

Cambridge Waste Water Treatment Plant Relocation Project
Anglian Water Services Limited

Equalities Impact Assessment

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Summary

This EqlA has been undertaken in support of the Applicant's obligation under UK equality legislation, including the Equality Act, and in particular the Public Sector Equality Duty (PSED), which encourages organisations delivering public functions, such as the Applicant, to understand how different people will be affected by their activities. It also meets the requirements of the NPS for Waste Water which sets out the requirement to undertake an EqlA for the construction, operation and decommissioning phases of a development.

This report has identified the potential impacts of the Proposed Development on people with characteristics protected under legislation. The findings set out within this report are based on a desk-based evidence review and on available information pertaining to the Proposed Development. The EqlA report considers the potential effects (both positive and negative) arising from the Proposed Development and sets out management and mitigation considerations to ensure the Applicant effectively plans for and can manage the equality effects of the scheme.

The assessment of effects was undertaken in light of the sensitivity of affected parties (such as local residents, business owners, employees and users of community facilities) to the Proposed Development, referring to people with characteristics protected under the Equality Act.

Protected characteristic groups under the Equality Act are:

- Age
- Disability
- Gender reassignment
- Marriage and civil partnership
- Maternity
- Race and ethnicity
- Religion and belief
- Sex
- Sexual orientation

Evidence gathered from literature in relation to the Proposed Development and the above characteristics covers a range of topics, including:

- Environmental changes such as noise, air quality, odour, and the visual environment.
- Changes to the physical environment such as pedestrian routes, open space and recreational areas and the public realm.

- Changes to feelings of safety and security, and health and safety considerations.

Based on the assessment undertaken, no adverse equality effects are expected as a result of the construction phases of the Proposed Development.

During operation there will be beneficial equality effects on PRow as a result of improvements to the network. This will result in a differential impact on children, older people and disabled people. There will also be a beneficial effect on personal safety and security due to increased CCTV and lighting provision, differentially benefitting older people, disabled people, ethnic minority groups, men, women and LGBT+ groups. Finally, the inclusion of a discovery centre as part of the operational design will differentially benefit children and young people who will have access to a new educational resource.

Based on the assessment undertaken, no adverse equality effects are expected as a result of the decommissioning phase of the existing Cambridge WWTP.

1 Introduction

1.1 Overview of the Equality Impact Assessment

1.1.1 This EqlA report sets out the requirements of the Equality Act 2010 ('the Equality Act'), and the potential impacts of the Proposed Development on people with characteristics protected under this legislation. The findings set out within this report are based on a desk-based evidence review and on available information pertaining to the Proposed Development. The EqlA report considers the potential effects (both positive and negative) arising from the Proposed Development.

Policy context

National policy

1.1.2 National planning policy of relevance to the Proposed Development includes the National Policy Statement (NPS) for Waste Water (Department of Environment, Food and Rural Affairs, 2012) and the National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2019). The Proposed Development will create jobs, support the local economy, implement place-making and build healthier environment, aligning with several NPPF policies.

1.1.3 Policies within the NPPF of relevance to the Proposed Development are:

- Section 6: Building a strong, competitive economy (paragraphs 81-83);
- Section 12: Achieving well-designed places (paragraphs 127-128); and
- Section 8: Promoting healthy and safe communities (paragraphs 92, 93, 97 and 99).

1.1.4 As required by the NPS for Waste Water, an EqlA should be submitted for the DCO in order to 'highlight the potential impacts policy may have on communities and equality groups'.

1.1.5 Table 1-1 shows the NPS requirement and how this EqlA will ensure the Proposed Development is compliant.

Table 1-1: Scope and compliance with the NPS for Waste Water

NPS requirement	Compliance of EqlA scope with NPS requirements
Section 3.2 (Environmental Impact Assessment) states that the applicant needs to set out information on the likely significant social and economic effects of the development, which could include employment, equality, community cohesion and wellbeing.	This report supports and complements the assessment of social and economic effects presented in the ES, with a specific focus on people with protected characteristics. This report provides equality analysis and sets out impacts of the Proposed Development on people with characteristics protected under UK equality legislation.
Section 3.8 (Safety) states that the applicant needs to set out information and undertake analysis on health and safety matters related to	Section 4 of this report sets out potential health and safety effects of the Proposed Development on people with

NPS requirement

Compliance of EqIA scope with NPS requirements

<p>the construction, operation and decommissioning of waste-water infrastructure.</p>	<p>protected characteristics. Section 5 of this report proposes ways to manage and mitigate these impacts.</p>
<p>Section 3.12 (Security considerations) states that national security considerations apply across all infrastructure sector and projects. The applicant should therefore set out sufficient information on security-related matters such as personal and public safety effects.</p>	<p>Sections of the literature review, set out in Section 3 of this report, provides evidence on security issues and the people with protected characteristics likely to be affected.</p> <p>Section 0 of this report considers the Proposed Development’s impact on security during construction and operation. Mitigation is also proposed in Chapter 5 to manage risks relating to personal and public security.</p>
<p>Section 4.8 sets out the Government’s commitment to ensure adequate provision of open space and recreational facilities to meet the needs of local communities.</p>	<p>Section 0 of this report considers effects on open space and recreational areas, and the impact these may have on people with protected characteristics during construction and operation of the Proposed Development.</p>
<p>Section 4.15 states that the applicant should undertake and include in their application an equalities impact assessment for the construction, operation and decommissioning phases. This will require an Initial Equalities Impact Assessment (EqIA) to identify potential adverse, differential or positive impact on equalities groups, and whether these are direct or indirect. If significant impacts are identified at the screening stage, a full Equalities Impact Assessment should be undertaken.</p>	<p>An initial EqIA was completed in 2021. Significant effects were identified during this stage.</p> <p>This report is the full EqIA and covers the construction, operation and decommissioning phases.</p>
<p>Section 4.15 suggests the types of socio-economic impacts that could be addressed during the construction, operation and decommissioning phases. They include:</p> <ul style="list-style-type: none"> ● The creation of job and training opportunities. ● The changing influx of workers which may alter the demand for services and facilities in the areas surrounding the proposed WWTP. ● The equalities impact on people living, working or owning businesses who might be displaced as a result of the development. 	<p>Section 0 of this report considers the potential impacts on people with protected characteristics as a result of changes to socio-economic factors attributed to the Proposed Development.</p> <p>The existing socio-economic conditions in the areas surrounding the Proposed Development are set out in Section 3.2. This includes demographic profile of the area, along with maps to illustrate areas with disproportionate representation of people with protected characteristics to inform the impact assessment.</p>

Source: Department of Environment, Food and Rural Affairs, 2012

Local policy

1.1.6 Local planning policy of relevance to the Proposed Development includes the following local plans and strategies:

- South Cambridgeshire District Council Local Plan 2018 (SCDC, 2018) outlines key regional strategies relevant to the CWWTP in terms of spatial, social, economic and environmental policies. These include:

- Chapter 2: Spatial Strategy, with particular reference to Policy S/4: Cambridge Green belt.
- Chapter 9: Successful Communities, with particular reference to:
 - Policy SC/1: Allocation for Open Space;
 - Policy SC/3: Protection of Village Services and Facilities;
 - Policy SC/4: Meeting Community Needs;
 - Policy SC/7: Outdoor Play Space, Informal Open Space and New Developments;
 - Policy SC/8: Protection of Existing Recreation Areas, Playing fields Allotments and Community Orchards;
 - Policy SC/9: Lighting Proposals;
 - Policy SC/10: Noise Pollution; and
 - Policy SC/12 Air Quality.
- Cambridge City Local Plan 2018 (CCC, 2018) with particular reference to:
 - Section Five: Supporting the Cambridge Economy;
 - Section Seven: Protecting and enhancing the character of Cambridge;
 - Section Eight: Services and local facilities; and
 - Section Nine: Providing the infrastructure to support development.
- Cambridge County Council Single Equality Strategy 2018-2022 (CCC, 2018): Promoting equality, accessibility and responsibility in communities and the workforce.

Legislative context

- 1.1.7 This EqlA has been undertaken in support of the Applicant's obligation under UK equality legislation, and in particular the Equality Act 2010 (Gov UK, 2011). Section 149 of the Equality Act sets out a Public Sector Equality Duty (PSED), as outlined in Figure 1.1 below.
- 1.1.8 The PSED is intended to support good decision-making. It encourages organisations delivering public functions, such as the Applicant, to understand how different people will be affected by their activities. This helps to ensure projects being delivered are appropriate and accessible to all and meet different people's needs. The Applicant must have due regard to the aims of the PSED throughout the decision-making process for the Proposed Development. The process used to do this must take account of those with protected characteristics.

Figure 1.1: Article 149 of the Equality Act: The Public Sector Duty

(1) A public authority must, in the exercise of its functions, have due regard to the need to—

- (a) eliminate discrimination, harassment, victimisation and any other conduct that is prohibited by or under this Act;
- (b) advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it;
- (c) foster good relations between persons who share a relevant protected characteristic and persons who do not share it.

(2) A person who is not a public authority but who exercises public functions must, in the exercise of those functions, have due regard to the matters mentioned in subsection (1).

(3) Having due regard to the need to advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it involves having due regard, in particular, to the need to—

- (a) remove or minimise disadvantages suffered by persons who share a relevant protected characteristic that is connected to that characteristic;
- (b) take steps to meet the needs of persons who share a relevant protected characteristic that is different from the needs of persons who do not share it;
- (c) encourage persons who share a relevant protected characteristic to participate in public life or in any other activity in which participation by such persons is disproportionately low.

Source: *The Equality Act, 2010*

1.1.9 The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended) require that an application for a DCO be accompanied by the documents specified at Regulation 5(2)(a) to (r). An EqlA would be one of those documents and is specified at Regulation 5(2)(q).

Protected characteristics

1.1.10 This EqlA provides an analysis of the likely or actual effects of policies or proposals on social groups with the following protected characteristics (as defined by the Equality Act): age; disability; gender reassignment; marriage and civil partnership; pregnancy and maternity; race; religion and belief; sex; and sexual orientation (Gov UK, 2011) (Human Rights Commission, 2019). The protected characteristics and the protected characteristics groups¹ that are considered as part of EqlA are set out in more detail in Section 2 of this report.

¹ Protected characteristic groups are age, disability, gender reassignment, marriage and civil partnership, race, religion and belief, sex and sexual orientation.

1.1.11 This EqlA determines the likely or actual effects of the Proposed Development on equality groups by:

- Assessing whether one or more of these groups could experience disproportionate or differential effects (over and above the effects likely to be experienced by the rest of the population) as a result of the Proposed Development.
- Identifying opportunities to promote equality more effectively.
- Developing ways in which any disproportionate negative impacts could be removed or mitigated to prevent any unlawful discrimination and minimise inequality of outcomes.

1.1.12 By understanding the effect of their activities on different people, and how inclusive delivery can support and open up opportunities, public bodies can be more efficient and effective.

1.2 Assessing equality impacts

1.2.1 While the PSED does not specify a particular process for public authorities to follow when assessing the likely effects of policies, programmes, and schemes on different segments of society, this process is typically carried out through some form of equality analysis. DCO regulations and the NPS for Waste Water recommend that this should be undertaken through an EqlA.

1.2.2 Public entities can be more efficient and successful by recognising the impact of their actions on different individuals and how inclusive delivery may support and open up opportunities. As a result, the PSED assists public entities in meeting the Government's overall goals for public services.

1.2.3 The PSED indicates that public institutions should take measures to accommodate the diverse needs of individuals with protected characteristics, as well as encourage participation from these groups where this is disproportionately low. Conducting equality assessments, such as an EqlA, assists in demonstrating how a public body complies with the PSED by:

- providing a written record of the equality considerations which have been taken into account;
- ensuring that decision-making includes a consideration of the action that would help to avoid or mitigate any negative impacts on particular protected characteristic groups; and
- supporting evidence-based and more transparent decision-making.

1.3 Purpose of this EqlA report

1.3.1 The overarching aims of this EqlA report are as follows:

- to set out the geographic and temporal scope for the EqlA and to outline the methodological approach used;
- to establish the representation of people from protected characteristic groups within the study area and assess the potential for differential or disproportionate impacts of the Proposed Development on them;
- to identify actions that should be taken to ensure that the design and implementation of the Proposed Development will not create unintended adverse outcomes for people with characteristics protected under the Equality Act; and
- to set out measures necessary to manage the equality effects during construction and operation of the Proposed Development.

1.4 Structure of this report

1.4.1 Table 1-2 outlines the structure of this report.

Table 1-2: Structure of the EqlA

Section	Detail
Section 1: Introduction	This Section provides an introduction to the project, relevant legislation and the purpose of an EqlA.
Section 2: Scope and methodology	This Section sets out the technical, geographical and temporal scope of the EqlA. Sets out the proposed methodology for identifying and assessing equality effects.
Section 3: Evidence, distribution and proportionality	This Section sets out a review of relevant published literature to better understand the potential effects of the Proposed Development on equality groups. This Section also provides socio-economic and demographic data and identifies residential properties, community resources, businesses and recreational areas in the study area.
Section 4: Impact assessment	This Section analyses the impact of the Proposed Development on protected characteristic groups.
Section 5: Managing effects	This Section provides details of design, construction, and operational mitigation to help manage, reduce or mitigate the impacts of the Proposed Development.
Section 6: Summary and conclusions	This Section provides a summary of key points from the report, including impacts and recommendations.
Abbreviations	This Section provides sets out a list of abbreviations used in this report is included in this Section.

2 Scope and Methodology

2.1 Overview

2.1.1 This Section outlines the proposed methodological approach to EqIA including an overview of the approach to identifying and assessing impacts, and the difference between differential and disproportionate effects. The Section also presents the technical, geographical, and temporal scope for the EqIA.

2.2 EqIA guidance

2.2.1 Although guidance on undertaking EqIA is limited with no statutory guidance for the process, national good practice guidance to inform the process exists. Such guidance includes the following:

- Government Equalities Office (2011): ‘Equality Act 2010 – Public Sector Equality Duty What Do I Need to Know? A Quick Start Guide for Public Sector Organisations’, which identifies a range of requirements around EqIA;
- Equality and Human Rights Commission (2014) : ‘Meeting the Equality Duty in Policy and Decision-Making’, which covers areas of EqIA good practice;
- Equality and Human Rights Commission (2014): ‘Engagement and the Equality Duty: A Guide for Public Authorities’, which provides suggestions for effective engagement with equality groups;
- Equality and Human Rights Commission (2015): ‘The Public Sector Equality Duties and financial decisions – a note for decision makers’; and
- Equality and Human Rights Commission (EHRC) (2018): ‘Equality Act 2010 – Handbook for Advisers’, which covers the general requirements of the Equality Act 2010.

2.2.2 According to the guidance published by the EHRC (Equality and Human Rights Commission, 2014), a robust EqIA should consider the following questions:

- Is the purpose of the policy change/decision clearly set out?
- Has a person suffered a disadvantage? Is any disadvantage ‘because of’ a protected characteristic?
- Have those affected by the policy/decision been involved?
- Have potential positive and negative effects been identified?
- Are there plans to alleviate any negative effects?
- Are there plans to monitor the actual effects of the proposal?

2.2.3 The methodology for the EqIA will draw on this guidance to inform the identification and assessment of equality effects.

2.3 Steps undertaken to establish equality effects

Understanding the proposed development and its drivers

- 2.3.1 **Review of project documentation:** A review of documentation associated with the Proposed Development to better understand its overarching objectives, the challenges it aims to address and how it will address them. Policy and legislative drivers for the Proposed Development were reviewed to better understand the project context.
- 2.3.2 **Site visit:** A site visit took place in early 2022 to gain a more in-depth understanding of the local area, including location of resources, use of open spaces and access routes to different areas within the study area.
- 2.3.3 **Review of relevant legislation, policy and guidance:** A review of national and local legislation and policy documents was undertaken to ensure appropriate and accurate reporting of equality effects in relation to waste water developments. Guidance was used to ensure that effects were correctly identified and mitigated against.

Evidence, distribution and proportionality

- 2.3.4 **Demographic analysis of the study area and the surrounding area:** A social and demographic profile of the local population will be compiled alongside wider social and demographic data to build a picture of the area in which the Proposed Development is located. This will include the review and mapping of local community resources, businesses and residential properties so that potential impacted stakeholders could be identified, particularly in the context of equality impacts.
- 2.3.5 **Desk-based evidence and literature review:** In order to better understand the potential equality risks and opportunities arising from the scheme, and to help to identify possible mitigation measures and opportunities associated with the scheme, relevant published literature from governmental, academic, third sector and other sources were reviewed. This allowed for the characterisation of potential risks and opportunities typically associated with the scheme, and to better understand whether they applied in this instance.

Stakeholder engagement

- 2.3.6 **Engaging with stakeholders:** During the production of this EqIA, stakeholders relevant to equality have been identified and contacted (Appendix 7.12.2). Local community groups, national charities or organisations that represent equality groups were contacted as part of the stakeholder engagement process. There was a limited response to specific EqIA engagement and no equality concerns were raised.
- 2.3.7 A site visit to a Blackwell Traveller Site was attended by members of the project team on 11 September 2020 alongside the South Cambridgeshire District Council's Traveller Liaison Officer and South Cambridgeshire District Councillor to distribute

community consultation leaflets and be on hand to answer questions about the relocation project.

- 2.3.8 In December 2021 and January 2022, engagement with the residents at the Fen Road Traveller Site was undertaken via the Traveller Liaison Officer at South Cambridge District Council. Consultation was undertaken at Con 1 (between July and September 2020) and additional materials were hand delivered by the council to the Fen Road Traveller Site, as well as posters and information materials being left at deposit locations. Fen Road Traveller Site received direct mailings regarding the project and consultation events.
- 2.3.9 Wider engagement has been undertaken as part of the project, minutes from these meetings have been shared and reviewed against their relevance to the findings of the EqIA.

Findings from environmental assessments

- 2.3.10 **Review of technical assessments from other environmental and social disciplines:** The findings from other technical disciplines are reviewed in order to inform the EqIA. Specifically, the ES disciplines of Community, Health, Air Quality, Landscape and Visual, Noise and Vibration, Odour, and Traffic and Transport have been reviewed to understand where significant environmental and social effects are being reported and may result in equality effects.

Impact assessment

- 2.3.11 **Assessment of potential impacts:** Potential impacts were identified and assessed using the research undertaken in the stages above. Assessment of impacts has been undertaken in light of the sensitivity of the affected parties to the Proposed Development, and the distribution of people with protected characteristics amongst the population within close proximity to the Proposed Development. Both risks and opportunities have been considered in the context of the implementation of mitigation measures.

Managing equality effects

- 2.3.12 **Approach to mitigation:** Based on the potential equality effects identified, appropriate mitigation and management measures have been identified. A series of recommendations have been developed to help manage the effects of the proposed measures associated with the Proposed Development in a way that minimises the potential for adverse equality effects on the local population.
- 2.3.13 **Making recommendations:** A series of recommendations have been developed to help manage the effects of the proposed measures associated with the Proposed Development in a way that minimises the potential for adverse effects where appropriate or enhances the benefits identified.

2.4 Scope of assessment

Technical scope of the EqIA

2.4.1 An EqlA provides a systematic assessment of the likely or actual effects of policies or policies or proposals on social groups with protected characteristics (as defined by the Equality Act) set out in Table 2-1.

Table 2-1: Protected characteristics

Protected characteristic	Equality and Human Rights Commission (EHRC) definition
Age	A person belonging to a particular age (for example 32-year olds) or range of ages (for example 18 to 30-year olds).
Disability	A person has a disability if she or he has a physical or mental impairment which has a substantial and long-term adverse effect on that person's ability to carry out normal day-to-day activities.
Gender reassignment	The process of transitioning from one gender to another.
Marriage and civil partnership	Marriage is a union between a man and a woman or between a same-sex couple. Couples can also have their relationships legally recognised as 'civil partnerships'. Civil partners must not be treated less favourably than married couples (except where permitted by the Equality Act).
Pregnancy and maternity	Pregnancy is the condition of being pregnant or expecting a baby. Maternity refers to the period after birth and is linked to maternity leave in the employment context. In the non-work context, protection against maternity discrimination is for 26 weeks after giving birth, and this includes treating a woman unfavourably because she is breastfeeding.
Race	Refers to a group of people defined by their race, colour, and nationality (including citizenship) ethnic or national origins.
Religion and belief	Religion and belief includes religious and philosophical beliefs including lack of belief (such as Atheism). Generally, a belief should affect someone's life choices or the way they live for it to be included in the definition.
Sex	A man or woman
Sexual orientation	Whether a person's sexual attraction is towards their own sex, the opposite sex or to both sexes.

Source: Equality Act (2010)

2.4.2 For the purposes of this EqlA, more specific protected characteristic groups have been identified within the abovementioned group categories based on the desk-based evidence review to improve the assessment. Although not a protected characteristic under the Equality Act, this report also considers people living in deprived areas, as the literature review identified several potential effects on this group across thematic areas.

- Within 'age', all age ranges are considered, but specific protected characteristic groups include children (aged under 16 years), younger people (16-24 years), and older people (those aged 65 or over).
- Within 'disability', all disabilities are considered, including visible and invisible, physical, mental and psychological.
- Within 'pregnancy and maternity', pregnant women are reported as a protected characteristic group where the effect only relates to pregnancy.

- Within 'race', all races and ethnicities are considered, but 'ethnic minority backgrounds' refer to all non-White British ethnicities and includes people from Gypsy and Traveller communities.
- Within 'religion and belief', all religious and belief groups are considered, but the term 'Minority faith groups' refers to religious groups who are not Christian (Buddhist, Hindu, Jewish, Muslim, Sikh, and 'other'²). The protected characteristic group 'no-religion' is also considered.
- Within 'sex', the protected characteristic groups of men and women are used.
- Within 'sexual orientation' and 'gender reassignment', all sexual orientations and gender statuses are considered, but the 'Lesbian, Gay, Bisexual, Transgender +' (LGBT+) community is considered together.

Geographic scope (study area)

2.4.3 The activities associated with the Proposed Development, described in Section 1 of this report, include:

- the proposed WWTP, earth bank and surrounding area, including the features of the proposed landscape and habitat masterplan and proposed improved public access;
- waste water transfers and final effluent: existing Cambridge WWTP, underground transfer pipeline from existing Cambridge WWTP to proposed WWTP, final effluent pipeline, final effluent outfall; and
- Waterbeach transfer pipeline to the proposed WWTP.

2.4.4 The EqIA study area has been determined as 500m from the Scheme Order Limits (SOL) boundary. This study area will be used to assess direct equality effects on sensitive receptors. Effects from interfacing topics in the ES may occur beyond the study area and these are reported in the EqIA when they occur in proximity to a sensitive resource. The SOL, study area and East and South Cambridgeshire district boundaries are shown in Appendix 7.12.1 (Map of wider study area & map of study area).

Temporal scope

2.4.5 The phases of construction, operation and decommissioning for the Proposed Development guide the temporal scope for the EqIA. As the Proposed Development would be constructed and implemented over a four-year period, effects on equality groups across the entirety of this timeframe need to be considered.

2.4.6 At the earliest, construction is expected to start in 2024, beginning with the enabling works, mobilisation and decommissioning of the Waterbeach works. Main works construction would commence in early 2025, followed by tunnel construction in mid-

² 'Other religion' option in Census is an invitation to self-expression, including alternative religions and non-traditional ways of practicing belief systems.

2025. Following a period of progressive commissioning commencing in autumn 2026, the proposed WWTP is scheduled to be fully operational in 2028. The EqIA considers the duration of effects throughout this period where information is available.

- 2.4.7 This EqIA also considers the longer-term effects of the Proposed Development, including duration and the years that these effects may be most apparent where information is available. Consistent with topics likely to impact equality groups, this would be year 1 of operation.

2.5 Approach to identifying impacts

- 2.5.1 The assessment of impacts across the EqIA process is predominantly qualitative. Using significant effects reported in the ES as a basis, the EqIA considers and describes whether an impact is adverse, beneficial or neutral, and the cause of the impact. The impact assessment also considers the permanence of an impact and the size and extent of protected characteristic groups who may be vulnerable to the change.

Types of equality effect

- 2.5.2 Equality effects arise disproportionately, and differentially. For people with protected characteristics who live or work in the study area, or in the wider area, changes could affect them more ('disproportionately'), or in a particular way ('differentially').

Disproportionate effects

- 2.5.3 Disproportionate effects occur where there is likely to be a comparatively greater effect on people from a particular protected characteristic group than on other members of the general population. Disproportionate effects may occur if the affected community comprises of a higher-than-average proportion of people with a particular protected characteristic, or because people from a particular protected characteristic group are the primary users of an affected resource.
- 2.5.4 Identifying disproportionate effects involves determining the demographic composition of the area where impacts are expected to arise. This identifies the numbers and proportions of people from protected characteristic groups around the proposed WWTP study area with local, regional and national data used as comparators.

Differential effects

- 2.5.5 Differential effects occur where people with protected characteristics are likely to be affected in a different way to other members of the general population. This may be because groups have specific needs or are susceptible to the impact due to their protected characteristics. These effects are not dependent on the number of people affected.
- 2.5.6 Desk-based research and stakeholder engagement findings are analysed to explore the potential impact of the Proposed Development. The output of this work

identifies those protected characteristic groups that are likely to experience impacts arising from the Proposed Development and explains why.

- 2.5.7 Desk-based research and stakeholder engagement findings are analysed to explore the potential impact of the Proposed Development. The output of this work identifies those protected characteristic groups that are likely to differentially experience impacts arising from the Proposed Development and explains why.

3 Evidence, Distribution and Proportionality

3.1 Literature review

3.1.1 This Section presents the findings of a desk-based review of wider evidence and literature relating to the interaction of equality issues with infrastructure schemes of a similar nature. The findings have been provided thematically to demonstrate the potential impact associated with the Proposed Development. In line with the Equality Act, where these impacts are more likely to affect those with a protected characteristic, this has been highlighted. This Section does not consider the impacts of loss of, or loss of access to private property, community resources or businesses as this is not expected to occur as a result of the Proposed Development.

Changes to noise exposure

3.1.2 The Proposed Development has the potential to change noise levels in both construction and operation phases. Changes in exposure to noise has been linked to health outcomes for **children, older people** and **disabled people** as these groups are vulnerable to such changes.

3.1.3 Changes in noise levels in proximity to community facilities used by children, such as schools and nurseries, can negatively impact their concentration and long-term cognitive development. Longitudinal studies on the impact of unwanted noise on children and infants also show that increased noise exposure can adversely impact children's psychological and physiological wellbeing, sleep quality and long-term memory. Children are especially vulnerable as they may be unable to recognise or cope with dangerous noise levels, and because they are in a critical period of cognitive development and learning (Stansfeld & Clark, 2015).

3.1.4 The health impacts of increased noise exposure on older people include cardiovascular disease, sleep deprivation, stress and anxiety. Prolonged exposure to construction and transportation noise can cause a higher prevalence of cardiovascular disease, stroke and dementia in affected communities. For example, research on noise levels and health outcomes shows that older people living near noisy roads may have increased stroke risk (NHS, 2015). Older people are also more susceptible to changes in noise as they are more likely to be home during the day when construction / noise generating activities take place.

3.1.5 Disabled people are also particularly susceptible to change in noise levels. For example, an increase in noise can affect people with learning disabilities and lead to challenging behaviours. Individuals with mental health conditions have been found to be especially sensitive to health effects associated with an increase in noise levels, such as sleep disturbance, annoyance and stress. Noise may also discourage disabled people from participating in activities outside home, leading to social isolation (NCBI, 2016). People with hearing impairments are also disproportionately affected by the masking effects of background noise on speech (Le Prell & Clavier, 2017). Prolonged, excessive noise can therefore compound communication issues, potentially leading to issues around community cohesion and social isolation.

- 3.1.6 In addition, **people from Gypsy and Traveller communities** may also be more vulnerable to any increases in noise. Government guidance on the design of Gypsy and Traveler sites notes 'the greater noise transference through the walls of trailers and caravans than through the walls of conventional housing, and the need for design measures (for instance noise barriers) to abate the impact on quality of life and health' (CLG, 2008).

Changes to air quality

- 3.1.7 During the construction and operation phases, the Proposed Development has the potential to change air quality in the local area. Adverse changes in air quality are most likely to impact **children, older people, disabled people, people from ethnic minority groups, people who are pregnant and people who live in deprived areas**, due to the particular sensitivity of these groups to certain airborne pollutants.
- 3.1.8 There is a direct relationship between health and air quality. Research undertaken by the Royal College of Physicians estimates that 40,000 deaths every year in the UK are attributable to exposure to outdoor air pollution (Royal College of Physicians, 2016). According to the Department for Environment, Food and Rural Affairs (DEFRA), 'poor air quality is currently the largest environmental risk to public health in the UK' (DEFRA, 2018). The concentration of air pollutants tends to be highest in towns and cities, and road transport is a major source of emissions such as hydrogen oxide (35% of total emissions) and particulate matter (PM). DEFRA has estimated that particulate air pollution alone reduces life expectancy of people in the UK by six months on average, imposing an estimated cost of around £16 billion per year (DEFRA, 2019). There is also emerging evidence for an association between air pollution and Covid-19 (Miyashita, G, S, & J, 2020), putting those who are disproportionately affected by air pollution at greater risk.
- 3.1.9 Children have faster breathing rates and their lungs are still developing which can make them more susceptible to changes in particulate matter concentrations in the air. Children can therefore be negatively affected by reduced air quality. Children are also more likely to spend time outdoors, where changes in air quality and pollution levels tend to be the greatest (Asthma UK, 2020).
- 3.1.10 Guidance published by DEFRA highlights that older people are more likely to have respiratory or cardiovascular illness when compared to other age groups, making them more susceptible to the effects of reduced air quality (DEFRA, 2013).
- 3.1.11 Those who are pregnant living in areas with poor air quality are at risk of giving birth to a baby with a low birthweight, which can lead to an increased risk of the child developing chronic disease in later life. Research conducted by Royal College of Physicians indicates that air pollution may negatively impact upon the growth, intelligence and weight of babies in the womb (Royal College of Physicians, 2016).
- 3.1.12 People who live in deprived areas can be more susceptible to the impacts of air pollution, potentially because they tend to be in poorer health than the rest of the population (British Lung Foundation, 2016). The vulnerability of this group may also be because more deprived areas are often closer to busy roads in large urban areas

(Greater London). For those living in deprived areas, poor housing and often lack of access to green spaces may also increase their time spent in areas with high levels of air pollution, (Royal College of Physicians, 2016) compounding issues for a group who already suffer disproportionately from health inequalities. In rural areas it was found that differences in air quality was greater between deprivation deciles when compared to urban areas, with the exception of those living in the most deprived decile, results suggested this may be attributed to the relatively low number of people living in most deprived rural areas (approximately 2% of the British population) (Milojevic, et al., 2017).

- 3.1.13 People from all ethnic minority groups except Indian, Chinese, White Irish and White Other groups are more likely than White British people to live in the most overall deprived 10% of neighbourhoods in England³. Asian people as a whole (15.7%) are the most likely out of all ethnic groups to live in the most deprived neighbourhoods, followed by Black people (15.2%). White people are the least likely to live in the most deprived neighbourhoods (9.0%) (Ministry of Housing, Communities and Local Government, 2020).

Changes to odours

- 3.1.14 During the construction, operation and decommissioning of the CWWTP there will be a change in odour levels. The problem of olfactory nuisance, due to the emissions of active molecules, is fundamentally associated with waste management plants, including municipal solid waste and wastewater plants. Airborne contaminants at levels below the stated toxicity criteria are frequently responsible for odour emissions. However, the association between odour and toxicity may not always exist and is dependent on the type of pollutant involved. Some dangerous substances do not cause odour nuisance, whereas some nontoxic agents do. As a result, the link between toxicity and odour nuisance should always be thoroughly examined by assessing the properties of the airborne mixture and the type of source involved (Piccardo, Geretto, Pulliero, & Izzotti, 2022). While these facilities may not pollute the ambient air with above-the-limit concentrations of monitored chemicals, they may produce mixtures of other compounds that contribute to odour pollution.
- 3.1.15 Exposure to odours could result in health effects ranging from none, to mild discomfort, to more serious symptoms. People who smell strong odours may get headaches or feel dizzy or nauseous. If an odour lasts a long time or keeps occurring, it also could affect mood, anxiety and stress level (Department of Health New York State, 2019).
- 3.1.16 An increased sensitivity to smells is commonly reported in the first and second trimester of **pregnancy** (Cameron, 2014). Hyperosmia can trigger nausea and vomiting, and it has been associated with hyperemesis gravidarum (excessive vomiting during pregnancy typically requiring medical treatment and intravenous or IV fluids).

³ The most overall deprived 10% of neighbourhoods are measured based on the index of multiple deprivation, which combines 7 types of deprivation.

3.1.17 Also, hyperosmia has been reported in association with a number of conditions, including vitamin B12 deficiency, Lyme disease, lupus, multiple sclerosis (MS), and Tourette's syndrome (Moawad, 2022).

Changes to landscape and visual environment

3.1.18 During the construction, operation and decommissioning phases of the Proposed Development, there will be a change to the landscape and local visual environment as a result of the new infrastructure being provided. Such changes may impact groups particularly sensitive to visual stimuli, including **older people with dementia** and **disabled people**, particularly those with autism.

3.1.19 As people age, visual acuity tends to worsen, increasing the risk of eye disorders such as cataracts. Due to sensory changes, eyes become more sensitive to glare which can make reflective and shiny surfaces difficult, and even painful, to see clearly (Sensory Trust, 2017). Older people are therefore more likely to be more sensitive to light pollution and rapid visual changes around them.

3.1.20 Research has shown that almost 90% of **children** with autism spectrum conditions develop atypical sensory experience, which can involve hypersensitivity to visual stimuli. This results in more detail-focused perception in people with autism, so that any minor visual change might have detrimental impact on quality of life and socio-psychological wellbeing (Bakroon & Lakshiminarayanan, 2016).

Potential changes in traffic flow

3.1.21 The Proposed Development will change traffic congestion and vehicle movements during construction and operation at the different project zones. Any potential increase in traffic is associated with severance for both pedestrians and road users, which can differentially impact **children, older people, disabled people** and **pregnant people** accessing resources on foot.

3.1.22 Changes in road traffic levels may reduce children's access to community and recreational facilities due to road severance and traffic delays (Hiscock & Mitchell, 2011). Increased traffic in proximity to schools, or community facilities that are frequently used by children can also impact their concentration and long-term cognitive development (Institute of Education, 2001). Changes in traffic levels during construction could also affect how older people use community facilities (Department for Transport, 2017). Older people may find it difficult to access public spaces further away from their home or integrate into new social networks, which could be required as a consequence of severance caused by increases in road traffic (NetCep, 2019). This is because mobility declines in older people, resulting in people living and travelling in the most accessible and immediate vicinity (Noon & Ayalon, 2018).

3.1.23 Research shows that the presence of vehicular traffic can present a barrier for disabled people accessing community resources. National Travel Survey data shows disabled people are generally more likely to experience travel difficulties in the daily trips that they make (Department for Transport, 2018). Disabled people who travel by car are more likely to report difficulties due to congestion and roadworks,

especially when the severity of the disability the person experiencing increases (Department for Transport, 2017). Short-term change to transport networks and road alignment can act as a barrier for disabled people wanting to access community facilities, exacerbating issues such as loneliness and social isolation (Equity and Human Rights Commission, 2017).

- 3.1.24 Research has also shown that maternal exposure to traffic-related air pollution has been associated with adverse pregnancy outcomes and health impacts (Wu, Jiang, Douglass, & Bartell, 2013). As a result, changing traffic flows may lead to increased exposure, leading to significant risk of negative mental and physical health effects.

Changes to the pedestrian environment

- 3.1.25 During construction, there will be temporary and permanent changes to the pedestrian environment and non-motorised user routes. This can impact several protected characteristic groups including **disabled people, children and older people**.
- 3.1.26 Disabled people may experience challenges in accessing community resources, services and opportunities for social interaction when compared to other sections of the population (Office for National Statistics, 2015). This may be due to challenges in navigating the physical environment and pedestrian routes. Any change in pedestrian infrastructure therefore has the potential to make disabled people and people with mobility impairments less independent (Department for Transport, 2019). Evidence also suggests that having a sensory impairment or disability such as visual and hearing impairment can be a further barrier in accessing bus stops or the pedestrian environment around bus stops (Social Extension Unit, 2003).
- 3.1.27 Children, along with older people, are more dependent on walking than other age groups (British Youth Council, 2012). Children's more limited choice of independent travel modes means they are more likely to be pedestrians. However, pedestrian injury is the leading cause of accidental death among children in the UK, with an average of one death³⁷ and seriously injured children every week due to pedestrian accidents (Department for Transport, 2017).
- 3.1.28 With age, people are increasingly likely to give up driving due to loss of sensory cognition such as eyesight and reaction time. Older people are therefore more likely to travel on foot to access social contacts and interact with their community in their daily lives. Research findings from a cross-sectional study on ageing and pedestrian behaviour in the UK show that the majority of older pedestrians are unable to cross the road safely and in good time (Tourneur, Dommès, & Cavallo, 2016). According to the same study, 93% of women and 84% of men aged 65 years and above could either not walk safely or had a walking speed which was too slow to cross the road in good time. Therefore, older people are generally considered to be one of the most at-risk pedestrian groups (Tourneur, Dommès, & Cavallo, 2016).
- 3.1.29 In terms of the pedestrian environment, the upkeep of streets and the design of the environment are recognised as common barriers for older people, parents and carers with young children and pregnant people face when using the public realm.

Uneven surfaces, steep hills and a lack of places to rest have been cited in research as reasons older people feel anxious about walking (TfL, 2016). Further research has highlighted other physical barriers such as high kerbs and holes in pavements as challenges faced by older people in accessing the public realm (Wennberg, Philips, & Stahl, 2017).

Impacts on feelings of personal safety and security

- 3.1.30 The Proposed Development has the potential to change the feelings of personal safety and security during construction. The Proposed Development may impact feelings of safety and security, largely depending on the provision and the extent of surveillance. Young people, older people, disabled people, people from minority faith groups and ethnic minority groups, LGBT+ groups, women, men and people who live in deprived areas are vulnerable to such changes.
- 3.1.31 The fear of crime is the anxiety people feel about potentially being victim of crime. This does not necessarily relate to the probability of being a victim of crime, but instead can be influenced by external factors and narratives. Empirical research evidence has revealed that young people are most likely to commit or be victims of low-level disorder and anti-social behaviour (British Transport Police Authority, 2008).
- 3.1.32 A 2015 community needs assessment for Cambridge City found that women felt unsafe on the streets of Cambridge at night (Cambridge City Council and Cambridgeshire District Council, 2020). This is due to the perceived risk of abuse, harassment or general feeling of unsafety due to poor lighting or visibility (International Transport Forum, 2018). Walkability of a neighbourhood is also fundamental factor in influencing the safety perceptions of women, influenced by lighting, clear signage and safety procedures (Department for Transport, 2020). Therefore, potential changes to the local pedestrian environment are particularly likely to affect women.
- 3.1.33 Women are more likely to have security concerns as pedestrians when compared to men, with almost two-thirds of women in the UK feeling unsafe walking alone (Plan International, 2016). This is due to both real and perceived risk of abuse, harassment or general feeling of unsafety (International Transport Forum, 2018). Women are more likely than men to experience anti-social behaviour and more women are likely to report feeling 'very unsafe' walking in a badly lit neighbourhood (Neighbourhood Watch, 2013).
- 3.1.34 Young men aged 16 to 19, in particular, are more likely to be victims of crime compared to all other groups. Despite this, research has shown that men are less fearful of crime than women. Of types of crime that are feared by men, violent crime and particularly, confrontation and assault by other groups of men, was stated as being one of the most commonly feared crimes (British Transport Police Authority, 2008).

Potential generation of employment associated with the Proposed Development

- 3.1.35 The Proposed Development has the potential to bring new temporary employment opportunities during construction. A construction workforce will be required to deliver the construction of the proposed WWTP, waste water transfers from the existing Cambridge WWTP to the proposed WWTP and the delivery of the Waterbeach transfer pipeline.
- 3.1.36 **People from ethnic minority groups** are disproportionately represented amongst the unemployed (The Carnegie Trust, 2020). Analysis of the national unemployment trends highlights that the rate of national unemployment is typically almost 8% for people from ethnic minority groups compared with the 4% white British people (UK Government, 2019). Therefore, any additional employment opportunities have the potential to benefit people from ethnic minority groups as well as younger people.
- 3.1.37 According to government data, **disabled people** are over a third less likely to be in employment than non-disabled people in the UK (UK Government, 2010). Disabled people also have an employment rate that is 28% lower than that of people who are not disabled, indicating the national disability employment gap.
- 3.1.38 The construction sector has recognised, and embedded inequality issues related to employment. Lack of accessibility, inclusivity, and fairness in pay have created disparities in representation across gender, age, disability and race. Without appropriate management and employment practices, the Proposed Development could contribute to these inequalities, rather than being a catalyst for change.

Presence of construction workforce within the local areas of project zones

- 3.1.39 The Proposed Development will require an increase in construction workers in the local area. Construction worker presence in communities, including the potential need for construction worker accommodation, may give rise to groups feeling unsettled as they perceive the composition of their local community to be subject to change. Such effects are most likely to be felt by those living adjacent to construction sites, or by those who use local community facilities near the construction sites.
- 3.1.40 **Older people** may be impacted as the presence of construction workers into community life could negatively alter their perceptions of social capital (HS2, 2018). Any reduction in social capital has the potential to affect the use of community facilities and wellbeing of older people as a result (H Grahama, 2018). As older people are more likely to experience loneliness and isolation, reduced use of community facilities may further exacerbate these social issues (HS2, 2018).
- 3.1.41 As **disabled people** are more likely to experience social isolation than non-disabled people, this group may be disproportionately impacted by any changes in access to community facilities as a result of construction workers being present. A report by the Jo Cox Commission for Loneliness found that over half of disabled people report feeling lonely (Jo Cox Commission on Loneliness, 2017).
- 3.1.42 Perception of personal safety of **women** may decrease due to the presence of a construction workforce around the area of the Proposed Development. Research by

International Transport Forum showed that women are more likely to fear being threatened by members of the opposite sex in public spaces and public transport (International Transport Forum, 2018). Therefore, the introduction of predominantly male construction workers into the local area may lead to a reduction of women's perception of safety.

Health and safety risks due to construction activity

- 3.1.43 The Proposed Development is likely to require storage and handling of hazardous chemicals in construction of the proposed WWTP, along with the transfer of facilities and industrial equipment. Several equality groups may be at risk of safety implications of materials and traffic movements, such as **children, older people and disabled people**.
- 3.1.44 Children are more likely to be intrigued by noise, trucks or materials on building site but are often unaware of the dangers (Outsource Safety, 2019). Children are also often more aware of their surroundings when compared to other age groups and have a limited perception of the environment because of their lack of experience or cognitive development (ROSPA, 2020). As a result, children might not be aware of the consequences of new situations that they encounter, including on or around construction sites and hazardous chemicals and equipment. Therefore, the constant presence of construction and industrial materials might lead to safety concerns for children.
- 3.1.45 Many fatal and non-fatal accidents involving older people are attributable wholly or in part to frailty or failing health. This can lead to failure or slowness to see and avoid risks. Older people are therefore less likely to perceive the actual risk around construction sites or materials (ROSPA, 2020). Therefore, the presence and handling of construction material might result in safety concerns for this group.
- 3.1.46 Disabled people may be particularly sensitive to the manual handling of materials in the workplace, including construction sites, due to factors such as navigation, visual hypersensitivity and cognition. People with certain impairments may also be sensitive to changes in visual stimuli such as obstructions in their pathway including excavations, roadworks or changes in signage. Uneven obstructions or changes in levelling due to material handling or construction activity should be clearly marked with easily noticeable signs and easy-to-find instructions of alternative routes (UN Enable, 2004).
- 3.1.47 The Proposed Development will also increase the traffic movements in the local area. Traffic movements associated with the construction vehicles and equipment will affect the health and safety of children, older people and disabled people, who might experience travel difficulties due to pedestrian and road severance.

Health and safety risks due to the storage, handling or transfer of waste water, effluent and chemicals

- 3.1.48 At present, there is limited evidence about social differentiation of impacts from waste management. There is a possibility that deprived communities are both more

vulnerable to the potential negative effects of proximity to waste facilities, owing to facilities being disproportionately situated close to **deprived communities** (Environment Agency, 2008). Hazardous waste has the potential to cause harmful effects on humans and their environment upon continued exposure when released. Therefore, those groups who are more likely to live within deprived communities, are potentially more likely to be at risk due to the storage, handling, and management of waste materials through the delivery and operation of the Proposed Development.

Potential impacts on open space, PRow and recreational areas

3.1.49 Developments such as the Proposed Development may alter or prevent access to the local open space, recreational space and Public Rights of Way (PRow) that are in proximity to the Proposed Development. Any change in access to green open space and PRow is likely to impact **children, disabled people, older people and young people**.

3.1.50 According to Public Health England, there is a positive association between a greener living environment and mental health outcomes in children and young people, such as improved emotional wellbeing, reduced stress, improved resilience, and higher health-related quality of life (Public Health England, 2020). Natural England data also shows that children and young people spend time outdoors more regularly than adults aged 25 and over (Natural England, 2019). Older people living in neighbourhoods with more green space have also reported better health, higher life satisfaction and less stress. In addition, greater exposure to green space has been associated with a lower risk of cardiovascular disease and diabetes (Public Health England, 2020). Research evidence shows that accessing greenspace is an effective intervention for people with mental health problems, with one in four people in the UK likely to experience psychological problem at some point in their life (W. Masterton, 2020).

Changes to public realm

3.1.51 In general, industrial developments such as the Proposed Development are more likely to reflect both current trends and prevailing theories in best design practice. This provides an opportunity to improve outdated designs, layout and landscaping around the proposed WWTP. Research by the Joseph Rowntree Foundation states that the public realm is important in ensuring the local communities interact with their environment and feel as if they are active members of their society (JRF, 2007). The research found that improvements made to the public realm can benefit **older people, disabled people and people from ethnic minority backgrounds**.

3.1.52 A report from TfL (2016) suggests that unmaintained public thoroughfares and areas, including the poor upkeep of streets, steep slopes and a lack of rest areas, increase the difficulty that older people face when walking through public areas and may lead to associated anxiety. Further research has highlighted that other physical barriers such as high kerbs and holes in pavements as challenges faced by **older people** in accessing the public realm (Wennber, 2017). Empirical research evidence also

suggests that older people in rural areas in the UK face additional challenges and barriers in accessing essential services (H Grahama, 2018).

- 3.1.53 It has been acknowledged that disabled people and people from ethnic minority groups are less likely to take part in public life than other groups (Greater London Authority, 2017). For disabled people, public spaces can often be inaccessible. The presence of vehicular traffic and lack of accessible design, such as the use of appropriate paving and lighting, can present a barrier to using outdoor, shared public spaces, impacting the ability of disabled people to interact socially within the communities (House of Commons Women and Equalities Committee, 2017). Research also shows that individuals from ethnic minorities perceive themselves as vulnerable due to their possible previous experience of victimisation or harassment, highlighting a differential need for this demographic (WHO, 2016).

3.2 Demographic profile

- 3.2.1 In order to gain further insight into the local community and potential impacts of the Proposed Development, existing socio-demographic data has been reviewed and analysed to establish the composition of the local population living in the area. The Office for National Statistics (ONS) 2011 census data and mid-year estimate figures (2020) have been used. At the time of writing, results from the 2021 census were not yet available and therefore the 2011 census offers the most up to date data for some figures. Where the figures differ by 3% or less, the proportions are considered to be broadly comparable. Where they differ by more than 3%, they are reported to be considerably more or less than the comparator figures. The figures for Cambridge, South Cambridgeshire and East Cambridgeshire have been considered in comparison to the East of England region and English national figures. Local area demographic data aids understanding of how potential impacts of the Proposed Development may affect different equality groups.
- 3.2.2 More detailed demographic analysis of the area – including density maps of equality groups and detailed figures about the total population for the study area, Cambridge, South Cambridgeshire, East Cambridgeshire, East of England, and England – can be found in Appendix 7.12.1

Overview of socio-demographic baseline

- 3.2.3 The proportion of young people in the study area (8%) is considerably lower than in Cambridge (23%), but broadly in line with East Cambridgeshire (8%), South Cambridgeshire (8%), East of England (10%) and England (11%) proportions.
- 3.2.4 11% of the total population in the study area have a disability or long-term health problem, which is broadly in line with Cambridge (13%) and South Cambridgeshire (14%) percentages, but lower than in East Cambridgeshire (15%). However, the proportion of disabled and people with long term health problem in the study area is considerably lower than the East of England (17%) and England (18%) proportions.
- 3.2.5 The proportion of White British population in the study area is 85%, broadly in line with South Cambridgeshire (87%) and East of England (85%) proportions. This figure

is considerably higher than the Cambridge percentage of 66% and England's of 80%, but lower than East Cambridgeshire (90%).

- 3.2.6 The proportion of people from ethnic minority groups in the study area is 15%, which is considerably lower than Cambridge average of 34% and the national average of 20%, but broadly in line with the South Cambridgeshire (13%) and East of England's percentages (15%). In comparison, the proportion of ethnic minorities in East Cambridgeshire (10%) is lower than in the study area (15%). The Christian population in the study area (57%) is considerably higher than that of Cambridge (45%) and lower than that of East Cambridgeshire (62%). However, the proportion of Christian population in the study area is broadly in line with those in South Cambridgeshire (59%), East of England (60%) and England (59%).
- 3.2.7 Those who belong to a minority religion in the study area make up 3% of the population, which is considerably lower than that of Cambridge (8%) and England (9%). In comparison, the study area has a higher proportion of people from minority religion than East Cambridgeshire (2%). It is in line with South Cambridgeshire (3%) and broadly in line with the East of England (5%).

Residential properties

- 3.2.8 There are 1,431 residential properties in the study area, mainly located in the settlements of Waterbeach, Clayhithe, Milton, Horningsea, Chesterton and Fen Ditton. The closest properties to the Proposed Development, and the settlements in which they are located, are detailed further below:
- Chesterton – properties located from Milton Road, Green End Road and Fen Road;
 - Fen Ditton – properties located from Horningsea Road (including Poplar Farm), High Ditch Road, Green End and Red House Close;
 - Stow cum Quy – properties located from Low Fen Drove Way (including Gate House);
 - Milton – properties located from Cambridge Road;
 - Horningsea – properties located from Horningsea High Street;
 - Clayhithe – properties located from Clayhithe Road; and
 - Waterbeach – properties located from Station Road, Burges Road, Way Lane, Bannold Road, Long Drove, Bannold Drove and Cody Road.
 - Fen Road Traveller Site – properties located between Cambridge North Railway Station and the River Cam.
 - Blackwell Traveller Site – a council owned Gypsy and Traveller site with 15 permanent pitches to the north of the A14, off Mere Way (located outside the Study Area 1km from the RLB).

3.2.9 The residential properties within the study area are shown in Appendix 7.12.1 – Figures (Residential properties within the study area).

Business

3.2.10 There are 652 businesses in the study area. The main business clusters within study area are shown in Appendix 7.12.1 – Figures (Businesses within the study area) and described as follows:

- The Chesterton area is home to several large business and industrial parks: Cambridge Science Park, off Cambridge Science Park Road; St Johns Innovation Centre, in the northern part of Chesterton, near the Milton Interchange; and an industrial site off Fen Road.
- In Fen Ditton, a small cluster of local businesses can be found on the village's northern outskirts. There is an art gallery, a restaurant, and a farm shop in this location.
- The Milton area has several large business and industrial parks. The Cambridge Golf Driving Range, located east of Chesterton and adjacent to the existing Cambridge WWTP, and the Cambridge Road Industrial Estate, located east of the settlement and adjacent to Milton Country Park, are two examples. Fen Road, to the east of Milton, also has a number of businesses.
- There are several business areas in Horningsea, including on the village's eastern edge and adjacent to Horningsea Road and the High Street. Restaurants, a clothing store, and an art restoration company are among them.
- Within the village of Clayhithe, there is a small cluster of local businesses. Cambridge County Cottages and CBS Automotive, both on Clayhithe Road to the south of the village, are examples.
- In Waterbeach, there is a small cluster of local businesses located on the western edge of village, at Denny End Industrial Estate.

Community resources

3.2.11 There are 19 community resources located within the study area, detailed below. The settlements in which they are located are shown in Appendix 7.12.1 – Figures (Community resources within the study area).

- Nuffield Road Allotment Society – located in Cambridge;
- Golf Driving Range – golf facility located in Cambridge;
- Milton Country Park – located in Milton;
- Fen Ditton Primary School – located on Horningsea Road, Fen Ditton;
- Recreation ground – located in Fen Ditton;
- Little Stars Day Nursery – located in Waterbeach;

- Waterbeach Toddler Playgroup – located in Waterbeach;
- Two playgrounds – located in Waterbeach;
- Hatley Court Residential Care Home – located in Waterbeach;
- Lancaster House (care home) – located in Waterbeach;
- Cambridge Motorboat Club – located in Waterbeach;
- Cam Sailing Club House – located in Waterbeach;
- St Peters Church – located in Horningsea;
- Village Hall – located in Horningsea;
- Children’s play area – located in Horningsea; and
- Millennium Green – located in Horningsea.

4 Impact Assessment

4.1 Overview

- 4.1.1 Based on the description of the Proposed Development set out in Section 1 of this report, different equality groups may be affected during construction, operation and decommissioning of the Proposed Development. These activities may give rise to a number of potential effects, occurring during the construction or operational phases of the Proposed Development, which are set out in Table 4-1 and Table 4-2.
- 4.1.2 The tables outline the impact theme, which equality groups may be affected by each effect, geographical area expected to experience each type of effect, the duration and relationship of the impact. The tables also include project-specific evidence of the effect, proposed mitigation or enhancement measures, and conclusion of the overall equalities effect. For the decommissioning phase, no potential equality effects were identified.

4.2 Potential equality effects during construction

- 4.2.1 Table 4-1 sets out potential equality effects arising during the construction period.

Table 4-1: Potential equality effects during the Proposed Development's construction phase

Impact theme	Equality groups that could be affected	Project zone potentially affected	Duration/ Relationship (direct/ indirect)	Project-specific evidence of effect	Proposed mitigation	Overall equalities effect
Changes in noise and vibration exposure	<ul style="list-style-type: none"> Children Older people Disabled people People with ethnic minority backgrounds (people from the Gypsy and Traveller community) 	<ul style="list-style-type: none"> Proposed WWTP Transfer and final effluent zone Waterbeach transfer zone 	Temporary / Direct (from 1 month to 48 months, depending on phases and locations of the works)	<p>Chapter 17: Noise and Vibration (App Doc Ref: 5.2.17) reports that there is the potential for temporary increases in noise on nearby community, residential and recreational receptors as a result of noise arising from construction works associated with the scheme.</p> <p>This may affect receptors within the EqIA study area, namely:</p> <ul style="list-style-type: none"> Residential properties located in close proximity to the site including but not limited to properties on Red House Close, Poplar Hall, Poplar Hall Farm, Northern Bridge Farm, The Cottage and Burgess Drove. The demographic of those that occupy these residential receptors is unknown and therefore, it is not possible to specify protected characteristic groups. Residents living adjacent to the Waterbeach pipeline to the south and east of Waterbeach, closer to Clayhithe, may experience noise during the construction of Waterbeach pipeline crossing points. The demographic of those that occupy these residential receptors is unknown and therefore, it is not possible to specify protected characteristic groups. Noise from the directional drilling activities have the potential to result in adverse impacts due to the 24 hour working requirements and increased sensitivity to noise during night-time periods. The most affected residential receptors to proposed directional drilling works include those to the east of Burgess Drove, Bannold Road and Capper Road, for the pipeline corridor from Waterbeach to Low Fen Drove Way, as well as residential receptors off Horningsea Road, at Red House Close, at Poplar Hall, receptors in Fen Ditton off Green End, and receptors off Fen Road including Northern Bridge Farm, for the Waterbeach pipeline corridor from Low Fen Drove Way to the existing Cambridge WWTP. The demographic of those that occupy these residential receptors is unknown and therefore, it is not possible to specify protected characteristic groups. <ul style="list-style-type: none"> Fen Road Traveller Site and Community. Shirley Community Primary School (where children and young people are likely to spend a large amount of time). Horningsea Village Hall, which hosts regular activities for older people and children. The Church of St Peter, however services are held on a Sunday morning, when construction activities will not be taking place. Cam Sailing Club, which has lessons for children. 	<ul style="list-style-type: none"> Measures to minimise noise impacts during construction are specified in section 7.7 (Noise and vibration) of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) and include the application of BPM in accordance within BS 5228-1 and the Control of Pollution Act 1974 and the Environmental Protection Act 1990. These measures include: <ul style="list-style-type: none"> Restriction of working hours to avoid sensitive time periods for works at Shaft 4 and the Outfall. Use of solid site hoarding/temporary acoustic barriers at Shaft 4, Waterbeach construction compound and around HDD pit locations/HDD plant during continuous working periods. Use of low vibration sources Management of construction vehicle movements within the Construction Traffic Management Plan (CTMP) (Appendix 19.7, App Doc Ref 5.4.19.7) to minimise disruption from vehicle movements Orientating compounds and setting layouts to minimise disturbance to nearby receptors Restriction of working hours to avoid sensitive time 	Overall noise impacts from the construction of the proposed WWTP are unlikely to result in adverse effects on people with protected characteristics due to the distance to the nearest noise sensitive receptors and the mitigation measures put in place.

Impact theme	Equality groups that could be affected	Project zone potentially affected	Duration/ Relationship (direct/ indirect)	Project-specific evidence of effect	Proposed mitigation	Overall equalities effect
					periods for works at Shaft 4 and the Outfall.	
Changes to air quality	<ul style="list-style-type: none"> Children Older people Disabled people Pregnant people People with ethnic minority backgrounds 	<ul style="list-style-type: none"> Proposed WWTP Transfer and final effluent zone Waterbeach transfer zone 	Temporary (approx. 24 to 48 months) / Direct	<p>Construction works have the potential to temporarily change air quality which may result in effects on people located close by, as new emission sources will be introduced, such as: dust emissions from earth-moving activities, emissions of NO_x, PM₁₀ and PM_{2.5} from movement and operation of site plant, and from construction traffic along the local road network (including the A14 and A10).</p> <p>The demographic of residents living in proximity to the construction works (mentioned for noise and vibration exposure above) is unknown and therefore, it is not possible to specify protected characteristic groups who may be impacted. However, air quality impacts are expected to be negligible as a result of the Proposed Scheme.</p>	<p>Appropriate levels of mitigation will be secured and implemented through:</p> <ul style="list-style-type: none"> The CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1), which includes: <ul style="list-style-type: none"> Dust control measures Requirement to prepare and implement a Dust Management Plan, Air Quality Management Plan (AQMP), and Waste Management Plan (WMP) Site-specific Construction Traffic Management Plan (CTMP) (Appendix 19.7, App Doc Ref 5.4.19.7) <ul style="list-style-type: none"> Management of construction vehicle movements to minimise disruption on the public highway 	Overall air quality impacts from the construction of the proposed WWTP are unlikely to result in adverse effects on people with protected characteristics due to the application of best practice mitigations.
Odour changes	<ul style="list-style-type: none"> Disabled people Pregnant people 	<ul style="list-style-type: none"> Proposed WWTP Transfer and final effluent zone Waterbeach transfer zone 	Temporary / Direct	<p>Construction activities are unlikely to involve odorous materials. Odour emissions would be likely to result from short term tie in works (connection of transfer tunnel to the existing Riverside sewer). The receptors likely to be affected by this activity are: users of Milton Country Park and properties north of the A14 near Milton Country Park. The demographic of users of the Milton Country Park and residents living close by is unknown, and therefore, it is not possible to specify protected characteristic groups who may be impacted.</p>	<ul style="list-style-type: none"> Appropriate levels of mitigation will be secured and implemented through Section 7.8 of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) Requirement within the CoCP Part B (Appendix 2.2, App Doc Ref 5.4.2.2) for the use of air extraction system and a mobile odour filtration unit to be used adjacent to the sewer shafts in construction 	The results of the assessment using the IAQM guidance and taking into account proposed mitigation to ensure the impacts are minimised conclude that there are no negative effects on people with protected characteristics.

Impact theme	Equality groups that could be affected	Project zone potentially affected	Duration/ Relationship (direct/ indirect)	Project-specific evidence of effect	Proposed mitigation	Overall equalities effect
Changes to landscape and visual environment	<ul style="list-style-type: none"> Children Older people Disabled people Pregnant people People with ethnic minority backgrounds 	<ul style="list-style-type: none"> Proposed WWTP Transfer and final effluent zone Waterbeach transfer zone 	Temporary (approx. 24 to 48 months) / Direct	<p>There will be clear, filtered and partially screened views of construction from parts of Fen Ditton, Horningsea, Clayhithe and Waterbeach, the PRow network in the study area, the River Cam, the A14, High Ditch Road and Horningsea Road.</p> <p>Biggin Abbey and residential properties located on Horningsea Road in Horningsea may experience temporary changes in the local environment due to changes in visual outlook as there will be temporary views of earthworks from some properties, changing the character of the farmland.</p> <p>The temporary change in farmland to the area required for construction may impact the visual environment for residents along and in view of Low Fen Drove Way; and vegetation lining property boundaries and the A14 will screen views of the lower parts of the construction of the proposed WWTP from High Ditch Road, although the cranes and the work on taller emerging structures will be noticeable from the residents of High Ditch Road and Fen Ditton Drive Way.</p> <p>The demographic of residents is unknown and therefore, it is not possible to specify protected characteristic groups who may be impacted by the changes to the visual environment.</p>	<ul style="list-style-type: none"> Appropriate levels of mitigation will be secured through CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1), the protection of existing trees/ hedgerows Implementation of a Lighting Design Strategy (App Doc Ref 5.2.4.5) to prevent light pollution Mitigation planting will be carried out during construction along both sides of Low Fen Drove Way and the southern and eastern boundaries of the proposed WWTP Implementation of the Lighting Design Strategy (App Doc Ref 5.2.4.5) to prevent glare and light spill from construction lighting Use of solid site hoarding/temporary acoustic barriers at Shaft 4, Waterbeach construction compound and around HDD pit locations/HDD plant during continuous working periods. 	Overall landscape and visual impacts from the construction of the proposed WWTP are unlikely to result in equality effects following the application of good practice mitigations and the fact that the screening vegetation in the area will be largely unaffected by the construction.

Impact theme	Equality groups that could be affected	Project zone potentially affected	Duration/ Relationship (direct/ indirect)	Project-specific evidence of effect	Proposed mitigation	Overall equalities effect
Changes in traffic flow	<ul style="list-style-type: none"> Children Older people Disabled people 	<ul style="list-style-type: none"> Proposed WWTP Transfer and final effluent zone Waterbeach transfer zone 	Temporary / Direct	<p>It is expected that on average there will be approximately 100-200 daily heavy-goods vehicle (HGV) movements during construction, with a peak of 200-300 daily HGV movements. However, the additional number of vehicles is a small proportion relative to the existing traffic flows on roads that the construction traffic would use⁴.</p> <p>Users of Waterbeach Baptist Church and St John's Church, off Station Road in the south of the village of Waterbeach, may experience temporary disruption to access during the construction of the proposed Waterbeach pipeline. However religious groups who attend the churches are unlikely to be differentially affected by changes in access.</p> <p>Waterbeach Primary School may experience temporary disruption to access during the construction of the proposed Waterbeach pipeline, due to construction traffic on routes which are used to access the school. Children at the school are likely to be differentially and disproportionately affected.</p> <p>Fen Ditton Primary School may experience temporary disruption to access during the construction of the proposed Waterbeach pipeline, due to construction traffic on routes which are used to access the school, particularly from the north. Children at the school are likely to be differentially and disproportionately affected.</p> <p>. Road users accessing Horningsea from Waterbeach may experience journey delays and potential fear and intimidation due to the increase in construction traffic, particularly with HGVs.</p> <p>The demographic of residents living nearby the construction works and the demographic of the road users are unknown, and therefore, it is not possible to specify protected characteristic groups that may be impacted.</p>	<p>Appropriate levels of mitigation will be secured and implemented through:</p> <ul style="list-style-type: none"> CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) which requires a site-specific CEMP Construction Workers Travel Plan (Appendix 19.9, App Doc Ref 5.4.19.9) CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) to limit the number of HGVs, LGVs and cars and phasing out construction activities to minimise the impact on the local road network 	Overall changes in traffic flow during the construction of the proposed WWTP are unlikely to result in adverse effects on people with protected characteristics due to following the application of best practice mitigation.
Changes to the pedestrian and cycle environment	<ul style="list-style-type: none"> Children Young people Older people Disabled people 	<ul style="list-style-type: none"> Proposed WWTP Transfer and final effluent zone Waterbeach transfer zone 	Temporary / Direct	<p>Construction traffic on Horningsea Road is likely to temporarily impact pedestrians and cyclists using the footpath and cycleway which runs alongside the road.</p> <p>Changes to traffic and the use of at grade crossings in the areas of Chesterton, Fen Road and Milton may additionally impact users of the Phase 1 Chisholm Trail and of PRoW 162/1 (footway).</p> <p>Temporary diversion of PRoW 85/6 impacts pedestrians using the footpath Changes in pedestrian and cycle environment is likely to impact children, disabled people (including people with mental problems), older people and young people.</p>	<p>Mitigation will be secured and implemented through:</p> <ul style="list-style-type: none"> CoCP Part A section 7.6 (Appendix 2.1, App Doc Ref 5.4.2.1) Construction Workers Travel Plan (Appendix 19.9, App Doc Ref 5.4.19.9) Site-specific CEMP provide more detail on the specific diversion routes and the impact on pedestrian routes 	Overall changes to the pedestrian and cycle environment during the construction of the proposed WWTP are unlikely to result in adverse effects on people with protected characteristics due to following the application of best practice mitigations.

⁴ For example, the Traffic Team for the Proposed Development estimated daily flow on the B1047 Horningsea Road was approximately 5,000 vehicles in 2021.

Impact theme	Equality groups that could be affected	Project zone potentially affected	Duration/ Relationship (direct/ indirect)	Project-specific evidence of effect	Proposed mitigation	Overall equalities effect
					<ul style="list-style-type: none"> CTMP to mitigate the potential impact on pedestrian routes, as well as the NMU routes in general 	
Feelings of personal safety and security	<ul style="list-style-type: none"> Young people Older people Disabled people People with ethnic minority backgrounds Men Women LGBT+ people 	<ul style="list-style-type: none"> Proposed WWTP Transfer and final effluent zone Waterbeach transfer zone 	Temporary (approx. 24 to 48 months) / Direct	The Proposed Development has the potential to change perceptions of personal safety and security during the construction phase, as well as in the transfer of effluent, pipeline and equipment. There is potential for trespass, anti-social behaviour (such as vandalism) and crime if this is unmanaged, resulting in equality effects on several vulnerable groups. In addition, potential lack of lighting in and around the site of the proposed development may further increase the fear of crime and anti-social behaviour at night.	<ul style="list-style-type: none"> Main construction compounds will be signed and secured to protect against unauthorised entry Site security arrangements will be in line with the requirements set out the Construction (Design and Management) Regulations 2015 Additional security measures will be in place, such as the use of CCTV and on-site security 	Overall safety and security impacts from construction of the proposed WWTP are unlikely to be adverse, given the proposed mitigations and best practice safety measures.
Potential generation of employment associated with the Proposed Development	<ul style="list-style-type: none"> Young people Disabled people People with ethnic minority backgrounds Men 	<ul style="list-style-type: none"> Proposed WWTP Transfer and final effluent zone Waterbeach transfer zone 	Temporary / Direct	<p>The Proposed Development has the potential to support and/or create new employment opportunities during construction. A construction workforce will be required to deliver the infrastructure necessary to build the proposed WWTP, maintain the existing Cambridge WWTP and carry out pipeline and effluent transfer.</p> <p>During construction, there may be training opportunities within the local area, such as apprenticeship opportunities within the Applicant's organisation.</p>	<ul style="list-style-type: none"> No mitigation is required 	There is not enough information at this stage to identify specific job opportunities for particular equality groups, and as such, no effect – positive or negative – has been identified.
Presence of construction workforce within the local area	<ul style="list-style-type: none"> Older people Disabled people Women 	<ul style="list-style-type: none"> Proposed WWTP 	Temporary / Direct	The presence of construction workers may give rise to local people feeling unsettled, and their perceptions of their community may change. There may be concern for local communities in close proximity to the proposed development with regard to the presence of a construction workforce affecting social cohesion. Such effects are most likely to be felt by those living adjacent to construction sites, or by those who use local facilities near construction sites.	<ul style="list-style-type: none"> Requirement within section 3 of the CoCP Part A (Appendix 2.1, App Doc Ref: 5.4.2.1 Community & Stakeholder Engagement) to appoint a Community Liaison Officer responsible for ensuring that relationships and lines of communication are maintained throughout the construction period including communication of changes to access. Requirement within the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) to 	Overall, it is unlikely that the construction workforce will cause a negative impact on protected characteristic groups.

Impact theme	Equality groups that could be affected	Project zone potentially affected	Duration/ Relationship (direct/ indirect)	Project-specific evidence of effect	Proposed mitigation	Overall equalities effect
					<ul style="list-style-type: none"> implement a construction workforce code of conduct Requirement To prepare and implement a Community Liaison Plan (App Doc Ref 7.8) 	
Health and safety risks	<ul style="list-style-type: none"> Children Older people Disabled people 	<ul style="list-style-type: none"> Transfer and final effluent zone Waterbeach transfer zone 	Temporary / Indirect	<p>The Proposed Development is likely to require storage, handling and transfer of hazardous chemicals or pollutants.</p> <p>Construction activities have the potential to cause a degradation of water quality to main and ordinary watercourses through surface water run-off and associated soil erosion, accidental release of sediment during works affecting water courses, from accidental spills or leaks from active construction areas.</p>	<ul style="list-style-type: none"> Appropriate mitigation measures are detailed within Section 4m.1 Health and Safety of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) Compliance to health and safety legislation and regulations 	Overall, it is unlikely that the construction health and safety risk will cause considerable negative impacts on local people or particularly affecting equality groups if managed properly.
Impacts on open space, PRowS and recreational areas	<ul style="list-style-type: none"> Children Young people Older people Disabled people 	<ul style="list-style-type: none"> Proposed WWTP Transfer and final effluent zone Waterbeach transfer zone 	Temporary / Direct	<p>Construction traffic on Horningsea Road is likely to impact pedestrians and cyclists using the footpath and cycleway which runs alongside the road. Children use this route to access Fen Ditton Primary School and may be disproportionately affected by in the increase in construction traffic.</p> <p>Disruption of footpaths (85/6, 85/8 and 130/2), which intersect with Low Fen Drove Way, Horningsea Road and the River Cam may occur as a result of construction of the outfall structure. Diversions may result in delays and less pleasant journeys for the duration of the works, affecting pedestrians, cyclists and other footpath users between Fen Ditton and Horningsea. The demographic of users of these footpaths is unknown and therefore, it is not possible to specify the protected characteristic groups that may be impacted.</p>	<ul style="list-style-type: none"> Segregated walking, cycling and horse-riding (WCH) routes will ensure limited impact to access for non-motorised users in the area Section 7.6 of CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) which specifies that to facilitate safe movement of users of the highway requires maintaining the existing footway / cycleway to the west of the Horningsea Road carriageway at all times with suitable barriers separating the footway from the works Requirement within Section 7.6 of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) for the use of gates at locations where the construction site intersects with the PRow 	Overall, the construction of the Proposed Development is unlikely to have an adverse effect on children using Horningsea Road to get to school. Through implementation of the CoCP and providing a safe and accessible footway throughout the construction period, children using the route will not be differentially affected.

4.3 Potential equality effects during decommissioning

- 4.3.1 Overall, no residual significant adverse noise, air quality, landscape and visual effect, odour or traffic impacts are anticipated for local residents, business or community resources and, therefore, no equality effects are anticipated as a result of potential changes in the environment during the decommissioning phase.

4.4 Potential equality effects during operation

4.4.1 Table 4-2 sets out potential equality effects arising during the operation phase.

Table 4-2: Potential equality effects during the Proposed Development's operation phase

Impact theme	Equality groups that could be affected	Project zone potentially affected	Duration/frequency/permanence/Relationship (direct/ indirect)	Project-specific evidence of effect	Proposed mitigation	Overall effect (negative/ positive/ neutral)
Changes in noise and vibration exposure	<ul style="list-style-type: none"> Children Older people Disabled people 	<ul style="list-style-type: none"> Proposed WWTP Transfer and final effluent zone Waterbeach transfer zone 	Permanent / Direct	<p>Changes to noise due to the operation of fixed plant and machinery associated with the proposed WWTP are likely to affect people living in Horningsea, including those on Horningsea High Street, who may experience permanent changes.</p> <p>The demographic of residents is unknown and so cannot specify the protected characteristic groups who may be impacted.</p> <p>Preliminary calculations based on the design and plant information indicate that predicted noise during operation of the Proposed Development would be lower than the existing background noise levels at the nearest noise sensitive receptors.</p>	<p>Appropriate mitigation design would aim to minimise any potential adverse noise impacts at the nearest noise sensitive receptors:</p> <ul style="list-style-type: none"> selection of low noise generating equipment implementation of noise reduction to specific plant items the use of acoustic barriers 	Overall, no adverse effects are likely due to noise from the normal operation of the Proposed Development as reported within the ES Chapter 17 Noise and vibration (App Doc Ref 5.2.17), and therefore no equality effects are anticipated.
Changes in noise and vibration exposure (as a result of operation)	<ul style="list-style-type: none"> Children Older people Disabled people 	<ul style="list-style-type: none"> Proposed WWTP 	Permanent / Direct	<p>The Proposed Development would be accessed from Junction 34 of the A14 and the permanent access road directly into the proposed WWTP immediately to the south of the Horningsea Road/ Low Fen Drove Way/ Biggin Lane junction. Approximately 100 cars/vans and 150 heavy goods vehicles (HGV) would access the proposed WWTP on a daily basis once operational, which is a small increase in traffic.</p> <p>The reassignment of traffic away from the existing Cambridge WWTP to the proposed WWTP would likely result in a minor reduction in noise for sensitive receptors immediately adjacent to Cowley Road or Milton Road, which are businesses and residential properties. The demographic of employees and residents is unknown and so cannot specify protected characteristic groups who may be impacted.</p>	<ul style="list-style-type: none"> An Operational Worker Travel Plan will be produced to reduce the movements of operational vehicles on the public highway. The detailed plan will accord with the OWTP provided with the application (Appendix 19.8, App Doc Ref 5.4.19.8) 	Noise impacts due to the increase in traffic with the addition of operational traffic at surrounding noise sensitive receptors would be very limited and would not result in adverse effects on people with protected characteristics.
Changes to air quality (as a result of operational traffic)	<ul style="list-style-type: none"> Children Older people Disabled people 	<ul style="list-style-type: none"> Proposed WWTP Transfer and final effluent zone 	Permanent/ indirect	<p>The proposed WWTP may result in changes to air quality as a result of changes to traffic flows due to vehicles along the B1047 Horningsea Road, A14 and the A10. However, the number of additional vehicles relative to the traffic movements on the B1047 Horningsea Road is not</p>	<ul style="list-style-type: none"> An Operational Worker Travel Plan will be produced to reduce the movements of operational vehicles on the public highway. The detailed plan will accord with the CWTP provided with the application (Appendix 19.8, App Doc Ref 5.4.19.8) 	Overall air quality impacts from operational traffic are unlikely to result in adverse effects on people with protected characteristics due to following the application of best practice mitigations.

Impact theme	Equality groups that could be affected	Project zone potentially affected	Duration/frequency/permanence/Relationship (direct/ indirect)	Project-specific evidence of effect	Proposed mitigation	Overall effect (negative/ positive/ neutral)
	<ul style="list-style-type: none"> • Pregnant people • People with ethnic minority backgrounds 	<ul style="list-style-type: none"> • Waterbeach transfer zone 		expected to be large, and the operational traffic would be redistributed on local roads.		
Changes to air quality (as a result of the operational WWTP)	<ul style="list-style-type: none"> • Children • Older people • Disabled people • Pregnant people • People with ethnic minority backgrounds 	<ul style="list-style-type: none"> • Proposed WWTP • Transfer and final effluent zone • Waterbeach transfer zone 	Permanent/ indirect	The operation of the WWTP will generate emissions to air from combustion activities.	<ul style="list-style-type: none"> • Legal requirements secured through environmental permits and consents. • The flare that will be installed will be of a specialised design to minimise emissions to air during use. • Flare usage will be limited under the Environmental Permit required for the operation of Proposed Development . 	Overall air quality impacts from the operation of the proposed WWTP are unlikely to result in adverse effects on people with protected characteristics due to emissions limits within the environmental permits and by following the application of best practice mitigations.
Odour changes (as a result of operation of the proposed WWTP)	<ul style="list-style-type: none"> • Disabled people • Pregnant people 	<ul style="list-style-type: none"> • Proposed WWTP 	Temporary (short, infrequent) / Direct	During operation, sludge and untreated wastewater will be imported to the proposed WWTP. All imported sludge and wastewater will arrive via sealed articulated tankers and pumped into reception areas that will be covered, Odour modelling and assessment within the ES Chapter 18 Odour (App Doc Ref 5.2.18) undertaken for the design proposals shows that the effect of normal operation on sensitive facilities (for example, recreational users of public rights of way) would likely be negligible.	<ul style="list-style-type: none"> • An Odour Management Plan will be completed. A preliminary plan it provided with the application (App Doc Ref 5.4.18.4) • Design incorporates the following : <ul style="list-style-type: none"> – Covered reception areas at the terminal pumping station, inlet works and sludge tanks – Low turbulence processes – Venting of air from TPS, inlet and sludge tanks through the odour control plant – Odour control facilities will be critical equipment to operate continuously in all conditions and supplied with a uninterruptible power supply (UPS) 	Any minor impacts where recreational users may experience short term temporary effect would be limited to small areas at the perimeter of the proposed WWTP.
Changes to landscape and visual environment	<ul style="list-style-type: none"> • Children • Older people • Disabled people 	<ul style="list-style-type: none"> • Proposed WWTP • Transfer and final effluent zone • Waterbeach transfer zone 	Permanent / Direct	The Proposed Development would be a new feature in the rural landscape. The operation of the Proposed Development would also result in permanent changes to the views from Low Fen Drove Way, B1047 Horningsea Road and the A14, as well as for residents of High Ditch Road, Fen Ditton.	<ul style="list-style-type: none"> • A landscape masterplan has been developed to provide the landscape context for the Proposed Development, including mitigations and enhancements to the landscape and visual environment. The landscape masterplan is within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) 	Overall, no adverse landscape and visual effects are anticipated for local residents, business or community resources and, therefore, no equality effects are anticipated as a result of potential changes in the visual environment during the operation phase.

Impact theme	Equality groups that could be affected	Project zone potentially affected Project zone potentially affected	Duration/ frequency/ permanence/ Relationship (direct/ indirect)	Project-specific evidence of effect	Proposed mitigation	Overall effect (negative/ positive/ neutral)
Changes in traffic flow	<ul style="list-style-type: none"> Children Older people Disabled people 	<ul style="list-style-type: none"> Proposed WWTP Transfer and final effluent zone Waterbeach transfer zone 	Permanent / Direct	<p>The demographic of residents is unknown and so cannot specify protected characteristic groups who may be affected.</p> <p>The Proposed Development would be accessed from Junction 34 of the A14 and the permanent access road directly into the proposed WWTP immediately to the south of the Horningsea Road/ Low Fen Drove Way/ Biggin Lane junction. Approximately 100 cars/vans and 150 HGV's would access the proposed WWTP on a daily basis once operational, which is a small increase in traffic.</p>	<ul style="list-style-type: none"> An Operational Worker Travel Plan will be produced to reduce the movements of operational vehicles on the public highway. The detailed plan will accord with the OWTP provided with the application (Appendix 19.8, App Doc Ref 5.4.19.8) 	Overall effects due to the increase in traffic with the addition of operational traffic would be very limited and would not result in adverse effects on people with protected characteristics.
Changes to the pedestrian and cycle environment	<ul style="list-style-type: none"> Children Older people Disabled people 	<ul style="list-style-type: none"> Proposed WWTP Transfer and final effluent zone Waterbeach transfer zone 	Permanent / Direct	<p>Surrounding the community of Fen Ditton, a new bridleway connection is provided from the Proposed Development to the PRoW network.</p> <p>New walking and cycling paths are also provided within the landscape masterplan as part of the Proposed Development.</p> <p>These new connections provide new circular routes for walkers, cyclists and horse riders.</p> <p>There would also be an extension of the footway on the eastern side of Horningsea Road to Low Fen Drove Way and widening of the footpath on a section of the western side, benefitting footpath users from Fen Ditton and Horningsea within the wider area.</p>	<ul style="list-style-type: none"> A landscape masterplan has been developed to provide the landscape context for the Proposed Development, including mitigations and enhancements to the landscape and visual environment. The landscape masterplan is within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) Inclusion within the design a pedestrian and cycle route and access to the proposed WWTP that includes: <ul style="list-style-type: none"> A segregated pedestrian and cyclist access to the proposed WWTP Pedestrian island crossing on Horningsea Road and lighting extending from the junction to the crossing A new footway section on the east side of Horningsea Road south of the junction with Low Fen Drove Way. 	Overall, there is potential for beneficial equality effects due to improvements to the pedestrian and cycle environment.

Impact theme	Equality groups that could be affected	Project zone potentially affected Project zone potentially affected	Duration/frequency/permanence/Relationship (direct/ indirect)	Project-specific evidence of effect	Proposed mitigation	Overall effect (negative/ positive/ neutral)
Feelings of personal safety and security	<ul style="list-style-type: none"> Young people Older people Disabled people People with ethnic minority backgrounds Men Women LGBT+ people 	<ul style="list-style-type: none"> Proposed WWTP Transfer and final effluent zone Waterbeach transfer zone 	Permanent / Direct	<p>The Proposed Development has the potential to change perceptions of personal safety and security during the operational phase.</p> <p>Lighting, CCTV and security staff may prevent the risk of trespass, anti-social behaviour (such as vandalism) and crime.</p>	<ul style="list-style-type: none"> Design measures include the earth bank as well as perimeter fencing, the use of surveillance equipment to monitor the facility, security-controlled access, and egress points. Physical security design measures following National Protective Security Authority (NSPA) guidance (NSPA, 2023) will be incorporated to ensuring the site is secure from unauthorized personnel. There will be an improved section of lighting along the footway of Horningsea Road and low level lighting within the car park of the proposed WWTPA security fence will also enclose the operational areas of the proposed WWTP, with automated gates to be provided to increase site safety 	Overall, there is potential for beneficial equality effects due to introduction of mitigations that may prevent the risk of trespass, anti-social behaviour (such as vandalism) and crime.
Health and safety risks	<ul style="list-style-type: none"> Children Older people Disabled people 	<ul style="list-style-type: none"> Transfer and final effluent zone Waterbeach transfer zone 	Temporary / Direct	Operation of the Proposed Development may result in health and safety risks from polluting water (toxicity and disease risk) from discharges to the River Cam, as well as from hazardous waste.	<p>The operation of the proposed WWTP will be subject to an Environmental Permits (IED and Water Activities) from the EA.</p> <p>The Environmental Permit for the proposed WWTP requires a written management system to be in place, once operation commences the operator must implement the management system or they will be in breach of the permit.</p> <p>The written management system covers general management of the proposed WWTP, equipment maintenance, contingency plans, accident prevention and emergency response (including pollution response) as well as defining monitoring activities. It sets out an organisational structure with environmental management roles and responsibilities.</p>	Overall effects due to health and safety risks would be limited and would be unlikely to result in adverse effects on people with protected characteristics.
Impacts on open space, PRow and recreational areas	<ul style="list-style-type: none"> Children Young people Older people Disabled people 	<ul style="list-style-type: none"> Proposed WWTP Transfer and final effluent zone Waterbeach transfer zone 	Permanent / Direct	<p>In the community of Horningsea, there will be an extension of footpaths and increased connectivity to new footpaths on the permanent access road.</p> <p>A new bridleway connection to the formal PRow network and permissive paths within the LERMP (App Doc Ref 5.4.8.14), creating</p>	<p>Design incorporates new connections to the PRow network as part of the LERMP</p> <p>Design includes improvements to sections of Horningsea Road including a new pedestrian crossing</p>	Overall there will be beneficial equality effects in terms of access and safety for protected characteristic groups within the users of the PRow network.

Impact theme	Equality groups that could be affected	Project zone potentially affected Project zone potentially affected	Duration/frequency/permanence/Relationship (direct/ indirect)	Project-specific evidence of effect	Proposed mitigation	Overall effect (negative/ positive/ neutral)
				new routes of different lengths for walking, cycling and horse riding will also be introduced. This is expected to be beneficial for local footpath users on the eastern side of Horningsea Road to Low Fen Drove Way due to increase of route options and improved PRow surfaces, which will improve access and safety.		
Education opportunities	<ul style="list-style-type: none"> Children Young people 	<ul style="list-style-type: none"> Proposed WWTP 	Permanent / Direct	The inclusion of the Discovery Centre will offer a managed education programme as part of the Proposed WWTP, targeted towards local schools and groups to learn about sustainability and the waste water treatment process.	Discovery Centre scheme, within the Gateway Building prior to commencement of operation to include monitoring of use of the Discovery Centre	Overall, the provision of the Discovery Centre is likely to benefit children and young people, as there are not directly similar facilities within the local authority area.
Potential generation of employment associated with the Proposed Development	<ul style="list-style-type: none"> Young people Disabled people People with ethnic minority backgrounds Men 	<ul style="list-style-type: none"> Proposed WWTP Transfer and final effluent zone Waterbeach transfer zone 	Permanent / Direct	The Proposed Development intends to replace the existing Cambridge WWTP. Given that the proposed WWTP would operate at a similar capacity and given the proximity of the existing site, it is not considered likely that there will be a notable change in operational employment.	No mitigation is required.	There is not enough information at this stage to identify specific job opportunities for particular equality groups, and as such no equality effect – positive or negative – can be identified.
Changes to public realm	<ul style="list-style-type: none"> Older people Disabled people People from ethnic minority backgrounds 	<ul style="list-style-type: none"> Proposed WWTP 	Permanent / Direct	The Proposed Development will create new areas of public realm that provide spaces for people to spend time outdoors.	No mitigation is required.	Overall, the changes to public realm are likely to benefit older and disabled people, as well as people from ethnic minority backgrounds, by giving them opportunities to take part in public life enabled by safe and accessible design for indoor and outdoor public spaces.

5 Managing Effects

- 5.1.1 Guidance followed in this assessment requires mitigation measures to be identified if the Proposed Development adversely affects local communities, businesses and people with protected characteristics. A number of mitigation measures have been identified during this assessment, many of which are embedded in the design or will be implemented as part of standard operating practices during construction or operation, or secured through further or secondary mitigation.
- 5.1.2 Through the application of the measures within the Community Liaison Plan (App Doc Ref 7.8) there will be ongoing engagement with the community. This will include ongoing engagement should be undertaken with the traveller communities at Blackwell and Fen Road Traveller sites, or with a suitable third party organisation representing these communities. Engagement should seek to keep the communities up to date with the Proposed Development as it develops and work collaboratively to identify any potential impacts of the work on people living at these sites. Section 4.2 of the CLP (App Doc Ref 7.8) includes specific provisions in relation to the way this community would be engaged such as through the use of intermediary organisations.
- 5.1.3 Based on the assessment undertaken, any potential adverse equality effects arising as a result of the construction, operation and decommissioning phases of the Proposed Development can be managed appropriately through embedded design measures, environmental plans, policies and other control mechanisms identified in Table 4-1 and Table 4-2.
- 5.1.4 If these are adhered to no adverse equality effects are expected to arise as a result of the Proposed Development.

6 Summary and Conclusions

6.1 Summary

- 6.1.1 This EqlA has been undertaken in support of the Applicant's obligation under UK equality legislation, and in particular the Equality Act, in particular the PSED, which encourages organisations delivering public functions, such as the Applicant, to understand how different people will be affected by their activities. It also meets the requirements of the NPS for Waste Water which sets out the requirement to undertake an EqlA for the construction, operation and decommissioning phases of a development.
- 6.1.2 This report has identified the potential impacts of the Proposed Development on people with characteristics protected under legislation. The findings set out within this report are based on a desk-based evidence review and on available information pertaining to the Proposed Development. The EqlA report considers the potential effects (both positive and negative) arising from the Proposed Development and sets out management and mitigation considerations to ensure the Applicant effectively plans for and can manage the equality effects of the scheme.

6.2 Conclusions

- 6.2.1 The assessment of effects was undertaken in light of the sensitivity of affected parties (such as local residents, business owners, employees and users of community facilities) to the Proposed Development, referring to people with characteristics protected under the Equality Act. Both adverse and beneficial impacts have been assessed taking into account proposed mitigation measures which will be implemented as part of the Proposed Development.
- 6.2.2 Based on the assessment undertaken, no adverse equality effects are expected as a result of the construction phases of the Proposed Development.
- 6.2.3 During operation there will be beneficial equality effects on PRoW as a result of improvements to the network. This will result in a differential impact on children, older people and disabled people. There will also be a beneficial effect on personal safety and security due to increased CCTV and lighting provision, differentially benefitting older people, disabled people, ethnic minority groups, men, women and LGBT+ groups. Finally, the inclusion of a discovery centre as part of the operational design will differentially benefit children and young people who will have access to a new educational resource.
- 6.2.4 Based on the assessment undertaken, no adverse equality effects are anticipated as a result of potential changes in the environment during the decommissioning phase.

Abbreviations

Acronym / Abbreviation	Detail
AAP	Area Action Plan
AOD	Above Ordnance Datum
AWS	Anglian Water Services
CWS	County Wildlife Site
CWWTP	Cambridge Waste Water Treatment Plant
CWWTPR	CWWTP Relocation
DCO	Development Consent Order
EIA	Environmental Impact Assessment
EqIA	Equality Impact Assessment
ES	Environmental Statement
HE	Homes England
HIF	Housing Infrastructure Fund
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
NPPF	National Planning Policy Framework
PCG	Protected Characteristics Groups
PE	Population Equivalent
PRoW	Public Right of Way
PINS	Planning Inspectorate
SSSI	Site Special Scientific Interest
STC	Sludge Treatment Centre
WRC	Water Recycling Centre
WWTP	Waste Water Treatment Plant

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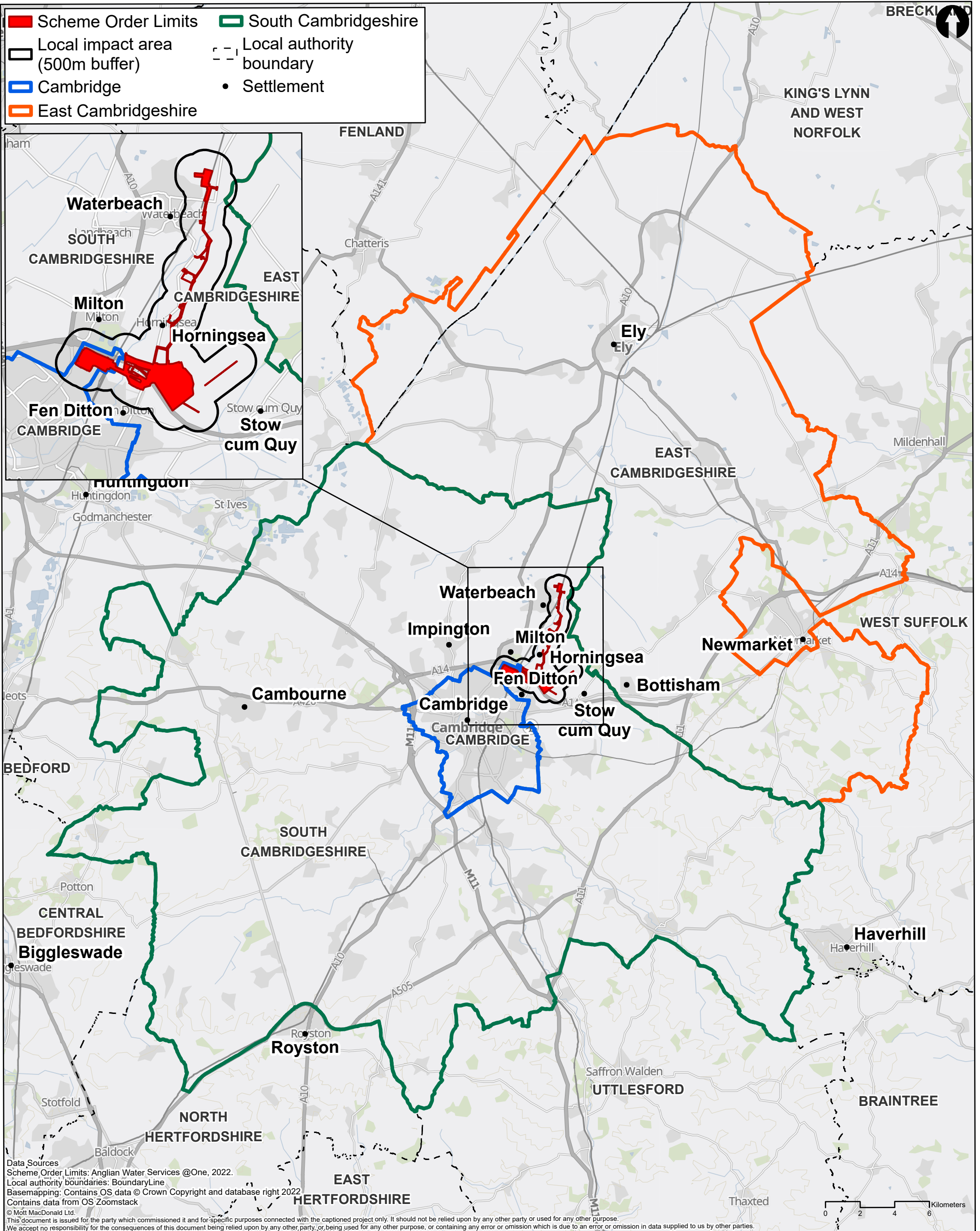
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7 Appendices

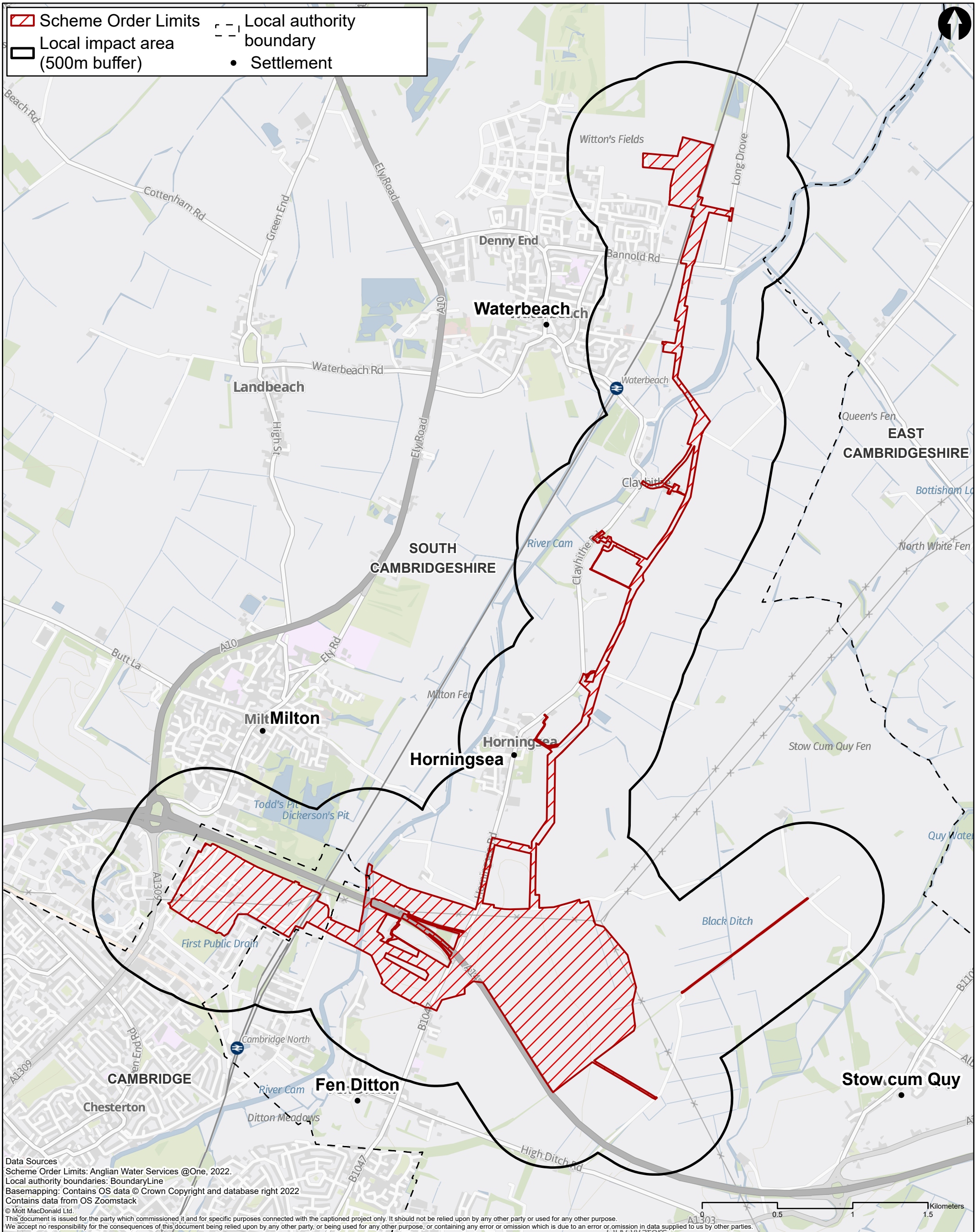
7.1 Appendix 7.12.1 – Figures

Map of wider study area



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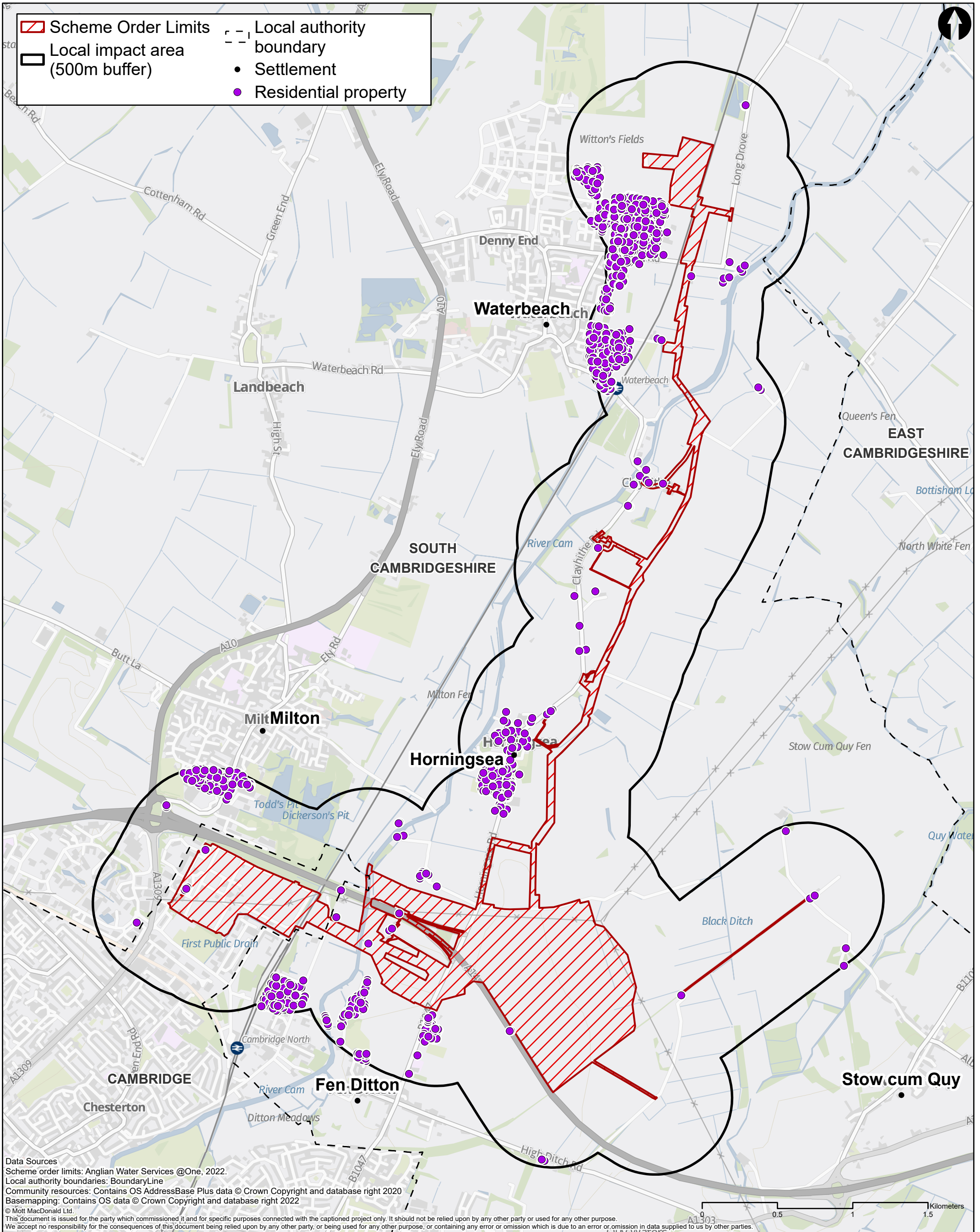
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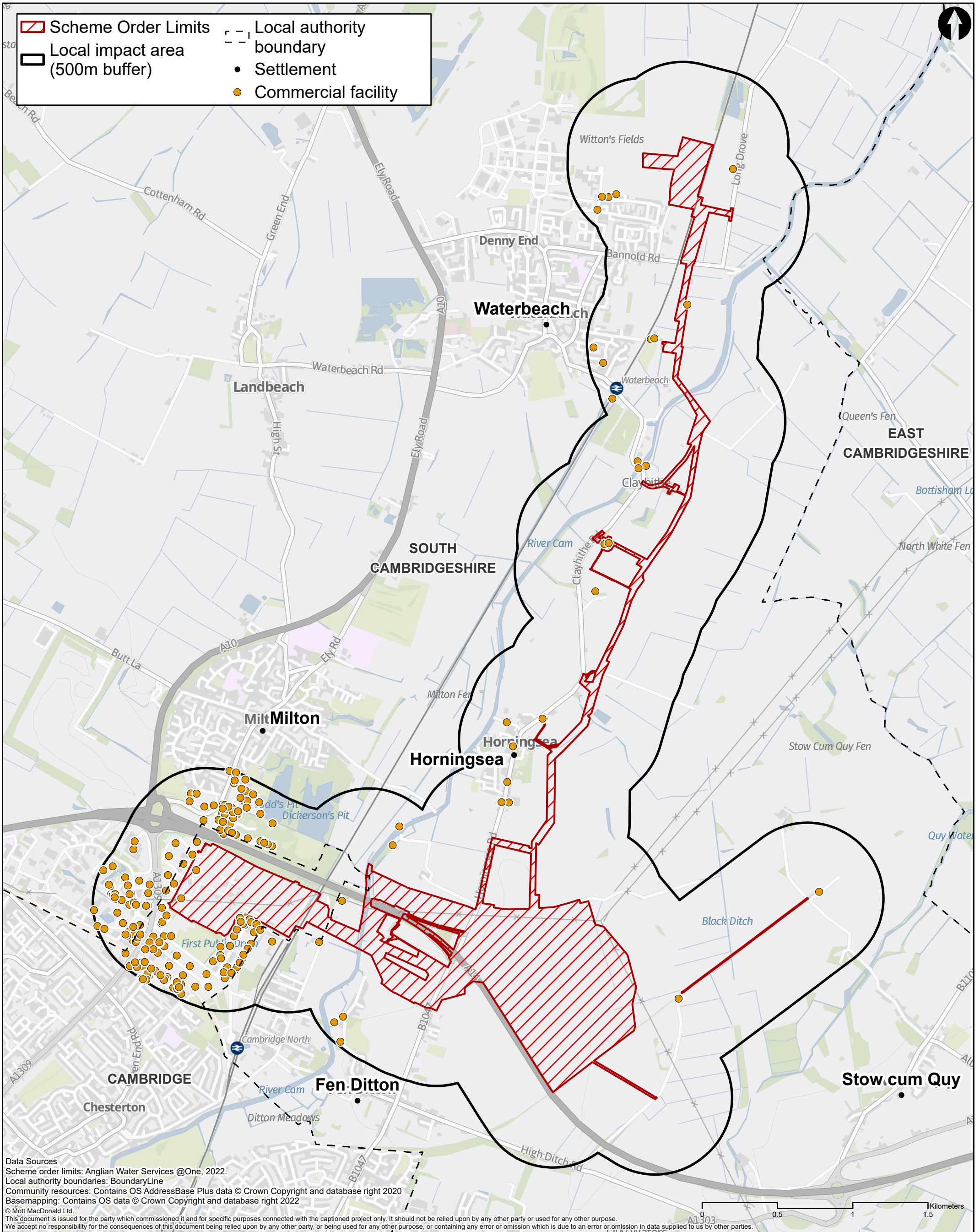


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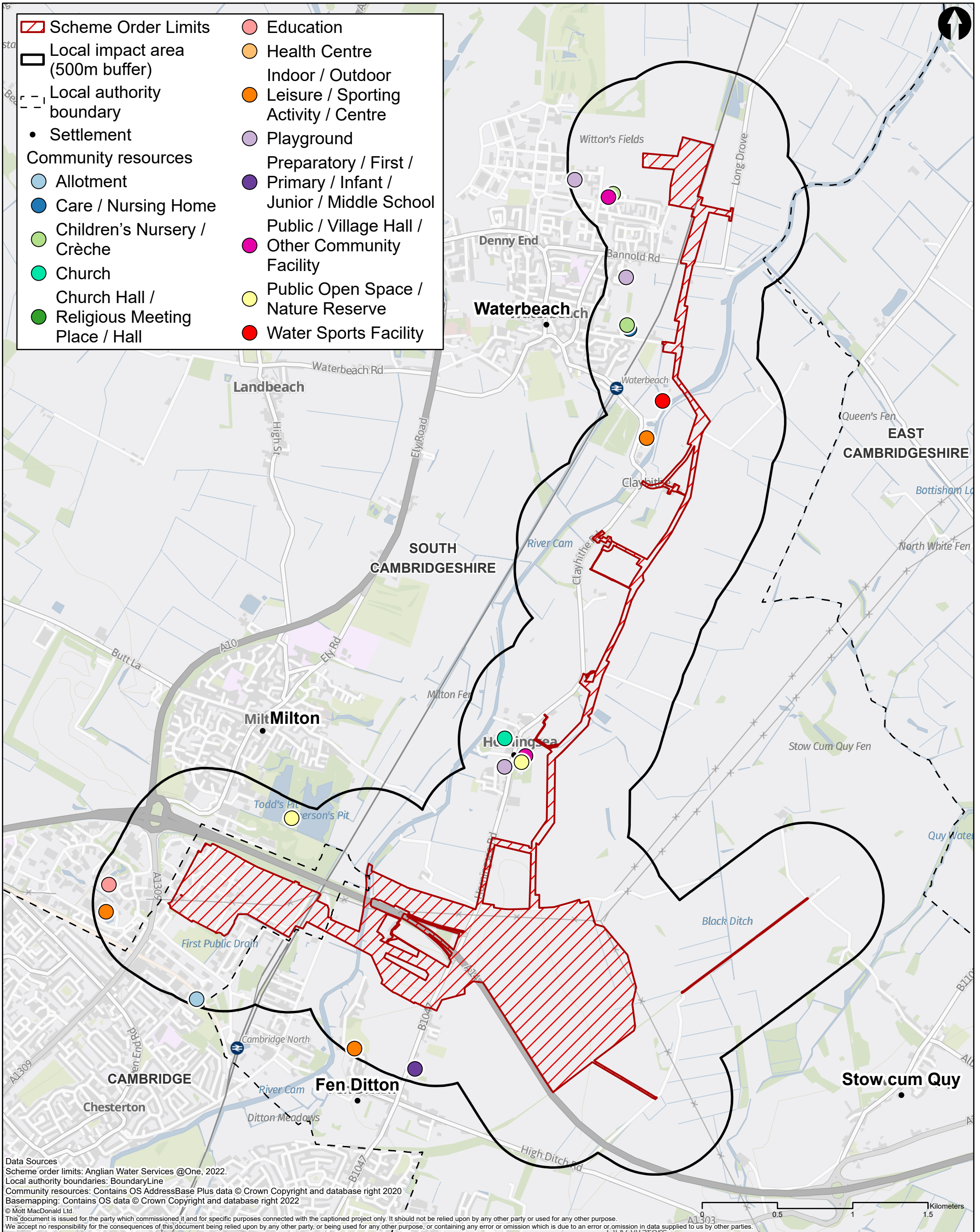
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- Scheme Order Limits
- Local impact area (500m buffer)
- Local authority boundary
- Settlement
- Community resources**
- Allotment
- Care / Nursing Home
- Children's Nursery / Crèche
- Church
- Church Hall / Religious Meeting Place / Hall
- Education
- Health Centre
- Indoor / Outdoor
- Leisure / Sporting Activity / Centre
- Playground
- Preparatory / First / Primary / Infant / Junior / Middle School
- Public / Village Hall / Other Community Facility
- Public Open Space / Nature Reserve
- Water Sports Facility

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	22 Station Road Cambridge CB1 2JD United Kingdom T +44 (0)20 8774 2000 F +44 (0)20 8681 5706 W mottmac.com						Title Cambridge Waste Water Treatment Plant Relocation Project Equality Impact Assessment Community resources within the local impact area			Drawn CR Checked SS Approved CS												
			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Rev</th> <th>Date</th> <th>Drawn</th> <th>Description</th> <th>Ch'k'd</th> <th>App'd</th> </tr> </thead> <tbody> <tr> <td>P1</td> <td>17/08/22</td> <td>CR</td> <td>First Draft</td> <td>SS</td> <td>CS</td> </tr> </tbody> </table>				Rev	Date	Drawn	Description	Ch'k'd	App'd	P1	17/08/22	CR	First Draft	SS	CS	Scale at A3 1:23,000 Drawing Number 100415458-MML-XX-00-DR-Z-0203032			Security STD Status PRE Rev P1
	Rev	Date	Drawn	Description	Ch'k'd	App'd																
P1	17/08/22	CR	First Draft	SS	CS																	
						Security STD Status PRE Rev P1																

7.2 Appendix 7.12.2 – Stakeholders relevant to the EqIA identified and contracted

Organisation	Named person	Position	First email	Follow up email	Call date	Response date	Calls
Church of St Peter, Horningsea	Andy Clarke Jennie Pratt	Treasurer Churchwarden	19/04/2022	22/04/2022	27/04/2022		Couldn't reach
Church of St John the Evangelist	Rev Paul Butler	Reverend	19/04/2022	22/04/2022	27/04/2022		
St Mary the Virgin Church, Fen Ditton	The Revd Canon Nick Moir Revd Pam Thorn Revd Canon Ben Quash	Reverends	19/04/2022	22/04/2022	27/04/2022		
The Cambridgeshire Society for the Blind	Becky Cawdry	Communications and Operations Manager	19/04/2022	22/04/2022	27/04/2022		couldn't reach
Cambridgeshire Deaf Association	Dr Janie Anderson Mr Andrew Palmer	Chair Chief Executive Officer	19/04/2022	22/04/2022	27/04/2022		Made the call - they are due to call Osman to follow up
Camtrust	Chris Griffiths Gabriella Giuffrida	Chair Trustee	19/04/2022	22/04/2022	27/04/2022		no response
Age UK Cambridgeshire and Peterborough	Hazel Williams MBE Melanie Wicklen Dr Stephen Webster	Chair Chief Executive President	19/04/2022	22/04/2022	27/04/2022		
Disability Cambridgeshire	Mark Jonathan	Acting President Acting Chair	19/04/2022	22/04/2022	27/04/2022		Not available

	Taylor Julie Bussey Jessica Wing	Communications Lead				
The Edmund Trust and Eddie's	John Ellis Lisa Yearn	Chief Executive Officer Head of Operations	19/04/2022	22/04/2022	27/04/2022	Made the call - they are due to call Osman back
Waterbeach Baptist Church	Martin Ensell	Pastor	19/04/2022	22/04/2022	27/04/2022	No response for the call
Waterbeach Lodge Care Home	Beverley Murray	Manager	19/04/2022	22/04/2022	27/04/2022	Made the call - the receptionist requested to call them back on 28th once the manager is back
Waterbeach Toddler Play Ground	Fiona Thomas Laura El Fatmaoui	Playgroup Manager Chairperson	19/04/2022	22/04/2022	27/04/2022	No response to the call
Hérons Preschool	Wayne Badcock	Preschool Manager	19/04/2022	22/04/2022	27/04/2022	Made the call - they acknowledged the call and they are willing to contribute. Preschool contact to give Osman call
Salvation Army, Waterbeach	Stephanie White	Lieutenant	19/04/2022	22/04/2022	27/04/2022	
Brown's Field youth and community centre			19/04/2022	22/04/2022	27/04/2022	
Chestnut Nursery School			<u>19/04/2022</u>	22/04/2022	27/04/2022	
Chesterton Primary School	Mrs Kate Yeoman Maxine Searle	Head Teacher Administrator	19/04/2022	22/04/2022	27/04/2022	

Clarence House Day nursery	Michelle Noble	Manager	19/04/2022	22/04/2022	27/04/2022	
Chesterton Methodist Church	Deacon Ian Murray Klara Mottlova	Minister Church Administrator	19/04/2022	22/04/2022	27/04/2022	
Horningsea Village Hall	Pauline Hellowell		19/04/2022	22/04/2022	22/04/2022	Suggested Michael Halliwell as an alternative and the interview was undertaken on Friday 29th.

Get in touch

You can contact us by:



Emailing at info@cwwtpr.com



Calling our Freephone information line on **0808 196 1661**



Writing to us at **Freepost: CWWTPR**

You can view all our DCO application documents and updates on the application on The Planning Inspectorate website:

<https://infrastructure.planninginspectorate.gov.uk/projects/eastern/cambridge-waste-water-treatment-plant-relocation/>