehicles through Swavesey village. It also passes through more favourable ground conditions, reducing peat disturbance. The realigned corridor is shown in Figure 6.10.

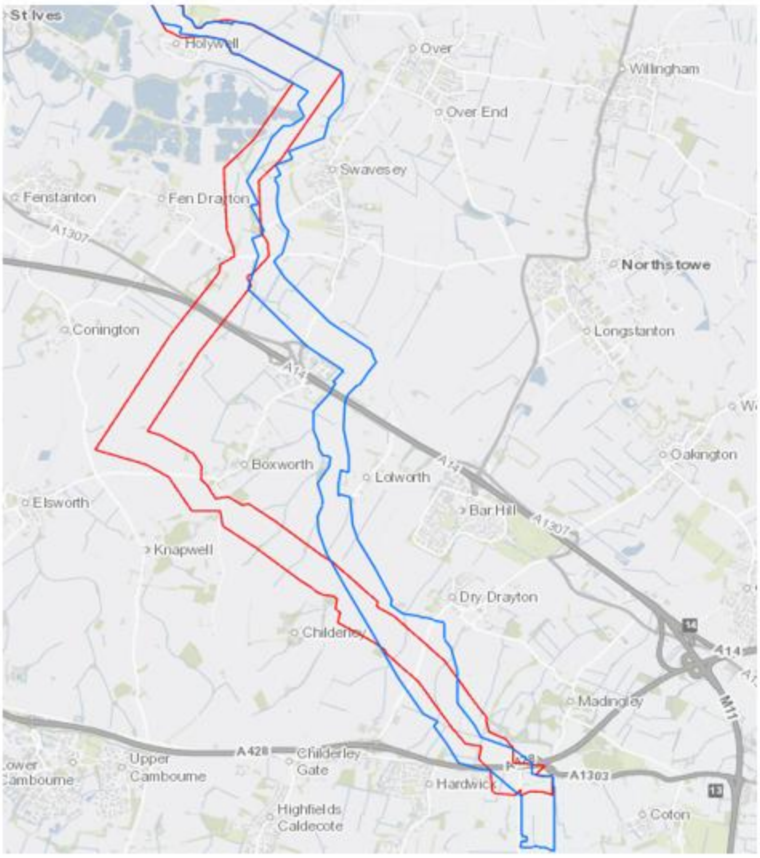

Figure 6.10: The revised Madingley corridor (blue) compared to the corridor proposed at phase two consultation (red)

6.4 Next steps

6.4.1 We will continue to review and refine our source options based on ongoing water quality assessments, other technical studies, and the assessments being carried out as part of the Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA).

6.4.2 We will also carry out further assessment and engage with stakeholders and landowners to refine our proposed corridors and minimise disturbance to protected sites and functionally linked land. At the next stage, we will undertake habitat surveys along the pipeline corridor to confirm the extent of priority and irreplaceable habitats. This will help us either reroute the pipeline to avoid these areas or apply trenchless crossing techniques where necessary.

7 Traffic and transport

7.1 Introduction

7.1.1 This chapter outlines:

- the strategy we are adopting to address traffic and transport issues
- the work we are doing to maximise sustainable transport options for constructing the Project, including travel arrangements for construction workers
- the potential impacts of the proposed transport options
- how we will manage vehicle access and sustainable transport arrangements for the reservoir site during both construction and operation
- the planned construction routes and timelines for the transfer pipeline and related water infrastructure, and
- the future collaborative work we will carry out with stakeholders to further develop this strategy.

7.2 Phase two consultation feedback – You Said, We Did

7.2.1 We have summarised feedback and comments from our second phase of consultation, particularly those relating to our Traffic and Transport proposals.

Table 7.1: What you said and we did relating to our traffic and transport proposals

You Said	We Did
Road Safety: we should carefully consider the safety of the A141 and A142, which are perceived by some as dangerous roads, as we develop our plans for traffic.	We have worked with the local highway authority to understand how we can best incorporate these concerns into our developing design and to look for opportunities to increase road safety through our development. This has led us to develop designs for our highway access off the A142 and A141 which build on the aspirations of the local highway authority for slowing traffic close to junctions and conurbations. We have also developed our proposals for active travel, such as walking, wheeling, cycling and horse riding access safely across the A141 and A142. We have given more detail about this in this Chapter.

Construction Traffic: You expressed concern about any increase in Heavy Goods Vehicle (HGV) movements, noise, dust and disruption to wildlife and people.	The information provided in this report details the outcomes of our initial assessments for assessing sustainable transport options, vehicle movements and the mitigation options we will continue to develop to reduce impacts to the road network and deliver the construction of the reservoir safely.
Parking Provision: You reiterated the need for adequate parking at the reservoir site to avoid local congestion and avoid overflow parking in local villages.	We have looked at similar sites to develop a base assumption on the likely number of visitors to the reservoir throughout its lifetime and have developed out initial parking strategy based on that assumption. We have incorporated car parking at the three visitor hubs in line with those predictions.
Walking, Wheeling, Cycling and Horse Riding (Active travel) access: You expressed support for the safe, accessible walking, wheeling, cycling and horse riding routes to the reservoir whilst also highlighting that disability-friendly walkways must be constructed to accommodate all vulnerable users.	We are incorporating the feedback on active travel into the access design. Dedicated non-motorised user routes are proposed to each of the main site accesses, with a focus on inclusivity and safety for all users, including those with disabilities. These routes will be designed to connect with existing local networks where possible.

7.3 Transport strategy

7.3.1 The transport strategy reflects the requirement of the NPSWRI (as described in paragraphs 3.2.6 to 3.2.8) it focuses on providing safe, cost-effective access to and from the site while minimising vehicle use. The strategy also aims to encourage sustainable transport to help reduce vehicle travel, support active travel, avoid peak-period congestion on the surrounding network, and lower carbon emissions.

7.3.2 To support the development of the transport strategy and assess transport impacts, we have carried out a range of analyses:

- Construction phase planning:
  - We have estimated the quantity and timing of materials needed throughout the construction phase. We will continue to revise these estimates as our design evolves.
  - We aim to use locally sourced materials wherever possible and have designed the main reservoir to minimise the need to transfer excavated material off-site.

- We have developed a transport plan for moving materials to and from the site, prioritising sustainable options. We are currently pursuing one of two rail-based options for bulk material delivery.
- We have estimated the number of construction workers required and the timing of their deployment.
- We are identifying where workers will come from and planning how to manage their travel and accommodation.

- Operational phase planning:
  - We have forecast expected visitor numbers. While the number of operatives during operation is expected to be minimal, we will consider this in future assessments.
  - We have identified potential visitor origins and arrival times.
  - We are planning how to manage visitor access and movement effectively.

7.3.3 By analysing these factors, we now understand the potential traffic levels and can make informed decisions. As we refine our proposals, we will continue this assessment through an iterative process.

Travel demand during construction

7.3.4 To assess the potential impacts of construction traffic, we are calculating the total volume of construction materials required and estimating the number of workers who will access the site throughout the construction period.

Construction Materials

7.3.5 During construction, travel demand will vary and will primarily involve transporting construction materials and plant for building the reservoir and associated infrastructure, including the water treatment works and transfer pipelines, as well as daily travel by the construction workforce.

7.3.6 We will need to transport a significant quantity of construction materials to the site. If suitable materials are not available locally, we may need to source and transport them from further afield.

7.3.7 We plan to deliver construction materials to the site in line with demand - ideally bringing them in as they are needed. However, due to the seasonal nature of the construction programme, we may have opportunities to stockpile certain materials on-site to maintain a consistent delivery profile.

Transport Options

7.3.8 In line with the NPS, we are exploring the most environmentally sustainable ways to transport construction materials to the site. To support this, we have assessed transport options by waterway and rail, rather than relying on road transport.

7.3.9 As part of this assessment, we are working to minimise road transport during construction by using site-won materials and transporting as much construction material as possible by sustainable modes. However, it is not feasible to deliver 100% of the required material to site by rail or barge. Therefore, it will need to include some road transport as part of a holistic construction plan.

Maritime (Freight)

7.3.10 We propose to retain flexibility in sourcing reservoir materials from across the UK and abroad. Where feasible, we will transport materials sustainably across seas to UK ports for onward movement. We have identified several port options for this onward transport:

- Wisbech and King's Lynn: Both ports have direct connections to inland waterways near the site. We have assessed the feasibility of using these routes (see Inland Waterways section).
- Multiple East Coast ports: Ports in the North East, Humber, East Anglia and London have rail connections that could support material transport to the site. We have also assessed the feasibility of these routes (see Rail section).
- Road transport: We may also transport materials by road from any UK port, depending on availability, cost and logistical considerations.

Inland Waterways (Freight)

7.3.11 We have explored the use of sea-going vessels on inland waterways to deliver materials to the site. Our assessment concluded this option is not viable. However, we may be able to transfer some materials onto barges at the King's Lynn and Wisbech ports for onward movement using inland waterways.

7.3.12 We identified three potential inland waterway routes: two from the Port of Kings Lynn (FW1 and FW2) and one from the Port of Wisbech (FW3), as shown in Figure 7-1. FW1 and FW2 connect The Wash with the Port of Kings Lynn, while FW3 connects The Wash with the Port of Wisbech. Figure 7.1 illustrates these potential routes.

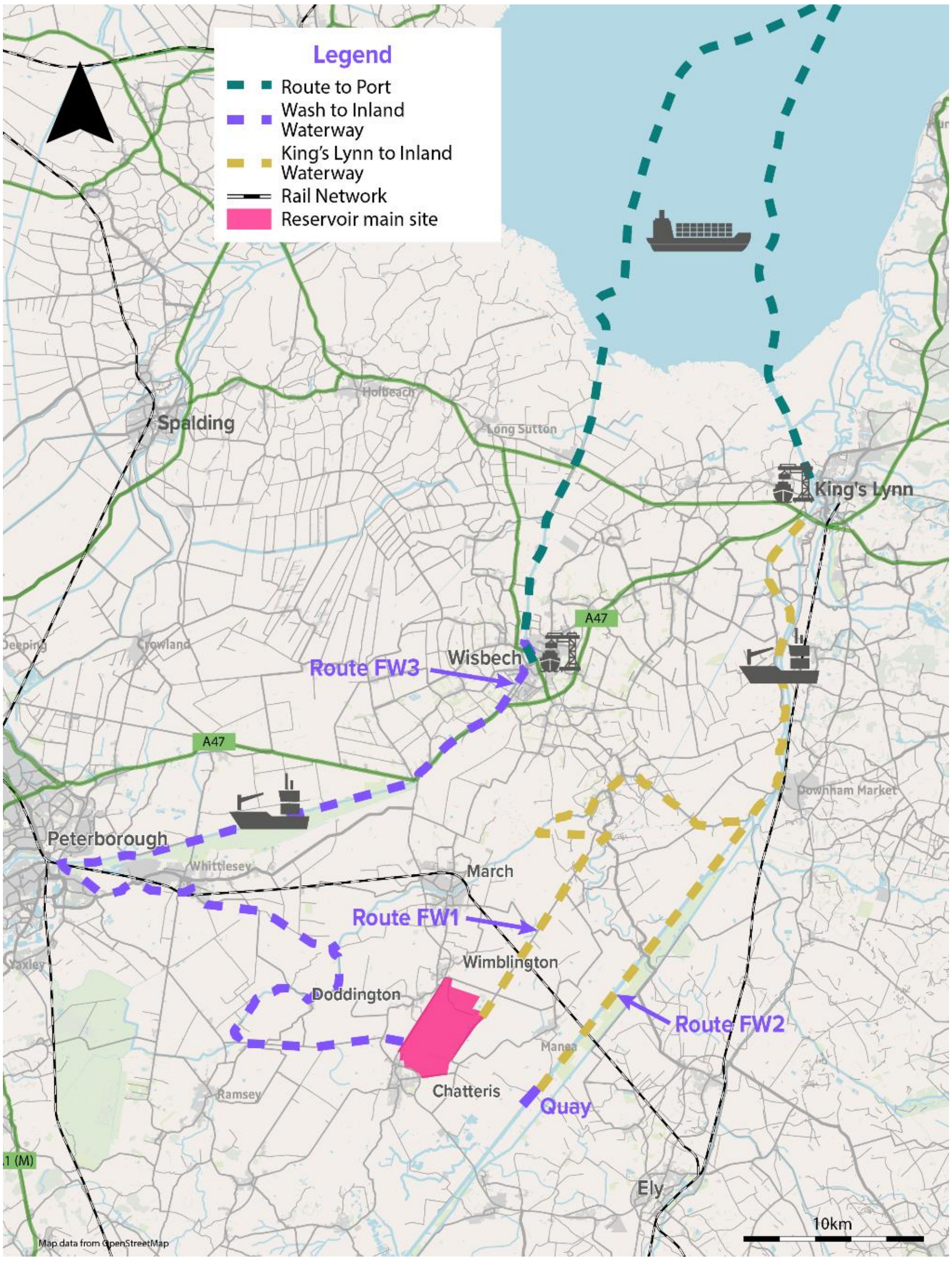

Figure 7.1: Maritime and inland waterway transport options

7.3.13 Route FW1 follows the Great Ouse to Salters Lode Lock and the Denver Sluice Complex, continuing to site via Well Creek. Route FW2 also follows the Great Ouse to Salters Lode Lock and the Denver Sluice Complex but continues to site via Bedford River.

7.3.14 We identified several reasons why routes FW1 and FW2 are not feasible for transporting materials via inland waterways.

- The Port of King's Lynn has limited capacity and handling facilities and limited scope for expansion, which cannot support the volume of material required throughout the construction period.

- The route from The Wash to the Port of King's Lynn, via the Great Ouse to Salters Lode Lock, is tidal. Salters Lode Lock is navigable less than 35% of the time, which would require night-time navigation and pose safety risks.
- Further inland, we would need to upgrade locks and construct unloading quays, which face significant environmental, land, and cost constraints.
- The existing channel and lock sizes restrict barge capacity to 40 tonnes, requiring a new fleet of barges. Additionally, limited capacity would restrict transfers to three barge movements each way per hour, which would not meet the daily material requirements for construction.
- A full round trip for a barge would take approximately 27 hours, requiring welfare and shift change facilities that are impractical for the Project's location.

7.3.15 Route FW3 connects The Wash with the Port of Wisbech, continuing along the River Nene, southwest to Peterborough, then heading east on the Kings Dyke and Whittlesey Dyke onto the old course of the River Nene to reach the site. However, several factors make this route impractical.

- The Port of Wisbech is a small facility that accommodates smaller vessels than King's Lynn. To support additional operations, the port would require new equipment, which could cause congestion and disrupt existing activities.
- The route from the port to the site involves navigating small waterways and multiple locks, making it complex and time-consuming.
- The existing channel and lock sizes would require a new fleet of small barges. Additionally, the Dog in a Doublet lock has a daily capacity of only 1,400 tonnes, which is insufficient to meet the Project's construction material requirements.

7.3.16 We also considered transporting materials by road from the Port of Wisbech. However, we found this option unfeasible because the route passes close to numerous residential properties and would require significant highway upgrades.

7.3.17 In summary, we do not consider any inland waterway options to be feasible for transporting construction materials to the site.

Rail (Freight)

7.3.18 The reservoir site is well connected to the national rail network. We are currently engaging with Network Rail to discuss two potential rail route options. Alongside these discussions, we are conducting transport modelling and environmental assessments to help us select a preferred option.

7.3.19 Figure 7.2 shows the two rail route options. One option involves using the existing Whitemoor Yard in March; the other involves constructing new sidings between Stonea and Manea. We are continuing to assess both routes, and if both prove viable, we will select a preferred option based on practical considerations and potential environmental impacts.

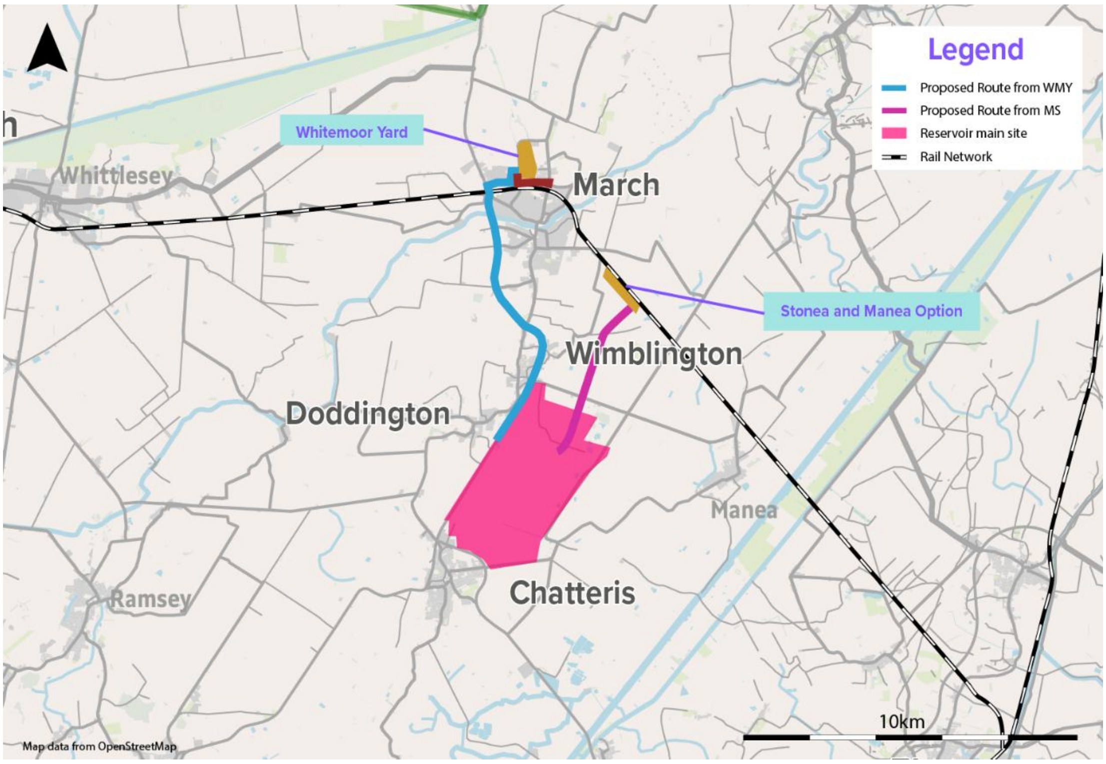

Figure 7.2: Rail transport options

7.3.20 **Option A: Whitemoor Yard** – Whitemoor Yard is an existing facility located approximately 9km from the reservoir site, accessible via trunk roads commonly used by HGVs. We do not anticipate needing land beyond the yard's current boundaries, which is owned and operated by Network Rail.

7.3.21 **Option B: Stonea–Manea Sidings** – This option involves constructing new sidings specifically to support the reservoir build. Materials would be transported from the sidings to the site via a temporary haul road across open fields, as shown in Figure 7.2.

7.3.22 We do not expect the Stonea–Manea facility to provide long-term benefits after construction. Therefore, we anticipate decommissioning it once construction is complete, unless Network Rail chooses to retain it as a permanent asset. This will be confirmed during project development.

7.3.23 This option would require land acquisition for the new rail sidings and the haul road. Most of the land needed is expected to be temporary. We are currently investigating the environmental impacts of this option, as well as the potential benefits of diverting construction traffic away from the main highway network.

7.3.24 Both rail facilities, Whitemoor Yard and Stonea-Manea sidings, connect to the national rail network which links to northern UK regions and various ports. Given the likelihood of sourcing materials from across the UK or overseas, these railhead options offer a strong opportunity to support sustainable transport in line with national planning policy.

7.3.25 We expect to rely heavily on the chosen railhead option for six to eight years. During this period, material movement is likely to be relatively consistent. Initial studies suggest we may need to operate up to four trains per day during the first one to two years to meet peak demand, with reduced frequency in later stages.

7.3.26 Our current investigations show both railhead options can accommodate the required material volumes, including space for stockpiling materials to ensure uniform HGV movement throughout the day. However, during certain months, aggregate demand may exceed rail capacity, requiring supplemental road transport from source to site.

7.3.27 At a peak of four trains per day – delivering approximately 5,800 tonnes of material – we estimate up to 350 to 400 HGV movements per day between the railhead (either option) and the site. On a typical weekday, with a 10-hour delivery window, this equates to less than one HGV movement per minute. In addition to this, deliveries via rail to the main reservoir site would be supplemented by deliveries by road up to approximately 200 - 250 HGV movements per day.

7.3.28 If the Stonea-Manea sidings option is selected, all material imported via this route would be transferred to the site along a haul road using HGVs. This would minimise construction traffic on the public road network, however the haul route would cross Manea Road.

7.3.29 We are currently assessing the impact of this traffic on affected roads to determine the feasibility of the Whitemoor Yard option. This includes evaluating whether junction improvements may be necessary to accommodate increased traffic flows during the construction period. We are also exploring mitigation design opportunities.

Road (Freight, Personnel and Visitors)

<u>Freight and other HGV (plant delivery etc) for Reservoir Construction</u>

7.3.30 Regardless of whether we transport material by rail, we will still need to use the road network. The scale of road impacts will depend on how we manage and implement our transport strategy. Road movements are likely to include materials sourced within the UK and potentially from abroad, delivered by sea-going vessels to UK ports and then transported onward by road.

7.3.31 Within England, the Strategic Road Network includes motorways and A roads managed by National Highways. Figure 7.3 shows the reservoir's proximity to this network.

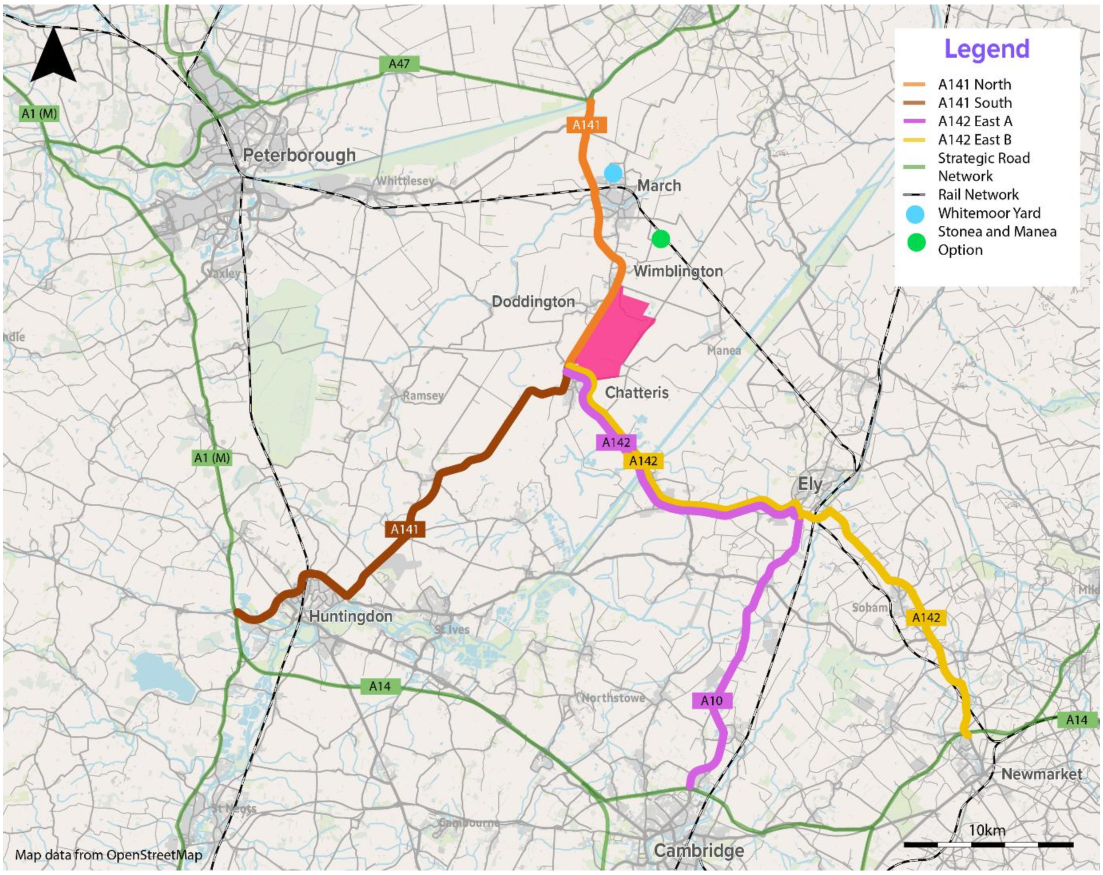

Figure 7.3: Proximity of the Reservoir in relation to the Strategic Road Network

7.3.32 We have identified four potential routes connecting the Strategic Road Network to the reservoir site, as shown in Figure 7.3. Our proposal is to use a combination of these routes on a managed basis to transport reservoir materials, construction traffic to the water treatment works, and, where feasible, construction traffic to the transfer pipeline.

7.3.33 We are currently investigating the character and condition of these routes. As part of our detailed environmental assessment, we will propose a tailored management regime for construction vehicle movements, specific to each route and time period.

7.3.34 Using rail facilities at either Whitemoor Yard or Stonea–Manea could reduce construction traffic by approximately 350 to 400 HGV movements per day from the wider road network during peak construction periods (i.e. from 600 - 650 HGVs per day to 200 - 250 HGVs per day).

Freight and other HGV (plant delivery etc.) for Transfer Pipeline and Associated Water Infrastructure Construction Access

7.3.35 The transfer pipeline spans approximately 80km and, along with other associated water infrastructure sites, is primarily located away from the main reservoir site – often in remote locations with limited access options. Where sections of the pipeline extend through or near the reservoir site, we will explore opportunities to coordinate deliveries to maximise efficiency.

7.3.36 To estimate the number and distribution of trips required for construction, we have assumed access will be provided approximately every kilometre along the pipeline corridor via the local highway network.

7.3.37 We have assessed over 500 potential highway routes to pipeline access points and refined these to one preferred route per access point, based on environmental and residential sensitivity, constructability, safety and impacts on highways and active travel routes (walking, wheeling, cycling and horse riding). Some routes may require improvements, such as widening or adding passing bays, and we are currently developing these details.

7.3.38 We would construct the pipeline largely in sequence, as a linear project. Each geographical area would experience increased traffic during its specific construction period. We anticipate that multiple workforce gangs would carry out activities at one section before moving to the next access point.

7.3.39 In some areas, multiple access points rely on the same section of the road network due to limited routing options. These sections may experience fluctuating traffic volumes, with peaks during high activity and reductions during less intensive phases. We would closely monitor and manage these variations throughout construction.

7.3.40 Each pipeline access point may receive up to 60 HGV movements per day during peak activity. On average, each section will be under construction for approximately 6 to 18 months. For a typical weekday with a 10-hour delivery window, this equates to roughly one HGV movement every ten minutes. We expect the delivery profile to remain consistent throughout the day.

7.3.41 Not all access points would be active simultaneously. We have used an initial construction profile to estimate cumulative trips, and we are refining this through further studies to reduce trip volumes at each access point and across the wider road network.

7.3.42 Some construction activities would require access via small country roads, which would temporarily alter the character of those roads. We would manage, monitor and control these changes carefully to minimise disruption.

Total Cumulative Reservoir and Water Treatment Works Construction Traffic (including Transfer Pipeline Sections)

7.3.43 To illustrate the potential impact on the main road routes to the reservoir site, we have prepared high-level diagrams showing the volume and timing of HGV and car and van, referred to as light vehicles (LV), movements on the road network under various scenarios. These diagrams offer indicative estimates at this stage of the project. The total number of expected construction worker movements is set out in Section 8.2 of this report. Note that the total number of expected worker movements is anticipated to be distributed across the whole project area and this is reflected in the high-level diagrams below.

7.3.44 For this assessment, we have made the following assumptions and considered these scenarios for each route:

- We have assumed no more than 75% of total HGV traffic to the main reservoir site would use a single route throughout the construction period. We expect at least 25% of traffic to be distributed across alternative routes. This assumption allows us to model traffic volumes for each proposed route whilst recognising that HGV movements would be actively managed by route and time.
- We have considered scenarios where rail facilities at Whitemoor Yard are used, which increases traffic on the A141 North route to reflect a worst-case scenario.
- If rail transport is feasible via Whitemoor Yard or Manea Sidings, we assume full utilisation of available rail capacity.

7.3.45 Each diagram below (Figure 7.4 to Figure 7.6) shows the indicative daily traffic movements as a result of the proposal assuming that rail facilities are available. These diagrams reflect seasonal variations in movement, with reduced activity during winter months when certain construction tasks cannot be carried out. This seasonality affects both LV and HGV movements.

7.3.46 For the A141 North route, the diagrams specifically reflect HGV movements between Whitemoor Yard and the reservoir site. In scenarios where rail is used, HGV traffic north of this route will be reduced.

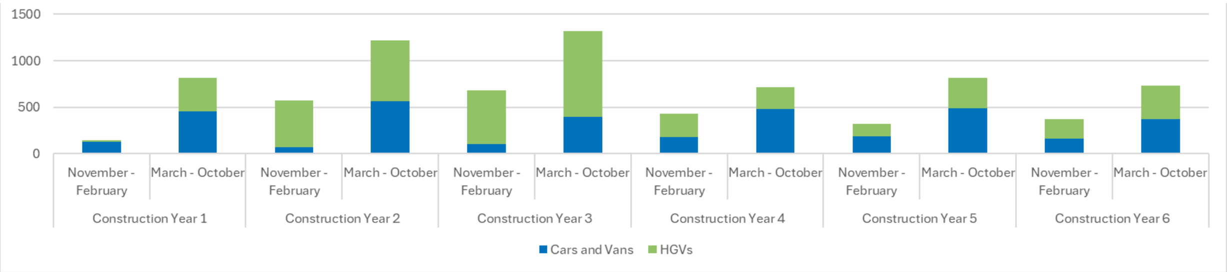

Figure 7.4: Indicative daily vehicle movements for A141 North - with rail transporting aggregate

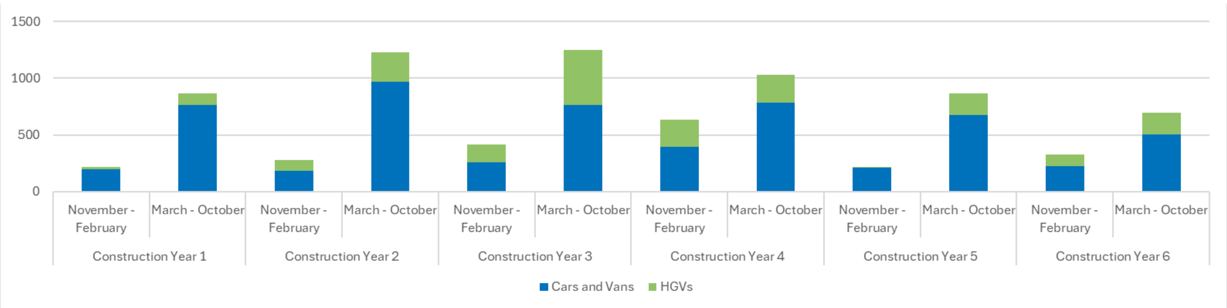

Figure 7.5: Indicative daily vehicle movements for A141 South - with rail transporting aggregate

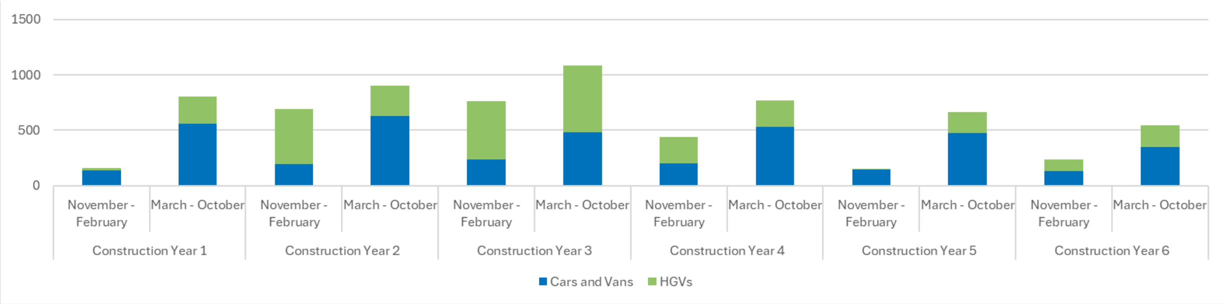

Figure 7.6: Indicative daily vehicle movements for A142 East – with rail transporting aggregate

7.3.47 Figure 7.7 to Figure 7.9 show the indicative daily traffic movements as a result of the proposal assuming that no rail facilities are available.

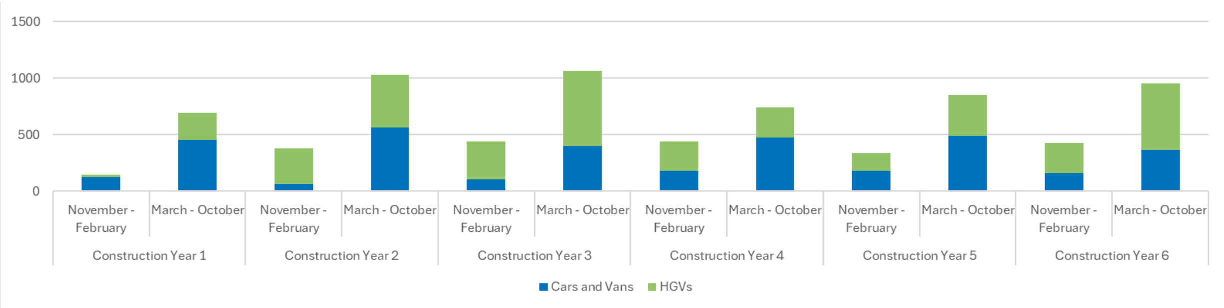

Figure 7.7: Indicative daily movements (arrival and departure) for A141 North – aggregate on road

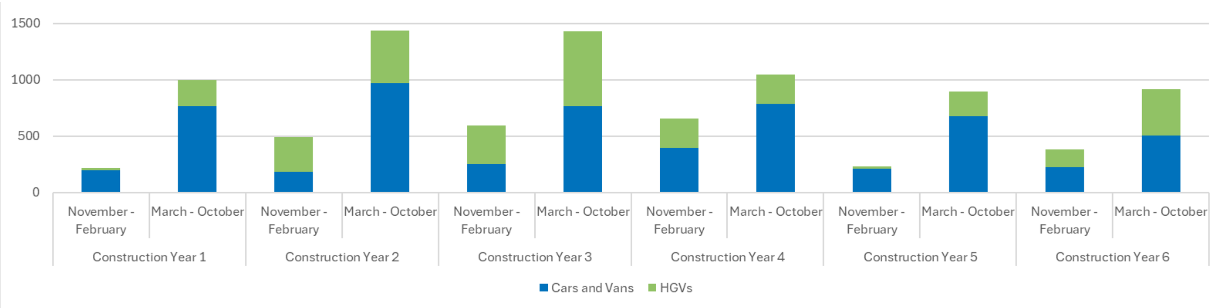

Figure 7.8: Indicative daily movements (arrival and departure) for A141 South – aggregate on road

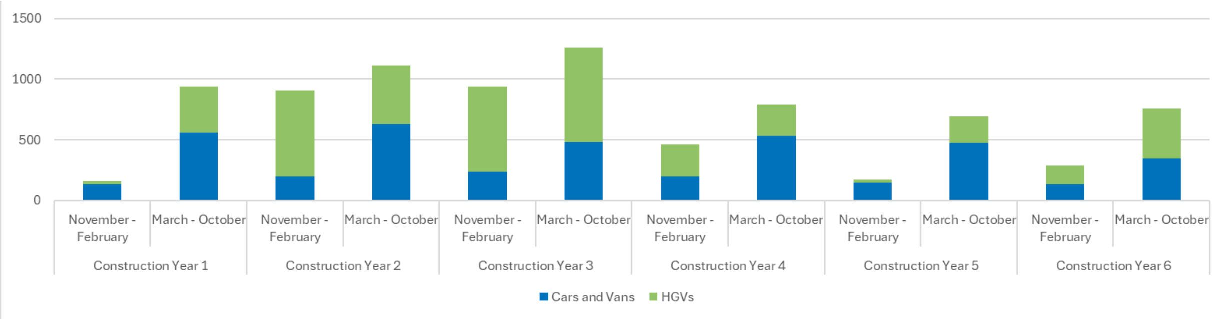

Figure 7.9: Indicative daily movements (arrival and departure) for A142 East – aggregate on road

7.3.48 We expect HGV movements to the site to begin in 2031, once we complete the main site access point. This would allow HGVs to enter the site and support the start of major construction activities. Toward the end of the construction programme, LV movements will primarily relate to site demobilisation.

7.3.49 We are currently assessing the environmental and travel-related impacts of these indicative trip volumes in more detail. Section 7.6 provides a broad overview of the likely scale of these effects at this stage of the assessment.

7.4 Scale of Construction traffic impacts

7.4.1 Figures 7.10 and 7.11 illustrate how traffic volumes may change due to worker and construction material movements on each of the three approach routes to the site.

7.4.2 Figure 7.10 corresponds to the rail/road hybrid option, while Figure 7.11 represents the road-only option. These figures reflect the assessment above and compare projected construction traffic volumes with baseline traffic volumes (i.e. existing traffic plus an allowance for other development over the next 6 to 7 years). The graphs present an hour-by-hour traffic profile for a typical busy day, showing that construction traffic represents a small proportion of baseline volumes.

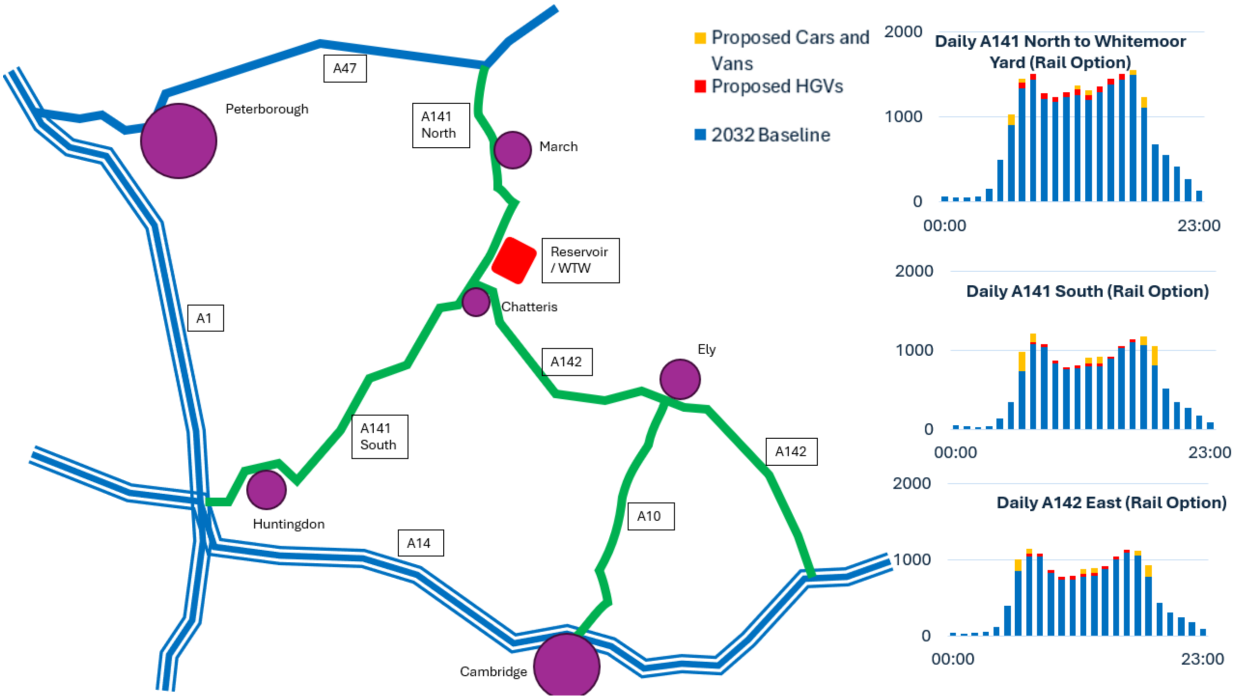

Figure 7.10: Traffic Volume Changes on Highway Network (Whitemoor Yard Rail Option)

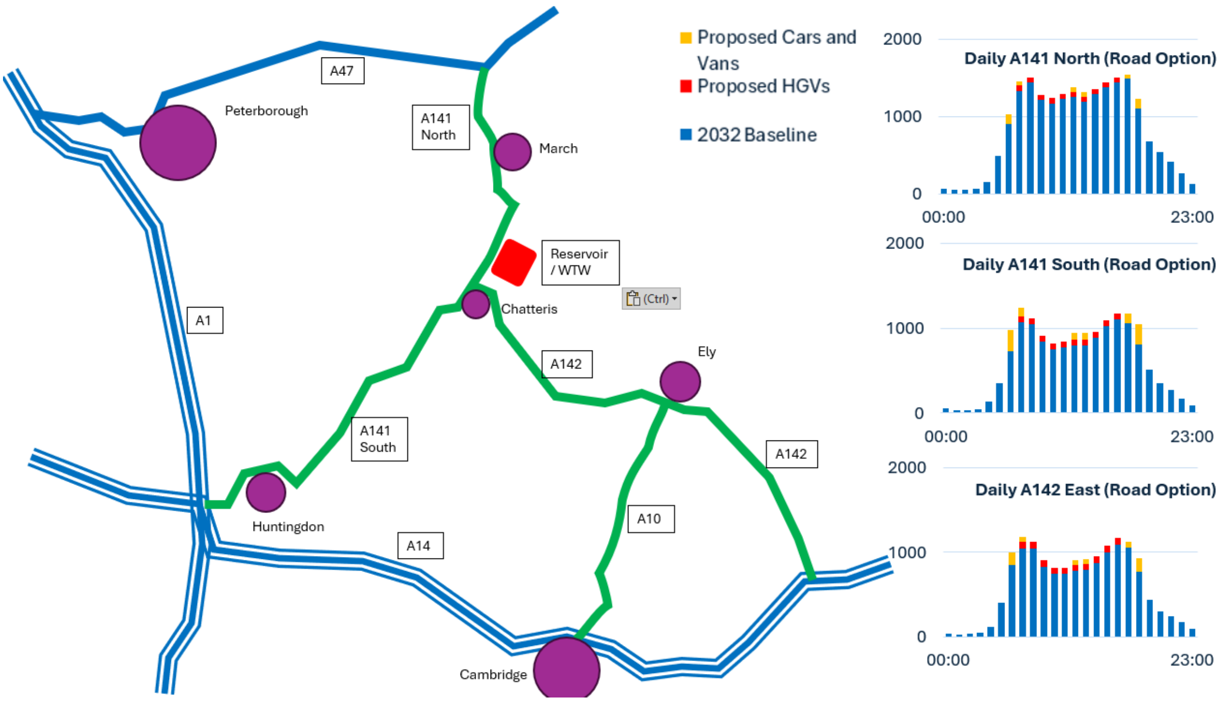

Figure 7.11: Traffic Volume Changes on Highway Network (Road Only Option)

7.4.3 We will continue to examine individual receptors along each route in greater detail to determine the level of environmental effect.

7.4.4 To gauge the scale of effect, we referred to the Institute of Environmental Management and Assessment (IEMA) guidelines on Traffic and Movement (2023). These guidelines suggest a 30% change in traffic flow serves as a reasonable threshold for including a highway link in an environmental assessment. We are evaluating the environmental effects on these routes where the change exceeds 30% plus other locations which may be particularly sensitive and where the change exceeds 10%.

7.4.5 Additionally, the Department for Transport has historically classified traffic level changes of 30%, 60%, and 90% as 'slight', 'moderate', and 'substantial' impacts respectively, particularly for sensitive environmental matters. While this is not a strict rule, the classification provides a useful indication of potential effect scales before conducting more detailed investigations.

7.4.6 Figures 7.12 to 7.17 show the proportion of the construction programme where the predicted percentage change in total traffic volumes exceed 5% and 10% and HGV volumes lead to slight moderate or substantial impacts on each of the three A road approaches to the reservoir. These figures also compare rail transportation via Whitemoor Yard with road-only transportation, highlighting the differences in duration and magnitude of effects between these transport solutions.

Figure 7.12: Duration of effects from changes in vehicle volumes (all vehicles and HGVs) on A141 North to Whitemoor Yard (Rail Option)

Figure 7.13: Duration of effects from changes in vehicle volumes (all vehicles and HGVs) on A141 North (Road Option)

Figure 7.14: Duration of effects from changes in vehicle volumes (all vehicles and HGVs) on A141 South (Rail Option)

Figure 7.15: Duration of effects from changes in vehicle volumes (all vehicles and HGVs) on A141 South (Road Option)

Figure 7.16: Duration of effects from changes in vehicle volumes (all vehicles and HGVs) on A142 (Rail Option)

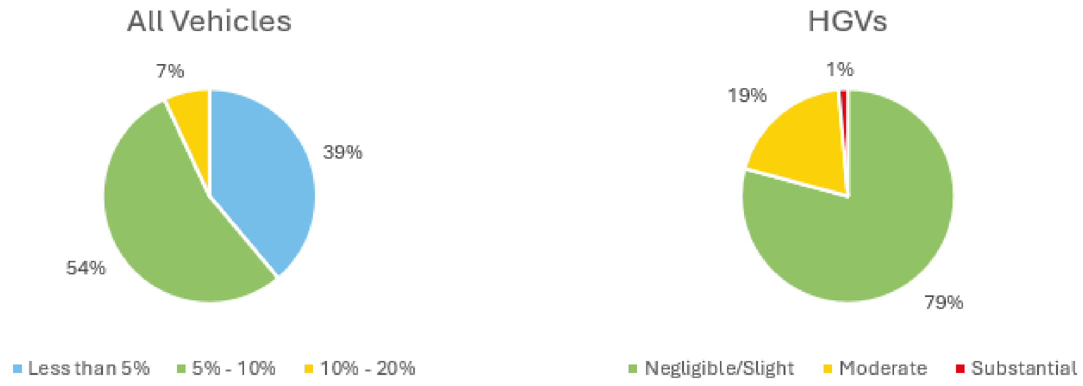

Figure 7.17: Duration of effects from changes in vehicle volumes (all vehicles and HGVs) on A142 (Road Option)

7.4.7 We are conducting a detailed assessment of environmental effects for multiple scenarios along all these routes. This includes evaluating the likely impact on travel convenience. Planning policy typically considers impact on travel convenience to be significant only where the changes in traffic volumes are substantial.

Operational traffic

7.4.8 The reservoir, water treatment works and associated water infrastructure will require daily operatives to service and maintain the infrastructure at varying frequencies. The number of staff needed for operation and maintenance will be relatively low, particularly beyond the reservoir and water treatment works, and is unlikely to have a substantial impact on the transport network.

7.4.9 Chapter 5 outlines our proposals for recreational activities. Based on this information, we have forecasted potential visitor demand, which could reach up to 400,000 visitors annually. This demand is expected to be seasonal and to grow over time.

7.4.10 The Project offers the local population opportunities to travel sustainably from surrounding areas and enjoy the leisure destination. Visitors would use existing and proposed new or upgraded public rights of way and bus services to access the reservoir facilities.

7.4.11 The Project will also generate additional traffic on the local road network. Leisure-related traffic typically occurs outside traditional peak periods. We are analysing data from our other large reservoirs, such as Rutland and Grafham, to understand visitor patterns throughout the year, week and day – including typical arrival and departure times.

7.4.12 Initial data suggests the reservoir will be busiest during a six-month period from April to September, with a peak in August. A typical week during this period shows weekends are at least 50% busier than weekdays. Figure 7.18 presents the estimated seasonal and weekly visitor proportions by month and day of the week.

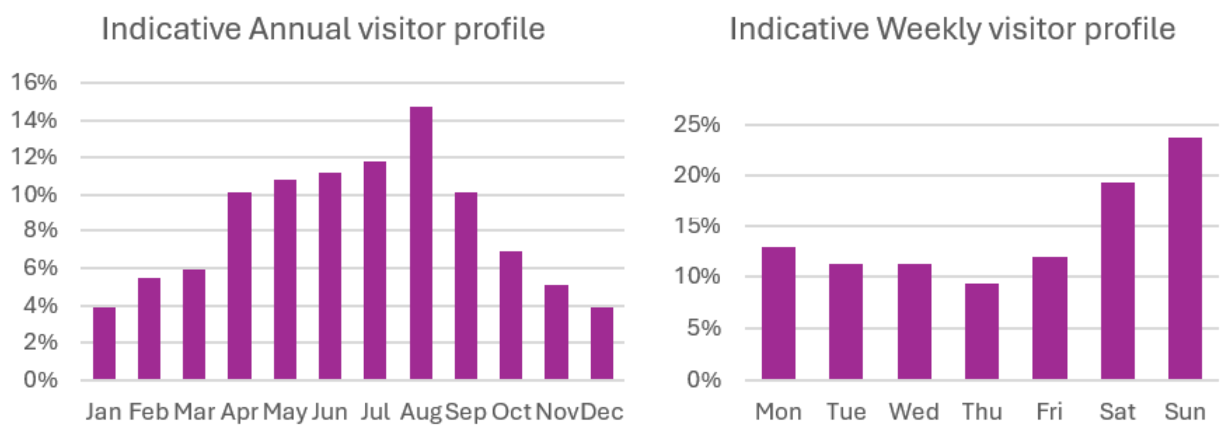

Figure 7.18: Visitor seasonal/weekly annual visitor variances

7.4.13 We are developing a detailed visitor profile to examine different seasonal periods, with a particular focus on a typical summer week and a peak day (such as bank holidays and special events). This profile will inform car park design to ensure it accommodates visitors year-round.

7.4.14 To reduce car travel to the site, we are exploring how visitors can use the most sustainable modes – walking, wheeling, cycling, horse riding and public transport – to reach the reservoir. These insights will shape proposals to maximise sustainable travel. We are also considering active travel connections to nearby towns and villages, as well as the potential for new or improved bus services to stop at the reservoir.

7.4.15 At this stage, and drawing on experience from other reservoirs, we have assumed an average of three visitors per car during the busy season for those who choose to drive. We have applied a 60-minute driving catchment and assigned these vehicles to the A road network. Figure 7.19 shows the visitor catchment area and current distribution proportions, noting that traffic volumes dilute with increasing distance from the reservoir.

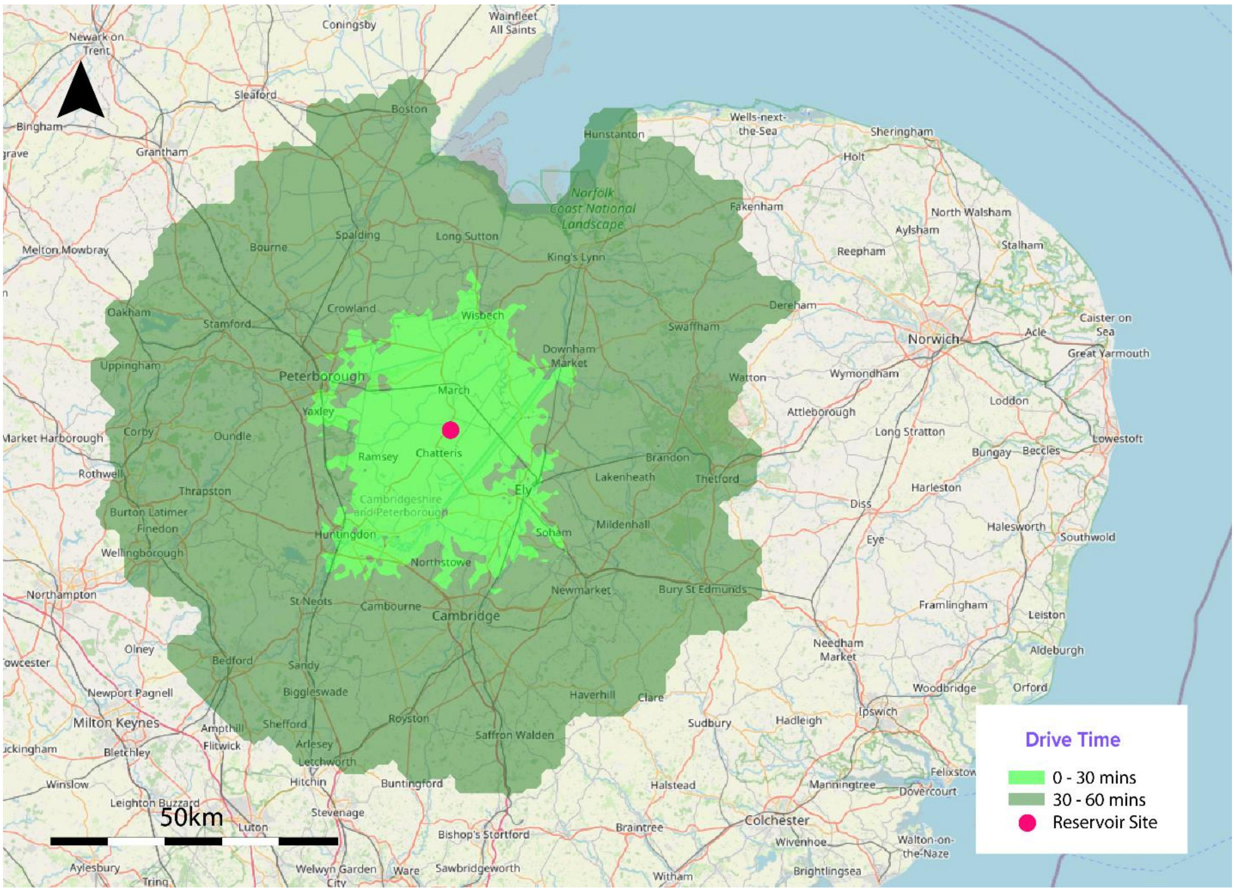

Figure 7.19: Catchment area and traffic proportions

Scale of Operational Traffic Impacts

7.4.16 Figure 7.20 illustrates the estimated change in traffic volumes resulting from visitor and operational staff movements on each of the three approach routes to the reservoir. We based this assessment on a robust assumption that 85% of visitors will travel by car along each route.

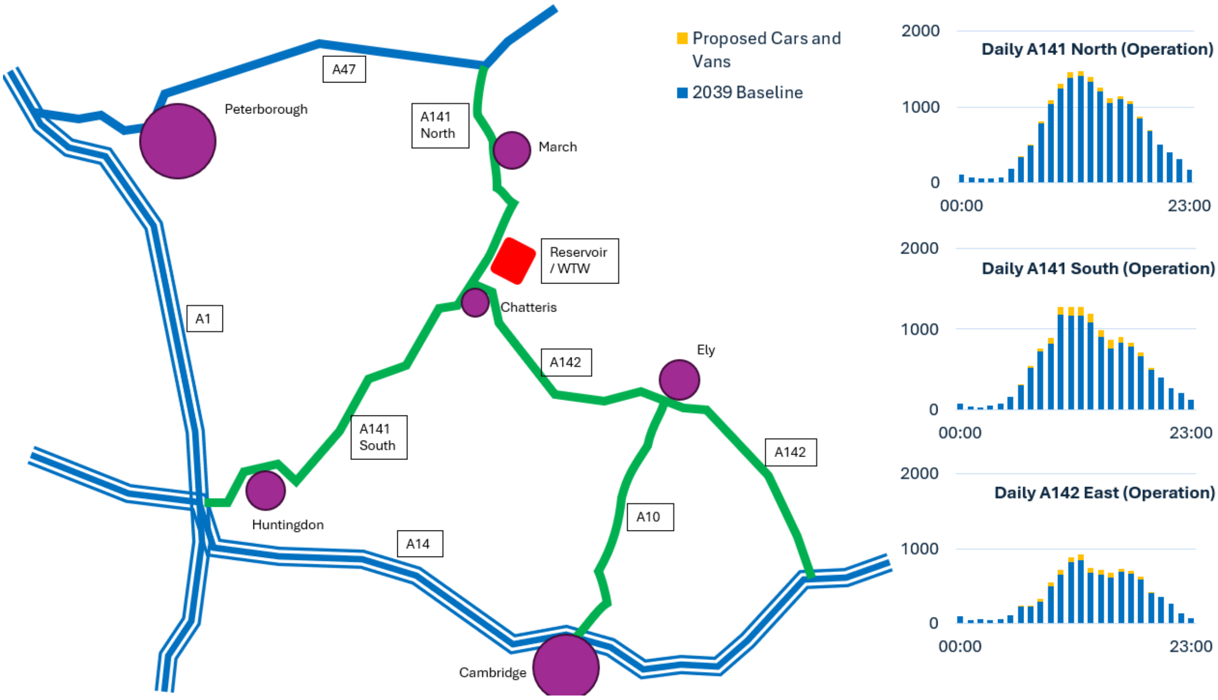

Figure 7.20: Traffic Volume Changes on Highway Network (Operation)

7.4.17 We are continuing to estimate the likely demand for active and shared travel, which we would encourage through improved connections to minimise vehicle travel.

7.4.18 We are also investigating the likely environmental effects and impacts on travel convenience. To do this, we are exploring various scenarios across the identified road routes to understand how the Project may affect these factors.

7.5 Local Connectivity and Reservoir Access

7.5.1 We are proposing four site access points: three would accommodate all modes of transport, and one would connect to an existing active travel right of way.

7.5.2 We are designing each access to ensure safe entry to the site. Two of the four site access points, labelled as 'local access' in the diagram below, would also support construction traffic during the construction phase.

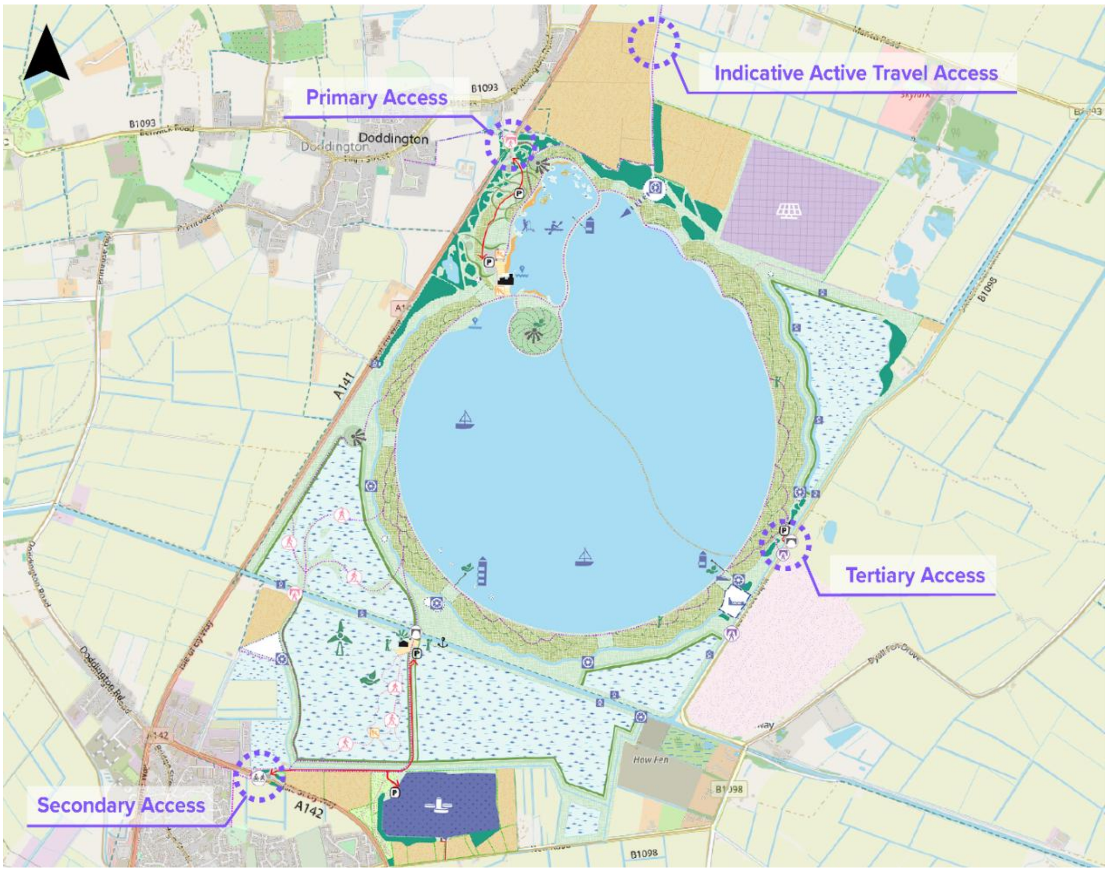

Figure 7.21: Proposed access points at reservoir main site

7.5.3 During construction, we may need to introduce additional temporary minor access points. We are currently developing the detail as part of our detailed construction planning. As part of the design process, we are also identifying opportunities to improve active travel connections to nearby villages, aiming to maximise connectivity and encourage more people to choose active travel.

Primary Access

7.5.4 The primary access point in the northwest is expected to accommodate the highest volume of movement and will serve as the main construction access. It connects directly to the primary visitor hub, which will host a range of public facilities. Our access proposals include a highway connection from the A141 south of Doddington, featuring an off-line three-armed roundabout to the east of the A141, along with a new bridge dedicated to active travel.

7.5.5 The off-line roundabout offers several benefits:

- maximising safety during construction by reducing interaction with traffic on the A141
- lowering vehicle speeds approaching the new junction
- maintaining optimal traffic flow during both construction and operation.

7.5.6 The active travel bridge also provides key advantages:

- enhancing connectivity and accessibility to Wimblington and Doddington by separating pedestrians and cyclists from A141 traffic, thereby improving safety
- creating opportunities to improve active travel routes to these villages and the wider area.

7.5.7 Figure 7.22 illustrates what the completed three-armed roundabout and active travel bridge crossing may look like following the highway works.

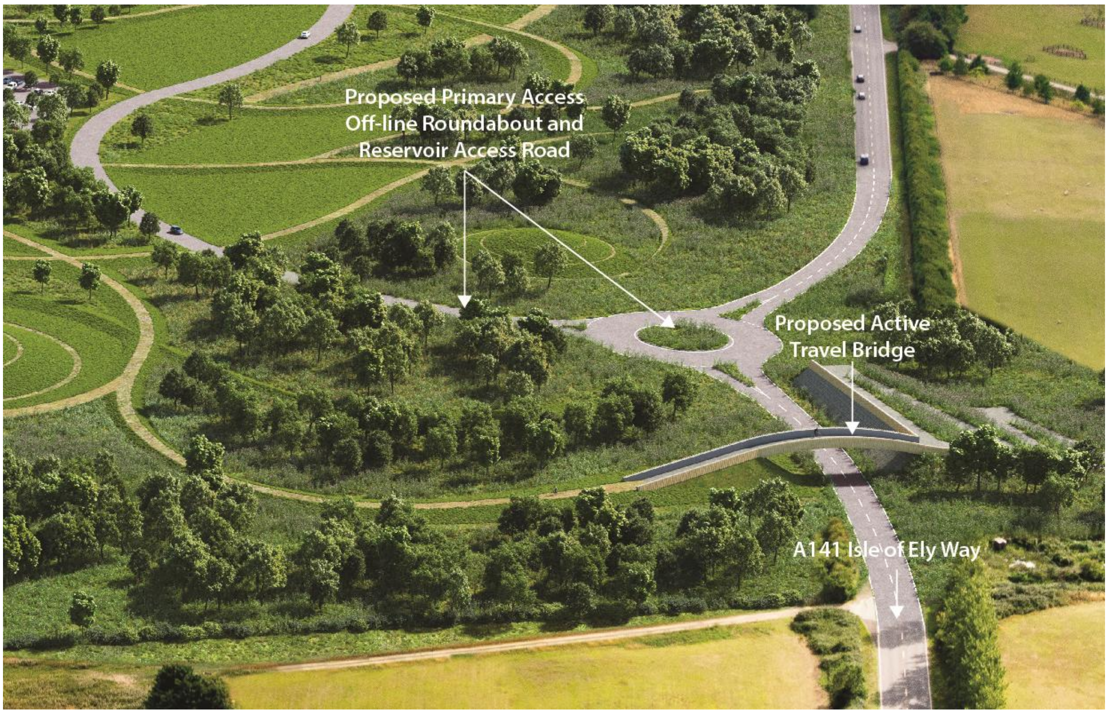

Figure 7.22: Three-armed roundabout access and proposed active travel bridge (view southbound from Wimblington)

Secondary Access

7.5.8 The secondary access point to the south of the site would serve the secondary hub, which would focus on education and community use, as well as the new water treatment works. Our proposals include a highway connection from the A142 north of Chatteris, designed as an off-line three-armed roundabout to the north of the A142. This design aims to deliver similar benefits to those achieved by the off-line construction of the primary access. We also propose a dedicated active travel access from Chatteris across the A142, implemented as a signalised crossing.

7.5.9 Figure 7.23 illustrates what the completed three-armed roundabout access to the reservoir and water treatment works, along with the associated signalised active travel crossing, may look like following the highway works.

Figure 7.23: Three-armed roundabout access to the reservoir and water treatment works (view eastbound from Chatteris)

7.5.10 We have identified a signalised active travel crossing as the most suitable option at this location. Vehicle speeds are appropriate, and the crossing offers greater convenience to active travel users compared to a bridge, allowing them to cross at road level.

7.5.11 Additionally, we propose extending the existing 40mph speed limit further southeast along the A142 to cover all approaches to the roundabout.

Tertiary Access

7.5.12 A third access point would connect to a smaller car park to the east of the main reservoir site, serving the less developed eastern side of the proposed reservoir. We are currently assessing options for this access.

7.5.13 Alongside the studies for the tertiary vehicular access, we are also conducting assessments to improve active travel access to this part of the site from Manea and March.

7.6 Next steps

7.6.1 As the Project progresses, we will continue to develop our Traffic and Transportation proposals by:

- reviewing and addressing comments received during this consultation
- confirming the preferred rail option for transporting construction materials to the site

- finalising transport details for the transfer pipeline and associated water infrastructure
- refining active travel access points and advancing investigations into upgrades for connected routes
- updating trip estimates and enhancing detailed transport modelling
- reviewing and evolving the proposals and refined trip estimates to assess potential impacts and identifying appropriate mitigation measures
- continuing to engage with key consultees including National Highways, Network Rail and Fenland District Council (as the local planning authority) and Cambridgeshire County Council, Norfolk County Council and Peterborough City Council (as the local highway authorities), with a view to managing and mitigating effects on the highway network.

8 Constructing the Project

8.1 Introduction

8.1.1 This chapter outlines our approach to constructing the Project. As we continue assessing potential effects on communities and the environment through the Environmental Impact Assessment (EIA), we may adjust this approach to incorporate identified mitigation measures.

8.1.2 We have reviewed the design and considered the temporary and permanent land required to construct the reservoir and associated water infrastructure.

8.1.3 We have reviewed our current design and made necessary assumptions based on typical construction practices. We estimated the duration and impact of construction activities by considering their complexity and scale, drawing insights from other major infrastructure projects.

8.2 Construction Programme

8.2.1 We have divided our construction programme into three main phases.

- Early Works – We will carry out these activities during the Development Consent Order (DCO) application process.
- Enabling Works – We will begin these works should we receive development consent, prior to starting main construction activities.
- Main Construction – We will commence this phase should we receive development consent has been granted. This also includes the commissioning of all elements.

8.2.2 These activities are shown indicatively in Figure 8.1 below.

8.2.3 The Project's earliest date for water into supply is December 2036, as set out in the Water Resource Management Plans for Anglian Water (2025) and Cambridge Water (2025). Construction is anticipated to take six to eight years, with construction activities anticipated to extend beyond the supply date as landscaping and other works is finalised.

Figure 8.8.1: Indicative construction programme

8.2.4 Figure 8.2 below shows more detail of our indicative construction programme.

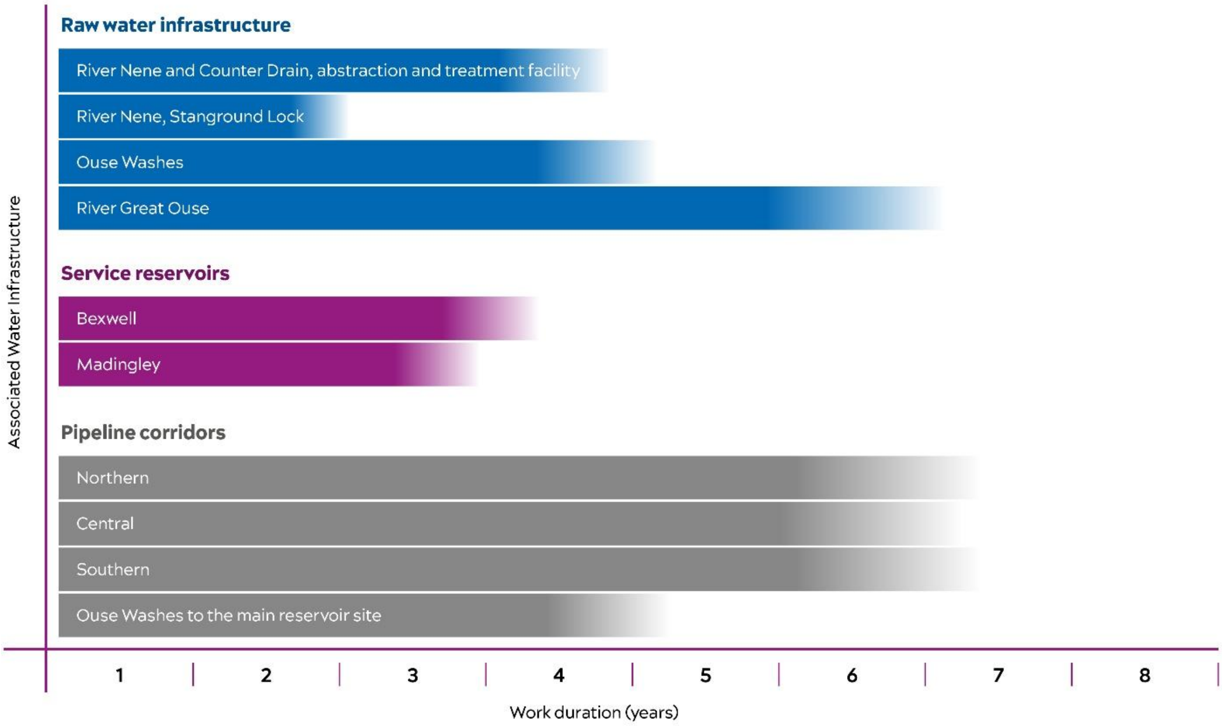

Figure 8.2: Detailed indicative construction programme

Early Works

8.2.5 Before submitting our DCO application, we are carrying out essential survey and investigation work, including:

- ground investigations such as boreholes and trial pits
- soil, ecological and topographic surveys
- archaeological investigations
- groundwater investigations.

8.2.6 These works will continue after the application has been submitted, during the examination and decision making.

8.2.7 We are planning to build a trial embankment using material excavated from the proposed reservoir site to better understand its conditions and suitability to inform our designs. The trial embankment would be approximately 8.5 metres high, 150 metres long and 70 metres wide.

8.2.8 We would apply for planning permission to build the trial embankment in advance of the submission and determination of the DCO application. If our DCO application is not granted, we will remove the embankment and restore the area. If the application is approved, we will remove the embankment as part of the main construction programme.

Enabling Works

8.2.9 We would carry out enabling works to establish the construction working area and prepare for the start of main construction.

8.2.10 Should development consent be granted, we will begin enabling works, which will include:

- clearing the site, including demolishing buildings where necessary
- constructing access routes and site offices, along with welfare facilities and security fencing
- establishing a rail siding facility, if required
- diverting existing utility services and installing new ones
- initiating early environmental mitigation measures, such as habitat creation, species relocation, and removal of invasive non-native plants
- conducting further archaeological investigations if early works reveal areas of interest
- undertaking further geotechnical investigations.

Main Works

8.2.11 We would carry out the main construction works as the longest phase of activity. This phase includes building the reservoir, water treatment works, associated water infrastructure, environmental mitigation measures, and all necessary temporary works. Key activities will include:

- managing site water and excavating borrow pits for reservoir embankment construction
- constructing the reservoir, including bulk earthworks and structural components
- building structures and facilities relevant to each phase, such as water treatment facilities, pumping stations, service reservoirs, bridges, culverts, inlets, and headwalls

- installing pipelines, valves, and access points
- carrying out highway works, including new junctions, access tracks, connections to the existing road network and highway improvements/mitigations as required
- constructing renewable energy generation infrastructure
- delivering environmental mitigation measures, including screening and habitat creation.

Working hours

8.2.12 The core working hours will be set out in the DCO submission following discussions with local councils and stakeholders, outlining the typical times and days for most construction activities. Working hours will be determined by many factors Including proximity to sensitive receptors, daylight hours, cost and programme. We typically carry out earthworks during daylight hours. As a result, working hours may shorten during winter and extend during summer to align with available daylight.

8.2.13 The main earthworks season is considered to be between March and October, and it is anticipated that earthworks between November and February may have to be suspended when the soil could be excessively wet or frozen. Earthworks would be carried out between November and February if weather conditions allow and this would be to the benefit of the overall schedule benefit to communities. Aggregate delivery and pipeline construction and other less weather dependent work would occur across this winter period subject to suitable conditions.

8.2.14 We expect to seek consent for extended working hours for specific activities that are impractical or more disruptive during core hours. These may include:

- large concrete pours
- critical deliveries
- connecting to or diverting existing utilities, which may involve temporary network shutdowns
- carrying out works that require significant road or footpath closures.

8.2.15 By scheduling these activities outside core hours, we aim to reduce disruption for local residents and communities.

8.2.16 Some activities may require 24-hour working, such as continuous operations or safety-critical tasks that cannot be paused.

8.2.17 We would keep the local council, local community and stakeholders informed about our construction activities and working hours.

Construction workforce

8.2.18 Since our phase two consultation, we have refined our understanding of socio-economic opportunities. We have started developing our Socio-Economic Strategy and exploring accommodation options in relation to construction workers. As we advance our Environmental Impact Assessment (EIA) work, we will also refine our estimates of the socio-economic effects of the proposed development.

8.2.19 To assist with this consultation but not prejudging the findings of the simplified options we are exploring, we have identified indicative potential travel time zones to assist in mapping the different options, as depicted in Figure 8.3.

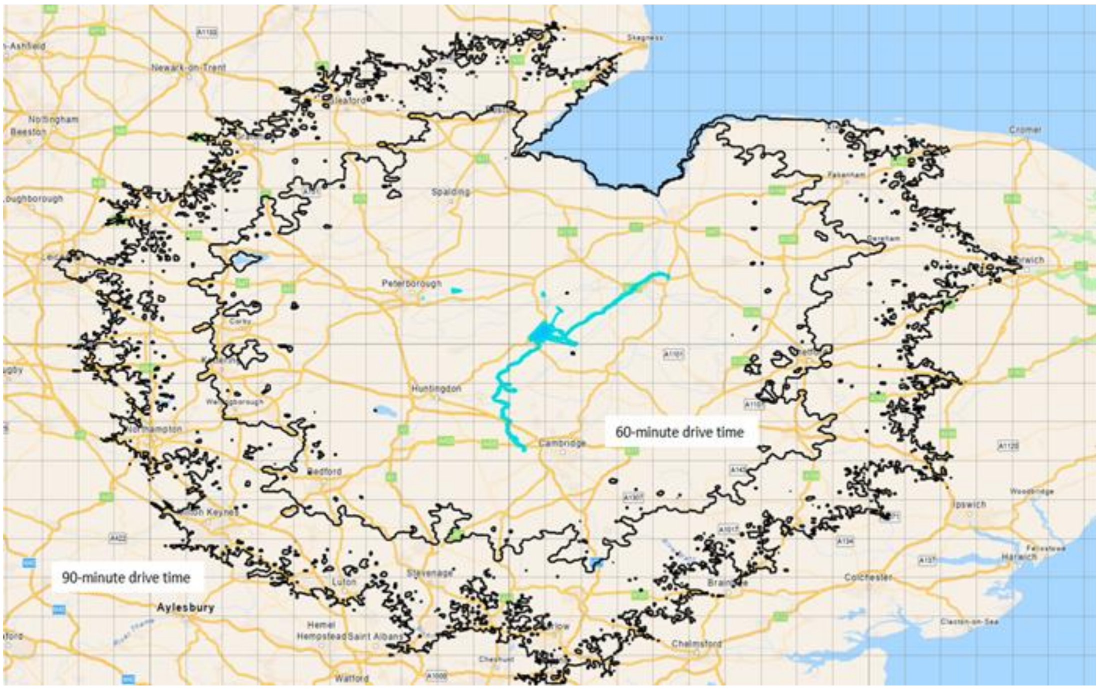

Figure 8.3: Potential travel time zones

8.2.20 We anticipate construction workers and administrative staff will travel from within approximately a 60-minute drive of key construction areas. This assumes personnel either already live nearby or will temporarily relocate within a reasonable commuting distance.

8.2.21 We currently assume an average car occupancy of 1.5 workers per vehicle, which is typically achievable on large construction projects without specific interventions. Our trip estimates include the total number of light vehicle (LV) movements, cars and light vans, distributed across the working day, with peaks at the start and end of shifts. We also account for midday trips, such as workers leaving the site for lunch or making ad-hoc visits. At peak times, we estimate up to 2,000 LV movements per day.

8.2.22 By implementing a Construction Worker Travel Plan, we aim to increase car occupancy and promote the use of sustainable transport, reducing the number of commuting vehicles. Based on current studies, LV trips to and from the site will begin before aggregate heavy good vehicle (HGV) deliveries, supporting early enabling works. During this phase, we expect only a small number of HGV movements.

8.2.23 We have assessed the likely proportions of personnel travelling along the A-road network to the reservoir and water treatment works as depicted in Figure 8 . For the wider transfer pipeline, we assume 100% of LV movements will occur on the designated access route for each pipeline section.

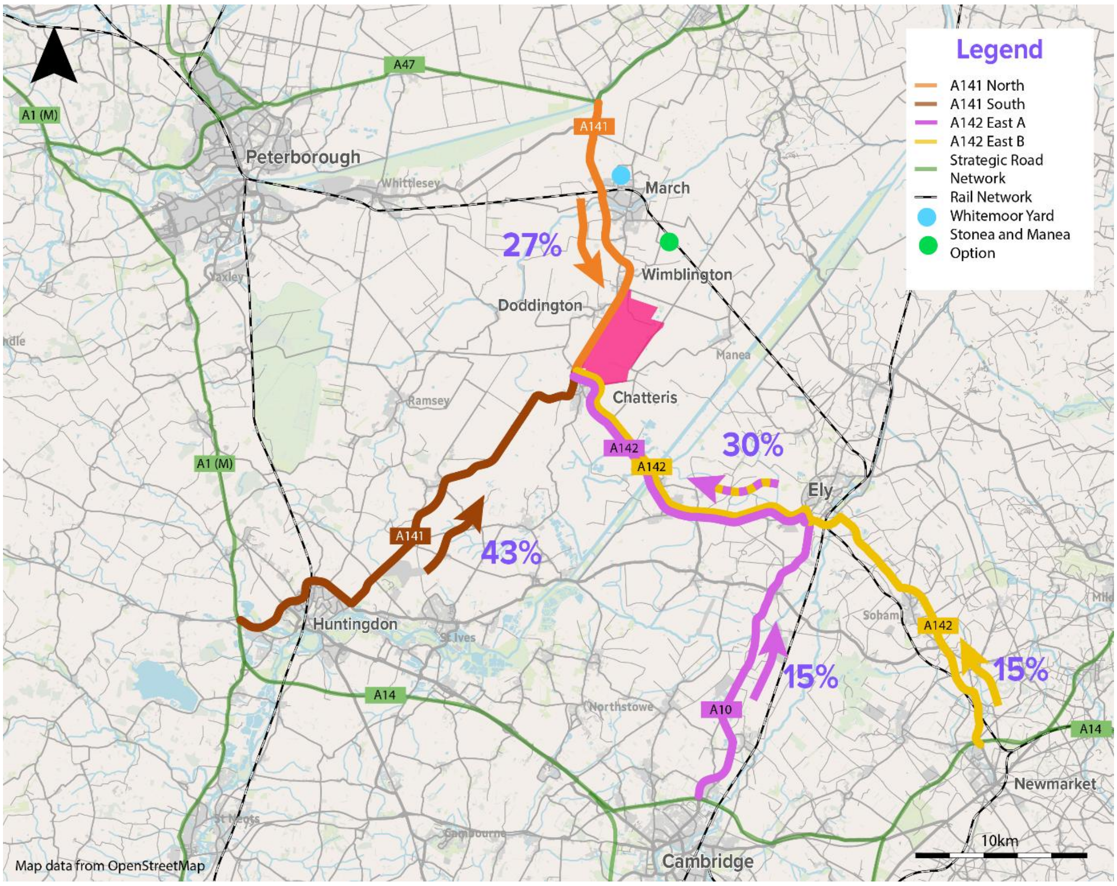

Figure 8.4: Personnel use of the Strategic Road Network

8.2.24 We expect most personnel to travel during the hour before and after their shifts, typically between 07:00 and 18:00. Some workers may also leave the site during lunch. As a result, the majority of construction commuter traffic will occur outside of peak hours on the wider road network.

8.2.25 We are currently investigating the detailed catchment areas for personnel, the routes they may take to reach different construction zones, and the potential to use sustainable transport modes.

Construction workforce accommodation options

8.2.1 The Socio-Economic Strategy aims to ensure that local people can access upskilling and employment opportunities during both the construction and operational stages of the project. However, the project's scale, the complexity of certain construction activities and the characteristics of the local employment market mean that many construction workers will likely come from outside the local area. This pattern is typical for most major infrastructure projects.

8.2.2 A reservoir presents a once-in-a-generation opportunity to deliver lasting socio-economic benefits, supported by our commitment to environmental and social prosperity in the region it serves. That's why we want to explore potential options for accommodating construction workers. For example, some residents may prefer that workers who temporarily relocate to the area stay in temporary accommodation on the construction site. This approach could reduce disruption to local communities but may also limit opportunities to capture spending from those workers and the associated local investment in accommodation, retail, leisure and welfare services.

8.2.3 Alternatively, we could house workers in one or more off-site locations. This option may generate greater economic benefits for the local community and could result in some accommodation, leisure or welfare assets being transferred to the community after construction ends. However, transporting workers to and from the site, possibly by minibus, could place additional pressure on the local road network.

8.2.4 We have started developing a strategy for accommodating construction workers. This strategy will guide how we provide housing for non-local workers and how we manage the impacts of different accommodation options on residents, businesses, health services, education and other local facilities. It will also consider the capacity of the local housing and tourism markets.

8.2.5 Exploring the different approaches now, up front, ensures that we are benefitting from the knowledge of local communities and other stakeholders to help us in shaping our approach to meeting different needs.

8.2.6 We will explore the potential benefits and effects of a range of on- and off-site accommodation options. Our methodology is to define and assess the pros and cons of several simplified options, although it is likely that a hybrid approach, blending several options may result in being the preferred approach.

8.2.7 In addition to exploring whether we can recruit all workers from the local and surrounding areas, we may also investigate workers being accommodated in the following ways:

- on-site in temporary accommodation
- on-site in accommodation that might have legacy benefit such as for tourism uses,
- in a shared temporary accommodation hub that could service both the Fens and Lincs reservoir projects

- in a more permanent accommodation hub that could service both the Fens and Lincs reservoir projects and that might have legacy benefit such as residential or tourism uses
- in existing households using spare rooms, bedsits and similar
- in existing temporary tourist accommodation such as AirBnBs and cottages
- in existing permanent tourist accommodation such as hotels, B&Bs, chalet resorts and caravan parks
- in existing housing stock through the private rental market
- off-site in new temporary accommodation that is nearer to existing communities
- off-site in new tourist accommodation that is nearer to existing communities
- off-site in new residential accommodation that is nearer to existing communities.

8.2.8 Worker accommodation is likely to be needed for both the on-site main reservoir works, as well as the off-site associated water infrastructure works. The latter could see on-site temporary accommodation that can be relocated along the water infrastructure corridor as works progress or off-site using existing tourist and residential accommodation.

8.2.9 We will develop this work in collaboration with several technical teams, including constructability, planning, masterplanning, stakeholder engagement, transport, environment, land acquisition, and legal. Together, we will assess the pros and cons of each accommodation option in terms of deliverability, cost, transport, environmental impact, benefits and effects on the existing workforce and communities, and long-term legacy.

8.2.10 We will look at other case studies from other national infrastructure projects to draw on good practice. We will also draw on local policy around growth, housing, tourism, construction, employment and skills issues to ensure our research is rooted in the local context.

8.2.11 We will then develop scenarios (probably blending several simplified options together) to test with the design team to ensure that they meet constructability requirements, and with reference to both a local labour market and local accommodation market assessment.

8.3 Constructing the main reservoir

8.3.1 A significant amount of construction activity is proposed to take place at the main reservoir site. The main activity would be constructing an earth embankment to form a raised reservoir.

Compounds and laydown areas

8.3.2 During construction we would establish a main site compound, including:

- offices, welfare facilities, site reception and working compounds
- fencing to define the working areas and keep people safe
- appropriate security and safety measures
- storage, maintenance and waste areas
- carparks, a gatehouse and vehicle wheel washing facilities to reduce dust from construction vehicles
- temporary landscaping, screening and lighting
- fuel storage and a refuelling point
- a sampling and testing lab
- sediment ponds and other infrastructure to manage water and prevent flooding and pollution
- utilities and services infrastructure, such as water, wastewater and electricity connections
- temporary spoil management areas, including borrow pits and stockpiles.

8.3.3 Additional satellite compounds would be established around the reservoir site as required.

8.3.4 Appendix C shows the indicative reservoir site layout – including the location of the main compound components.

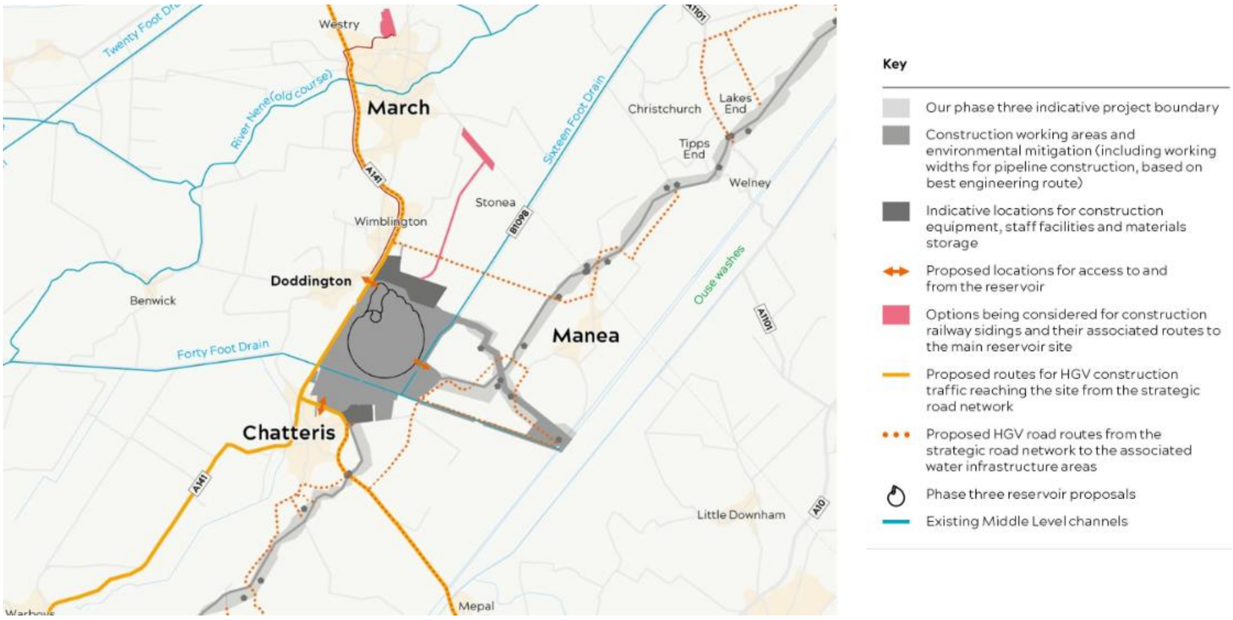

Figure 8.5: Indicative construction area for the reservoir

Construction Access

8.3.5 We propose a new junction on the A141 as the permanent access point to the reservoir for both construction and operation. For more details, see Section 7.7.

8.3.6 We would establish a secondary access point by constructing a new junction on the A142, which includes a bridge connecting the main reservoir site to land south of the Forty Foot Drain. We propose this junction as the permanent access for both the reservoir and the water treatment works (see Chapter 7).

8.3.7 Should development consent be granted, we propose to construct both access points early in the construction programme to provide safe access into the site.

8.3.8 We may need to utilise existing or create temporary access points during enabling and mitigation activities, such as archaeological surveys, species translocation, and trial excavations, while constructing the main access points. This is still under assessment, and potential locations to be confirmed.

8.3.9 Several Public Rights of Way (PRoWs) cross the proposed reservoir site and may need to be closed off. We would look to provide connectivity and alternative routes and will agree these with the local authorities. As such, proposed management regimes would need to be identified to mitigate the impacts of construction on the affected PRoWs by maintaining access along them wherever possible, or by providing temporary diversions to bypass any temporary PRoW closures. The final design would consider diverting existing PRoWs through the new NMU routes within the proposed reservoir site once construction is complete.

Construction Materials

8.3.10 We plan to source most of the clay material required to construct the reservoir embankment from within the reservoir footprint.

8.3.11 To access suitable clay, we will remove and stockpile less suitable material. We have designed the reservoir landscaping to reuse this material, allowing us to retain as much on site as possible.

8.3.12 We would construct drainage layers between the clay sections of the embankment using imported aggregate material.

8.3.13 The inner face of the reservoir embankment will need to be protected against erosion, and it is probable we will do this using a dumped rock (riprap) system of erosion protection. This rock would need to be imported to site. In addition, we will bring in material for temporary haul roads, site compounds, and storage or laydown areas. Our proposed approach for transporting aggregate materials is described in Section 7.5.

8.3.14 We may establish a temporary concrete batching plant on site or use an existing plant in the local area to support construction of concrete structures.

8.3.15 Some concrete may also be delivered in pre-cast segments, which will be manufactured off site.

8.4 Constructing the water treatment works

8.4.1 We would construct the water treatment works alongside the reservoir earthwork embankment in the adjacent area.

Compounds and laydown areas

8.4.2 We would establish a dedicated site compound for the water treatment works, including welfare facilities and material storage areas.

Construction Access

8.4.3 We plan to construct a new junction on the A142 to serve as the permanent access point for the water treatment works. As with the main reservoir site, we would build this junction early in the programme to ensure safe access during construction and avoid the need for a separate temporary access route.

Construction Materials

8.4.4 We would build most of the water treatment works above existing ground level. For key structures such as water storage tanks, we will carry out bulk excavation using excavators, dozers and articulated dump trucks. We will reuse excavated material on site for backfilling and landscaping.

8.4.5 We expect to construct most of the water treatment works facilities using concrete. To support this, we may establish a temporary concrete batching plant on site or use an existing plant in the local area. Where possible, we will use pre-cast concrete elements manufactured off-site and delivered via the road network.

8.4.6 We would also import aggregate for temporary construction needs, including haul roads, piling platforms, and hardstands for compounds and storage areas. We expect to source these materials locally and transport them via the road network, as described in Chapter 7.

8.5 Water Transfers

8.5.1 To enable the transfer of raw water to the reservoir, and potable water from the treatment works to the wider network, additional infrastructure such as pump stations and service reservoirs will need to be constructed for the movement and storage of the water within the system. These structures may be constructed using a combination of precast and cast-in-situ elements.

8.5.2 We would transfer raw water to the reservoir and potable water from the water treatment works to the service reservoirs and wider network using buried pipelines. To construct these pipelines, we will use a combination of open-cut trenching and trenchless methods, such as pipejacking or Horizontal Directional Drilling.

Working Corridors

8.5.3 To construct the pipeline using open-cut techniques, we will require a “working corridor” (see Figure 8) that provides safe access, space for excavation activities, and room for stockpiling materials, drainage and pipe stringing. The required working width will depend on factors such as pipe diameter, excavation depth, and specific site conditions (i.e. existing drainage ditches).

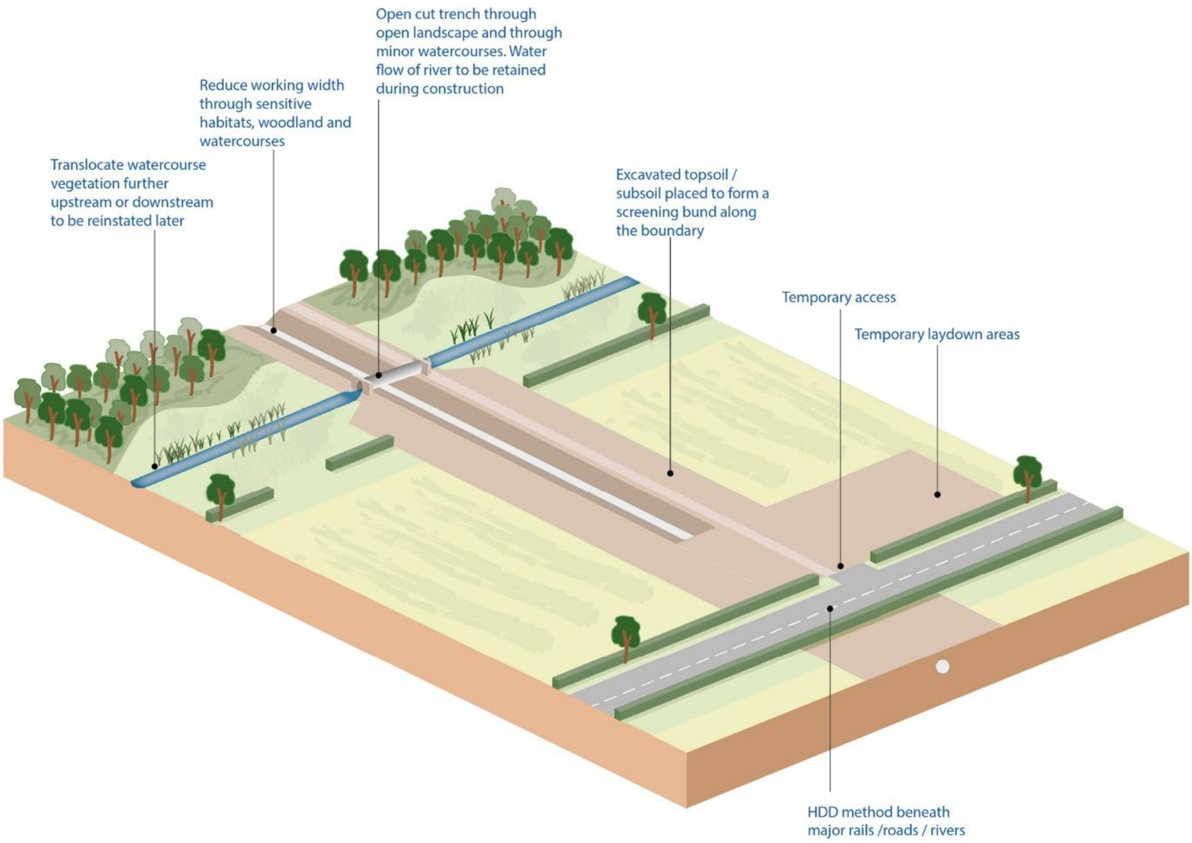

Figure 8.6: Example of working corridor

8.5.4 We would strip topsoil from areas required for haul road construction, trench excavation, excavated material storage, and associated working zones. We will stockpile or windrow this material adjacent to the excavated trench, ensuring sufficient separation to prevent mixing with other stockpiles. Once construction activities in the area are complete, we will respread the topsoil across the work zone to restore the land.

Compounds and laydown areas

8.5.5 We would establish satellite compounds and laydown areas at various points along the pipeline route and at the associated infrastructure sites to provide welfare, first aid and other essential facilities, as well as storage for materials and equipment. The size of each compound will vary depending on the needs of the specific work site.

8.5.6 We expect the larger site compounds to include:

- offices for our main contractor and sub-contractors
- a canteen or lunchroom
- toilets and a drying room
- storage containers for tools, equipment and a COSHH (Control of Substances Hazardous to Health) chemical store

- car parks and vehicle washing points
- fuel storage and a refuelling station
- waste skips.

8.5.7 Where possible we will connect compounds to existing low-voltage power infrastructure, particularly at the associated infrastructure sites where a permanent power connection will be required. However, we anticipate using diesel generators to power some sites which will be more temporary in nature.

8.5.8 For smaller compounds, we will use easily transportable structures such as trailer-mounted cabins and welfare units. This approach allows our workforce to mobilise and demobilise quickly as construction progresses, reducing the time and resources needed for long-term facilities.

8.5.9 We would import aggregate to create hardstand areas for the compounds and install temporary drainage, erosion, and sediment controls where required.

8.5.10 We would create laydown areas along the construction corridor to store materials such as steel pipe and aggregates. While we expect to reuse some excavated trench material as backfill, we may need to import additional aggregate for pipe embedment and backfilling.

8.5.11 We would strategically locate and size these laydown areas to store at least 25% of the imported materials required for each section. Our current assumption is that additional aggregate would be needed to create compacted hardstanding for these storage areas.

8.5.12 We would reinstate laydown areas once they are no longer needed.

8.5.13 We have selected proposed locations for construction compounds and laydown areas based on criteria such as avoiding sensitive receptors, protecting water sources, heritage assets and ecological features, and proximity of the proposed construction compound to the Strategic Road Network.

8.5.14 We would continue to refine these locations as we develop our working corridor, assess transport and access constraints, and incorporate stakeholder feedback.

Construction Access

8.5.15 We would access our construction zones using the local road network wherever possible.

8.5.16 Our pipeline will cross land which may not have direct access from the local road network, so we will need to build a temporary haul road along the route using imported aggregate materials.

8.5.17 Further testing and investigation of the geotechnical conditions is underway which may identify areas where we would not need to import material for the haul roads.

Trenchless Crossings

8.5.18 We would use trenchless pipeline construction methods where open-cut excavation would cause significant disruption to existing features or services. These include main roads, railways, major rivers, key utilities or sensitive areas.

8.5.19 Our methodology for each crossing will be dependent on a variety of factors including the length of the crossing, site access, expected ground conditions, pipe diameter, likely durations and environmental constraints. At this stage, we are expecting to use micro-tunnelling (such as pipejacking) or Horizontal Directional Drilling (HDD). Each methodology requires a different work footprint and equipment.

Construction Materials

8.5.20 We would need to import a granular fill material to be placed as the pipe bedding and surround to ensure the pipe is suitably supported in the trench. The remainder of the trench backfill material will be a combination of the excavated material and additional imported fill.

8.5.21 Most of the pipeline trenches will run through areas with soft ground. This needs to be considered in the construction methods along with the management of existing water courses and groundwater.

8.5.22 At this stage, we are assuming a significant portion of the excavated material will need to be replaced with an imported fill material due to its high organic content and poor compaction properties. We are investigating suitable locations on site where this material could be placed to minimise traffic on the roads.

8.5.23 If we cannot do this, we may need to remove the excess excavated material to allow reinstatement. We are planning additional geotechnical testing along the pipeline alignment to better understand the anticipated ground conditions and how much material may need to be imported and exported.

8.5.24 We would need to import additional aggregate material for temporary construction use (haul roads and hardstands for site compounds and storage laydown areas) along the pipeline alignment. All material import is anticipated to be via the road network for the pipeline alignment. See Chapter 7 for more detail.

8.5.25 We would also need to import concrete for structures including pumping stations, treatment facilities, service reservoirs and inlets. We will use existing local concrete batching plants for in-situ concrete production. We will also bring pre-cast concrete parts in for some structures using the road network.

8.6 Mitigating the potential effects of construction activities

8.6.1 This section provides a high-level summary of mitigation measures being taken forward to refine our approach to construction.

8.6.2 Construction will follow appropriate security and safety measures to keep people safe.

8.6.3 We would assess the impact of the reservoir construction works on local communities and surrounding areas as part of the EIA.

Carbon

8.6.4 We are committed to minimising our capital carbon to as low as reasonably practicable and be operationally net zero from day one in line with the water sector's current 2030 net zero route map.

8.6.5 We are investigating the use of low-carbon diesel-alternative construction plant such as battery-electric, tethered electric, hydrogen combustion, and hydrogen cell vehicles. Some of these could be considered well established in the construction industry, however some are more emerging technologies which are still to be tested on a large scale and may not be fully suitable for our programme.

8.6.6 We are considering the potential fuel sources and power requirements for these diesel-alternative plant to be utilised on the site, testing the feasibility of the potential options and the likely approach by the contractor for the delivery of the works.

Peat management

8.6.7 Our recent ground investigation works identified a layer of peat across much of the proposed reservoir site. We will need to relocate and distribute some of this material during the bulk earthworks activities including excavating the reservoir embankment footprint and borrow pits. We will continue developing our peat management strategy as we carry out more ground investigations. The key consideration around the peat management is maintaining moisture levels within the peat material and reduce the need to move the peat twice.

Landscaping

8.6.8 We would use excavated material that we find is unsuitable for the construction of the structural embankment to carry out landscaping on the outer face of the reservoir embankment, and around the reservoir site. We will place this material in stages, in-line with the construction phasing, finishing alongside the completing the embankment.

8.6.9 The landscaping includes carparks, vegetation and tree planting, footpaths, recreational facilities and spaces. These works are likely to be occurring while the reservoir is going through the commissioning process, and filling with water.

Site Water Management

8.6.10 Our proposed site has several drainage ditches which form part of the local drainage network managed by the Internal Drainage Boards (IDBs). Many of these will no longer be required. Those currently located outside the main waterbody of the proposed reservoir will be diverted as necessary to maintain the management of water levels.

8.6.11 The drainage ditches will be appropriately managed during the construction and operation phases to enable consistent water management.

8.6.12 Our construction plans will consider storage of water for site operations including dust management, and discharge of treated water under licence.

8.6.13 We are proposing to retain and use the existing pumping stations where possible, with ongoing design development reviewing and considering the best approach for site surface water discharge.

Waste Management

8.6.14 We have designed our reservoir embankment and surrounding landscaping details to optimise the 'cut/fill balance'. This means we will aim to only excavate material we will use on site – either as part of the embankment or the landscaping.

8.6.15 We are developing the design and construction planning works to identify opportunities to reduce waste and the need for additional material to be imported – including reusing material from temporary haul roads for the permanent maintenance access road.

8.6.16 There will be some materials which we cannot retain. There are several buildings within the footprint of the reservoir embankment which will need to be demolished to enable construction.

8.6.17 The soils will be tested for contaminants to confirm if there are any additional requirements for treatment or disposal of materials.

8.6.18 Due to the agricultural use of this land, may be considered hazardous due to potential contamination from chemicals typically used on farms such as fertilisers and pesticides.

8.6.19 We would appropriately test, classify and dispose of this demolition waste in accordance with waste management licensing.

8.6.20 Further information on waste management is included in Section 7.4 of the supporting Environmental Information Report.

Noise and vibration

8.6.21 Our contractors may be required to produce a noise and vibration management plan or formal Control of Pollution Act 1974 (as amended) Section 61 prior consent application before we start construction. They may need to prepare more than one plan to reflect the different construction activities and to inform how construction is phased.

8.6.22 These management plans or Section 61 applications would outline how we will mitigate and manage noise and vibration from our construction activities and will be consistent with our Environmental Statement.

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A Glossary and abbreviations

Term	Definition
A	
Abstraction infrastructure	Infrastructure required to abstract water from a water source, including intake structures, pumping stations, and initial treatment.
Active travel	Modes of transport that involve physical activity, primarily walking, cycling, and wheeling
Ammonite	Shelled cephalopod, which include animals such as a squid, octopus, cuttlefish and nautilus, that became extinct approximately 66 million years ago.
Applicant	The entity that will promote the DCO Application, being Anglian Water Services Limited
Associated Development	Development as defined by section 115 of the Planning Act 2008: • associated with a Nationally Significant Infrastructure Project (NSIP); • not the construction or extension of one of more dwellings and relevantly; and located within England. The 'Planning Act 2008: associated development applications for major infrastructure projects' sets out the core principles that the Secretary of State will take into account when determining whether development should be treated as associated development.
Associated water infrastructure	The works which are required to take water from a source to a reservoir and then from a reservoir to the connection points to the existing water networks. The components of this would typically include water treatment works, transfers (pipelines, open channels or a combination of the two), abstraction infrastructure (pumping and initial treatment) and service reservoirs. Also includes the preferred discharge channel route for the water released if the reservoir needs to drawn down in an emergency situation.
B	
Borrow pits	Borrow pits are areas where soil, gravel or sand is excavated for use in constructing embankments.
C	
Capital carbon	Greenhouse gas emissions associated with the creation of an asset.

Term	Definition
Commissioning	The process of making sure everything runs as it should after installation of infrastructure, equipment and systems.
Construction compound	A designated area used to support the construction process on a project. It serves as a hub for various activities including temporary offices, material storage, equipment laydown, and welfare facilities for construction personnel.
Culvert	A covered channel or pipe which conveys a watercourse through an obstacle. A 'Simple Culvert' has a cross section which is made of the same material throughout [for example: concrete pipe, concrete box section, brick arched-). A 'Complex Culvert' has a cross section which is made of more than one material, e.g. masonry walls with a concrete soffit.
D	
Decarbonisation	Reducing the carbon footprint to support Anglian Water's and Cambridge Water's goal of achieving net zero carbon emissions by 2030 by optimising the siting, positioning and use of materials, and maximising the reuse of soil arisings on site to reduce greenhouse gas emissions.
Department for Environment, Food and Rural Affairs (Defra)	The Department for Environment, Food and Rural Affairs is a department of His Majesty's Government responsible for environmental protection, food production and standards, agriculture, fisheries and rural affairs.
Development Consent Order (DCO)	Form of development consent granted by the Secretary of State which authorise the development of Nationally Significant Infrastructure Projects (NSIPs) and development which the Secretary of State has directed (under s35 of the Planning Act 2008) is nationally significant and is to be treated as development for which development consent is required.
Drawdown tower	A vertical intake structure designed to withdraw water from different levels of a reservoir, primarily for sediment management and controlled water release or lower the water level in an emergency.
E	
Effect	Any change that a project or activity may cause in the environment, including but not limited to any effect of any such change in:

Term	Definition
	• the quality of soil, water and air • biodiversity and the condition/quality of habitats • human health • socio-economic conditions • physical and cultural heritage • the current use of lands and resources • any structure, site or thing that is of historical, archaeological, palaeontological or architectural significance These can be direct or indirect/secondary. Direct impacts are generally caused by action inputs (such as road construction, buildings etc). Secondary (indirect) impacts commonly result from action outputs, (such as improved access allowing visitor numbers to a increase to a previously inaccessible location).
Embankment	An artificially raised, earthen ridge used for a variety of purposes including for channel and reservoir containment.
Embankment core	Central section of an embankment dam made from an impermeable material to stop water passing through the dam.
Embankment dam	A dam made mainly from natural materials (earth) for the purpose of holding back water.
Embankment toe	The point where the downstream slope meets natural ground.
Emergency drawdown event	An event during which the water level within the reservoir is drawn down to mitigate any risk to the integrity of the dam. The facility to draw down the water level within a large, raised reservoir is a risk mitigation measure which is required under the Reservoirs Act 1975 and its associated regulations and guidance.
Enabling Works	Enabling works is the very first step in the construction of most projects.
Environment Agency	A non-departmental public body responsible for flood management, regulating land and water pollution, and conservation
Environmental Impact Assessment (EIA)	Process which: determines the likely environmental impact of a given action or intervention; describes the mitigation to avoid or reduce these likely impacts; and identifies likely significant effects on the environment.

Term	Definition
	It is used to inform the decision maker before deciding whether to grant consent.
Environmental Statement (ES)	A document produced in accordance with The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
F	
Filtration	The process in which solid particles in a liquid or gaseous fluid are removed by the use of a filter medium that permits the fluid to pass through but retains the solid particles.
Flood risk	The exposure, vulnerability and hazard associated with flooding.
Flood zone	Land having at risk of river or sea flooding without the influence of flood risk management infrastructure. Flood zone 3 shows the area that could be affected by a 1 in 100-year (1% or greater chance of annual probability of flooding) flood event. Flood zone 2 shows the area that could be affected by a major flood (1 in 1000, or between 0.1%-1% chance of annual probability of flooding). Flood zone 1 shows areas that are very unlikely to experience flood (<0.1% chance of annual probability of flooding).
G	
Green Belt	Land designation in a Local Plan that aims to prevent urban sprawl by keeping land permanently open; the essential characteristics of Green Belts are their openness and their permanence. The designation serves five purposes: a) to check the unrestricted sprawl of large built-up areas. b) to prevent neighbouring towns merging into one another. c) to assist in safeguarding the countryside from encroachment. d) to preserve the setting and special character of historic towns; and e) to assist in urban regeneration, by encouraging the recycling of derelict and other urban land.
Greenhouse Gas (GHG)	Greenhouse gases (e.g., carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF_3) and sulphur hexafluoride (SF_6)) are those gaseous constituents of the atmosphere, both natural and anthropogenic, that

Term	Definition
	absorb and emit radiation at specific wavelengths within the spectrum of thermal infrared radiation emitted by the Earth's surface, the atmosphere itself, and by clouds. This property causes the greenhouse effect. Greenhouse gases are usually expressed in terms of carbon dioxide equivalent (CO_2e).
Ground Investigation (GI)	An intrusive investigation undertaken to collect information relating to the ground conditions, normally for geotechnical and environmental purposes.
Groundwater	Water occurring in the ground which can be reasonably attributed to relatively geologically recent recharge, and which can be reasonably considered to be wholesome (potable) unless it has been contaminated (altered) by anthropogenic activity.
H	
Habitat creation	The enhancement or conservation of biodiversity, habitats or the local environment in a certain area.
Habitat Regulations Assessment (HRA)	There is a requirement under the Conservation of Habitats and Species Regulations 2017 (as amended) to determine if a plan or project may have an adverse impact on a site designated under the same (or preceding) Regulations prior to any consent or permission being determined. The process of undertaking this assessment is known as Habitat Regulations Assessment (HRA).
Health and wellbeing	The physical, mental, emotional, and social benefits that individuals and communities gain from engaging with natural or green environments
Heavy Goods Vehicle (HGV)	Goods vehicle with a gross weight of more than 3.5 tonnes.
Heritage assets	The historic environment assets such as archaeological remains, historic buildings and historic landscapes which have archaeological, architectural, artistic or historic value.
Highway Authority	The public body responsible for the maintenance, improvement and management of a highway. They have duties outlined in the Highways Act 1980 and other relevant legislation. In England, outside of London, the local authority (county councils, unitary authorities, etc.) is typically the Highway Authority for non-trunk roads, while National Highways (formerly Highways Agency) is typically delegated authority from

Term	Definition
	the Secretary of State for Transport and is responsible for trunk roads.
Historic environment	All aspects of the environment resulting from the interaction between people and places through time including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped, planted or managed flora. Those elements of the historic environment that hold significance are called heritage assets.
Horizontal Directional Drilling (HDD)	Refers to a construction method for installing underground pipelines (and also cables and service corridors) through trenchless techniques. It is a low impact method of installing a length of pipe from a launch pit to a reception pit below ground while avoiding obstacles or features of interest at the surface.
Hydraulic capacity	The ability of a watercourse or channel to convey water, considering, for example, volume, cross-sectional area and whether there are any obstructions.
I	
Independent Reservoir Expert Panel (IREP)	The Independent Reservoir Expert Panel (IREP) in the UK play a critical role in ensuring the safety and integrity of reservoirs, particularly large, raised reservoirs and operate under the regulatory framework of the Reservoirs Act, 1975.
Inlet	The structure at the point where water is discharged into a reservoir.
Intake	A structure through which water is withdrawn from the water source, after which the water is conveyed to the associated water infrastructure.
Inter-catchment	The flow of water, particularly groundwater, between different river basins or catchments.
Inter-catchment treatment	Water treatment used to remove contaminants (including microorganisms) to prevent them spreading between catchments where water is transferred between them.
Inter-catchment treatment measures	Water treatment to remove contaminants and associated structures at or near the intakes and pumping stations. These are needed to achieve the required water quality when moving water between river catchments in order to meet Water Framework Directive standards and/or to remove any invasive non-native species (INNS) present.

Term	Definition
Internal Drainage Board (IDB)	A public body responsible for the management of water levels in an area. They play a fundamental part in the management of flood risk and land drainage in England.
Impounding reservoir	A type of reservoir that is created by blocking the natural flow of water with a dam or embankment. The flow may be from a stream or river. They may also be fed by groundwater springs. Also see non-impounding reservoir.
Invasive Non-Native Species (INNS)	Non-native UK species of fauna and flora that are invasive, for example, Floating Pennywort.
L	
Lagoon	A lagoon in a reservoir refers to a shallower, enclosed area within the reservoir that is separated from the main body of water. This can be created naturally or artificially and is often used for purposes such as sedimentation, water treatment or habitat creation. In a water treatment works, a lagoon is an artificial pool for the treatment of effluent or to accommodate an overspill from surface drains during heavy rain.
Landform	A natural or manmade land feature.
Laydown area	A temporary construction compound for the storage of materials, plant and equipment.
Light vehicle (LV)	Motorcycles, cars and vans under 3.5 tonnes in gross weight.
Local Nature Reserve	Nature reserves designated under the National Parks and Countryside Act (1949) for locally important wildlife or geological features. They are controlled by local authorities in liaison with Natural England.
Local Planning Authority	The public authority whose duty it is to carry out specific planning functions for a particular area.
M	
Main compound	The area of a construction site providing site security facilities, office and welfare facilities, material handling and storage and secure parking for plant and machinery.
Main River	A watercourse shown as such on the Main River Map, and for which the Environment Agency has responsibilities and powers. N.B. Main River designation is not an indication of size, although it is often the case that they are larger than Ordinary Watercourses.

Term	Definition
Masterplanning	Deals with change in a defined physical area for a defined time period. Sets out proposals for buildings, spaces, movement and land use and matches these aspirations with an implementation strategy.
Megalitres per day (Ml/day)	Unit of flow rate used in reservoir engineering. One megalitre = one million litres (1,000 cubic metres).
N	
National Highways	National Highways (formerly Highways Agency) operates, maintains and improves roads, is delegated authority from the Secretary of State for Transport and is responsible for trunk roads.
Nationally Significant Infrastructure Project (NSIP)	A type of project listed in the Planning Act 2008, which must be consented by a DCO. These include proposals for certain power plants, large renewable energy projects, new airports and airport extensions and major road projects.
National Policy Statement (NPS)	Documents produced by the government which set out the need and government's policies for development of nationally significant infrastructure projects in England under the Planning Act 2008, and the decision-making framework for relevant development consent order applications to be considered against.
Natural England	Statutory body responsible for ensuring England's natural environment, including its land, flora and fauna, freshwater and marine environments, geology and soils, is protected and improved. It also has the responsibility to help people enjoy, understand and access the natural environment.
Nature recovery	The process of restoring and enhancing natural ecosystems, biodiversity, and ecological functions that have been degraded, damaged, or lost due to human activity or environmental change.
Non-impounding reservoir	A type of reservoir that does not obstruct the flow of a river and is normally filled by pumping water into it.
O	
Open channel transfers	The transfer of water in a natural or man-made conduit that has an open top (a free surface).
Open space	All open space of public value, including not just land, but also areas of water (such as rivers, canals, lakes and reservoirs) which offer important opportunities for sport and recreation and can act as a visual amenity.
Operation phase	To operation and the on-going maintenance of the Project.

Term	Definition
Operational water level	The maximum level at which water is held within a reservoir.
Options appraisal	Process through which options are appraised to select the best performing scheme.
Outfall	The structure at the point where flows discharge into a waterbody.
Outlet	A vertical tubular structure with one or more openings used for removing water from reservoirs and diverting it elsewhere.
Outlet tower	The outlet tower draws-off water at different levels in the reservoir and transfers the water out of the reservoir. The supply pipe passes from the outlet tower to the water treatment works.
P	
Peat	A brown deposit resembling soil, formed by the partial decomposition of vegetable matter in the wet acidic conditions of bogs and fences.
Perched wetland	A wetland that site upon a perched water table.
Peninsula	A peninsula is a landform that extends from a mainland and is only connected to land on one side.
Pipeline corridor	An area of land within which the pipeline could be routed. Pipeline corridors vary in width depending on the stage of the assessment and the presence of known constraints.
Planning Inspectorate (PINS) and Planning Inspectors	Executive agency of the UK government that is responsible for dealing with planning applications for NSIPs and plays a central role in the land use planning system. Planning Inspectors (otherwise known as the 'Examining Authority' will examine and make a recommendation after an application is submitted.
Public Right of Way (PROW)	This refers to legal rights allowing the public to pass through specific areas, typically for transportation or recreational purposes. It includes public footpaths, bridleways and byways.
Pumping station	A building that houses a pump to lift water or push water along a pipeline. It can also mean the building and the pump(s) inside.
Q	
R	
Regulators' Alliance for Progressing Infrastructure Development (RAPID)	An alliance of regulators made up of the Water Services Regulation Authority (Ofwat), the Environment Agency and the Drinking Water Inspectorate, to help accelerate the development of

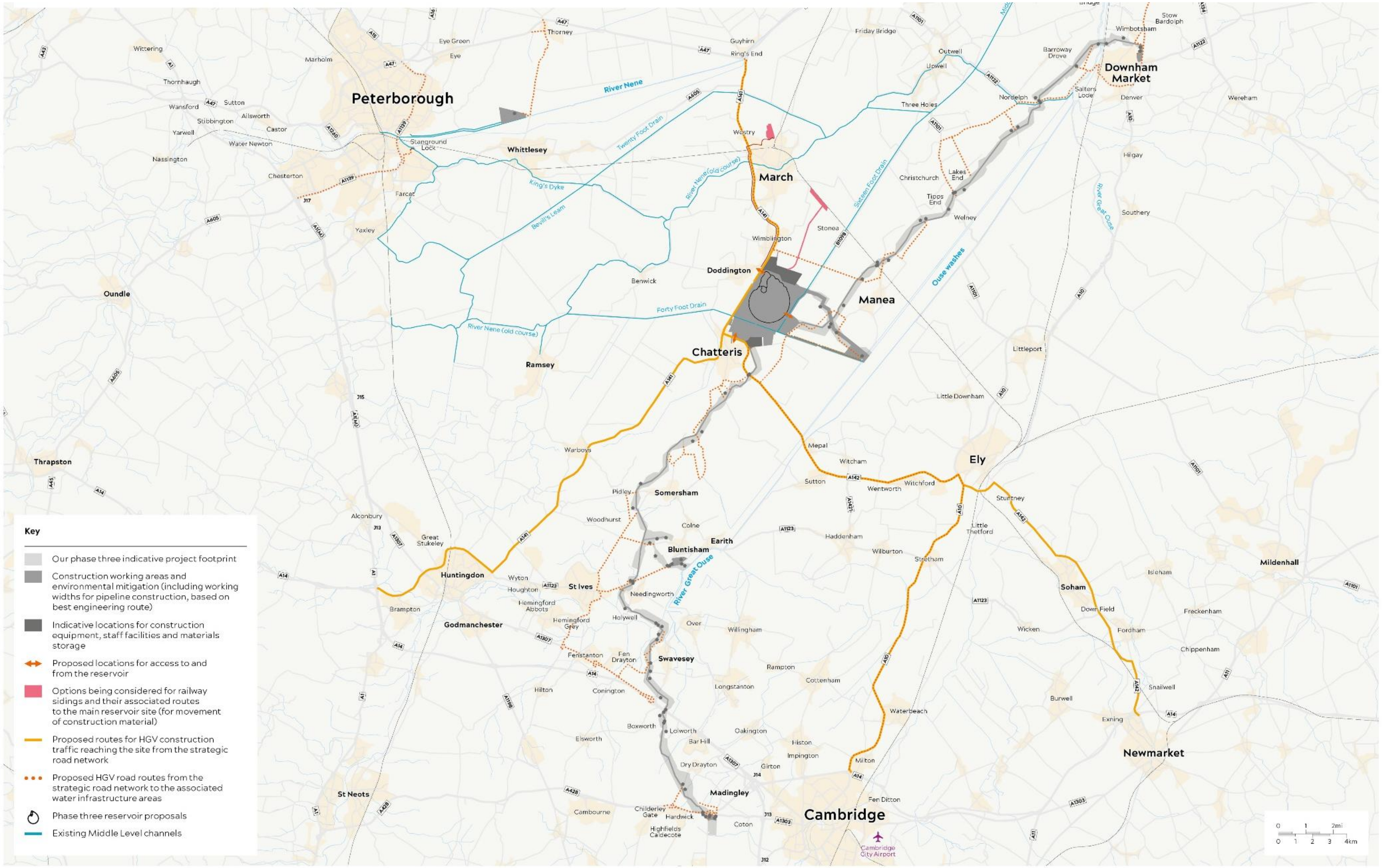
Term	Definition
	new water infrastructure and design future regulatory frameworks.
Raw water	Water that is untreated.
Raw water pipeline	The pipe work that delivers raw water from one place to another.
Raw water transfer	A group of associated assets which transfer raw water from one place to another.
Reach	Reference to a section or length of a river channel which, for example, may have a homogeneous morphology (river type) or restoration solution.
Receptor	A defined individual environmental feature usually associated with population, fauna and flora that have potential to be impacted by a development.
Reservoir	A large area for storing water which is created or enlarged by artificial means, and the associated impounding and control structures and assets. As of 2025, UK Legislation states storage of 25,000m3 of water is the threshold to define a reservoir.
Rights of Way Improvement Plan	Part of the wider Cambridgeshire and Peterborough Local Transport and Connectivity Plan (LTCP) which sets out the Combined Authority's long-term strategy to improve transport. The Rights of Way Improvement Plan is looking to improve access, visibility and overall quality of public rights of ways in the county administrative boundaries.
Riparian	The riparian zone or riparian area is the interface between land and watercourse.
Roddon	The dried bed of a watercourse, such as a river or tidal creek, especially in the Fens in eastern England. Such raised silt and clay filled beds are ideal for settlement in the less firm peat of the Fens.
S	
Scheduled monuments	Nationally important monuments that have been afforded statutory protection through their inclusion in the Schedule of monuments maintained under section 1 of the Ancient Monuments and Archaeological Areas Act 1979. The Secretary of State must be informed about any work that might affect a monument above or below ground, and Historic England gives advice to the government on each application. In assessing each application, the Secretary of State will try to ensure that damage done to protected sites is kept to a minimum.

Term	Definition
Scoping	The process of identifying the issues to be addressed by an environmental impact assessment process. It is a method of ensuring that an assessment focuses on the important issues and avoids those that are considered unlikely to be significant. This process is documented in a Scoping Report and Scoping Opinion.
Scrub	A transitional habitat where grassland and meadow changes into woodland. Thy typically contain shrubs and trees, as well as wildflowers and grasses.
Secretary of State	A senior minister who heads a government department and is a member of the Cabinet. They are responsible for the department's policies, strategy, and overall performance, and they are ultimately accountable to Parliament.
Service reservoir	A water storage facility that holds potable water after it has been treated in a water treatment works, and before it is piped to the end users. These storage areas are covered and are designed to keep the water safe from contamination.
Site selection	Process that identifies and assesses potential suitable locations for the purposes of identifying the preferred location for a project. For example, the site selection process undertaken to identify the preferred location for the reservoir site.
Solar energy	Energy generation by the sun's radiation converted in electricity
Solar panels	Photovoltaic panels that generate electricity.
Source	River or watercourse from which water will be sourced to fill the reservoir.
Special Area of Conservation (SAC)	European habitat sites designated under the Conservation of Habitats and Species Regulations 2017, as amended.
Special Protection Area (SPA)	Protected areas for birds in the UK classified under the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales (including the adjacent territorial sea).
Spillway	A structure designed to allow the safe, controlled overflow or release of water from a reservoir. It allows excess water to overflow without damaging the water retaining structure.
Stakeholder	An organisation or individual with a particular interest in a proposed plan or project.
T	

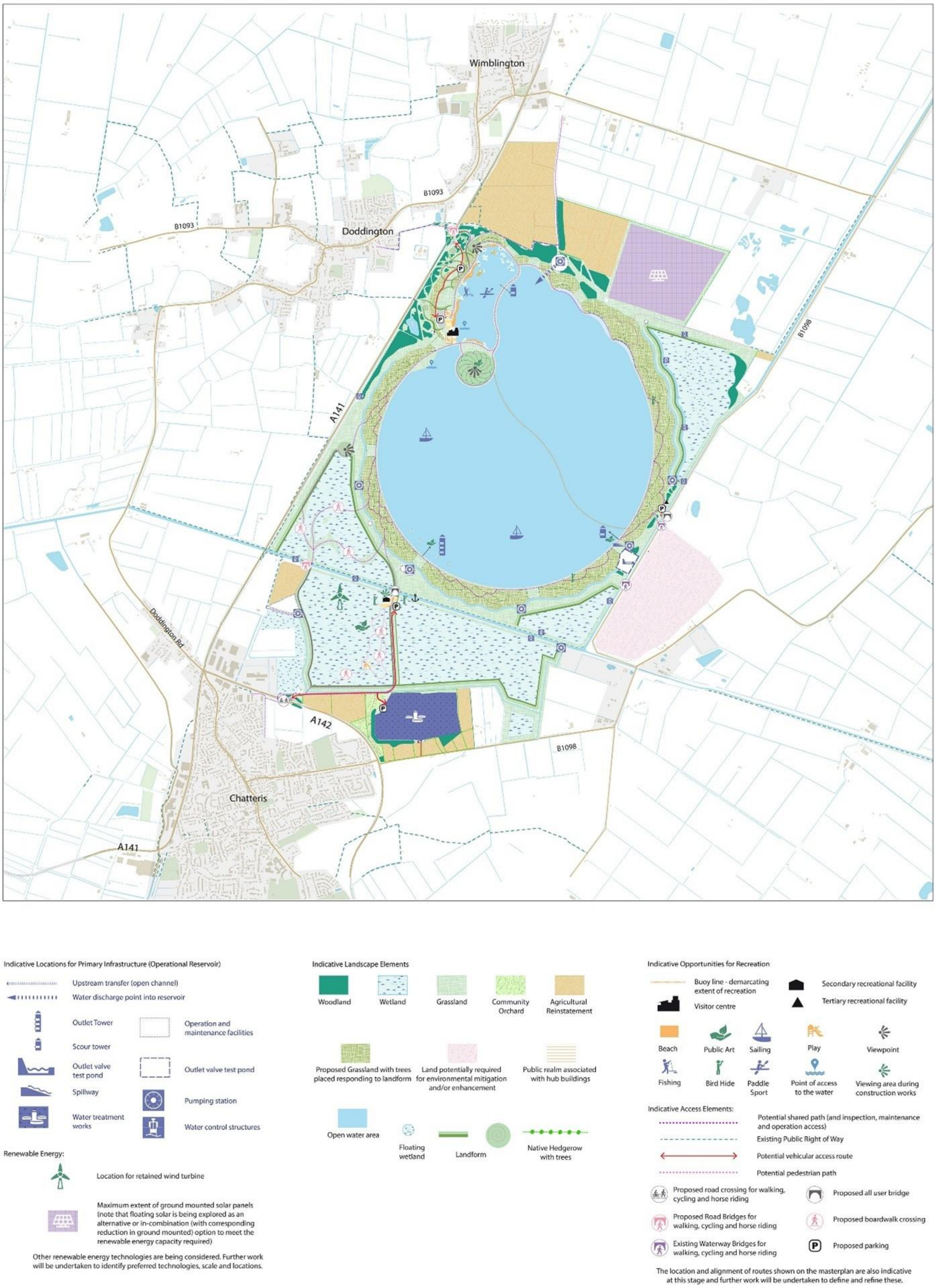
Term	Definition
The Project	The Fens Reservoir proposed development being jointly promoted by Anglian Water and Cambridge Water including the proposed reservoir, associated water infrastructure and other associated development.
Treated water pipeline	The pipework that delivers treated water from one place to another.
U	
V	
Very Special Circumstances	Unique and exceptional conditions that can justify development within the Green Belt.
Visitor Centre	A building designed and/or used primarily as a centre for providing information and facilities to members of the public.
Visitor Hub	Refers to locations within the main site designated for use by visitors, including the broader landscape features, parking, beaches, play areas and other visitor facilities.
W	
Watercourse	A river, brook, stream or artificially constructed water channel.
Water Framework Directive (WFD)	Water Framework Directive. European Directive (2000/60/EC) transposed into English and Welsh law through The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. The WFD sets out requirements to prevent the deterioration of the status of water bodies and to support the achievement of the water bodies' environmental objectives.
Water table	The water table is the level below the surface of the ground where the ground becomes saturated with water, meaning all the spaces between soil particles and rocks are filled with water.
Wetland	A wetland is a distinct type of ecosystem where the land is saturated with water, either permanently or seasonally. This saturation creates conditions that support the growth of specially adapted plants and animals.
Weir	A low barrier that is built across the width of a watercourse (or water channel) to control the flow or upstream water level. There are many reasons this may be required such as flow gauging, offtakes, amenity or navigation.

Term	Definition
Water Resources East	One of five regional water resource groups (made up of different interested organisations, including water companies for that region) responsible for development of regional plans aligned with the National Framework for Water Resources.
Water Resources Management Plan (WRMP)	Sets out a water company's intended approach towards water resource planning for meeting its duty to supply water for at least the next 25 years, to ensure the long-term balance between supply and demand is maintained; legally required to be updated every five years.
Water treatment works	A facility where raw water is treated to a standard suitable for drinking water. These sites may vary in configuration depending on the quality of the raw water being treated.
Wind turbines	Wind turbines use large blades to catch the wind's motion. When the wind blows, the blades are forced round, driving a turbine which generates electricity. The stronger the wind, the more electricity produced.
Woodland	To be considered "woodland", the site must meet all the following, as per the Forestry Commission's Guidance Definition of trees and woodland, March 2025: • a minimum area of 0.5ha. • a minimum width of 20m. • a potential tree canopy cover of at least 20%. • a canopy consisting of specimens that meet the definition of trees. It includes: • areas of integral open space within the boundary of such an area of trees, each of which is less than 0.5 hectares; • (b) land which is to be restocked pursuant to a felling licence under Part 2 of the Forestry Act 1967.

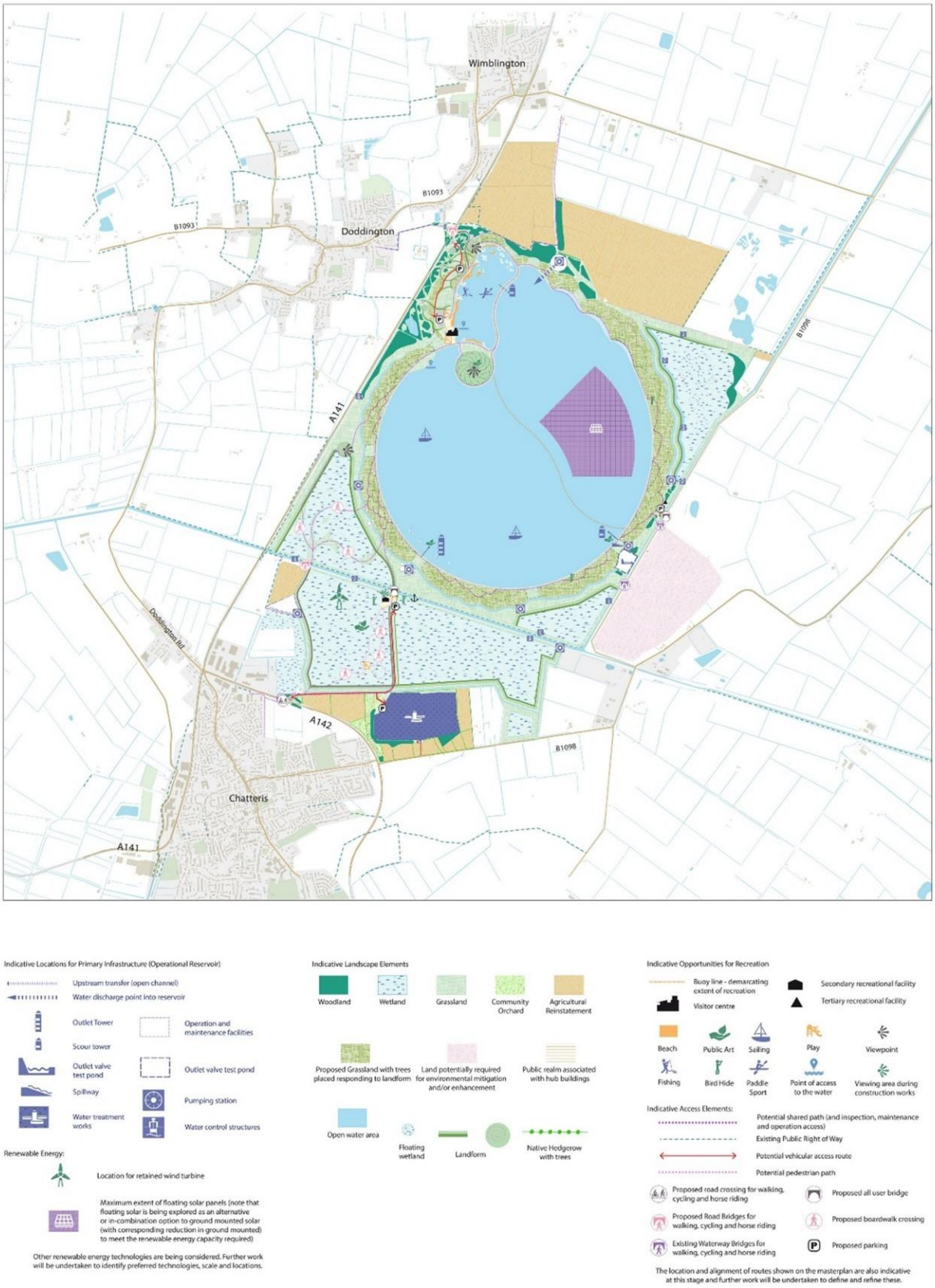
B Phase three construction and transport proposal



C Main site indicative masterplan



D Main site indicative masterplan with floating solar panels



E Design Vision

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Get in touch

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