

Cambridge Waste Water Treatment Plant Relocation Project
Anglian Water Services Limited

Environmental Statement

Chapter 12: Health

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Contents

1	Introduction	1
1.1	Purpose of this chapter	1
1.2	Competency statement.....	1
1.3	Planning policy context	2
1.4	Legislation	5
1.5	Consultation	7
2	Assessment Approach.....	16
2.1	Guidance	16
2.2	Assessment methodology	16
2.3	Study area.....	22
2.4	Temporal scope of assessment	23
2.5	Baseline study	24
2.6	Maximum design envelope (Rochdale) parameters for assessment.....	25
2.7	Impacts scoped out of the assessment.....	29
2.8	Items scoped out since the scoping opinion.....	29
2.9	Mitigation measures adopted as part of the Proposed Development	31
2.10	Assumptions and limitations.....	37
3	Baseline Environment.....	38
3.1	Current baseline	38
3.2	Future baseline.....	45
4	Assessment of Effects	46
4.2	Construction phase	46
4.3	Operation phase.....	58
4.4	Decommissioning of the existing Cambridge WWTP.....	63
4.5	Cumulative effects	65
4.6	Inter-related effects	65
5	Conclusion and Summary.....	67
5.2	Securing mitigation	78
5.3	The delivery of mitigation will be controlled through the ‘Development Consent Order (DCO) requirements’ which:	78
	References	85

Tables

Table 1-1: Competent experts.....	1
Table 1-2: Scope and NPS Compliance.....	3
Table 1-3: Key points raised during scoping (November 2021)	7
Table 1-4: Key points raised during engagement with Technical Working Groups	14
Table 2-1: Source-pathway-receptor model for health effects	17
Table 2-2: Impact magnitude criteria	17
Table 2-3: Receptor sensitivity criteria	19
Table 2-4: Health receptor groups.....	20
Table 2-5: Significance matrix	21
Table 2-6: Baseline information sources.....	24
Table 2-7: Maximum design envelope (Rochdale) for health assessment.....	26
Table 2-8: Impacts scoped out of the health assessment	29
Table 2-9: Primary and tertiary measures relating to health adopted as part of the Proposed Development.....	32
Table 3-1: Population by age.....	38
Table 3-2: Income deprivation by quintile	39
Table 3-3: Public health baseline data	40
Table 3-4: Long-term health problem or disability.....	41
Table 3-5: General health	41
Table 3-6: Wellbeing by local authority.....	42
Table 3-7: Mental health by local authority.....	42
Table 3-8: Projected growth in population	45
Table 5-1: Summary of health effects.....	70
Table 5-2: Health mitigation summary	79

Summary

Introduction

This chapter of the Environmental Statement (ES) presents the findings of the Environmental Impact Assessment (EIA) completed in relation to the potential impacts of the Proposed Development on health.

Assessment approach

There is no formal guidance on considering health within the context of EIA. The approach to this assessment has applied. The Institute of Environmental Management and Assessment (IEMA) 'Health in Environmental Impact Assessment; A Primer for a Proportionate Approach' (Cave, Fothergill, Pyper, Gibson, & Saunders, 2017). Regard has also been given to the South Cambridgeshire Supplementary Planning Document for Health Impact Assessment (South Cambridgeshire District Council, 2011) and the South Cambridgeshire Supplementary Planning Document for Health Impact Assessment (South Cambridgeshire District Council, 2011).

The Study Area has been defined by analysing potential health effects as a result of construction, operation and decommissioning of the Proposed Development. This included analysing the study areas of the technical disciplines which inform the health chapter, namely: Air Quality, Community, Land Quality, Landscape and Visual Amenity, Material Resources and Waste, Noise and Vibration, Odour, Traffic and Transport and Water assessments. Baseline information within the Health Study Area was collected through a detailed desktop review of existing relevant studies and datasets.

Summary relevant mitigation

In developing the Proposed Development through an iterative process, including consultation and engagement with consultees, and via the Environmental Impact Assessment (EIA) process, the Applicant has identified and incorporated suitable measures and mitigation for potentially significant adverse effects, as well as maximising beneficial effects where possible.

Some measures are 'embedded' in the design of the Proposed Development for which consent is included in Schedule 1 to the Development Consent Order (DCO) and the accompanying Works Plans. These are considered primary mitigation. For example, adjustment of Order Limits to avoid sensitive features, amending the sizing and location of temporary access routes and compounds.

Secondary measures may be detailed activities for example the preparation of detailed Archaeological Investigation Mitigation Strategy (AIMS) in accordance with the CoCP, the preparation and delivery of a monitoring plan for specific matters (air quality, water quality) or the preparation and delivery of specific environmental management plans (for example air, noise, water), and the preparation and implementation is secured through the CoCP. These secondary measures are differentiated from the good practice measures.

Tertiary measures comprise good practice measures (such as measures within Considerate Contractors Scheme) and measures integrated into legal requirements secured through environmental permits and consents (least flexible as either the legislation exists to create the mitigation or does not (i.e. Protected Species Licensing).

Summary construction effects

With the implementation of mitigation measures the impact of the Proposed Development on health during construction, would vary from neutral to slight adverse prior to mitigation, which is not significant. There are anticipated to be neutral health effects (not significant) from:

- potential increases in local employment
- changes to social cohesion from the presence of a construction workforce
- potential risks from water pollution
- potential risks from hazardous waste and substances
- changes to environmental conditions impacting health and wellbeing in Fen Road and Milton, Horningsea, Waterbeach and Clayhithe and Fen Ditton
- change changes to recreational routes impacting rates of physical activity and the ability to live active lifestyles in Chesterton and communities on the eastern end of Fen Road and Milton, Horningsea, Waterbeach and Clayhithe.

There are anticipated to be slight adverse health effects (not significant) from:

- rates of physical activity and the ability to live active lifestyles from restrictions to access to the River Cam
- changes to environmental conditions impacting health and wellbeing on Fen Road
- changes in access to local services (Fen Ditton School)

Summary operation effects

With the implementation of mitigation measures the effects of the Proposed Development on health during operation would vary from slight adverse to slight beneficial prior to mitigation which is not significant.

There are anticipated to be neutral health effects (not significant) from:

- potential risks from water pollution
- potential risks from hazardous waste and substances
- potential risks from pests
- changes to environmental conditions impacting health and wellbeing in Fen Road and Milton, Horningsea, Waterbeach and Clayhithe and Fen Ditton
- change changes to recreational routes impacting rates of physical activity and the ability to live active lifestyles in Chesterton and communities on the eastern end of Fen Road and Milton, Horningsea, Waterbeach and Clayhithe.

There are anticipated to be slight adverse health effects (not significant) from:

- changes to how local people feel about their community, in particular their sense of place and wellbeing.

- There are anticipated to be slight beneficial health effects (not significant) from:
- change changes to recreational routes impacting rates of physical activity and the ability to live active lifestyles in the Study Area

Summary decommissioning effects

The potential impacts as a result of decommissioning the existing Cambridge WWTP for the purpose of surrendering the existing Environmental Permit would result in neutral health effects.

1 Introduction

1.1 Purpose of this chapter

- 1.1.1 This chapter of the Environmental Statement (ES) presents the findings of Environmental Impact Assessment (EIA) completed in relation to the potential impacts of the Proposed Development on health.
- 1.1.2 The ES has been prepared as part of the application to the Planning Inspectorate (PINS) for development consent. This chapter considers the potential direct and indirect, physical and mental health impacts of the Proposed Development during its construction (including commissioning), operation and maintenance, and decommissioning phases.
- 1.1.3 This chapter summarises information from supporting studies, technical reports and publicly available data, which are included in the Health Evidence Review (Appendix 12.2, App Doc Ref 5.4.12.2) and the Mental Wellbeing Impact Assessment (Appendix 12.3, App Doc Ref 5.4.12.3).
- 1.1.4 This chapter (and its associated figures and appendices) is intended to be read as part of the wider ES, with particular reference to:
- Chapter 7 : Air Quality;
 - Chapter 11: Community;
 - Chapter 14 : Land Quality;
 - Chapter 15: Landscape and Visual Amenity;
 - Chapter 16: Material Resources and Waste;
 - Chapter 17 : Noise and Vibration;
 - Chapter 18 : Odour;
 - Chapter 19: Traffic and Transport; and
 - Chapter 20: Water Resources.

1.2 Competency statement

- 1.2.1 Summaries of the qualifications and experience of the Chapter authors are set out in Table 1-1.

Table 1-1: Competent experts

Author	Qualification / Professional Membership	Years of experience	Project experience summary
█	Member of the Institute of Environmental	20 years	Lead author of the health components of a large aviation project in the UK,

Author	Qualification / Professional Membership	Years of experience	Project experience summary
	Management and Assessment MSc Environmental Assessment BSc Geography		Lead author of health and community components of a nationally significant rail project. Lead author of Community and Health topic for hybrid bill rail scheme
	BSc Geography and Environmental Science Bachelor of Laws (First Class Hons)	7 years	Authored the Population and Human Health chapter for a National Highways scheme going through the Development Consent Order (DCO) process. Co-authored the socio-economics chapter for an energy development that went through the DCO process. Co-authored the socio-economics chapter for an energy development which obtained DCO consent
	MSc Economics (Development Economics) MA (hons) Economics and International Relations	8 years	Co-authored the community, health and equalities components of a nationally significant rail project. Authored the Population and Human Health chapter for a National Highways scheme going through the Development Consent Order (DCO) process. Lead author of the Population and Human Health chapter and Social Performance component as part of an EIA energy project
	MSc, Inequalities and Social Science BSc, Economics and International Development	1 year	Health Chapter as part of an EIA for a railway station Health Chapter as part of an EIA for a rail transport project Health Chapter as part of an EIA for a flood alleviation scheme

1.3 Planning policy context

National Planning Statement (NPS) requirements

- 1.3.1 Planning policy on waste water Nationally Significant Infrastructure Projects (NSIPs), specifically in relation to health, is contained in the National Policy Statement (NPS) for Waste Water (Department of Environment, Food and Rural Affairs, 2012).
- 1.3.2 Table 1-2 sets out how the scope proposed in this chapter complies with the NPS for Water Waste.

Table 1-2: Scope and NPS Compliance

NPS requirement	Compliance of ES scope with NPS requirements
Chapter 3.10 of the NPS states that the Applicant should identify any significant adverse health impacts in the ES, and identify measures to avoid, reduce or compensate for these impacts as appropriate.	Section 5.2 (Mitigation measures adopted as part of the Proposed Development) outlines any potential adverse health impacts and measures to avoid, reduce or compensate these impacts as appropriate.
Chapter 3.10 of the NPS identifies the types of health impacts that may be considered. Paragraph 3.10.2 states that the direct health impacts may include increased traffic, air pollution, dust, polluting water (toxicity and disease risks), hazardous waste and substances, noise, and increases in pests.	Section 2.2 (paragraph 2.2.14) outlines the scope of the ES health assessment which includes all aspects listed in paragraph 3.10.2 of the NPS.
Chapter 3.10 identifies the types of health impacts that may be considered. Paragraph 3.10.3 states that new waste water infrastructure may also have indirect health impacts, including access to key public services, employment, transport or use of open space and recreation and physical activity.	The scope of the assessment includes any potential adverse indirect health impacts. This includes consideration of impacts on access to key public services, employment, transport or use of open space and recreation and physical activity.
Chapter 10 states that impacts may affect people simultaneously so the Applicant should consider the cumulative impact on health.	A cumulative effects assessment is provided within Chapter 22: Cumulative Effects, with consideration given to health, and are summarised in Section 4.5 (Cumulative effects) of this chapter.

National planning policy

1.3.3 National planning policy of relevance to the health assessment, and pertinent to the Proposed Development is listed below.

- National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2021)
 - Section 8: Promoting healthy and safe communities (paragraphs 92, 93, and 95). These paragraphs state that planning decisions should achieve healthy, inclusive, and safe places which enable and support healthy lifestyles, especially where this would address identified local health and wellbeing needs and to consider and support the delivery of local strategies to improve health, social and cultural wellbeing for all sections of the community.
 - Section 8: Promoting healthy and safe communities (paragraphs 98, 99 and 100). The importance of providing access to high quality open spaces and opportunities for sport and physical activity is an important consideration for the health and wellbeing of communities. The NPPF acknowledges that planning decisions should protect and

enhance Public Rights of Way (PRoW) and access, including taking opportunities to provide better facilities for users.

Local planning policy

1.3.4 Local planning policy of relevance to the Proposed Development includes:

- South Cambridgeshire Local Plan 2018 Policy SC/2 (South Cambridgeshire District Council, 2018):
 - The objectives of the Local Plan provide a vision for new development to ensure the supporting of healthy lifestyles and the wellbeing for everyone. Policy SC/2 states that planning applications for large-scale developments (developments of 100 or more dwellings or 500m² or more floorspace) should be accompanied by a full Health Impact Assessment.
- South Cambridgeshire District Council Local Development Framework, Health Impact Assessment, Supplementary Planning Document (Adopted March 2011) (South Cambridgeshire District Council, 2011):
 - This Supplementary Planning Document (SPD) states that developments have the potential to impact on human health and wellbeing. This is because a wide range of social and environmental factors affect the health of local communities within South Cambridgeshire. Paragraph 2.8 states it is important to consider the effects of the wider determinants of health in development policies and plans to enhance the potential to influence health and wellbeing, and therefore health inequalities. Within the Supplementary Planning Document, it is recommended at paragraph 3.3 that screening is undertaken to review the possible health impacts, considering the size and importance of the development proposal.
 - Within the SPD, it states at paragraph 2.10 that for those development proposals that are already required to submit an Environmental Impact Assessment (EIA) it may make sense to integrate health impacts into the EIA rather than duplicate the assessments as the methodology is very similar and there is a large overlap in the evidence gathered and used in both assessments. The Council's preferred approach is for Health Impact Assessments to be integrated with other similar assessments to ensure the Health Impact Assessment is wide ranging and has adequately examined all the potential health impacts of a development.
 - Within the SPD, it is also recommended at paragraph 3.3 that screening is undertaken to review the possible health impacts, considering the size and importance of the development proposal. A Health Impact Assessment Screening document was included in the Scoping Report to the Planning Inspectorate in accordance with the SPD.

- Cambridge City Council Local Plan (Cambridge City Council, 2018):
 - One of the Cambridge City Council Local Plan’s strategic objectives is to ‘promote a safe and healthy environment, minimising the impacts of development and ensuring the quality of life and place’ (Cambridge City Council, 2018). Section eight describes the services and local facilities required to contribute to the vibrant and diverse character of the city, and how these facilities should be given careful consideration in development proposals. Section nine describes how the growth of Cambridge will create additional demands for physical and social infrastructure and how development should promote sustainable transport, so that Cambridge remains a compact city with a high quality of life and place.
- Cambridgeshire and Peterborough Minerals and Waste Local Plan 2021 (Cambridgeshire County Council and Peterborough City Council, 2021):
 - The Cambridgeshire and Peterborough Minerals and Waste Local Plan sets a framework for all minerals and waste developments until 2036. Policy 18 outlines the amenity considerations so that new developments do not result in unacceptable adverse impacts on the amenity of existing occupier of land or property.
- The Greater Cambridge Local Plan is intended to replace both the adopted Cambridge City and South Cambridgeshire Local Plans 2018 and covers the period to 2041. In November/December 2021 public consultation was held on the Greater Cambridge Local Plan First Proposals. ‘Well-being and social inclusion’ is highlighted as a key element of the First Proposals in order to ‘Help people in Greater Cambridge to lead healthier and happier lives, ensuring that everyone benefits from the development of new homes and jobs’. Proposed policy relevant to the Proposed Development in relation to health are:
 - Policy BG/EO: Providing and enhancing open spaces;
 - Policy WS/HD: Creating health new developments;
 - Policy WS/HD: Community, sports and leisure facilities;
 - Policy WS/HS: Pollution, health and safety; and
 - Policy GP/PP: People and place responsive design.

1.4 Legislation

- 1.4.1 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Department for Communities and Local Government, 2017), states that the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the Proposed Development on population and human health. The health aspect is outlined within this chapter. Population aspects are outlined in Chapter 11: Community.

1.4.2 An Equality Impact Assessment (EqIA), which is included in the DCO application , specifically considers the impact of these potential changes on the needs of groups with protected characteristics under the Equality Act 2010a. and should be read in conjunction with this chapter and its associated figures and appendices. This assessment and the EqIA were developed in parallel with outputs from the EqIA informing this assessment and vice-versa.

1.5 Consultation

Scoping

1.5.1 Table 1-3 provides a summary of key points raised during scoping.

Table 1-3: Key points raised during scoping (November 2021)

ID	Consultee	Points raised	Response
3.7.1	PINS	<p>The Applicant states that health risks are unlikely to be significant with appropriate implementation of mitigation and management processes. The Scoping Report states health risks will be considered as part of the following and will “only be included as part of the health assessment if residual risks to human health are identified during construction and operation.”</p> <ul style="list-style-type: none"> ● Polluting water (Chapter 20: Water Resources) ● Hazardous waste and substances (Chapter 16: Materials, Resources and Waste) ● Air quality, dust, noise, traffic (Chapter 7, Chapter 17 and Chapter 19 respectively). <p>The Inspectorate is satisfied that these assessments need not be duplicated in the health aspect chapter, but that this chapter should draw together the outcomes of these separate assessments in the overall assessment of significance of effects on health (whilst it remains uncertain in terms of residual risks).</p>	<p>The outcomes of assessments on polluting water (Chapter 20: Water Resources), hazardous waste and substances (Chapter 16: Material Resources and Waste, air quality, dust, noise and traffic (Chapter 7: Air Quality, Chapter 17: Noise and Chapter 19: Traffic and Transport) have informed the overall assessment of significance on health. Relevant mitigation and management processes are also referred to and detailed within Section 5.2 (Mitigation measures adopted as part of the Proposed Development) of this chapter.</p>
3.7.2	PINS	<p>The Applicant states that the risk from pests is unlikely to be significant, with appropriate implementation of mitigation and management processes (including an Environment Management System (EMS) that is “expected to include control of pests”). The Inspectorate is of the opinion that this matter cannot be scoped out at this stage (during operation) without further understanding and detail as to the potential for pest that might be associated with developments of this type and these control</p>	<p>Further measures to be included within the operational EMS are provided in Section 5.2 (Mitigation measures adopted as part of the Proposed Development) of this chapter to demonstrate how pests will be controlled during the operational stage. It is agreed that potential effects, as a result of risks from pests, is scoped out during the construction phase.</p>

ID	Consultee	Points raised	Response
3.7.3	PINS	<p>measures to be included in the EMS. Additional context should be provided with further reference to pest control (and measures within the EMS) associated with the existing wastewater treatment plant.</p> <p>During construction of the Proposed Development, the Inspectorate agrees that the Construction Environmental Management Plan (CEMP) and implementation of best practice construction methods would mean significant effects are unlikely to occur and that this matter can be scoped out.</p>	<p>It is agreed that changes to access to health, social care and educational services during operation is scoped out of the assessment.</p> <p>The potential impacts on highway safety and acceptability of traffic impacts are assessed in Chapter 19: Traffic and Transport.</p>
3.7.4	PINS	<p>The Scoping Report suggests that there will not be a significant increase in the operational workforce.</p> <p>On the basis of the limited predicted increase in operation workforce, the Inspectorate agrees that this can be scoped out.</p>	<p>It is agreed that health outcomes, as a result to changes to the operational workforce, are scoped out of the assessment.</p>

ID	Consultee	Points raised	Response
3.7.5	PINS	<p>The Scoping Report suggests that it is unlikely that the Proposed Development will create sizeable demand for accommodation or healthcare facilities during construction. It is also assumed that construction site occupational health services will deal with the vast majority of incidences, therefore placing no additional pressure on local healthcare services.</p> <p>The Inspectorate considers that significant effects on health services during construction and operation can be excluded on this basis.</p>	<p>It is agreed that demand for local accommodation and public health services due to temporary workforce or a permanent workforce during construction and operation is scoped out of the assessment.</p>
3.7.6	PINS	<p>As stated in Paragraph 11.87 of the Scoping Report, it is assumed that site security arrangements will be in line with relevant regulations and requirements. The Inspectorate agrees that this matter can be scoped out on this basis.</p>	<p>It is agreed that changes in crime levels at the Proposed Development is scoped out of the assessment.</p>
3.7.7	PINS	<p>The Scoping Report lists some potential construction phase impacts, namely 'Economy' and 'Social cohesion'. It is unclear from the description what the implications are on the health aspect of the ES. Where the ES draws on information from other aspect chapters it should be clear how this relates to the specific health aspect chapter. The Inspectorate notes the potential for overlap between the community and health aspect chapters (for example local community concern over the proximity to construction activities which may have consequential health effects).</p>	<p>Where the health assessment draws on aspects of the community assessment, this has been identified within the chapter with appropriate cross-referencing. How this relates to the aspect of health which is being assessed has also been identified.</p>
n/a	Greater Cambridge Shared Planning (GCSP)	<p>Overall satisfied with the geographical scope, references to local and national planning policy and baseline population health. In relation to paragraph 12.9.2, the first bullet point should also conclude that this may have an effect on the health and wellbeing, including mental and respiratory health.</p> <p>We recommend that the Gypsy, Roma, Traveller population are 'scoped in' as a minority group and consulted since they</p>	<p>Mental and respiratory health statistics have been included within Section 3.1 (Current baseline) of this chapter. Potential health and wellbeing effects are within the scope of the assessment, which includes impacts on mental and respiratory health.</p> <p>As the Gypsy, Roma, Traveller (GRT) population as a group with protected characteristics, the potential</p>

ID	Consultee	Points raised	Response
		represent the largest ethnic minority within the District, with two traveller sites situated within the EIA Scoping boundary.	impacts on this group are considered within the EqIA, which is included as part of the DCO application.
		The potential impacts due to construction (and decommissioning) should state the anticipated duration of the identified temporary impacts.	The durations of construction and decommissioning are stated within the relevant sections of this chapter.
		Local populations impacted by traffic management systems should be notified well in advance of any temporary planned diversions or changes to traffic management.	Included within the Construction Traffic Management Plan (CTMP) (Appendix 19.7, App Doc Ref 5.4.19.7) are measures to notify local populations who may be impacted by construction traffic, including planned diversions and changes to traffic management.
		Mitigations to minimise noise and vibration, air quality, water quality and visual effects on community and human health receptors should be cross-referenced and mentioned within the Health chapter.	Measures relevant to mitigating potential health effects are detailed in Section 5.2 (Mitigation measures adopted as part of the Proposed Development) of this chapter as well as being referenced, where relevant, in Section 4 (Assessment of effects). This includes cross references to other chapters which are relevant.
		It is recognised that the Proposed Development will be a new feature in the community and may affect people’s “sense of place and wellbeing, including mental health” in either a positive or negative way. We would encourage the Applicant to consider a positive approach to community consultation and engagement, together with creating a state-of-the-art energy-efficient facility with a world-class image, to help effectively mitigate these impacts.	<p>Anglian Water prepared and publicised a Statement of Community Consultation in accordance with Section 47 of the Planning Act 2008. This document detailed:</p> <ul style="list-style-type: none"> ● the consultation approach which includes three rounds of non-statutory consultation; ● the core consultation zone and wider consultation area; ● the approach for ensuring that the consultation is accessible; and

ID	Consultee	Points raised	Response
		<p>The decommissioning of the existing plant does not include demolition of the existing structures and remediation of the site. While it is anticipated that the site would be viable and would be developed soon after the new facility is operational, this does not form part of the DCO. We therefore recommend that the health and socio-economic impacts of leaving the existing unused structures in place are 'scoped in' for this EIA.</p>	<ul style="list-style-type: none"> the methods for consultation and how this aligns with the planning process. <p>Chapter 2: Project Description provides information on decommissioning for the purpose of surrendering the environmental permit.</p> <p>For this, the Environment Agency would need to be satisfied that any environmental risks were adequately addressed. This would include risk factors potentially affecting human health.</p> <p>The redevelopment of land at the existing Cambridge WWTP would be subject to a separate planning application and associated environmental impact assessment (EIA) and is not covered in the ES for this application.</p>
		<p>The cumulative health assessment should include the works being undertaken at Waterbeach to build a new town c~11000 dwellings together with the relocation of the railway station.</p>	<p>The Waterbeach New Town development has been included within the cumulative assessment Chapter 22: Cumulative Effects. A summary of the assessment of cumulative effects is provided in Section 4.5 of this chapter.</p>
n/a	East of England Ambulance Service (EEAST)	<p>The proposal to integrate the health impact assessment within the EIA is supported by EEAST.</p> <p>Many issues have been considered and arrangements are in place to identify baselines and monitoring measures. However, EEAST would request further consideration is made to assess the impact of emergency and non-emergency ambulance services during construction of the connecting road link, during construction and post construction phases at the new site, as well as the decommissioning of the current site.</p>	<p>The response from the consultee is noted.</p> <p>Potential changes in access to local services during construction, which includes health services, is included within the scope of the assessment. This includes potential impacts on emergency and non-emergency services.</p> <p>No new connecting link road forms part of the Proposed Development.</p>

ID	Consultee	Points raised	Response
		<p>The HIA should address mitigation needs for primary, community and acute care including any mental health needs of construction workers as well as any potential health impacts on local residents.</p> <p>We request full engagement with EAST and Cambridgeshire and Peterborough Integrated Care System is paramount to ensure healthcare needs are considered and any mitigation measures addressed.</p>	<p>Potential health impacts on local residents are included within Section 4.2 (Construction phase), Section 4.3 (Operation phase) and Section 4.4 (Decommissioning of the existing Cambridge WWTP) of this chapter. The provision of healthcare services for construction workers has been scoped out of the assessment, as agreed with the Planning Inspectorate.</p> <p>Engagement with EEAST and Cambridgeshire and Peterborough Integrated Care System is continuing. No additional engagement has taken place at this stage.</p>
n/a	Fen Ditton Parish Council	<p>Our comments on Chapter 7: Air Quality and baselines indicate that odour etc. should also be considered in terms of health. There are issues with the existing WWTW - the 'Milton whiff' is somewhat notorious and therefore odour should be properly considered in Chapter 12: Health (and also Chapter 19 where elements are scoped out).</p>	<p>Potential changes to health and wellbeing due to odour are included within this assessment, and are based on the findings of Chapter 18: Odour.</p>
n/a	<p>UK Health Security Agency (UKHSA) and the Office for Health Improvement and Disparities (OHID) (formerly</p>	<p>It is noted that there appears to be a recurring error throughout the document where, what presumably should read, 'PM10' has been incorrectly substituted with, 'PM2.5'. To avoid any potential confusion in this or future documentation, we would recommend that the recurring error identified with reference to 'PM10' is corrected</p> <p>The scoping report references the South Cambridgeshire District Council Local Development Framework and the Health Impact Assessment, Supplementary Planning Document. OHID agree with the Council's preferred approach for an integrated assessment.</p>	<p>This correction has been made.</p> <p>The response from the consultee is noted and agreed.</p>

ID	Consultee	Points raised	Response
	Public Health England)	<p>The inclusion of mental health as a potential effect in the scoping report is welcomed, but no baseline mental health and wellbeing data is provided to indicate levels of sensitivity of the local community. We also support the recognition of the complex relationship between noise, amenity and community change with mental health and wellbeing.</p> <p>The assessment of mental health and wellbeing should consider guidance by the National Mental Wellbeing Impact Assessment Collaborative for opportunities to support mental wellbeing. Where necessary ensure that clear mitigation strategies are adequately linked to any local services or assets. In addition to the baseline indicators the assessment would benefit from including social cohesion/ connectedness, satisfaction with local area and quality of life indicators owing to their established links to mental health and wellbeing.</p>	<p>Mental health data has been included within the baseline assessment (Table 3-7). This includes data, reported at a local authority level, from the personal wellbeing questions within the annual population survey conducted by the Office of National Statistics (ONS). The percentage of people reporting depression or anxiety from Public Health England have also been included for all of the local authorities within the study area (Table 3-7).</p> <p>A Mental Health and Wellbeing Assessment (Appendix 12.3, App Doc Ref 5.4.12.3) has been undertaken in line with the National Mental Wellbeing Impact Assessment Collaborative. Mitigation strategies are outlined in Section 5.2 (Mitigation measures adopted as part of the Proposed Development) of this chapter. Where applicable, baseline indicators for mental health and wellbeing indicators have been included in the baseline.</p>
		<p>The impacts on health and wellbeing and health inequalities of the scheme may have particular effect on vulnerable or sensitive populations, including those that fall within the list of protected characteristics. The ES and any Equalities Impact Assessment should not be completely separated. The assessments and findings of the ES and any Equalities Impact Assessment should be cross referenced between the two documents, particularly to ensure the comprehensive assessment of potential impacts for health and inequalities and where resulting mitigation measures are mutually supportive. The final ES must identify additional</p>	<p>The assessments and findings of the ES and any EqIA are cross referenced. The assessment also identifies mitigation measures in connection to vulnerable populations.</p>

ID	Consultee	Points raised	Response
		mitigation measures identified as necessary in connection to vulnerable populations and those within the protected characteristics.	

Technical Working Groups

1.5.2 Table 1-4 provides a summary of key points raised during engagement with Technical Working Groups.

Table 1-4: Key points raised during engagement with Technical Working Groups

Date	Consultee	Points raised	How and where addressed
November 2021 – June 2022	SCDC and Greater Cambridge Shared Planning Community and health receptors	<p>Neighbourhood quality: Risks of noise, visual and air pollution surrounding community receptors of Cambridge Country Cottages and Gayton Farm Campsite (see chapter 11 for more details).</p> <p>Access to physical activity and recreation: Activities of Cambridge Boat Club and other recreation along the river depends on consistent good water quality without any raw sewage discharges. Increased flow of clean water from the outflow near the A14 could be a positive impact (for example to reduce weed growth during the summer). Unpleasant odours from the new Wastewater Treatment Plant would negatively impact on activities at the Sailing Club, both on and off the river.</p> <p>Access to physical activity and recreation: The importance of landscape and recreational opportunities for wellbeing and health was raised as part of the PRoW discussion in relation to Odour (see chapter 17 for more details).</p>	<p>Points raised relevant to air quality, odour, and noise are outlined in Chapter 7: Air Quality, Chapter 17: Noise and Vibration, Chapter 15: Landscape and Visual Amenity, Chapter 18: Odour and Chapter 20: Water Resources.</p> <p>No additional points required to be addressed as part of the health assessment.</p>

Statutory s42 consultation

- 1.5.3 There were no consultation points raised specific to the topic of health during the Statutory Consultation. Points raised in relation to air quality, odour and water quality are detailed within Chapter 7: Air Quality, Chapter 18: Odour and Chapter 20: Water Resources, respectively.

Statutory s47 local community consultation

- 1.5.4 The Consultation Report (App Doc Ref 6.1) details the responses to all comments made during the public consultation.

2 Assessment Approach

2.1 Guidance

- 2.1.1 There is no formal guidance on considering health within the context of EIA. The Institute of Environmental Management and Assessment (IEMA) have published 'Health in Environmental Impact Assessment; A Primer for a Proportionate Approach' (Cave, Fothergill, Pyper, Gibson, & Saunders, 2017). This document provides a high-level introduction to considering public health in EIA and has been used to guide the assessment method. This method is described in further detail in Section 2.2. Regard has also been given to the South Cambridgeshire Supplementary Planning Document for Health Impact Assessment (South Cambridgeshire District Council, 2011). The assessment is also guided by Public Health England's 'Health Impact Assessment in spatial planning – A guide for local authority public health and planning teams' (Public Health England, 2020), which outlines human health assessment methods for England.
- 2.1.2 The Mental Wellbeing Impact Assessment: A Toolkit (National Mental Health Development Unit, 2011) provides a structured approach to identify specific impacts on mental wellbeing as a result of a proposed change. The toolkit also provides advice on how to maximise positive impacts and minimise or mitigate potential negative impacts. The outputs of utilising the Toolkit are presented in Mental Health and Wellbeing Assessment (Appendix 12.3, App Doc Ref 5.4.12.3), where it is concluded that no further appraisal is needed.

2.2 Assessment methodology

- 2.2.1 The general approach to assessment is described in Chapter 5: EIA Methodology.
- 2.2.2 Primary mitigation for the Proposed Development has been identified as part of an iterative design process and is described in Chapter 2: Project Description and Chapter 3: Site Selection and Alternatives. The preliminary assessment of the likely significant environmental effects has been undertaken with the assumption that primary and tertiary mitigation will be implemented.
- 2.2.3 Following the preliminary assessment of the likely significant effects of the Proposed Development, any further mitigation measures (secondary mitigation) are identified and described. These mitigation measures would further reduce an adverse effect or enhance a beneficial one. The assessment of likely significant effects is then carried out taking into account the identified secondary mitigation measures to identify the 'residual' environmental effects.
- 2.2.4 This section provides specific details of the health methodology applied to the assessment of the Proposed Development.

Impact assessment criteria

- 2.2.5 The significance of an effect is determined based on the magnitude of an impact and the sensitivity of the receptor affected by the impact of that magnitude. This section describes the criteria applied in this chapter to characterise the magnitude of

potential impacts and sensitivity of receptors. The terms used to define magnitude and sensitivity are based on a range of issues that affect physical and mental health.

- 2.2.6 The assessment criteria used to assess the potential effects on health arising from the Proposed Development differs from the generic EIA methodology and are described below.
- 2.2.7 Given the wide range of issues that affect physical and mental health, a source-pathway-receptor model has been applied to link the activities associated with the Proposed Development with likely health effects. This model requires all three aspects to be in place for a health effect to be considered to be plausible (i.e. there is a clear link between the source – the Proposed Development – and the receptors). In addition, where a linkage does exist there are sometimes controls in place that make it improbable that harm to human health is likely to occur. For example, where legislation or risk management processes are in place. Table 2-1 provides an example of the source-pathway-receptor model.

Table 2-1: Source-pathway-receptor model for health effects

Source	Pathway	Receptor	Plausible Health Impact	Explanation
No	Yes	Yes	No	There is no clear source from where a potential health impact could originate.
Yes	No	Yes	No	The source of a potential health impact lacks a means of transmission to a population.
Yes	Yes	No	No	Receptors that would be sensitive or vulnerable to the health impact are not present.
Yes	Yes	Yes	Yes	Identifying a source, pathway and receptor does not mean a health impact is a likely significant effect; health impacts should be assessed (describing what effect will occur and its likelihood) and likely health effects are then evaluated for significance.

Source: Institute of Environmental Management and Assessment, 2017 (Cave, Fothergill, Pyper, Gibson, & Saunders, 2017)

Magnitude of impact

- 2.2.8 The criteria for defining magnitude for the assessment of impacts to human health are defined in Table 2-2.

Table 2-2: Impact magnitude criteria

Magnitude of impacts	Criteria
Major (adverse or beneficial)	<ul style="list-style-type: none"> A strong evidence base that risk factors for a permanent, progressive or irreversible health condition would be affected (positively or negatively).

Magnitude of impacts	Criteria
Moderate (adverse or beneficial)	<ul style="list-style-type: none"> ● Permanent or irreversible exposure or change over a long duration. ● Continuous frequency. ● Substantial change (positive or negative) from the baseline position. ● A change in whether regulatory standards are met or exceeded. ● Highly deprived communities affected. ● A large widening or narrowing of inequalities. ● Majority of the population affected (positively or negatively). ● Substantial service quality implications. ● A strong and consistent theme of consultation by both health stakeholders and the public on the issue (positive (support) or negative (concern or uncertainty)). ● Prevention measures will be required.
Minor (adverse or beneficial)	<ul style="list-style-type: none"> ● A strong evidence base that risk factors for transient, temporary symptoms (e.g. irritation, nausea or headache) would be affected (positively or negatively). ● Very low exposure or small scale. ● Short-term duration. ● Occasional events. ● Severity predominantly relates to minor change in morbidity. ● Small minority of population effected. ● Slight service quality implications. ● A slight change (positive or negative) from the baseline position with evidence available to demonstrate change. ● A community with low deprivation affected.

Magnitude of impacts	Criteria
Negligible	<ul style="list-style-type: none"> ● A slight widening or narrowing of inequalities with evidence available to demonstrate change. ● Few people in a community affected (positively or negatively). ● A few individual consultation responses on the issues, but not a theme of consultation for health stakeholders or the public on the issue (positive (support) or negative (concern or uncertainty)). <ul style="list-style-type: none"> ● No discernible change in health or wellbeing within normal variations. ● Very short-term duration. ● One-off frequency and people not impacted in a disproportionately adverse manner. ● Severity predominantly relates to a minor change in quality of life. ● Very few people affected. ● Immediate reversal once activity complete. ● No service quality implication. ● No discernible change (positive or negative) from baseline positions. ● No discernible widening or narrowing of inequalities. ● No links to a recognised health priority. ● No consultation responses on the issues.

Sensitivity of receptor

2.2.9 The criteria for defining receptor sensitivity for the assessment of impacts to human health are defined within in Table 2-3.

Table 2-3: Receptor sensitivity criteria

Sensitivity	Criteria
Low	<p>A non-vulnerable receptor with sufficient capacity and means to absorb changes.</p> <p>Baseline position highlights no health inequalities or adverse health outcomes.</p>
Medium	<p>A non-vulnerable receptor with limited capacity and means to absorb changes.</p> <p>Baseline position highlights some health inequalities, such as some levels of deprivations and/or health statistics which indicate some existing adverse health outcomes.</p>
High	<p>An already vulnerable receptor with very little capacity and means to absorb changes.</p> <p>Baseline position highlights health inequalities, such as high levels of deprivations and/or health statistics which indicate existing adverse health outcomes.</p>
Very High	<p>An already vulnerable receptors with no capacity or means to absorb changes.</p>

Sensitivity	Criteria
	Baseline position highlights substantial health inequalities, such as high levels of deprivations and/or health statistics which indicate existing adverse health outcomes.

2.2.10 Relevant health receptor groups are outlined in Table 2-4. For each health impact, the assessment considers the potential effects on two types of populations. The first is the general population and the second is vulnerable groups within the general population. Vulnerable groups have been identified by reviewing local planning policy relevant to this assessment.

2.2.11 This approach ensures that the health assessment takes account of the ways in which the Proposed Development may affect health inequalities. Health, by its nature is very specific to individuals. However, the focus of the assessment will be on receptors as population groups.

Table 2-4: Health receptor groups

Receptor	Receptors included within the group
General population	Residents
	Employees at the waste water treatment plant
	Construction workers
	Owners, operators and users of community facilities (including healthcare services and schools)
	Visitors to, or workers in or passing, the communities, open spaces and sports facilities around the Proposed Development
Vulnerable group population	Young age – children (up to 15 years) and young people (16-25 years)
	Old age – older people, over the age of 65
	Low income – people who are unemployed/ on low incomes
	Poor health – people (and their carers) with existing poor health (physical and mental health), including where this is due to disabilities.
	Social disadvantage - People who may experience social isolation, discrimination or social disadvantage (including people from Black and Minority Ethnic Groups (BAME) and people who identify as being part of faith and belief groups)

Significance of effect

2.2.12 The significance of the effect upon human health receptors is determined by assigning an impact magnitude and sensitivity to the receptor. Table 2-5 sets out the significance matrix used to determine significant effects. Where a choice of significance is presented, the final assessment for each effect is based upon expert judgement.

2.2.13 For the purpose of this assessment, any effects with a significance level of minor or less are considered to be not significant.

Table 2-5: Significance matrix

		Sensitivity/value of receptor			
		Low	Medium	High	Very High
Magnitude of impacts	Negligible	Neutral	Neutral	Slight	Slight
		Not significant	Not significant	Not significant	Not significant
	Minor	Neutral	Slight	Slight	Moderate
		Not significant	Not significant	Not significant or Moderate Significant*	Significant
	Moderate	Slight	Moderate	Moderate	Major
		Not significant	Significant	Significant	Significant
Major	Slight	Moderate	Major	Major	
	Not significant	Significant	Significant	Significant	

* Depending on the impact under consideration and professional judgement of significance

Scope of the assessment

2.2.14 The potential effects considered in this chapter are described below:

Construction

- temporary changes to health and wellbeing due to an increase in noise, air quality, dust, odour, traffic and visual effects;
- changes in access to areas of open space and recreation, including PRoW, from construction activities and the ability for local communities to undertake physical activity and live active lifestyles;
- potential risk to human health from potential water pollution, hazardous waste and substances during construction – the residual risks to human health have only been included as part of this assessment;
- temporary changes in access to local services (for example health, social care and educational facilities), as a result of construction activities and changes to travel routes and delays;
- potential temporary increase in local employment, leading to changes in employee mental health, due to the presence of a construction workforce and procurement of local goods and services; and
- temporary concern for local communities in close proximity to the Proposed Development with regard to the presences of a construction workforce affecting social cohesion.

Operation

- permanent changes to the local environment including increased noise, reduced air quality, increased transport and visual effects, potentially

impacting the health and wellbeing of local communities and users of open and recreational space;

- potential risk to human health from potential water polluting water, hazardous waste and substances, and increases in pests during operation – the residual risks to human health have only been included as part of this assessment;
- changes to how local people feel about their community, in particular their sense of place and wellbeing, including mental health; and
- improvements and/or new provision of areas of open space and recreation, including PRow, and the ability for local communities to undertake physical activity and live active lifestyles.

Decommissioning

- temporary changes to health and wellbeing due to an increase in noise, air quality, dust, odour, traffic and visual effects.
- potential risk to human health from potential water polluting water, hazardous waste and substances, and increases in pests during decommissioning – the residual risks to human health have only been included as part of this assessment.

2.2.15 Potential impacts scoped out of the assessment are set out in Section 2.7.

Residual effect

2.2.16 The assessment of residual effects follows the approach set out within Chapter 5: EIA Methodology. Effects have been assessed to take into account for both embedded (primary) mitigation and legal requirements (tertiary mitigation), and after the application of further mitigation measures (secondary mitigation). Effects after mitigation are referred to as 'residual effects'.

2.3 Study area

- 2.3.1 The maximum area of land within which the construction, operation, and maintenance of the Proposed Development and decommissioning of the existing Cambridge WWTP, including land required for permanent and temporary purposes, is within the Scheme Order Limits.
- 2.3.2 The health study area (as shown in Figure 12.1, Book of Figures – Health, App Doc Ref 5.3.12) has been used to assess health effects associated with changes to access to community facilities, and health outcomes associated with construction activities/disturbance.
- 2.3.3 The study area has been defined by analysing potential health effects as a result of construction and operation of the Proposed Development. This included analysing the study areas of the technical disciplines which inform the health chapter, namely: air quality, noise and vibration, odour, traffic and transport and community assessments. As such, the health study area encompasses communities within and surrounding the settlements of:

- Bottisham;
- Chesterton;
- Fen Ditton;
- Horningsea;
- Milton;
- Stow cum Quy; and
- Waterbeach.

2.3.4 Potential effects were mapped against Lower Super Output Areas (a geographic area which is designed to report statistics of small areas) to determine what health data was available to describe the baseline environment. In some instances, data relevant to the health baseline is only available at the local authority level. As the study area is located across three local authority areas (South Cambridgeshire District Council (SCDC), Cambridge City and East Cambridgeshire District Council (ECDC)) all three datasets have been included. However, as the majority of the Proposed Development is located in South Cambridgeshire, the data from this local authority is considered to be most representative of local community circumstance.

2.4 Temporal scope of assessment

Construction

- 2.4.1 For the assessment, these effects will be taken to be those for which the source begins and ends during the construction and commissioning stages prior to the proposed WWTP becoming fully operational as set out in Chapter 2: Project Description.
- 2.4.2 The assumed assessment years for construction are from Year 1 to Year 4 of construction (currently assumed to be 2024 until 2028).

Operation and maintenance

- 2.4.3 For the assessment, these are the effects that start once the proposed WWTP is commissioned and fully operational and includes the effects of the physical presence of the infrastructure, its operation, use and maintenance, including the permanent change in land use.
- 2.4.4 The assessment of operational effects will be the first full 12 months of operation (excluding any commissioning period for the proposed WWTP as this is part of the Construction Phase). The proposed WWTP is expected to become operational in 2028, therefore the assessment year for the Operational Phase is 2028. Phase 2 of operation associated with the additional PST and FST at year 7 of operation (as described in Chapter 2) would not materially alter health effects assessment as the addition tanks represent a relatively small increases or variations and would not result in different effects or new significant effects.)

Duration of effects

2.4.5 Timescales associated with these effects, regardless of phase are as follows:

- Short-term – endures for up to 12 months after construction or decommissioning
- Medium-term – endures for 1-5 years
- Long-term – endures for 5-15 years
- Permanent effects – endures for more than 15 years and / or effects which cannot be reversed (e.g. where buried archaeology is permanently removed during construction).

2.5 Baseline study

Desktop data

2.5.1 Baseline information within the health study area was collected through a detailed desktop review of existing studies and datasets. These are summarised in Table 2-6.

Table 2-6: Baseline information sources

Item or feature	Year	Source
Life expectancy; mortality rate; KSI rate; physical activity; employment	2019/20	Public Health England (PHE) health profiles
Population (by age, mid-year estimates)	2020	Office National Statistics
Deprivation by quintile	2019	English Indices of Deprivation, Office National Statistics
Long-term health problem or disability	2011	2011 Census, Office National Statistics
Personal wellbeing estimates by local authority: Bad or very bad health	2020/21	Annual population survey, Office National Statistics
Personal wellbeing estimates by local authority: Mental health (life satisfaction; happiness; anxiety; worthwhile)	2020/21	Annual population survey, Office National Statistics
Mental health (people reporting depression or anxiety)	2016/17	Public Health England

Literature review

2.5.2 The Health Evidence Review (Appendix 12.2, App Doc Ref 5.4.12.2) outlines the evidence reviewing the links between health determinants (environmental, social and economic factors that influence health) and resulting effects on health and wellbeing according to the available literature.

Surveys

2.5.3 Additional information from a site walkover and engagement with community receptors (primary schools in the study area and representatives of recreational groups) were completed and are described in Chapter 11: Community.

- 2.5.4 User count surveys of key recreational routes within the Study Area were undertaken in July and August 2022. The details of these surveys are provided in 'Recreational user counts survey' (Appendix 19.4, App Doc Ref 5.4.19.4).

2.6 Maximum design envelope (Rochdale) parameters for assessment

- 2.6.1 The design parameters and assumptions presented are in line with the 'maximum design envelope' approach (base scheme design) as described in introductory chapters of the ES (Chapter 2 and Chapter 5. For each element of this chapter, the maximum design envelope parameters detailed within Table 2-7 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group.
- 2.6.2 The assessment parameters are based on the design of the proposed WWTP and access, transfer tunnel route and outfall location, Waterbeach pipeline route and connections within the existing Cambridge WWTP as described in Chapter 2: Project Description. The assessment considers a realistic maximum design envelope based on the maximum scale of the elements, and as a result, no effects of greater significance than those assessed are likely.

Table 2-7: Maximum design envelope (Rochdale) for health assessment

Potential impact	Maximum design scenario	Justification
Construction		
Temporary changes to health and wellbeing due to an increase in noise, air quality, dust, odour, traffic and visual effects.	Maximum design scenario for construction noise generation as specified in Chapter 17: Noise and Vibration, air quality as specified in Chapter 7: Air Quality, odour as specified in Chapter 18: Odour, traffic and transport effects as specified in Chapter 19: Traffic and Transport and visual effects as specified in Chapter 15: Landscape and Visual Amenity.	The maximum design scenario parameters for construction noise, air quality, odour, traffic and visual effects have been specified in these assessments.
Changes in access to areas of open space and recreation, including PRow, from construction activities and the ability for local communities to undertake physical activity and live active lifestyles.	Maximum design scenario for construction disruption to walking and cycling routes as specific in Chapter 19: Traffic and Transport. Change in the amount of land required for open space and recreation, compared to the baseline environment, and the quality of the recreational resource provided.	The maximum design scenario parameters for walking and cycling disruption have been specified in this assessment. The potential for change in opportunities for physical activity is determined by assessing how the provision of recreational opportunities is likely to influence rates of physical activity of nearby communities.
Potential risk to human health from water pollution and hazardous waste and substances	Maximum design scenario for operation of the outfall as specified in, Chapter 20: Water Resources. Maximum design scenario relating to operational waste types and volumes as specified in, Chapter 16: Materials, Resources and Waste.	The maximum design scenario parameters for water pollution and hazardous waste and substances have been specified in these assessments.
Temporary changes in access to local services (for example health, social care and educational facilities), as a result of construction activities and changes to travel routes and delays.	Maximum design scenario for construction traffic generation as specific in Chapter 19: Traffic and Transport.	The maximum design scenario parameters for construction traffic generation have been specified for this assessment.

Potential impact	Maximum design scenario	Justification
Potential temporary increase in employment due to the presence of a construction workforce and procurement of local goods and services	Construction workforce peaking at 300 full time employees (FTE).	Reasonable employment generation predicted by the Applicant, which would have potential for minor beneficial employment impacts and health outcomes depending on the extent of the employment generation.
Operation		
Temporary and permanent changes to the local environment including increased noise, reduced air quality, increased transport and visual effects, potentially impacting the health and wellbeing of local communities and users of open and recreational space.	Maximum design scenario for operational noise generation as specified in Chapter 17: Noise and Vibration, air quality as specified in Chapter 7: Air Quality, odour as specified in Chapter 18: Odour, traffic and transport effects as specified in Chapter 19: Traffic and Transport and visual effects as specified in Chapter 15: Landscape and Visual Amenity.	The maximum design scenario parameters for operational noise, air quality, odour, traffic and visual effects have been specified in these assessments.
Potential risk to human health from water pollution, hazardous waste and substances, and increases in pests during operation.	Maximum design scenario for operation of the outfall as specified in, Chapter 20: Water Resources. Maximum design scenario relating to operational waste types and volumes as specified in, Chapter 16: Material Resources and Waste.	The maximum design scenario parameters for water pollution and hazardous waste and substances have been specified in these assessments.
Potential risks from pest infestation.	Maximum design scenario for operation of the outfall as specified in, Chapter 18: Odour. Buildings, ducting etc would be secured from pest infestation. Cake storage areas will be on impermeable surfaces and run-off will be collected and treated on site.	The maximum design scenario parameters for control of pests have been specified in these assessments.

Potential impact	Maximum design scenario	Justification
<p>Changes to how local people feel about their community, in particular their sense of place and wellbeing, including mental health.</p>	<p>Maximum design scenario for operation as specified in Chapter 17: Noise and Vibration, air quality as specified in Chapter 7: Air Quality, odour as specified in Chapter 18: Odour, traffic and transport effects as specified in Chapter 19: Traffic and Transport and visual effects as specified in Chapter 15: Landscape and Visual Amenity.</p> <p>The maximum extent of the Landscape Masterplan as described in the Landscape Ecological and Recreation Masterplan (LERMP) (Appendix 8.14, App Doc Ref 5.4.8.14).</p>	<p>The potential effects from other technical disciplines and the design of the Proposed Development will be used to assess potential impacts on the sense of place and wellbeing (including mental health), of nearby communities.</p>
<p>Improvements and/or new provision of areas of open space and recreation, including PRow, and the ability for local communities to undertake physical activity and live active lifestyles.</p>	<p>Change in the provision of open space and recreational areas (including PRow), compared to the baseline environment, and the quality of the recreational resource provided.</p> <p>Extent of recreational paths and cycleway and connections to existing active travel network as described in the Landscape masterplan within LERMP (Appendix 8.14, App Doc Ref 5.4.8.14).</p>	<p>The potential for change in opportunities for physical activity is determined by assessing how the provision of recreational opportunities is likely to influence rates of physical activity of nearby communities.</p>
<p>Decommissioning of the existing Cambridge WWTP for purpose of rescinding permit.</p>	<p>Maximum design scenario for operation as specified in Chapter 17: Noise and Vibration, air quality as specified in Chapter 7: Air Quality, odour as specified in Chapter 18: Odour, traffic and transport effects as specified in Chapter 19: Traffic and Transport and visual effects as specified in Chapter 15: Landscape and Visual Amenity.</p>	<p>The maximum design scenario parameters for operational noise, air quality, odour, traffic and visual effects have been specified in these assessments and are likely be the source of potential health effects during decommissioning.</p>

2.7 Impacts scoped out of the assessment.

2.7.1 The EIA Scoping Report was submitted to PINS in October 2021 and a scoping opinion received in November 2021. Table 2-8 presents the potential impacts scoped out of assessment as agreed at the scoping stage.

Table 2-8: Impacts scoped out of the health assessment

Potential impact	Justification
Potential health impacts from pests during construction	There are unlikely to be any residual risks to human health from pests during construction. The Planning Inspectorate agrees with these conclusions.
Changes to access to health, social care and educational services during operation	Changes in road layout or volumes of traffic associated with operation are unlikely to result in changes to travel routes or delays that would significantly affect access to health, social care and educational services. The Planning Inspectorate agrees with these conclusions and scoped out this potential impact.
Operational employment	There is unlikely to be a significant increase in operational employment given the Proposed Development is the relocation of an existing Cambridge WWTP. The Planning Inspectorate agrees with these conclusions and scoped out this potential impact.
Demand for local accommodation and public health services due to temporary works or a permanent workforce during construction and operation	It is unlikely that the Proposed Development will create a sizeable demand for accommodation or healthcare facilities during construction. It is also anticipated that construction workers will remain registered with their existing healthcare centres and that construction site occupational health services will deal with the vast majority of construction-related incidences, therefore avoiding placing additional pressure on local healthcare services. The Planning Inspectorate agrees with these conclusions and has stated that this matter can be scoped out during construction and operation.
Changes to crime levels at the Proposed Development	During construction and operation, it is not anticipated that crime and personal security are likely to be affected as a result of the Proposed Development. It is assumed that site security arrangements for the Proposed Development will be in line with the requirements set out the Construction (Design and Management) Regulations 2015 and appropriate levels of security (personnel / CCTV) will be provided. The Planning Inspectorate agrees with these conclusions and scoped out this potential impact.

2.8 Items scoped out since the scoping opinion

Electromagnetic Fields (EMF)

2.8.1 EMF is produced whenever electricity is present. Electromagnetic interference (EMI) is disturbance that affects an electrical system due to magnetic and electric fields,

electromagnetic induction, conduction or electromagnetic radiation emitted from an external source.

- 2.8.2 High voltage electrical equipment creates EMF, which can potentially have implications for human health and may cause EMI to other electrical/electronic equipment (e.g. communications) or infrastructure (e.g. power lines). There will be new HV electrical equipment within the proposed WWTP.
- 2.8.3 EMF limits are specified in the EU Directive 2013/35/EU Electromagnetic Fields (EMF) limits, published in 2013 and enforced in the UK by the Control of Electromagnetic Fields at Work Regulations 2016 (CEMFAW 2016).
- 2.8.4 Design for the Proposed Development are covered by British and European Standards and industry accepted practice.
- 2.8.5 All electrical equipment will comply with the relevant standards for electromagnetic compatibility (EMC) and personal protection, for example BS EN 50121-5- 2017127 and BS EN 50122-1-2011128 and EU Directive 2013/35/EU129, which is closely based on International Commission on Non-Ionising Radiation Protection (ICNIRP) guidance.
- 2.8.6 Equipment used during construction of the Proposed Development would also comply with applicable standards for EMF and EMC. Assuming that this equipment is installed, operated and maintained correctly, levels of electromagnetic emissions are unlikely to exceed the acceptable limits for workers or the public, or to cause EMI. Power supplies used for construction are generally insufficient to cause any significant EMI.
- 2.8.7 It is therefore considered that there will be no significant health effects associated with construction, operation or maintenance of the Proposed Development and EMF is not considered further in this assessment.

Bioaerosols

- 2.8.8 The environmental permit application (bespoke Industrial Emissions Directive (IED) permit) for the proposed WWTP includes a requirement for a consideration of bioaerosols. Regulatory Position Statement 2091 issued 23 January 2018 by the Environment Agency (EA), states that all sites that have a permit for the treatment of biological waste within 250 metres of a sensitive receptor (a place where people live or work for more than 6 hours at a time) must carry out a site-specific bioaerosol risk assessment. There are no sensitive human receptors within 250m of the proposed WWTP, however a conservative approach has been undertaken and human receptors within 500m of the site have been considered instead.
- 2.8.9 Based on the probability of exposure and consequence of hazards associated with different processes at the proposed WWTP, the overall magnitude of the risk associated with bioaerosols emissions from the site is considered to be 'low'. Operation of the proposed WWTP is therefore unlikely to lead to significant impacts at nearby sensitive receptors from bioaerosol emissions.

- 2.8.10 The protection of workers against bioaerosols is covered under the Health and Safety Executive (HSE) and therefore not covered by the scope of this assessment. However, the construction and operation of the Proposed Development is legally required to comply with the standards and obligations set by the Health and Safety at Work Act.
- 2.8.11 As such, it is considered that there will be no significant health effect from bioaerosols associated with the construction, operation or maintenance of the Proposed Development and bioaerosols are not considered further in this assessment.

2.9 Mitigation measures adopted as part of the Proposed Development

- 2.9.1 This section refers to the mitigation types, as defined in Section 5.3.40 of Chapter 5: EIA Methodology, and how they apply to the assessment of health.
- 2.9.2 In developing the Proposed Development through an iterative process including consultation and engagement with consultees, and through the Environmental Impact Assessment, (EIA) the Applicant has sought to identify and incorporate suitable measures and mitigation for potentially significant adverse effects, as well as maximising beneficial effects where possible.
- 2.9.3 Some measures are '**embedded**' in the design of the Proposed Development for which consent is sought by virtue of the scope of the authorised development as set out in Schedule 1 to the DCO and the accompanying Works Plans. These are considered **primary mitigation**. For example, adjustment of Order Limits to avoid sensitive features, amending the sizing and location of temporary access routes and compounds.
- 2.9.4 Secondary measures may be detailed activities for example the preparation of detailed AIMS in accordance with the CoCP, the preparation and delivery of a monitoring plan for specific matters (air quality, water quality) or the preparation and delivery of specific environmental management plans (for example air, noise, water), and the preparation and implementation is secured through the CoCP. These secondary measures are differentiated from the good practice measures
- 2.9.5 Tertiary measures comprise good practice measures (such as measures within Considerate Contractors Scheme) and measures integrated into legal requirements secured through environmental permits and consents (least flexible as either the legislation exists to create the mitigation or does not (i.e. Protected Species Licensing).
- 2.9.6 The Consents and Other Permits Register (App Doc Ref 7.1), sets out required permits and consents related to the Proposed Development.
- 2.9.7 The remainder of this section sets out the embedded measures (primary) and tertiary, and secondary/additional measures and enhancements relevant to the assessment of health.

Primary (embedded) and tertiary measures

- 2.9.8 Primary and tertiary mitigation form part of the Proposed Development and therefore, the preliminary assessment of effects takes account of these measures.
- 2.9.9 Table 2-9 sets out the mitigation measures that will be adopted during the construction, operation, maintenance and decommissioning of the Proposed Development.

Table 2-9: Primary and tertiary measures relating to health adopted as part of the Proposed Development

Potential impact	Mitigation measures	Type	Applied to	Justification
Construction				
Changes to health and wellbeing due to an increase in noise, air quality, dust, odour and visual effects	Proposed mitigation included within Chapter 7: Air Quality, Chapter 18: Odour, Chapter 15: Landscape and Visual Amenity, and Chapter 19: Traffic and Transport.	Primary	Waterbeach pipeline Proposed WWTP	Represents the range of measures that mitigate the potential changes to the local environment.
Changes in health and wellbeing due to temporary disruption to recreational amenities – ProW and River Cam	Temporary diversions of affected ProW will be implemented. Activities to construct the outfall upstream will be phased sequentially to minimise impacts on river users and appropriate signage will be displayed on the river of proposed construction works. Limiting construction width to maintain a minimum of 12m width for navigation. Limiting construction activities in the river to between July – mid October in any one year.	Primary	Proposed WWTP (outfall structure)	Provides temporary connectivity during the construction period. Ensure that the River Cam, upstream of Baits Bite Lock, remain navigable.
Changes to health and wellbeing due to an increase in noise,	Proposed mitigation included within Chapter 19: Traffic and Transport.	Tertiary	Proposed WWTP	Permits and consents would be required for construction work under railways, highways, and rivers, or those required

Potential impact	Mitigation measures	Type	Applied to	Justification
air quality, dust, odour and visual effects				for the stopping up or diversion of PRow.
Potential risk to health from water pollution	Mitigation measures outlined in Table 2-7 of Chapter 20: Water Resources.	Primary and tertiary	Waterbeach pipeline Proposed WWTP	Represents the range of measures that mitigate the potential effects from water pollution so there are no residual health effects.
Potential risk to health from hazardous waste and substances	Mitigation measures outlined in Table 2-7 of Chapter 16: Material Resources and Waste.	Primary and tertiary	Waterbeach pipeline Proposed WWTP	Represents the range of measures that mitigate the potential effects from hazardous waste and substances so there are no residual health effects.
Operation				
Potential risk to health from changes to air quality	Design of CHP to operate within emission limit values	Tertiary	Proposed WWTP	
Potential risk to health from water pollution	Mitigation measures outlined in Table 2-7 of Chapter 20: Water Resources.	Primary and tertiary	Proposed WWTP	Represents the range of measures that mitigate the potential effects from water pollution so there are no residual health effects.
Potential risk to health from hazardous waste and substances	Mitigation measures outlined in Table 2-7 of Chapter 16: Material Resources and Waste.	Tertiary	Waterbeach pipeline Proposed WWTP	Represents the range of measures that mitigate the potential effects from hazardous waste and substances so there are no residual health effects.
Potential risks from pests	The following measures are relevant: <ul style="list-style-type: none"> covering of areas within the proposed WWTP, reducing the opportunity for pest issues; buildings, ducting etc. would be secured from pest infestation; 	Tertiary	Proposed WWTP	Represents the range of measures that mitigate the potential effects from pests so there are no residual health effects.

Potential impact	Mitigation measures	Type	Applied to	Justification
	areas around skips designed to allow easy to wash down; cake storage areas will be on impermeable surfaces; and run-off will be treated on site.			
Decommissioning				
Changes to health and wellbeing due to an increase in noise, air quality, dust, odour and visual effects	Mitigation measures outlined in Table 2-7 of Chapter 20: Water Resources). Mitigation measures outlined in Table 2-7 of Chapter 18: Odour.	Primary & Tertiary	Activities associated with decommissioning the existing Cambridge WWTP.	Represents the range of measures that mitigate the potential changes to the local environment.

Secondary mitigation

2.9.10 Secondary measures will be applied to provide further controls to avoid or reduce impacts. Those applied during construction, decommissioning, operation and maintenance for biodiversity are indicated below.

Construction

Code of Construction Practice

2.9.11 During the construction phase, the Code of Construction Practice (CoCP) Part A (Appendix 2.1, App Doc Ref 5.4.2.1) and B (Appendix 2.2, App Doc Ref 5.4.2.2) and associated management plans specify the range of measures to avoid and minimise impacts that may occur in construction. This plan will detail the controls and protection measures and safety procedures adopted during construction which will include measures to mitigate potential effects on health, including but not limited to:

- maintaining access to property and community facilities;
- provision of appropriate signage and safety controls; and
- control of lighting, noise and dust from construction areas.

Construction Traffic Management Plan

2.9.12 During the construction phase, the Construction Traffic Management Plan (CTMP) (Appendix 19.7, App Doc Ref 5.4.19.7) and the CoCP (Appendix 2.1 & 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) and associated management plans specify the range of measures to avoid and minimise impacts that may occur in construction.

2.9.13 The outline CTMP secures the commitments in relation to the management of construction vehicle movements. The outline CTMP will be developed into a final plan post grant of the DCO and prior to commencement of development. The final CTMP will set out the detailed management measures, procedures and best practices required for managing the impact of construction traffic on the local and strategic road networks during the construction period.

Community Liaison Framework Plan

2.9.14 A draft Community Liaison Framework Plan (CLP) (Application Document Ref 7.8) sets out the approach to ongoing communication with residents, the community, and businesses, including communication in relation to traffic and transport matters. Post grant of the DCO and prior to commencement of development a detailed plan will be prepared and agreed with the local authority. This will remain a 'live' document and periodically modified throughout the duration of construction.

2.9.15 The CoCP Part A Section 3 (Community Consultation and Engagement) requires a proactive approach to communication with the local community and stakeholders. Through a Community Liaison Plan the local community and stakeholders will be informed of the works taking place, including durations, particularly where these will involve works outside of the core working hours or impact community facilities and business and local infrastructure such as Public Rights of Way (PROW)/cycleways.

Soil Management Plan

- 2.9.16 The requirement to reinstate land along the Waterbeach pipeline corridor to its original use is provided in the outline Soil Management Plan (SMP) (Appendix 6.3, App Doc Ref 5.4.6.3). The outline SMP has been prepared in a manner specific to the site in accordance with the guidance in the Construction Code of Practice (CCoP, Defra 2009) provides general measures that are required to be in place to ensure that soil is appropriately managed during construction and suitable for its final use.
- 2.9.17 The outline SMP will provide the basis for the final SMP which will be prepared by the Principal Contractor prior to construction. A detailed SMP will include the measures as applicable to the particular soil types of the particular area/works package undergoing works that should be adhered to during and after the Construction Phase. The detailed SMP will be approved by the Employer prior to the start of the works.

Operation

- 2.9.18 An Operational Logistics Management Plan and Operational Workers Travel Plan (OWTP) will set out mitigation measures relating to vehicle movements associated with the operation of the proposed WWTP. The purpose of these is summarised below:
- Operational Logistics Management Plan: details the overall traffic management strategy for operational traffic; and
 - Outline Workers Travel Plan: details operation work and programme, site access requirements for staff, staff travel patterns and expected workforce locations.
- 2.9.19 Post grant of the DCO and prior to commencement of operation the framework OWTP will be updated. This will remain a 'live' document and periodically modified in line with the review cycles set out in the plan, including but not limited to an updated to incorporate the findings of a travel survey to be completed 6 months after the commencement of operation. The updated OWTP will be shared with CCC highways.

Landscape Ecology and Recreational Management Plan

- 2.9.20 The Landscape Ecology and Recreational Management Plan (LERMP) (Appendix 8.14, App Doc Ref 5.4.8.14) sets out how landscape, recreational features and ecological habitat and enhancements (vegetation and habitats) would be protected and managed following construction for a period of 30 years. Post grant of the DCO and prior to commencement of landscaping works an updated plan will be prepared and agreed with the local authority. The LERMP includes the creation of new walking routes and connections to the wider network of PRow. It provides information on the ongoing management of this area.

Environmental Management System

2.9.21 Operation and maintenance activities would be subject to operational management plans and procedures. The management plans and procedures will sit within the EMS required under the environmental permitting regime. These would be 'live' documents that identify the environmental risks and legal obligations associated with the operations of the Proposed Development once construction has been completed. These specify the management measures the operator will implement in order to prevent or minimise the environmental effects associated with the Proposed Development.

Decommissioning

2.9.22 Decommissioning of the existing Cambridge WWTP would be subject to a Decommissioning Management Plan, which is to be agreed with the Environment Agency. An Outline Decommissioning Strategy (Appendix 2.3, App Doc Ref 5.4.2.3) describes measure applied to this activity. Post grant of the DCO and prior to commencement of decommissioning a detailed plan will be prepared and agreed with the Environment Agency.

2.10 Assumptions and limitations

Data limitations and assumptions

2.10.1 This assessment has been carried out using professional judgement and based on available information.

2.10.2 The assessment has been against current population and health baseline conditions prevailing around the Proposed Development. As with any dataset, these may be subject to change over time, which may influence the findings of the assessment. Many of the official datasets do not reflect the short-term or long-term consequences of the Covid-19 pandemic. Where these consequences may influence a finding of the assessment, this has been identified.

Assessment assumptions

2.10.3 The health assessment builds upon the technical outputs from the ES (most notably the air quality, odour, noise and vibration, traffic and transport, water and community), to investigate changes in environmental and socio-economic conditions directly attributable to the Proposed Development. As a consequence, the limitations of the supporting assessments, and the conservative assumptions applied to address them, are inherent to the assessment of health.

3 Baseline Environment

3.1 Current baseline

Population

- 3.1.1 The total population for the study area is 25,458 as of 2020. Key communities in the study area are: Horningsea and Milton, located to the west of the Proposed Development; Chesterton and Fen Ditton located to the south of the Proposed Development; Waterbeach, located to the north-west of the Proposed Development; and Stow cum Quy located to the east of the Proposed Development.
- 3.1.2 Table 3-1 outlines the population by community and the proportion of each age group living there (Figures 12.2 – 12.5 (Book of Figures – Health, App Doc Ref 5.3.12) map out the proportion of the population by age, including children (Figure 12.2), young people (Figure 12.3), working age people (Figure 12.4) and older people (Figure 12.5)).

Table 3-1: Population by age

	Total population	Children (under 16)	Young people (16 to 24)	Working age population (16 to 64)	Older people (65 and over)
Chesterton	6,703	19%	19%	65%	16%
Fen Ditton	3, 823	24%	11%	62%	14%
Horningsea	306	11%	8%	56%	33%
Milton	4,259	18%	8%	66%	16%
Stow cum Quy	510	15%	9%	61%	24%
Waterbeach	4,779	21%	7%	62%	16%
Study area average	25,458	19%	12%	65%	16%
South Cambridgeshire	160,904	20%	8%	60%	20%
East Cambridgeshire	90,172	19%	8%	60%	21%
Cambridge City	125,063	18%	23%	69%	13%
England	56,550,138	19%	11%	62%	19%

Source: 2020 mid-year population estimates, ONS

- 3.1.3 Table 3-1 shows that children make up 19% of the study area. This figure is consistent with Cambridge (18%), East Cambridgeshire (19%), South Cambridgeshire (20%), and England (19%) proportions. There are a lower proportion of children living in Horningsea and Stow cum Quy compared to surrounding communities.
- 3.1.4 The proportion of young people in the study area (12%) is lower than the proportion in Cambridge City (23%), but higher than East Cambridgeshire (8%) and South Cambridgeshire (8%). The figure is consistent with proportions in England (11%).

- 3.1.5 The proportion of the working age population in the study area (65%) is lower than Cambridge (69%), but higher than East Cambridgeshire (60%) and South Cambridgeshire (60%). The figure is consistent with proportions in England (62%).
- 3.1.6 The proportion of older people in the study area (16%) is higher than Cambridge average (13%). The communities of Horningsea and Stow cum Quy have a particularly high number of older people residing in them.

Deprivation

- 3.1.7 The English Indices of Multiple Deprivation 2019 are commonly used for the measurement and comparison of relative levels of deprivation (poverty). Table 3-2 outlines the income deprivation data by quintile and Figure 12.6: Income deprivation shows (Book of Figures – Health, App Doc Ref 5.3.12) the communities within the study area and the quintile which they are located in.

Table 3-2: Income deprivation by quintile

	1 - Most deprived quintile	2	3	4	5 - Least deprived quintile
Chesterton	0%	82%	0%	18%	0%
Fen Ditton	39%	32%	17%	13%	0%
Horningsea	0%	0%	0%	100%	0%
Milton	0%	0%	23%	41%	36%
Stow cum Quy	0%	0%	0%	100%	0%
Waterbeach	0%	0%	0%	51%	49%
Study area average	7%	18%	7%	47%	21%
South Cambridgeshire	0%	2%	18%	19%	61%
East Cambridgeshire	0%	8%	23%	41%	28%
Cambridge City	1%	16%	29%	13%	42%
England	20%	20%	20%	20%	20%

Source: 2019 English Indices of Deprivation, MHCLG and 2020 mid-year population estimates, ONS

- 3.1.8 Table 3-2 shows that the proportion of population falling within the most income deprived quintile in the study area (7%) is higher than Cambridge (1%), South and East Cambridgeshire (both 0%), but lower than England (20%). At 39%, Fen Ditton is the only community where the proportion of the population falling within the most income deprived quintile is considerably higher than any of the other communities in the study area. Similarly, Fen Ditton and Chesterton are the only communities where the population falls within the second most income deprived quintile.
- 3.1.9 In the study area, 21% of the population fall within the least income deprived quintile. This is consistent with the proportion for England (20%) but is worse off when compared with South Cambridgeshire (61%), East Cambridgeshire (28%) and Cambridge City (42%).

Health data

Life expectancy, mortality rates, physical activity and employment

3.1.10 Table 3-3 provides an overview of key health indicators for the population within the study area. These indicators include conditions and impairments that might be affected by the potential effects associated with the Proposed Development (for example, changes in air pollution, noise, traffic, employment and physical activity).

Table 3-3: Public health baseline data

Indicator	SCDC	ECDC	Cambridge City	England
Life expectancy at birth (Male), 2016-18	82.8	81.1	81.0	79.6
Life expectancy at birth (Female), 2016-18	85.7	85.2	83.6	83.2
Under 75 mortality rate: all causes (per 100,000), 2017-19	230	268	292	326
Under 75 mortality rate from all cardiovascular diseases (per 100,000), 2017-19	45	61	62	70
Under 75 mortality rate from cancer (per 100,000), 2017-19	106	112	103	129
Under 75 mortality rate from respiratory disease (per 100,000), 2017-19	19	22	28	34
All ages killed and seriously injured on roads (KSI) rate	63.6	67.1	55	42.6
Percentage of physically active adults (over 19)	68.3	67.4	80.1	66.3
Percentage of people in employment	85.2	81.3	78.5	75.6

Source: Public Health England, Local Authority Health Profile 2019/20

3.1.11 As shown in Table 3-3, South Cambridgeshire and surrounding districts perform relatively well on key indicators. Life expectancy (both female and male) is slightly higher across all districts compared to the national average. The under 75 mortality rates (from all causes, cardiovascular diseases, cancer and respiratory diseases) is less than the England rate across all districts. The South Cambridgeshire under 75 mortality rate (from cardiovascular disease and respiratory disease) is significantly lower than the England rate and lower than all other surrounding districts.

3.1.12 The rate of employment is better across all districts than the England average and the percentage of physically active adults (aged 19+) is higher in Cambridge compared to the percentage in England and comparator districts.

3.1.13 Only one indicator, the rate of killed and seriously injured on roads, is worse across South Cambridgeshire and East Cambridgeshire, which perform worse than national statistics.

Health conditions and general health indicators

3.1.14 Table 3-4 provides an overview of the proportion of the population within the study area with a long-term health problem or disability.

Table 3-4: Long-term health problem or disability

	Day-to-day activities limited a lot	Day-to-day activities limited a little	Day-to-day activities not limited	Long term health problem or disability
Chesterton	8%	10%	82%	18%
Fen Ditton	7%	9%	84%	16%
Horningsea	4%	7%	89%	11%
Stow cum Quy	7%	10%	83%	17%
Waterbeach	6%	7%	87%	13%
Study area average	6%	8%	86%	14%
South Cambridgeshire	6%	8%	86%	14%
East Cambridgeshire	6%	9%	85%	15%
Cambridge City	5%	7%	87%	13%
East of England	7%	9%	83%	17%
England	8%	9%	82%	18%

Source: 2011 Census, ONS - long-term health problem or disability

3.1.15 Table 3-4 shows that the proportion of population with day-to-day activities limited a little or a lot in the study area (14%) is broadly consistent with proportions for South Cambridgeshire (14%), East Cambridgeshire (15%), Cambridge (12%) and the East of England (16%). However, it is lower than the proportion for England (17%). The communities of Fen Ditton, Chesterton and Stow cum Quy have a slightly higher proportion of people living with a long-term health problem or disability (Figure 12.7: Proportion of population living with a long-term health problem, Book of Figures – Health, App Doc Ref 5.3.12).

3.1.16 The proportion of the population in the study area who are not limited when undertaking daily activities (86%) is consistent with South Cambridgeshire, East Cambridgeshire and Cambridge local authority area proportions, and slightly higher than the England proportion.

3.1.17 Table 3-5 outlines the general health of the population by community in the study area. This data is based on responses to a personal wellbeing question included within the annual population survey conducted by the Office of National Statistics.

Table 3-5: General health

	Bad or very bad health (%)
Chesterton	5%
Fen Ditton	5%
Horningsea	2%
Stow cum Quy	5%
Waterbeach	3%

	Bad or very bad health (%)
Study area average	4%
South Cambridgeshire	3%
East Cambridgeshire	4%
Cambridge City	4%
East of England	5%
England	5%

Source: Personal wellbeing estimates by local authority, Annual population survey, 2020/21, ONS

3.1.18 Table 3-5 shows that 4% of the population in the study area suffer from bad or very bad health, which is consistent with South Cambridgeshire (3%), East Cambridgeshire (4%), Cambridge (4%), the East of England (5%) and England (5%) ratings.

Mental health data

3.1.19 Table 3-6 outlines wellbeing data across categories of life satisfaction, happiness, anxiety and worthwhile ratings at local authority level. This data is an average of score based on responses by area to a personal wellbeing question scored out of 10 (where 0 is “not at all” and 10 is “completely”) included within the annual population survey conducted by the Office of National Statistics.

Table 3-6: Wellbeing by local authority

	Life satisfaction rating	Happiness rating	Anxiety rating	Worthwhile rating
SCDC	7.5	7.6	3.4	7.9
ECDC	8.0	7.7	3.0	8.1
Cambridge City	7.9	8.0	3.4	8.1
East of England	7.5	7.4	3.2	7.8
England	7.4	7.3	3.3	7.7

Source: Personal wellbeing estimates by local authority, Annual population survey, 2020/21, ONS

3.1.20 The South Cambridgeshire life satisfaction, happiness and worthwhile rating are slightly lower than East Cambridgeshire and Cambridge City, but higher than the England ratings.

3.1.21 Table 3-7 shows mental health data expressed as the proportion of people reporting depression or anxiety at local authority level.

Table 3-7: Mental health by local authority

	% of people reporting depression or anxiety
South Cambridgeshire	9.0
East Cambridgeshire	11.1
Cambridge City	12.7
East of England	12.5
England	13.7

Source: Public Health England, 2016/2017

3.1.22 Both South Cambridgeshire (9%) and East Cambridgeshire (11%) report lower levels of depression or anxiety than Cambridge City (13%), the East of England (13%) and England (14%).

Health profile

3.1.23 The Joint Strategic Needs Assessment (Joint Strategic Needs Assessment: Summary of Themed JSNA Reports, 2017) for Cambridgeshire provides an analysis of health and wellbeing status of local communities. According to this piece of research, overall, Cambridgeshire is a healthy place to live and one that compares generally well with national health and wellbeing determinants and outcomes. The high-level executive summary for the report outlines the following:

- There are some very small areas, often with relatively high levels of disadvantage and deprivation, which have correspondingly adverse health and wellbeing determinants and outcomes.
- For the adult population – 9.8% of people reported two or more longstanding illnesses which equates to over 39,000 people in Cambridgeshire.
- People aged 18 to 64 years estimated to have two or more long term conditions (LTCs) and who report limitation is around 14,700 people. When mental ill health is considered as well around 11,000 people report two or more LTCs, with limitation and with mental ill health.

Health resources

3.1.24 Within the study area, community resources relevant to the health assessment, and the settlements in which they are located, are detailed below. These are also shown in Figure 11.9: Community Facilities (Book of Figures – Health, App Doc Ref 5.3.12).

Chesterton

3.1.25 In Chesterton, there are the following community facilities: Browns Field House assisted living residence; Brown's Field Youth and Community Centre and recreation ground, Abbeyfield Society care home; Chesterton Primary School, Chestnut Nursery School and Clarence House Day Nursery. Areas of open and green space in Chesterton include Scotland Road recreation ground and a play area off Dundee Close.

Fen Ditton and Fen Road

3.1.26 Community facilities in Fen Ditton include Fen Ditton Community Primary School, accessible from B1047 Horningsea Road and Fen Ditton Recreation Ground, located on the eastern edge of town, at the junction of Green End, Stanbury close and Church Street. There are also community facilities located off Nuffield Road, including Pauline Burnet House care home and Nuffield Road Medical Centre; Shirley Community Primary. Areas of open and green space near Fen Road include Nuffield Road Allotment Society, Five Trees Garden, Bramblefields and Chesterton Nature Reserve.

3.1.27 The River Cam passes through to the north of Fen Ditton and is directly west of the settlement. It is possible to cross the river via the Baits Bite Lock, at which point the footpath continues via Biggin Lane and eventually intersects with Horningsea Road.

Milton

3.1.28 Community facilities in Milton area are primarily located at Cambridge Science Park include the Bradfield Centre co-working space/lecture hall, the Trinity Centre venue, and the Revolution Health & Fitness Club. Milton Country Park is located to west of the River Cam and is connected to a network of PRoW which provide access to this recreational resource.

Horningsea

3.1.29 Community facilities within Horningsea include Horningsea Village Hall located on High Street and the Church of St. Peter located on St John's Lane.

3.1.30 There are open areas of green space located on either side of High Street. These include two fields to the west of High Street which includes Goose Green play area. The public open space to the east of High Street is Millennium Green.

3.1.31 Part of the River Cam flows north from Baits Bite Lock, passing to the west of Horningsea. River users are likely to include rowers, punters, boaters, and canoers and the river also has short and long stay moorings.

Stow cum Quy

3.1.32 There is one community facility in Stow cum Quy, which is the Quy Village Hall located the B1102 Stow Road. In addition, the Girlguiding Cambridgeshire East Chapter is also located in the north of the village off the B1102 Stow Road.

3.1.33 There is a green open space located on the northern edge of the village, accessible via the Square and Quy Court. The green open space is called Quy Recreational Ground and Pavilion. Quy Water runs directly west of the village. Stow cum Quy is approximately 3km from the River Cam and there is no river access located in this location.

3.1.34 The area of Honey Hill is located to the west of Stow cum Quy and is accessible from Low Fen Drove Way. This area forms part of the Eastern Fen Edge Landscape Character and forms part of a walking and cycling loop used by local residents.

Waterbeach and Clayhithe

3.1.35 In Waterbeach and Clayhithe, community facilities near to the Proposed Development include the Residential Care Home and toddler play group within Hatley Court located on Way Lane, Edmund House care home and Little Stars Day Nursery, both of which are located on Capper Road.

3.1.36 There are several open space and recreational areas in Waterbeach. Green spaces to the south of Bannold Road and north of Waterbeach train station are part of Waterbeach Hyacinth Park. Cow Hollow Wood is a small country park located west of the River Cam, adjacent to Clayhithe Road. Waterbeach Recreational Ground is

located in the southern portion of Waterbeach and includes a tennis court facility, a skate park; and a playground.

3.1.37 The River Cam flows northwards to the east of Waterbeach. River users in this area likely comprise some rowers (there are local controls on who can row below Baits Bite Lock) and boaters, and may also include canoers, kayakers and paddleboarders. In this location there may be more angling activity as there is less rower conflict.

3.2 Future baseline

3.2.1 The methodology relating to the project’s approach to future baseline is presented in Chapter 5: EIA Methodology, alongside a list of proposed developments that, at this time, are expected to fall into this category. As such, these developments would form part of the baseline for assessment within the EIA.

3.2.2 Population trends have been analysed to provide insight into the likely future local community circumstance. There is predicted to be population growth across all three districts between 2020 and 2040, with the largest growth occurring in East Cambridgeshire. The proportion of children (those under 16) in these three local authority areas is predicted to reduce, and the proportion of older people (65 and over) is predicted to increase by over 30% for all three local authority areas. Therefore, the proportion of the older population is also predicted to increase in the study area.

3.2.3 Table 3-8 details the summary of projected population growth at the local authority level. More detail can be found in Chapter 11: Community.

Table 3-8: Projected growth in population

	Growth from 2020-2025	Growth from 2020-2030	Growth from 2020-2035	Growth from 2020-2040
Cambridge City	0.1%	1.4%	1.8%	1.1%
East Cambridgeshire	3.2%	5.0%	6.5%	8.1%
South Cambridgeshire	0.7%	1.4%	1.7%	2.3%

Source: ONS, 2020

Impacts of climate change on future baseline

3.2.4 The likely ranges of change in climatic parameters including precipitation, temperature, wind speed, humidity and frequency of extreme weather are not considered to materially affect the future baseline described above for health. However, we expect some population groups, for example, older people, to be particularly vulnerable to some of the consequences of a changing climate. Where an effect is reported and a population group is likely to be affected to a greater extent due to climate change, then it will be identified in the assessment.

3.2.5 Further detail is provided in Chapter 9: Climate Resilience.

4 Assessment of Effects

- 4.1.1 The section presents the assessment of effects and sets out a preliminary assessment that takes into account primary and tertiary mitigation in determining effects and then considers secondary mitigation and the assessment of residual effects.

4.2 Construction phase

Project wide

- 4.2.1 This section sets out the assessment effects in relation to the Project Development as a whole including the proposed WWTP, Waterbeach pipeline and the existing Cambridge WWTP.

Potential increase in employment due to the need for a construction workforce and procurement of local goods and services

Magnitude of impact

- 4.2.2 There is a strong correlation between employment status and health and wellbeing outcomes. Being employed increases a household's income, which can improve physical and psychological wellbeing, providing people with the financial means to access the goods and services which they need. There is also evidence to suggest that employment status may also be a consequence of physical and mental health, rather than the direct cause.
- 4.2.3 As described in Section 3.1 of Chapter 11: Community, employment and economic activity rates are relatively high in Cambridge City, East Cambridgeshire and South Cambridgeshire local authority areas - higher than rates in England. During construction of the Proposed Development, there is likely to be a beneficial impact on the economy through providing employment opportunities, through both new and existing construction contracts entered into with local companies. This is likely to be beneficial for employment opportunities associated with direct employment from the construction activity, as well as for local businesses through indirect expenditure.
- 4.2.4 As described in Chapter 2: Project Description, at the peak construction activity there are anticipated to be 60 supervisory and administrative staff and approximately 300 staff working across the site. The proportion of construction workers and/or contracts that would be sourced locally is currently unknown. However, as the number of jobs is a slight change from the baseline position, the communities impacted have low levels of deprivation, as well as low unemployment rates the magnitude of impact on human health will be minor.

Sensitivity of receptor

- 4.2.5 There are low levels of deprivation and the economic activity and employment rates are consistent with England rates (see Table 3-2 and Table 3.3 in Chapter 11: Community for further detail on this). This position means that the communities in the study area are relatively non-vulnerable and have average health outcomes

when compared to the national level, so there is no evidence of inequality. The sensitivity of communities in the study area to human health effects from changes to local employment opportunities is therefore considered to be low.

Significance of effect

- 4.2.6 Overall, it is predicted that the minor magnitude of impact on the low sensitivity receptor would result in a neutral effect, which is not significant.

Secondary mitigation or enhancement

- 4.2.7 There are no secondary mitigation measures relevant to employment.

Residual effect

- 4.2.8 The residual effect remains neutral, which is not significant.

Potential for impacts on social cohesion due to the presence of a construction workforce

Magnitude of impact

- 4.2.9 The introduction of a temporary construction workforce into established communities has the potential to negatively alter people's perceptions of, and interactions with their communities, modifying behaviour and the value they place on social capital¹.
- 4.2.10 During the day, the workforce will be present on construction sites and compounds throughout the study area, with a peak construction force of approximately 300 people. Although the total number of construction workers for each element of the construction is not yet confirmed, compared to the baseline position, the presence of construction workers is likely to be noticeable for those people living on the eastern extents of Waterbeach, eastern and southern extents of Horningsea, northern Fen Ditton and walkers and cyclists using routes in these locations. This is due to the construction of the Waterbeach pipeline and the locations of construction compounds. Construction workers are likely to be working across several construction locations, so the size of the construction workforce relative to the size of the communities at any one location is unlikely to be substantial.
- 4.2.11 The magnitude of impact on health outcomes is moderate adverse as the duration of construction works will be up to four years and therefore not short-term. Additionally, while the number of workers may be low, workers will be present throughout the study area, which may impact on the perception people have about their community or community cohesion. Appropriate mitigation measures are in place for individuals to communicate any adverse feedback and for the Principal Contractor to enforce behaviour standards.

¹ Social capital refers to the networks of relationships among people who live and work in a particular society, enabling that society to function effectively.

Sensitivity of receptor

- 4.2.12 There is existing access to health facilities, areas of open space and recreation as well as low levels of deprivation in the community. This makes the community a relatively non-vulnerable receptor with no evidence of health inequalities when compared nationally. The sensitivity of communities in the study Area to human health effects from impacts on social cohesion, as a result of the presence of a construction workforce, is therefore considered to be low.

Significance of effect

- 4.2.13 Overall, it is predicted that the moderate magnitude of impact on the low sensitivity receptor would result in a slight adverse effect, which is not significant.

Secondary mitigation or enhancement

- 4.2.14 The following measures would further mitigate the impact of a construction workforce on social cohesion. There are set out within the COCP and CLP. The measures of particular relevance are:
- 4.2.15 The CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) requires all construction workers to receive appropriate training on their responsibilities as part of the site induction process. This includes expectations regarding behaviours and conduct whilst on site, including respecting and showing courtesy to the local community. Contractors will be responsible for ensuring that all personnel working on site undertake the induction process.
- 4.2.16 A draft CLP (App Doc Ref 7.8) has also been prepared by the Applicant which contains measures for communication of construction activities being undertaken, including the frequency of such liaison, the status of the construction works, construction programme and a complaints procedure.
- 4.2.17 Notwithstanding the application of these measures, the impact would remain low.

Residual effect

- 4.2.18 The residual effect remains slight and is not significant.

Potential risk to human health from water pollution

Magnitude of impact

- 4.2.19 Chapter 20: Water Resources describes that there are no public water supply groundwater sources which could be affected by the Proposed Development. Chapter 20 also considers impacts from construction on surface water and groundwater quality, including impacts to private water supplies. Many of these give rise to effects which were not significant. An exception would be the installation and removal of the cofferdam required for construction of the effluent discharge works on the River Cam. Removing the cofferdam will have a short-term moderate adverse effect on the River Cam riverbed sediments downstream of the outfall, which is significant. However, the disturbance of riverbed sediments is not considered detrimental to human health as the risk of toxicity or disease risk would not increase

and it's relatively short term effect would not affect use of the River Cam as a recreational facility.

- 4.2.20 Therefore, no residual risks to human health from water pollution is anticipated as a result of construction of the Proposed Development. As there will be no discernible change from the baseline position in relation to human health, a negligible impact (from water pollution) is predicted.

Sensitivity of receptor

- 4.2.21 There are low levels of deprivation and the under 75 mortality rates (from all causes, cardiovascular diseases, cancer and respiratory diseases) is less than the England rate. This demonstrates the ability for the community to absorb and be resilient to changes in the environment. The sensitivity of the communities in the study area to potential risks from water pollution are therefore low.

Significance of effect

- 4.2.22 Overall, it is predicted that the negligible magnitude of impact on the low sensitivity receptor would result in a neutral effect, which is not significant.

Secondary mitigation or enhancement

- 4.2.23 There are no secondary mitigation measures relevant to risk to human health from water pollution.

Residual effect

- 4.2.24 On the basis that no further mitigation or enhancement measures are proposed, the residual effect remains neutral, not significant.

Potential risk to human health from hazardous waste and substances

Magnitude of impact

- 4.2.25 Potential impacts from hazardous waste and substances have been assessed as part of Chapter 16: Material Resources and Waste. The chapter reported that during construction no hazardous material is likely to be generated resulting in a neutral or minor effect (which is not significant).

Sensitivity of receptor

- 4.2.26 The under 75 mortality rates (from all causes, cardiovascular diseases, cancer and respiratory diseases) is less than the England rate. Additionally, while there are small pockets of higher deprivation in the study area (which are covered in the relevant individual area assessments), the overall study area has low levels of deprivation. This demonstrates the ability for the community to be resilient to changes in the environment. The sensitivity of the communities in the Study Area to potential risks from hazardous waste are therefore low.

Significance of effect

- 4.2.27 Overall, it is predicted that the negligible magnitude of impact on the low sensitivity receptor would result in a neutral effect, which is not significant.

Secondary mitigation or enhancement

- 4.2.28 The CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) contains measures for minimising and managing waste. Therefore, no residual risks to human health from hazardous waste and substances are anticipated as a result of construction of the Proposed Development. As there will be no discernible change from the baseline position, a negligible health impact (from hazardous waste and substances) is predicted.

Residual effect

- 4.2.29 The residual effect remains negligible and not significant.

Proposed WWTP

- 4.2.30 The section presents the assessment of effects and considers primary and tertiary mitigation in determining effects and then considers secondary mitigation and the assessment of residual effects.

Changes to health and wellbeing due to a change in the local environment – Fen Ditton

Magnitude of impact

- 4.2.31 There is evidence to suggest links between the quality of places and health and wellbeing, as health and wellbeing may be positively influenced by the perceived attractiveness of the environment. There is also extensive evidence linking noise to changes in health and wellbeing, most commonly through Noise Induced Hearing Loss (NIHL), and in other cases exposure to loud noise can also cause high blood pressure, heart disease, sleep disturbances, and stress.
- 4.2.32 In the community of Fen Ditton, additional traffic and congestion is likely to occur for a period of up to 24 months along Horningsea Road, the adjoining roads of High Ditch Road and Ditton Lane. In these locations construction noise and lighting may also be noticeable from some locations. Therefore, some people in the community of Fen Ditton are likely to experience these features of the construction of the Proposed Development as changing the quality of their environment from noise, lighting and traffic effects. The CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) contains relevant noise and traffic measures while the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) details further traffic measures, as discussed further in Chapter 17: Noise and vibration and Chapter 19: Traffic and Transport.
- 4.2.33 The magnitude of impact is assessed as minor adverse as any in-combination effects anticipated from traffic, visual and noise effects will be of very low exposure and severity. Moreover, these effects are temporary in nature.

Sensitivity of receptor

- 4.2.34 Some parts of the community have high levels of income deprivation and therefore a lower ability to absorb potential changes to the environment and subsequent potential changes to health and wellbeing. The existing sensitivity of this community is considered to be medium.

Significance of effect

- 4.2.35 Overall, it is predicted that the minor magnitude of impact on the medium sensitivity receptor would result in a slight adverse effect, which is not significant.

Secondary mitigation or enhancement

- 4.2.36 There are no secondary mitigation measures relevant to change in the local environment of Fen Ditton and the effect remains as slight adverse, which is not significant.

Residual effect

- 4.2.37 The residual effect remains slight adverse and is not significant.

Changes to health and wellbeing due to a change in the local environment – Fen Road

Magnitude of impact

- 4.2.38 Traffic and congestion are likely to occur along Fen Road between Cambridge North train station and the A14 for a period of up to 28 months. People living along this road will likely experience these features of the construction of the Proposed Development as changing the quality of their environment. Noise, visual, emissions and traffic effects from construction activities may be possible along here, particularly during peak travel times, however these have been assessed as having no significant residual effect. The CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) contains relevant noise and traffic measures while the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) details further traffic measures, as discussed further in Chapter 17: Noise and vibration and Chapter 19: Traffic and transport. The magnitude of impact is assessed as minor adverse as any in-combination effects anticipated from traffic and noise effects will be of very low exposure and severity.
- 4.2.39 The potential impacts on people within the Fen Road Traveller Site are reported separately within the EqIA (App Doc Ref 7.12).

Sensitivity of receptor

- 4.2.40 While this area, overall, experiences average levels of deprivation, there are a large number of receptors along this road and there are particular areas within the community where there are high levels of deprivation. A traveller site is also located on Fen Road which is considered to be vulnerable. The sensitivity of this community is therefore considered to be high.

Significance of effect

- 4.2.41 Overall, due to the temporary and minor nature of the impact, it is predicted that the minor magnitude of impact on the high sensitivity receptor would result in a slight adverse effect, which is not significant.

Further mitigation or enhancement

- 4.2.42 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

- 4.2.43 On the basis that no further mitigation or enhancement measures are proposed, the residual effect remains slight adverse, not significant.

Changes in access to areas of open space and recreation, including the ability for local communities to undertake physical activity and live active lifestyles – Chesterton, properties on the eastern end of Fen Road and Milton

Magnitude of impact

- 4.2.44 Changes to traffic and the use of level crossings in the areas of Chesterton, Fen Road and Milton may temporarily impact users of the Phase 1 Chisholm Trail and of PRoW 162/1 (footway). There may be temporary delays to the use of these routes which provides access between these communities and further afield, which encourages physical activity.
- 4.2.45 The health impact is negligible as there is unlikely to be a change in the number of people undertaking physical activity, given alternative walking, cycling and horse-riding (WCH) routes and areas of green space.

Sensitivity of receptor

- 4.2.46 There is existing access to green space/WCH routes which provide opportunities to undertake physical activity, meaning there are alternative ways to maintain active lifestyles. The existing sensitivity of communities which have access to these walking routes is considered to be low.

Significance of effect

- 4.2.47 Overall, it is predicted that the negligible magnitude of impact on the low receptor would result in a neutral effect, which is not significant.

Secondary mitigation or enhancement

- 4.2.48 The following measures would further mitigate the impact to changes in access to areas of open space and recreation in Chesterton, the eastern end of Fen Road and Milton. These are set out within Section 7.7 (traffic and transport) the COCP Part A. The measures of particular relevance to Phase 1 Chisholm Trail and of PRoW 162/1 (footway) users are:

- maintaining access for pedestrians, walkers and cyclists along for the duration of the construction period. Where practical and feasible, continued access to and use of the PRoW will be facilitated in order to minimise the number of diversions required; and
- safety gates will be put in place and users allowed to safely cross the working area.

- 4.2.49 Through the application of these measures, the impact would remain minor.

Residual effect

- 4.2.50 The residual effect remains neutral, not significant.

Changes in access to areas of open space and recreation, including the ability for local communities to undertake physical activity and live active lifestyles – Horningsea and users of Low Fen Drove Way

Magnitude of impact

- 4.2.51 There is likely to be disruption to recreational users of walking and cycling routes in Horningsea. The most considerable change is the potential diversions to PRoWs as a result of the outfall structure in Horningsea, which may cause pedestrian delays, and/or confusion surrounding access to the footpath, as well as the temporary disruption to walking and cycling routes on Horningsea Road and Low Fen Drove Way. The User Count Survey at either end of Low Fen Drove Way (Appendix 19.4, App Doc Ref 5.4.19.4) observed 47 users over the four-day survey period, with no more than 15 users recorded within any survey time period. As such, it is understood that Low Fen Drove Way is used by low numbers of recreational users to access the network of PRoW to the east, and suggests that the route is not used by WCH to frequently access residential, community or business receptors.
- 4.2.52 The combination of these potential impacts limits access to these routes for recreational users, and may therefore impact levels of physical health and wellbeing. The magnitude of impact is considered to be minor as the walking and cycling routes on Horningsea Road and Low Fen Drove Way are used by a small number of users, and there are a number of alternative existing routes in close proximity to affected routes which also provide opportunities to undertake physical activity. Therefore, there are still ways to maintain active lifestyles for these communities.

Sensitivity of receptor

- 4.2.53 There are a number of alternative existing access to green space/WCH routes within close proximity. The existing sensitivity of communities which have access to these walking routes is considered to be low.

Significance of effect

- 4.2.54 Overall, it is predicted that the minor magnitude of impact on the low value receptor would result in a neutral effect, which is not significant.

Secondary mitigation or enhancement

- 4.2.55 The following measures would further mitigate the impact to Horningsea and Low Fen Drove Way. These are set out within Section 7.6 (traffic and transport) the COCP Part A. The measures of particular relevance to PRoW users are:
- maintaining access for pedestrians, walkers and cyclists along Low Fen Drove Way for the duration of the construction period. Where practical and feasible, continued access to and use of the PRoW will be facilitated in order to minimise the number of diversions required; and
 - safety gates will be put in place and users allowed to safely cross the working area.

4.2.56 Through the application of these measures, the impact would remain minor and the effect therefore neutral and not significant.

Residual effect

4.2.57 The residual effect remains neutral, not significant.

Changes in access to local services (for example health, social care and educational facilities), as a result of construction activities and changes to travel routes and delays – Horningsea Road

Magnitude of impact

4.2.58 Evidence indicates that access to healthcare services can impact health and wellbeing, with both the use of and access to these services depending on proximity, transport facilities and the supply of trained staff.

4.2.59 Children, as well as parents, guardians and school staff, use Horningsea Road and the B1047 to walk and cycle to Fen Ditton Primary School from communities to the north. There are no health or social care facilities around the area of Horningsea Road and therefore changes in access are only likely to affect Fen Ditton Primary School. There may be the potential disruption to access, as a result of delays on this route which children use to travel to school, due to construction of:

- the final effluent pipeline across Horningsea Road;
- the improved shared cyclist / pedestrian footway and construction of the new ghost island;
- the new arm to the existing signalised junction between Horningsea Road and the A14; and
- the use of Horningsea Road by construction vehicles to access land required for the construction of the proposed WWTP and land required for the construction of the treated effluent pipeline and outfall.

4.2.60 It is also anticipated that walkers and cyclists will be segregated from construction activity along Horningsea Road. The magnitude of impact is considered to be minor as delays are not anticipated to be substantial and children walking or cycling to and from Fen Ditton Primary School will be fully segregated from construction traffic, meaning they will still be able to get to school to access education opportunities.

Sensitivity of receptor

4.2.61 The school is well attended with approximately 160 students² (aged 4-11 years) and there is limited ability to absorb potential changes to access or delays given existing issues at drop-off and pick-up time. The sensitivity of people travelling to Fen Ditton School to human health effects is considered to be high.

² 'Fen Ditton Primary School'. Number of pupils is currently 163 and capacity is 175. Available at: <https://get-information-schools.service.gov.uk/Establishments/Establishment/Details/145423>

Significance of effect

4.2.62 As the effect is temporary, and there will be full segregation of construction traffic from children walkers and cyclists accessing Fen Ditton Primary School, it is predicted that the minor magnitude of impact on the high sensitivity receptor would result in a slight adverse effect, which is not significant.

Secondary mitigation or enhancement

4.2.63 The following measures would further mitigate the impact on access to local services. These are set out within the CoCP, the CLP and the CTMP. The measures of particular relevance to access to local services are:

- Through the application of the CoCP and the CLP, measures will be in place to identify emerging community concerns including those relating to accessibility to existing community facilities.
- The draft CLP (App Doc Ref 7.8) indicates that in construction there will be a dedicated resource available and there will be a Community Liaison Officer to coordinate and communicate with local communities, schools and businesses.
- Section 4.2.3 of the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) states that hours of construction traffic operation will avoid the AM and PM peak periods as well as school pick-up and drop-off hours.
- Section 4.1.3 of the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) states that there will be no construction traffic (i.e. HGVs, LGVs and standard cars used for the purposes of construction of the Proposed Development) through Horningsea village. This means that construction traffic from the direction of Horningsea will turn off and join the westbound A14, and will therefore not reach Fen Ditton Primary School and Fen Ditton village.

4.2.64 Through the application of these measures, the impact would remain minor.

Residual effect

4.2.65 The residual effect remains slight adverse, not significant.

Waterbeach pipeline

4.2.66 This section sets out the assessment of effects in relation to the Waterbeach pipeline which consists of a transfer section running from the north near Waterbeach to Low Fen Drove Way, a section crossing the area of land required for the construction of the proposed WWTP, and a section south of the A14 which connects to the area of land where the existing Cambridge WWTP is located.

4.2.67 Health and wellbeing impacts are not anticipated in area south of the A14 and along to Low Fen Drove Way, as such this area has not been assessed further.

**Changes to health and wellbeing due to a change in the local environment –
Waterbeach and Clayhithe**

Magnitude of impact

4.2.68 In the community of Waterbeach and Clayhithe, an increase in construction vehicles and traffic movements may mean that residents experience a combination of changes from an increase in congestion, traffic emissions and road noise from construction traffic, as detailed in Chapter 19: Traffic and Transport. These changes are likely to impact residents who live on roads where construction traffic routes are proposed. The in-combination effect may contribute to adverse neighbourhood quality. As such, activity will be noticeable and may influence people's experience of, and feelings about, the local environment. However, this is expected to be temporary in nature (up to 12 months) and the magnitude is considered to be minor in its effect on neighbourhood quality.

Sensitivity of receptor

4.2.69 There are low levels of deprivation and therefore a greater ability to absorb potential changes to the environment and subsequent potential changes to health and wellbeing. The existing sensitivity of this community is considered to be low.

Significance of effect

4.2.70 Overall, it is predicted that the negligible magnitude of impact on the low receptor would result in a neutral effect, which is not significant.

Secondary mitigation or enhancement

4.2.71 The following measures would further mitigate the impact on access to local services. These are set out within the CoCP, the CLP and the CTMP. The measures of particular relevance to access to local services are:

- Through the application of the CoCP and the CLP, measures will be in place to identify emerging community concerns including those relating to accessibility to existing community facilities; and
- The draft CLP (App Doc Ref 7.8) indicates that in construction there will be a dedicated resource available and there will be a Community Liaison Officer to coordinate and communicate with local communities, schools and businesses.

Residual effect

4.2.72 On the basis that no further mitigation or enhancement measures are proposed, the residual effect remains neutral, not significant.

Changes in access to areas of open space and recreation from construction activities and the ability for local communities to undertake physical activity and live active lifestyles – Harcamlow Way

Magnitude of impact

4.2.73 Harcamlow Way (Bridleway 130/8) is a long distance (140 miles) bridleway running from Harlow to Cambridge and back again. Harcamlow Way will be temporarily

disrupted due to the construction of the Waterbeach pipeline, and a diversion provided for a period of up to 6 months. Additionally, an increase in construction vehicles and construction activity may mean that users of Harcamlow Way and adjoining PRow network, may experience a combination of changes from an increase in noise and adverse visual effects from the construction compound adjacent to the bridleway. These changes may impact the use and enjoyment of the Harcamlow Way route, reducing people's willingness to undertake physical activity for a temporary period of time.

4.2.74 The User Count Survey (Appendix 19.4, App Doc Ref 5.4.19.4) observed 54 users over a four-day survey period, with no more than 20 users recorded within any survey time period at either end of Harcamlow Way to the east of Stow cum Quy SSSI. As such, it is understood that Harcamlow Way is used intermittently by recreational users to access the network of PRow to the east of the Waterbeach pipeline. This further suggests that the route is not used by WCH to frequently access residential, community or business receptors. The magnitude of impact is minor adverse as the route is used by low numbers of recreational users and will remain accessible for people to maintain active lifestyles.

Sensitivity of receptor

4.2.75 There are a number of alternative areas of PRow in close proximity which provide opportunities for physical activity and for people to live active lifestyles. However, as there are a limited number of bridleways, the sensitivity of these resources is considered to be medium.

Significance of effect

4.2.76 Overall, it is predicted that the minor magnitude of impact on the medium receptor would result in a slight adverse effect, which is not significant.

Secondary mitigation or enhancement

4.2.77 The following measures would further mitigate the impact to Harcamlow Way. These are set out within Section 7.6 (traffic and transport) of the COCP Part A. The measures of particular relevance to PRow and bridleway users are:

- safety gates will be put in place and users allowed to safely cross the working area.

4.2.78 Through the application of these measures, the impact would remain minor.

Residual effect

4.2.79 The residual effect remains slight adverse, not significant.

Existing Cambridge WWTP

4.2.80 This section sets out the assessment of effects in relation to construction activities within the existing Cambridge WWTP. The works proposed are largely related to connecting the new transfer tunnel to the existing sewer network at the existing WWTP. As a result of the construction activities, there may be odour, noise and traffic movements during the tunnelling works. In particular, tunnelling between

shafts is expected to last for up to 24 months, however this is not anticipated to bring about significant traffic effects.

4.2.81 Overall, there are no anticipated in-combination health effects as a result of odour, noise or traffic movements in relation to construction activities within the existing Cambridge WWTP.

1.1 Monitoring

4.2.82 Monitoring will be undertaken in accordance with the requirements of the CoCP and the CEMP.

4.2.83 To maximise potential benefits from potential changes to employment, the Applicant will be responsible for:

- monitoring the number of employees from the local (Cambridgeshire) area;
- recording the monetary value of contracts which have been entered into with local (Cambridgeshire) companies; and
- monitoring what apprenticeship and training opportunities have been provided where people from Cambridgeshire have benefitted.

4.2.84 This should occur for the duration of the construction period.

4.3 Operation phase

Proposed WWTP

4.3.1 This section sets out the assessment of effects in relation to the operation and maintenance of the proposed WWTP including the landscaping proposals, final effluent pipeline, outfall, transfer tunnel and new access connection to B1047 Horningsea Road.

Potential risk to human health from water pollution – River Cam

Magnitude of impact

4.3.2 Operational impacts on surface water and groundwater quality, are considered in Chapter 20: Water Resources. During operation of the Proposed Development, there would be impacts resulting from changes in final effluent and stormwater discharges which are expected to have a significant beneficial effect on environmental water quality in the River Cam.

4.3.3 While this provides a beneficial effect for environmental water quality, this is not a potable drinking water source and therefore has no relational impact on human health. Therefore, no additional risks to human health from a deterioration or improvement in water quality are anticipated as a result of operation of the Proposed Development. As there will be no discernible change from the baseline position, a negligible magnitude of impact (from water pollution) is predicted.

Sensitivity of receptor

- 4.3.4 There are low levels of deprivation and the under 75 mortality rates (from numerous causes, cardiovascular diseases, cancer and respiratory diseases) are less than the England rate. This demonstrates the ability for the community to absorb and be resilient to changes in the environment. The sensitivity of the communities in the Study Area to potential risks from water pollution, particularly given the relatively low likelihood of older age group to utilise the River Cam when compared to younger people, are low.

Significance of effect

- 4.3.5 Overall, it is predicted that the negligible magnitude of impact on the low sensitivity receptor would result in a neutral effect, which is not significant.

Secondary mitigation or enhancement

- 4.3.6 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

- 4.3.7 On the basis that no secondary mitigation or enhancement measures are proposed, the residual effect remains neutral and not significant.

Potential risk to human health from hazardous waste and substances

Magnitude of impact

- 4.3.8 Potential impacts from hazardous waste and substances have been assessed as part of Chapter 16: Material Resources and Waste. The chapter reported that during operation small quantities of hazardous material is likely to be generated resulting in a minor effect (which is not significant). As there will be a slight negative change from the baseline position, the magnitude of the impact is minor.

Sensitivity of receptor

- 4.3.9 There are low levels of deprivation and the under 75 mortality rates (from all causes, cardiovascular diseases, cancer and respiratory diseases) is less than the England rate. This demonstrates the ability for the community to absorb and be resilient to changes in the environment. The sensitivity of the communities in the Study Area to potential risks from hazardous waste and substances are low.

Significance of effect

- 4.3.10 Overall, it is predicted that the negligible magnitude of impact on the low sensitivity receptor would result in a neutral effect, which is not significant.

Secondary mitigation or enhancement

- 4.3.11 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

- 4.3.12 On the basis that no further mitigation or enhancement measures are proposed, the residual effect remains neutral, and is not significant.

Potential risk to human health from pests

Magnitude of impact

- 4.3.13 During operation, if there is an increase in pests at the proposed WWTP there could be adverse health outcomes as a result of the potential spread of disease. Operational procedures to prevent and control pests are described in Section 5.2 (Mitigation measures adopted as part of the Proposed Development).
- 4.3.14 In addition to operational procedures the Environmental Permit for the proposed WWTP will require the operator to have a written management system. This is an Environmental Management System (EMS) which includes a set of plans and procedures describing measures to avoid, reduce and eliminate potential environmental impacts associated with the activities covered by permit.
- 4.3.15 The potential impact from an increase in pests is not likely lead to adverse health outcomes as there are management procedures in place to efficiently carry out pest control tasks which are embedded into site operations. Therefore, if there was an increased in pests, this would be for a very short period and not lead to a discernible change in health outcomes for those working on within the proposed WWTP. Given the range of mitigation and management procedures to reduce and control pests during operation of the proposed WWTP, the risk to human health is negligible.

Sensitivity of receptor

- 4.3.16 There are low levels of deprivation and the under 75 mortality rates (from all causes) is less than the England rate. This demonstrates the ability for the community to absorb and be resilient to changes in the environment. The sensitivity of the communities in the study area to potential risks from pests are low.

Significance of effect

- 4.3.17 Overall, it is predicted that the negligible magnitude of impact on the low sensitivity receptor would result in a neutral effect, which is not significant.

Secondary mitigation or enhancement

- 4.3.18 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

- 4.3.19 On the basis that no further mitigation or enhancement measures are proposed, the residual effect remains neutral effect, and not significant.

Changes to social cohesion

Magnitude of impact

- 4.3.20 Once operational the proposed WWTP and the surrounding landscaped area defined within the landscape masterplan will be a new feature within the community. This may influence the level of satisfaction that people have with their neighbourhood, which may impact on their sense of place and wellbeing. How local people feel about their community, in particular their sense of place and wellbeing, including mental health, contributes to an overall sense of social cohesion and may comprise a combination of visual, odour and access impacts.
- 4.3.21 The LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) details the design principles for the projects in line with the National Infrastructure Commission's Design Principles for National Infrastructure. These principles include:
- creating a strong identity for the site while screening and facility and reducing visual impacts on the surrounding community and landscape;
 - minimising odour by incorporating solutions to address it at source and using best operational practices; and
 - improving access to the countryside with new paths and accessible open spaces.
- 4.3.22 The landscape design, as described within the LERMP, aims to integrate the Proposed Development into the landscape setting and screen the structures of the proposed WWTP in views from the west and south, where it will be most visible. The proposed design, and maintenance and management of the Proposed Development is intended to integrate the new feature into the existing landscape setting and screened utilising natural features. Overall, the impacts on the community's sense of place and wellbeing are anticipated to be minor. The design has purposefully considered the existing environment, how people feel about their neighbourhood as a result of the Proposed Development.

Sensitivity of receptor

- 4.3.23 Within South Cambridgeshire (which covers the majority of the study area) the Life Satisfaction Rating and Happiness rating from the ONS Annual Population Survey is slightly higher than ratings for England. Similarly, the proportion of people reporting depression or anxiety is lower than England and surrounding local authorities. However, given the rural context of the communities within the study area, it is likely that members place value on living near to areas of open green space and agricultural land, the sensitivity of communities within the study area from changes to sense of place and wellbeing, including mental health, is considered to be medium.

Significance of effect

- 4.3.24 Overall, it is predicted that the minor magnitude of impact on the medium sensitivity receptor would result in a slight adverse effect, which is not significant.

Further mitigation or enhancement

- 4.3.25 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

- 4.3.26 On the basis that no further mitigation or enhancement measures are proposed, the residual effect remains slight adverse, which is not significant.

Changes in access to areas of open space and recreation, including PRoW, and the ability for local communities to undertake physical activity and live active lifestyles.

Magnitude of impact

- 4.3.27 A new multi-functional recreational area will be provided to the north of the Proposed Development, creating an aesthetically pleasing and user-friendly green space. A publicly accessible path will run along the eastern extent of the land required for the landscaping proposals and then connect to Low Fen Drove Way. A new bridleway is also proposed to the east of the Proposed Development, linking Low Fen Drove Way with Station Road to provide connections to the existing network of PRoW in the north-east.
- 4.3.28 As shown within Figure 3.1 within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) these two new paths create a new circular route of approximately 9.3km from Horningsea, which connects into the existing PRoW network. A shorter circular walk of approximately 4.5km is also created through using the proposed path internal to the Proposed Development and Low Fen Drove Way. These connections formalise recreational routes for nearby communities, connecting Horningsea to Stow-cum-Quy and promote outdoor physical activity, for local people.
- 4.3.29 The magnitude of impact is moderate beneficial as there are enhanced opportunities for physical activity as the new connections provide more options for people to travel north from Low Fen Drove Way where there was previously not a formal connection. The new routes also cater for a range of user (walkers, cyclists and horse-riders), so many people in the nearby communities of Fen Ditton, Horningsea and Stow cum Quy are likely to benefit.

Sensitivity of receptor

- 4.3.30 There is existing access green space/WCH routes which provide opportunities to undertake physical activity, meaning there are alternative ways to maintain active lifestyles. The existing sensitivity of communities in the Study Area which have access open space, recreational areas and PRoW is considered to be low.

Significance of effect

- 4.3.31 Overall, it is predicted that the moderate beneficial impact on the low sensitivity receptor would result in a slight beneficial effect, which is **not significant**.

Secondary mitigation or enhancement

- 4.3.32 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

- 4.3.33 On the basis that no further mitigation or enhancement measures are proposed, the residual effect remains slight beneficial, which is **not significant**.

Waterbeach transfer pipeline

- 4.3.34 No health effects associated with the Waterbeach pipeline are anticipated as there are no above ground elements to this part of the Proposed Development.
- 4.3.35 Therefore, there are no anticipated to be any significant health effects during operation of the Waterbeach pipeline.

4.4 Decommissioning of the existing Cambridge WWTP

- 4.4.1 This section sets out the assessment of effects in relation to the decommissioning activities to rescind the environmental permit at the existing Cambridge WWTP and decommissioning the redundant section of the Waterbeach pipeline. Demolition activities and intrusive works to decommission the existing Cambridge WWTP are considered within the cumulative assessment. Decommissioning of the existing Waterbeach WRC is considered within the cumulative assessment.

Changes to health and wellbeing due to an increase in noise, air quality, dust, odour, traffic and visual effects

Magnitude of impact

- 4.4.2 No significant impacts were identified in Chapter 7: Air Quality, Chapter 15: Landscape and Visual Amenity, Chapter 17: Noise and Vibration, Chapter 18: Odour or Chapter 19: Traffic and Transport result of construction activity associated the decommissioning of the existing WWTP. Relevant traffic and noise measures are outlined in the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) and CTMP (Appendix 19.7, App Doc Ref 5.4.19.7). A negligible impact on health and wellbeing is anticipated as there will be no substantial change to the quality of the environment.

Sensitivity of receptor

- 4.4.3 There are low levels of deprivation and therefore a greater ability to absorb potential changes to the environment and subsequent potential changes to health and wellbeing. The existing sensitivity of this community (near to the existing WWTP) is considered to be low.

Significance of effect

- 4.4.4 Overall, it is predicted that the negligible magnitude of impact on the low receptor would result in a neutral effect, which is **not significant**.

Secondary mitigation or enhancement

- 4.4.5 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

- 4.4.6 On the basis that no further mitigation or enhancement measures are proposed, the residual effect remains neutral, which is **not significant**.

Potential risk to human health from water pollution

Magnitude of impact

- 4.4.7 Impacts from decommissioning on surface water and groundwater quality, are considered in Chapter 20: Water Resources. None of the impacts on water quality as a result of pollution give rise to significant effects during decommissioning of the existing Cambridge WWTP.
- 4.4.8 As there are no expected significant effects as a result of pollution, no residual risks to human health from water pollution are anticipated as a result of decommissioning of the Proposed Development. As there will be no discernible change from the baseline position, a negligible magnitude of impact on human health (from water pollution) is predicted.

Sensitivity of receptor

- 4.4.9 Adverse health outcomes are likely from exposure or consumption of polluted water. Therefore, the sensitivity of recreational receptors, and private water supplies, to human health effects from changes to water quality as a result of decommissioning activities is considered to receptor be medium as the receptor is non-vulnerable, and has capacity and means to absorb changes. However, the ability for the receptor to absorb changes is limited.

Significance of effect

- 4.4.10 Overall, it is predicted that the negligible magnitude of impact on the medium sensitivity receptor would result in a neutral effect, which is **not significant**.

Secondary mitigation or enhancement

- 4.4.11 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

- 4.4.12 On the basis that no further mitigation or enhancement measures are proposed, the residual effect remains neutral effect, which is **not significant**.

Potential risk to human health from hazardous waste and substances

Magnitude of impact

- 4.4.13 Potential impacts from hazardous waste and substances have been assessed as part of Chapter 16: Material Resources and Waste. The chapter reported that during decommissioning no hazardous material is likely to be generated resulting in a neutral or minor effect (which is not significant). Section 7.9 (Waste Management and Resource Use) the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) contains measures for minimising and managing waste. Therefore, no residual risks to human health from hazardous waste and substances are anticipated as a result of

decommissioning the existing WWTP. As there will be no discernible change from the baseline position, a negligible health impact (from hazardous waste and substances) is predicted.

Sensitivity of receptor

- 4.4.14 Adverse health outcomes are likely from exposure to hazardous waste and substances. Therefore, the sensitivity of receptors human health effects from exposure to hazardous waste and substances is considered to be medium as the receptor is non-vulnerable, and has capacity and means to absorb changes. However, the ability for the receptor to absorb changes is limited.

Significance of effect

- 4.4.15 Overall, it is predicted that the negligible magnitude of impact on the medium sensitivity receptor would result in a neutral effect, which is **not significant**.

Secondary mitigation or enhancement

- 4.4.16 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

- 4.4.17 On the basis that no further mitigation or enhancement measures are proposed, the residual effect remains neutral effect, which is **not significant**.

Monitoring

- 4.4.18 There shall be annual monitoring of the volumes and types of user groups visiting the area of land within the landscape masterplan for the first five years of operation. These data should be used to inform long term discussions with Quy Fen Trust/National Trust/Wildlife Trust and SCDC Ecology Officers in relation to adaptive management that may be required in relation to the impacts of user pressure to existing local resources used for recreation.

4.5 Cumulative effects

- 4.5.1 Cumulative effects are those arising from impacts of the proposed development in combination with impacts of other proposed or consented development projects that are not yet built or operational. An assessment of cumulative effects for Health has been completed and is reported in Chapter 22: Cumulative Effects Assessment.

4.6 Inter-related effects

- 4.6.1 Inter-relationships are the impacts and associated effects of different aspects of the construction, operation of the Proposed Development and the decommissioning of the existing Cambridge WWTP on the same receptor.
- 4.6.2 The health assessment reported in this chapter already has considered inter-related effects as part of the principal assessment (e.g. effects of poor water quality on health, effects of contaminated land or hazardous waste on health). For Health there

are no other identified residual inter-related effects to those assessed in this chapter.

5 Conclusion and Summary

- 5.1.1 This assessment of the effects, and their significance, of the Proposed Development as it applies to Health has been thoroughly carried out based on the information currently available.
- 5.1.2 There is no formal guidance on considering health within the context of EIA. The approach to this assessment has applied the Institute of Environmental Management and Assessment (IEMA)'s 'Health in Environmental Impact Assessment: A Primer for a Proportionate Approach' (Cave, Fothergill, Pyper, Gibson, & Saunders, 2017). Regard has also been given to the South Cambridgeshire Supplementary Planning Document for Health Impact Assessment (South Cambridgeshire District Council, 2011) and the South Cambridgeshire Supplementary Planning Document for Health Impact Assessment (South Cambridgeshire District Council, 2011).
- 5.1.3 The effects of the Proposed Development on health, taking into account primary and tertiary mitigation, during construction would vary from neutral to slight adverse, which is not significant.
- 5.1.4 There are anticipated to be neutral health effects, which are not significant, from:
- potential increases in local employment;
 - changes to social cohesion from the presence of a construction workforce;
 - potential risks from water pollution;
 - potential risks from hazardous waste and substances;
 - changes to environmental conditions impacting health and wellbeing in Fen Road and Milton, Horningsea, Waterbeach and Clayhithe and Fen Ditton; and
 - change changes to recreational routes impacting rates of physical activity and the ability to live active lifestyles in Chesterton and communities on the eastern end of Fen Road and Milton, Horningsea, Waterbeach and Clayhithe.
- 5.1.5 There are anticipated to be slight adverse health effects, which are not significant, from:
- rates of physical activity and the ability to live active lifestyles from restrictions to access to the River Cam;
 - changes to environmental conditions impacting health and wellbeing on Fen Road; and
 - changes in access to local services (Fen Ditton School).
- 5.1.6 During construction there will be a requirement for mitigation measures to be implemented through the application of management plans as specified by the CoCP Part A and B (Appendix 2.1 & 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2).

- 5.1.7 The appointed contractor will be responsible for producing a detailed CEMP that sets out how the requirements of the CoCP (Appendix 2.1 & 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) will be delivered. The appointed contractor will be responsible for ensuring that all personnel working on site (including other contractors' staff) undertake the induction process. This includes appropriate training regarding behaviours and conduct whilst on site, including respecting and showing courtesy to the local community. A draft CLP (App Doc Ref 7.8) has also been prepared by the Applicant which contains measures for communication of construction activities being undertaken, including the frequency of such liaison, the status of the construction works, construction programme and a complaints procedure.
- 5.1.8 To mitigate the potential impacts from hazardous waste, the section 7.9 (Waste Management and Material Resources) of the CoCP (Appendix 2.1& 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) will be adhered to, which has specific measures for managing wastes through preparation of the CEMP by the Principal Contractor, and a Site Waste Management Plan (SWMP).
- 5.1.9 During construction there will be controls on vehicle movements so that no construction traffic will be permitted to travel through Horningsea or Fen Ditton. The CTMP also sets out the hours of construction traffic operation to avoid the AM and PM peak periods as well as school pick-up and drop-off hours.
- 5.1.10 Mitigation measures to reduce the effects of traffic, noise, air quality effects odour and visual are outlined in the CoCP and described further in the relevant chapters within the environmental statement. These will reduce potential adverse effects on neighbourhood quality, social cohesion and wellbeing.
- 5.1.11 Disruption of the navigation to the River Cam will be kept to a minimum as it will remain navigable for all users, as detailed in section 3.1 of CoCP Part B (Appendix 2.2, App Doc Ref 5.4.2.2).
- 5.1.12 As these secondary mitigation measures are applied, the effects of the Proposed Development on health during construction remain and would vary from neutral to slight adverse, which is not significant.
- 5.1.13 The effects of the Proposed Development on health during operation (taking into account primary and tertiary mitigation) would vary from slight adverse to slight beneficial, which are not significant.
- 5.1.14 There are anticipated to be neutral health effects, which are not significant, from:
- potential risks from water pollution;
 - potential risks from hazardous waste and substances;
 - potential risks from pests; and
 - changes to environmental conditions impacting health and wellbeing in Fen Road and Milton, Horningsea, Waterbeach and Clayhithe and Fen Ditton.
- 5.1.15 There are anticipated to be slight adverse health effects, which are not significant, from:

- changes to how local people feel about their community, in particular their sense of place and wellbeing.
- 5.1.16 There are anticipated to be slight beneficial health effects, which are not significant, from:
- changes in access to recreational areas impacting rates of physical activity and the ability to live active lifestyles in the study area.
- 5.1.17 Regulatory compliance monitoring (UK Government, 2021) and ongoing assessment of permit conditions by the Environment Agency will prevent deterioration of water quality within the River Cam and risks to human health from water pollution.
- 5.1.18 Environmental compliance during the operational phase will be monitored under the Environmental Permit. The permit also requires the operator to have a written EMS which includes a set of plans and procedures describing measures to avoid, reduce and eliminate potential environmental impacts associated with the activities covered by the permit, including the management of hazardous substances.
- 5.1.19 As part of operational procedures there will be regular inspections, controls on waste storage and waste removal, use of design features that deter pest infestation and guidelines for the employment of professional pest control if required.
- 5.1.20 The landscape design, as described within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14), aims to integrate the Proposed Development into the landscape setting and screen the structures of the proposed WWTP in the views from the west and south, where it will be most visible. One established, the vegetation on the earth bank will also start to further screen the proposed WWTP, which will become more established over time.
- 5.1.21 As shown within Figure 3.12 within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) two new paths create a circular route of approximately 9.3km from Horningsea, which connects into the existing PRoW network. A shorter circular walk of approximately 4.5km is also created through using the proposed path internal to the Proposed Development and Low Fen Drove Way. These connections formalise recreational routes for nearby communities, connecting Horningsea to Stow cum Quy and promote outdoor physical activity for local people.
- 5.1.22 As these mitigation measures are implemented the residual effects of the Proposed Development on health during operation would remain as listed previously, varying from slight adverse to slight beneficial.
- 5.1.23 The potential impacts as a result of decommissioning the existing Cambridge WWTP for the purpose of rescinding the existing Environmental Permit would result in neutral health effects.
- 5.1.24 A summary of potential environmental effects, mitigation and monitoring is provided in Table 5-1.
- 5.1.25 Table 5-2 sets out how mitigation would be secured.

Table 5-1: Summary of health effects

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
Construction							
Project wide							
Temporary concern for local communities in close proximity to the Proposed Development with regard to the presence of a construction workforce affecting social cohesion.	None	Minor adverse	Low	Neutral (not significant)	The CoCP requires all construction workers to receive appropriate training, which includes expectations regarding respecting and showing courtesy to the local community. A CLP has been prepared by the Applicant which contains measures for how communication of construction activity will be undertaken. This includes the frequency of such liaison, the status of the construction works, construction programme and a complaints procedure.	Neutral (not significant).	None proposed.
Potential risk to human health from water pollution due to spills, leaks and run-off or from temporary discharges to watercourses.	As detailed in Chapter 20: Water Resources. <ul style="list-style-type: none"> Best practice measures applied during construction to minimise the risk of runoff reaching ditches and watercourses. Best practice measures applied for management of dewatering including treating dewatering effluent prior to discharge to receiving water body Regulatory compliance monitoring (UK Government, 2021) during wet commissioning of the proposed WWTP to minimise deterioration of water quality within the River Cam 	Negligible	Low	Neutral (not significant)	Identification of private wells within 250m of the proposed works. Monitoring of private wells during construction and enacting corrective action in the event of disruption to water supply including actions to satisfy no derogation agreements made with well owners. Preparation of an Emergency Preparedness Plan and Construction Water Quality Management Plan will be incorporated into the CEMP. Preparation of Outfall Management Plan including measures related to specific conditions within the environment permit in relation to temporary consent limits associated with short term commissioning activities	Neutral (not significant).	Monitoring of private wells during construction as defined with the CEMP for Waterbeach Monitoring as may be required in relation to environmental permit conditions
Potential risk to human health from hazardous waste and substances produced during construction activities	The works area will include provision for the correct storage and disposal of Hazardous Waste as defined by and in accordance with the Hazardous Waste (England and Wales) Regulations 2005 and amendments. Waste will be managed in accordance with the Waste Acceptance Criteria (WAC) and hazardous waste may need to be treated, and then tested, before disposal. Best practice measures will be put in place to prevent and control the spillage of oil, chemicals and other potentially harmful liquids in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and Dangerous Substances and Explosive Atmospheres Regulations 2002.	Negligible	Low	Neutral (not significant)	As required by the CoCP Part A in the event that hazardous waste is generated by the works activities (including in the event contamination is identified) a remediation strategy would be agreed with the relevant local authority, in consultation with the Environment Agency and any other appropriate bodies as required and works will not recommence in the affected area until and approach for dealing with the contamination had been agreed. In relation to controls on oil, chemicals and other potentially harmful liquids a risk assessment will be completed to identify, eliminate or mitigate the risk and ensure suitable control measures are in place.	Neutral (not significant).	None proposed.
Proposed WWTP							

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
Changes to health and wellbeing due to noise, air quality, dust, odour, traffic and visual effects – Fen Ditton	<p>Management of impacts through the application of relevant best practice noise and traffic measures outlined in Chapter 19: Traffic and Chapter 17: Noise and vibration, Including the:</p> <ul style="list-style-type: none"> ● management of air quality as set out within Section 6.9 of the CoCP Part A, Air quality, sets out a framework for the control of air quality during construction, identifying a number of 'standard' mitigation measures which will be implemented whilst construction work takes place. These will be reflected in an Air Quality/Dust Management Plan (AQMP) appended to/as part of the CEMP. This includes the following general measures to be will put in place to minimise emissions and avoid nuisance: <ul style="list-style-type: none"> – the engines of all vehicles and plant onsite will be turned off when not in use; – low emission vehicles and plant will be used as far as possible; and – movement of construction traffic around the working area will be minimised as far as possible ● the application of best practicable measures (BPM) as defined by the Control of Pollution Act 1974 (CoPA) and the Environmental Protection Act 1990 (EPA) as required by CoCP Part A, Section 7.7, Noise and vibration, which requires for the control of noise. These measures are to be reflected within the Noise and Vibration Management Plan (NVMP) appended to/as part of the CEMP. 	Minor adverse	Medium	Slight adverse (not significant)	<p>Relevant noise and traffic measures outlined in the CoCP Part A as detailed in Chapter 19: Traffic and Transport and Chapter 17: Noise and vibration. Including the preparation of a CEMP and appended management plans for Air Quality, Water Quality, Noise and Vibration</p> <p>Relevant traffic measures outlined in the Construction Traffic Management Plan in Chapter 19: Traffic and Transport.</p> <p>Relevant measures outlined in the CoCP Part A to minimise the effect of temporary structures and lighting on landscape and visual amenity as detailed in Chapter 15: Landscape and visual amenity.</p>	Slight adverse (not significant)	None proposed
Changes to health and wellbeing due to noise, air quality, dust, odour, traffic and visual effects – Fen Road	<p>Relevant best practice noise and traffic measures detailed in Chapter 19: Traffic and Transport and Chapter 17: Noise and Vibration, including the:</p> <ul style="list-style-type: none"> ● management of air quality as set out within Section 6.9 of the CoCP Part A, Air quality, sets out a framework for the control of air quality during construction, identifying a number of 'standard' mitigation measures which will be implemented whilst construction work takes place. These will be reflected in an Air Quality/Dust Management Plan (AQMP) appended to/as part of the CEMP. This includes the following general 	Minor adverse	High	Slight adverse (not significant)	<p>Relevant noise and traffic measures outlined in the CoCP Part A as detailed in Chapter 19: Traffic and Transport and Chapter 17: Noise and vibration. Including the preparation of a CEMP and appended management plans for Air Quality, Water Quality, Noise and Vibration</p> <p>Relevant traffic measures outlined in the Construction Traffic Management Plan in Chapter 19: Traffic and Transport.</p> <p>Relevant measures outlined in the CoCP Part A to minimise the effect of temporary structures and</p>	Slight adverse (not significant)	None proposed

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	<p>measures to be will put in place to minimise emissions and avoid nuisance:</p> <ul style="list-style-type: none"> – the engines of all vehicles and plant onsite will be turned off when not in use; – low emission vehicles and plant will be used as far as possible; and – movement of construction traffic around the working area will be minimised as far as possible <ul style="list-style-type: none"> ● the application of best practicable measures (BPM) as defined by the Control of Pollution Act 1974 (CoPA) and the Environmental Protection Act 1990 (EPA) as required by CoCP Part A, Section 7.7, Noise and vibration, which requires for the control of noise. These measures are to be reflected within the Noise and Vibration Management Plan (NVMP) appended to/as part of the CEMP. 				lighting on landscape and visual amenity as detailed in Chapter 15: Landscape and visual amenity.		
Changes in access to areas of open space and recreation, including PRow and the ability for local communities to undertake physical activity and live active lifestyles - Chesterton, properties on the eastern end of Fen Road and Milton	Avoidance of impact through the use of trenchless techniques to pass Waterbeach pipeline under Fen Road	Negligible	Low	Neutral (not significant)	App Doc Ref Provision of diversions and appropriate signage to communicate temporary diversions as detailed in section 7.6 (Traffic and transport) of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1)	Neutral (not significant).	None proposed.
Changes in access to areas of open space and recreation, including PRow and the ability for local communities to undertake physical activity	<p>Sequencing construction of the permanent access at the start to minimise disruption to Low Fen Drove Way</p> <p>Maintenance of access to Low Fen Drove Way for all users.</p> <p>Temporary diversion of the PRow 85/6 at the outfall works area using 85/8 and a temporary path to re-</p>	Minor adverse	Low	Neutral (not significant)	<p>Implementation of the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) in particular</p> <ul style="list-style-type: none"> ● Section 6.3 Adherence to Designated Routes ● Section 6.9 Facilitate safe movement of users of the highway which requires maintaining the existing footway / cycleway to the west of the Horningsea Road carriageway at all times with 	Neutral (not significant).	None proposed.

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
and live active lifestyles – Horningsea and users of Low Fen Drove Way	join the PRow 85/6 upstream of the outfall works area				<p>suitable barriers separating the footway from the works</p> <ul style="list-style-type: none"> Section 6.9 requirement to provide connectivity/access to community facilities and residential properties during works). Provision of diversions and appropriate signage to communicate temporary diversions as detailed in section 7.6 (Traffic and transport) of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) 		
Changes in access to local services as a result of construction activities and changes to travel routes and delays	Prohibition of the movement of construction traffic through Horningsea village and Fen Ditton	Minor adverse	High	Slight adverse (not significant)	<p>Controlled working hours (Section 4.2.3 of the CTMP states that hours of construction traffic operation will avoid the AM and PM peak periods as well as school pick-up and drop-off hours).</p> <p>Measures set out in CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1), in particular:</p> <ul style="list-style-type: none"> A requirement for the use of safety gates to be put in place and users allowed to safely cross the construction working area; and A requirement for all PRow to be restored to the same condition as before the works took place or to a standard which is acceptable to the Local Highway Authority 	Slight adverse (not significant)	None proposed.
Waterbeach pipeline							
Changes to health and wellbeing due to an increase in noise, air quality, dust, odour, traffic and visual effects – Waterbeach and Clayhithe	<p>Relevant best practice measures for the control of noise and traffic movements outlined in the CoCP as detailed in Chapter 17: Noise and Vibration and Chapter 19: Traffic and Transport respectively.</p> <p>Inclusion of temporary access parallel to Hatridge’s Lane to provide segregated access route</p>	Minor adverse	Low	Neutral (not significant)	<ul style="list-style-type: none"> Relevant noise and traffic measures outlined in the CoCP Part A as detailed in Chapter 19: Traffic and Transport and Chapter 17: Noise and vibration. Including the preparation of a CEMP and appended management plans for Air Quality, Water Quality, Noise and Vibration Relevant traffic measures outlined in the Construction Traffic Management Plan in Chapter 19: Traffic and Transport. Relevant measures outlined in the CoCP Part A to minimise the effect of temporary structures and lighting on landscape and visual amenity as detailed in Chapter 15: Landscape and visual amenity. 	Neutral (not significant).	None proposed.
- Changes in access to areas of open space and recreation, including PRow and the ability for	Avoidance of PRow through amendment to order limits where possible	Minor adverse	Medium	Slight adverse (not significant)	<ul style="list-style-type: none"> Measures set out in CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1), in particular: <ul style="list-style-type: none"> A requirement for the use of safety gates to be put in place and users allowed to 	Slight adverse (not significant)	None proposed.

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
local communities to undertake physical activity and live active lifestyles – Harcamlow Way					safely cross the construction working area; and – A requirement for all PRoW to be restored to the same condition as before the works took place or to a standard which is acceptable to the Local Highway Authority		
Existing Cambridge WWTP							
(Existing WWTP) - Changes to health and wellbeing due to noise, air quality, dust, odour, traffic and visual effects	Proposed mitigation included within Chapter 7: Air Quality, Chapter 18: Odour, Chapter 15: Landscape and Visual Amenity, and Chapter 19: Traffic and Transport.	Negligible	Low	Neutral (not significant)	Relevant noise and traffic measures outlined in the CoCP Part A as detailed in Chapter 19: Traffic and Transport and Chapter 17: Noise and vibration. Including the preparation of a CEMP and appended management plans for Air Quality, Water Quality, Noise and Vibration Relevant traffic measures outlined in the Construction Traffic Management Plan in Chapter 19: Traffic and Transport. Measures set out in CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1), in particular A requirement for the use of safety gates to be put in place and users allowed to safely cross the construction working area Measures set out in CoCP Part B (Appendix 2.2, App Doc Ref 5.4.2.2), in particular the requirement for the use of mobile odour control equipment for works to tie in the transfer tunnel to the existing sewer Relevant measures outlined in the CoCP Part A to minimise the effect of temporary structures and lighting on landscape and visual amenity as detailed in Chapter 15: Landscape and visual amenity.	Neutral (not significant).	None proposed.
Operation							
Potential risk to human health from water pollution.	As detailed in Chapter 20: Water Resources: <ul style="list-style-type: none">The deepest elements of the below ground structures will not penetrate the Lower GreensandRegulatory compliance monitoring (UK Government, 2021) and Environment Agency ongoing assessment of permit conditions will prevent deterioration of water quality within the River Cam.	Negligible	Low	Neutral (not significant)	Measures set out in CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1), in particular: <ul style="list-style-type: none">Requirement for the Preparation of an Emergency Preparedness Plan and Construction Water Quality Management Plan will be incorporated into the CEMP.	Neutral (not significant).	<ul style="list-style-type: none">Treated effluent quality monitoring in accordance with regulatory requirementsStorm event duration and frequency monitoring in accordance with

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring regulatory requirements
	<p>Design measure whereby surface water runoff from hard surfaces will be mitigated by drainage design to segregate and treat run-off from areas that may be subject to contaminated materials or substances.</p>				<p>Detailed surface water drainage design will comply with the Drainage Strategy (Appendix 20.12, App Doc Ref 5.4.20.12). This includes the requirement for drainage to accord with requirements set out within The Environment Agency's Approach to Groundwater Protection, Feb 2018 (Version 1.2) secured through a requirement of the draft DCO (App Doc Ref 2.1)</p>		
<p>Potential risk to human health from hazardous waste and substances</p>	<p>As detailed in Chapter 16: Material Resources and Waste:</p> <ul style="list-style-type: none"> Best practice measures to manage identified contamination issues will be recorded in the risk register, in accordance with the Construction (Design and Management) Regulations 2015, to protect affected parties. <p>The sludge produced by the proposed WWTP will be treated for re-use as a bio fertiliser and spread on land.</p> <p>Process design to convert the sludge produced by the proposed WWTP to a bio fertiliser for re-use elsewhere.</p>	<p>Negligible</p>	<p>Low</p>	<p>Neutral (not significant)</p>	<p>In the event hazardous waste management measures are required a verification report will be submitted to the local authority and the Environment Agency once the agreed measures had been implemented as required</p>	<p>Neutral (not significant).</p>	<p>None proposed.</p>
<p>Potential risk to human health from pests</p>	<p>Design includes covered cake storage areas</p> <p>As part of operational procedures there will be regular inspections, controls on waste storage and waste removal, use of design features that deter pest infestation and guidelines for the employment of professional pest control if required.</p> <p>Design of buildings to reduce potential for roosting by birds</p>	<p>Negligible</p>	<p>Low</p>	<p>Neutral (not significant)</p>	<p>Environmental monitoring and surveillance during operation as required by EMS</p> <p>Triggering of control services if monitoring detects pest problem</p>	<p>Neutral (not significant).</p>	<p>None proposed.</p>
<p>Changes to social cohesion</p>	<p>Direct benefits to recreation to be realised through measures within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14):</p> <ul style="list-style-type: none"> Opportunity for access to the area in proximity to the land required for the proposed WWTP will include formalising access through the provision of permissive paths and leisure cycling access within the LERMP Change of status for up to 1.03km of existing farm track to provide a new Public Right of Way (bridleway) 	<p>Minor adverse</p>	<p>Medium</p>	<p>Slight adverse (not significant)</p>	<p>Landscape masterplan and monitoring measures within the Landscape Ecological and Recreational Management Plan (LERMP).</p>	<p>Neutral (not significant).</p>	<p>Annual monitoring of the volumes and types of user groups visiting the area of land within the landscape masterplan for the first 5 years of operation. These data should be used to inform long term discussions with Quy Fen Trust/National Trust/Wildlife Trust</p>

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
							and SCDC Ecology Officers in relation to adaptive management that may be required in relation to the impacts of recreational user pressure to existing local resources used for recreation.
Changes in access to areas of open space and recreation, including PRow and the ability for local communities to undertake physical activity and live active lifestyles	<p>Design measures to prevent or minimise impacts to recreational users:</p> <ul style="list-style-type: none"> Design of outfall so as not to affect width and gradient of existing footpath (PRow 85/6) Provision of permissive paths and leisure cycling access within the LERMP Change of status for up to 1.03km of existing farm track to provide a new Public Right of Way (bridleway) 	Moderate beneficial	Low	Slight beneficial (not significant)		Slight beneficial (not significant)	Monitoring users of the Landscape Masterplan area Instigate feedback mechanism to adaptively manage the LERMP area
Decommissioning							
Changes to health and wellbeing due to an increase in noise, air quality, dust, odour, traffic and visual effects due to decommissioning activities		Negligible	Low	Neutral (not significant)	<p>Relevant noise and traffic measures outlined in the CoCP as detailed in Chapter 19: Traffic and Transport and Chapter 17: Noise and Vibration.</p> <p>Relevant traffic measures outlined in the Construction Traffic Management Plan in Chapter 19: Traffic and Transport.</p> <p>Measures within outline Decommissioning Plan (Appendix 2.3, App Doc Ref 5.4.2.3)</p>	Neutral (not significant).	None proposed.
Potential risk to human health from water pollution during decommissioning activities.	Application of best practices measures in relation to the prevention of pollution to controlled water as detailed in Chapter 20: Water Resources.	Negligible	Medium	Neutral (not significant)	<p>Controls to run-off during cleaning and drainage of tanks</p> <p>Removal of residual wastewater in tanks for treatment offsite</p> <p>Preparation of an Emergency Preparedness Plan and Construction Water Quality Management Plan will be incorporated into the CEMP.</p>	Neutral (not significant).	None proposed.
Potential risk to human health from hazardous waste and substances produced from	Management of decommissioning activities as described within the CoCP Part A and B (Appendix 2.1 & 2.2, App Doc Ref 5.4.2.1 & 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a Water Quality Management Plan(s), Pollution Incident Control Plan, and risk assessments	Negligible	Medium	Neutral (not significant)	As detailed in Chapter 16: Material Resources and Waste.	Neutral (not significant).	None proposed.

Description of impact	Primary and tertiary measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
decommissioning activities	<p>before works commence on site. The plans will be appended to or incorporated into the CEMP(s). These plans will include the requirement to implement best practice measures including:</p> <ul style="list-style-type: none"> ● measures to minimise run-off and the risk of runoff reaching ditches and watercourses. ● management of dewatering activities in accordance with Environment Agency specifications including treating dewatering effluent prior to discharge and control of dewatering discharge rates to prevent scour. ● measures applied for the management of leaks and spillages such as use of drip trays and provision of spill kits. ● requirement for the safe storage and handling of potentially contaminating materials including fuels and oils in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and Dangerous Substances and Explosive Atmospheres Regulations 2002. ● requirement for refuelling of machinery to be undertaken within designated areas (unless expressly stated within the CEMPs) where spillage can be more easily contained. <p>Management of decommissioning activities through application of measures within the outline Decommissioning Plan (Appendix 2.3, App Doc Ref 5.4.2.3) and the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1), Section 4.4 (Construction Environment Management Plan) which requires that the contractors to prepare a Decommissioning Plan (secured through requirements in the DCO), and Section 7.5 (Water Resources and Flood Risk) which sets out measures to control activities related to decommissioning. These requirements will collectively secure deliver appropriate mitigation of the decommissioning activities.</p>						

5.2 Securing mitigation

5.2.1 The delivery of mitigation will be controlled through the 'Development Consent Order (DCO) requirements' which:

- identify parameters within which certain works activities can be located and constructed (e.g. maximum and minimum building dimensions (including below ground), or locational zones);
- require construction, operation and maintenance to be undertaken in accordance with 'control documents' (including those that are related to compliance with permits); and
- control identified issues or works (e.g. time limits around the completion of the outfall construction).

Table 5-2: Health mitigation summary

Description of impact	Effect	Design/mitigation measures adopted as part of the project	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
Construction						
Temporary concern for local communities in close proximity to the Proposed Development with regard to the presence of a construction workforce affecting social cohesion.	Neutral (not significant)	<p>The CoCP Part A (section 3 Community and Stakeholder Engagement, section 4.3 Considerate Constructors Scheme, section 5.2 Training and Site Induction, section 4.2 Environmental and Health and Safety Management Systems) requires all construction workers to receive appropriate training, which includes expectations regarding respecting and showing courtesy to the local community.</p> <p>A draft CLP has been prepared by the Applicant which contains measures for how communication of construction activity will be undertaken. This includes the frequency of such liaison, the status of the construction works, construction programme and a complaints procedure.</p>	<p>Section 7.2, CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1)</p> <p>Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1).</p> <p>Sections 4.4 CEMP, Section 7.5 Water resources and flood risk (dewatering) and 5.7, Pollution Incident Control Plan, (Appendix 2.1, App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (Application Document Reference 2.1).</p> <p>WQMP, and (secured through Section 4.4 of the CoCP Part A) secured through a requirement of the draft DCO (App Doc Ref 2.1)</p> <p>Requirement for CLP in accordance with the outline CLP (App Doc Ref 7.8) secured through a requirement of the draft DCO (App Doc Ref 2.1).</p>	Appointed contractor(s) Applicant	Prior to start of construction	<p>Approved phasing plan</p> <p>Approved CEMP required prior to the commencement of construction activities for separate works packages / phases</p> <p>Detailed CLP relevant to different works areas</p>
Potential risk to human health from water pollution.	Neutral (not significant)	<p>As detailed in Chapter 20: Water resources. Application of groundwater protection measures in CoCP Part A section 7.5 (Water Resources and Flood Risk).</p> <p>Monitoring of water quality in available monitoring boreholes within the land required for the landscape masterplan, undertaken prior to, during and following all dewatering activities during construction at the proposed WWTP.</p>	<p>Section 7.2, CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1)</p> <p>Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1).</p> <p>Sections 4.4 CEMP, Section 7.5 Water resources and flood risk (dewatering) and 5.7, Pollution Incident Control Plan, (Appendix 2.1, App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (Application Document Reference 2.1).</p> <p>WQMP (secured through Section 4.4 of the CoCP Part A) secured through a requirement of the draft DCO (App Doc Ref 2.1)</p> <p>Monitoring obligations secured through Environmental Permit.</p>	Appointed contractor(s)	Prior to start of construction within land required for the landscape masterplan and proposed WWTP	<p>Approved CEMP required prior to the commencement of construction activities for separate works packages / phases</p> <p>Approved Outfall Management Plan required prior to the commencement of construction activities affecting the River Cam and its users</p> <p>Implement approved borehole monitoring plan.</p>
Potential risk to human health from hazardous waste and substances	Neutral (not significant)	As detailed Chapter 16: Material resources and waste. Section 7.9 (Waste Management and Resource Use) CoCP Part A to be followed for minimising and managing wastes through preparation of CEMP, and SWMP	Section 7.2, CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1)	Appointed contractor(s)	Prior to start of construction	<p>Approved phasing plan</p> <p>Approved CEMP and sub-plans required prior to the commencement of construction activities for separate works packages / phases</p>

Description of impact	Effect	Design/mitigation measures adopted as part of the project	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
			Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1). Sections 4.4 CEMP, Section 7.9, Waste Management and Resource Use (Appendix 2.1, App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1). Commissioning management plan Secured through a requirement in the draft DCO (App Doc Ref 2.1) to comply with the Commissioning Plan (Appendix 2.4, App Doc Ref 5.4.2.4). SWMP (secured through Section 4.4 of the CoCP Part A) secured through a requirement of the draft DCO (App Doc Ref 2.1).		Prior to start of commissioning	Approved Commissioning Management Plan
Changes to health and wellbeing due to noise, air quality, dust, odour, traffic and visual effects – Fen Ditton	Slight adverse (not significant)	Relevant noise and traffic measures outlined in the CoCP as detailed in Chapter 19: Traffic and Transport and Chapter 17: Noise and vibration. Relevant traffic measures outlined in the Construction Traffic Management Plan in Chapter 19: Traffic and Transport.	Section 7.2, CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1).	Appointed contractor(s)	Prior to start of construction	Approved phasing plan Approved CEMP and sub-plans required prior to the commencement of construction activities for separate works packages / phases
Changes to health and wellbeing due to noise, air quality, dust, odour, traffic and visual effects – Fen Road	Slight adverse (not significant)	Relevant noise and traffic measures outlined in the CoCP as detailed in Chapter 19: Traffic and Transport and Chapter 17: Noise and vibration. Relevant traffic measures outlined in the Construction Traffic Management Plan in Chapter 19: Traffic and transport.	As above plus CTMP secured through a requirement in the draft DCO (App Doc Ref 2.1) to comply with the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7)	Appointed contractor(s)	Prior to start of construction	Approved phasing plan Approved CEMP and sub-plans required prior to the commencement of construction activities for separate works packages / phases Approved CTMP
Changes in access to areas of open space and recreation, including PRoW and the ability for local communities to undertake physical activity and live active lifestyles - Chesterton, properties on the eastern end of Fen Road and Milton	Neutral (not significant)	Diversions and appropriate signage to communicate temporary diversions as detailed in the CoCP. Implementation of section 7.7 of the CoCP Part A (Traffic and Transport) includes measures for temporary traffic control and measures to manage the impact upon users of the PRoW during the construction period. Implementation of the CTMP in particular: <ul style="list-style-type: none"> section 6.3 Adherence to Designated Routes section 6.4 of the CTMP (Vehicle Scheduling) which requires adherence to works hours. section 6.5 of the CTMP (Deliveries) which requires the management of deliveries through a scheduling system to avoid AM PM peaks. 	As above	Appointed contractor(s)	Prior to start of construction	Approved phasing plan Approved CEMP and sub-plans required prior to the commencement of construction activities for separate works packages / phases associated with the proposed WWTP and Waterbeach Approved CTMP

Description of impact	Effect	Design/mitigation measures adopted as part of the project	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		<ul style="list-style-type: none"> section 6.9 requirement to provide connectivity/access to community facilities and residential properties during works 				
Changes in access to areas of open space and recreation, including PRow and the ability for local communities to undertake physical activity and live active lifestyles – Horningsea and users of Low Fen Drove Way	Neutral (not significant)	Diversions and appropriate signage to communicate temporary diversions as detailed in the CoCP Part A and within the CTMP section 6.9 requirement to provide connectivity/access to community facilities and residential properties during works	<p>Section 7.2, CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1)</p> <p>Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1).</p> <p>CTMP secured through a requirement in the draft DCO (App Doc Ref 2.1) to comply with the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7)</p>	Appointed contractor(s)	Prior to start of construction	<p>Approved phasing plan</p> <p>Approved CEMP and sub-plans required prior to the commencement of construction activities for separate works packages / phases associated with the proposed WWTP and Waterbeach</p> <p>Approved CTMP</p>
Changes in access to local services as a result of construction activities and changes to travel routes and delays	Slight adverse (not significant)	<p>The CTMP states that there will be no construction traffic through Horningsea village. Section 4.2.3 of the CTMP states that hours of construction traffic operation will avoid the AM and PM peak periods as well as school pick-up and drop-off hours.</p> <p>Relevant traffic measures outlined in the Construction Traffic Management Plan in Chapter 19: Traffic and transport including a requirement within section 3 of the CoCP Part A and B (Appendix 2.1 & 2.2, App Doc Ref 5.4.2.1 & 2.2) Part A (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 construction activity, construction vehicle movements, diversions etc</p>	<p>CTMP secured through a requirement in the draft DCO (App Doc Ref 2.1) to comply with the CTMP (Appendix 2.1, App Doc Ref 5.4.19.7)</p> <p>Community Liaison Plan (CLP) (App Doc Ref 7.8) which is secured through a requirement in the draft DCO (App Doc Ref 2.1)</p>	Appointed contractor(s)	Prior to start of construction	<p>Approved CTMP required prior to the commencement of construction activities for separate works packages / phases.</p> <p>Approved CLP</p>
Changes to health and wellbeing due to an increase in noise, air quality, dust, odour, traffic and visual effects – Waterbeach and Clayhithe	Neutral (not significant)	Relevant noise and traffic measures outlined in the CoCP as detailed in Chapter 19: Traffic and transport and Chapter 17: Noise and vibration.	<p>Section 7.2, CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1)</p> <p>Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1).</p> <p>CTMP secured through a requirement in the draft DCO (App Doc Ref 2.1) to comply with the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7).</p>	Appointed contractor(s)	Prior to start of construction	<p>Approved phasing plan</p> <p>Approved CEMP and sub-plans required prior to the commencement of construction activities for separate works packages / phases associated with the proposed WWTP and Waterbeach</p> <p>Approved CTMP</p>
Changes in access to areas of open space and recreation, including PRow and the ability for local communities to undertake physical activity and live active lifestyles.	Slight adverse (not significant)	Measures to manage the minimum navigable width that must be retained and provide advance warning to users of the river are outlined in section 3.1 of CoCP Part B.	<p>Section 7.2, CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1)</p> <p>Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1).</p>	Appointed contractor(s)	<p>Prior to start of construction</p> <p>Prior to start of outfall construction</p>	<p>Approved phasing plan</p> <p>Approved CEMP and CTMP required prior to the commencement of construction activities for Waterbeach works package(s)</p> <p>Approved OMMP</p>

Description of impact	Effect	Design/mitigation measures adopted as part of the project	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
			CTMP secured through a requirement in the draft DCO (App Doc Ref 2.1) to comply with the CTMP (Appendix 19.7, App Doc Ref 5.4.19.7)			
Neutral (not significant)		<p>Relevant noise and traffic measures outlined in the CoCP as detailed in Chapter 19: Traffic and transport and Chapter 17: Noise and vibration.</p> <p>Relevant traffic measures outlined in the Construction Traffic Management Plan in Chapter 19: Traffic and transport.</p> <p>Including the provision of diversions and appropriate signage to communicate temporary diversions as detailed in section 7.6 (Traffic and transport) of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) in particular:</p> <ul style="list-style-type: none"> Implementation of section 7.7 of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) Part A (Traffic and Transport) which includes measures for temporary traffic control and measures manage the impact upon users of the PRow during the construction period. Requirement within section 3 of the CoCP Part A and B (Appendix 2.1, App Doc Ref 5.4.2.1) Part A (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 because of PRow realignment or diversion <p>A requirement for the use of safety gates to be put in place and users allowed to safely cross the construction working area</p>	As above	Appointed contractor(s)	Prior to start of construction	Approved phasing plan Approved CEMP and CTMP required prior to the commencement of construction activities for separate works packages / phases associated with the proposed WWTP
Operation						
Potential risk to human health from water pollution.	Neutral (not significant)	As detailed in Chapter 20: Water resources. Regulatory compliance monitoring (UK Government, 2021) and Environment Agency ongoing assessment of permit conditions will prevent deterioration of water quality within the River Cam (extending from phase 1 and phase 2 of operation and beyond).	Operational limits and monitoring obligations secured through Environmental Permit The Environmental Permit will include conditions requiring management systems to cover operational monitoring, emergency responses and pollution prevention.	Applicant	Prior to commencement of operation	Approved water and treated effluent quality monitoring and reporting plans as part of the operational requirements stipulated by the Environmental Permit required prior to operation and throughout asset lifecycle
					Prior to commencement of operation	Preparation of an operational monitoring programme as part of the written EMS to cover periodic monitoring activities to accord with the requirements of the Environmental Permit.

Description of impact	Effect	Design/mitigation measures adopted as part of the project	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		Surface water runoff from hard surfaces segregated within the drainage design.	Detailed surface water drainage design will comply with the Drainage Strategy (Appendix 20.12, App Doc Ref 5.4.20.12). This includes the requirement for drainage to accord with requirements set out within The Environment Agency's Approach to Groundwater Protection, Feb 2018 (Version 1.2) secured through a requirement of the draft DCO (App Doc Ref 2.1).	Applicant	Prior to start of construction of surface water drainage infrastructure	Approved surface water drainage design agreed with the LLFA
Potential risk to human health from hazardous waste and substances	Neutral (not significant)	Process design to convert the sludge produced by the proposed WWTP to a bio fertiliser for re-use elsewhere.	Operational limits and monitoring obligations secured through Environmental Permit	Applicant	Prior to construction of the process infrastructure	Detailed process design as presented within permit application
		Design of proposed WWTP to operate in accordance with the Environmental Permit	Operational limits and monitoring obligations secured through Environmental Permit	Applicant	Prior to construction of the process infrastructure	Detailed process design as presented within permit application
		Preparation of operational management plan associated with the EMS procedures as required by the permitting process.	The Environmental Permit will include conditions requiring management systems to cover emergency responses and pollution prevention.	Applicant	Prior to commencement of operation	Approved operational management plans as part of the operational EMS required prior to operation and throughout asset lifecycle
Potential risk to human health from pests	Neutral (not significant)	As part of operational procedures there will be regular inspections, controls on waste storage and waste removal, use of design features that deter pest infestation and guidelines for the employment of professional pest control if required.	The Environmental Permit will include conditions requiring management systems to cover emergency responses and pollution prevention.	The Applicant and Appointed contractor(s)	Prior to commencement of operation	Approved waste management plans as part of the operational EMS required prior to operation and throughout asset lifecycle
Changes to social cohesion	Slight adverse (not significant)	Inclusion of pedestrian and leisure cycling connections within the landscape masterplan	LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)	Contractors and the Applicant for operational management maintenance	Prior to commencement of construction of landscape masterplan	Approved LERMP and final design of pathways prior to construction of pathways and cycleways
Changes in access to areas of open space and recreation, including PRow and the ability for local communities to undertake physical activity and live active lifestyles	Slight beneficial (not significant)	Inclusion of pedestrian and leisure cycling connections within the landscape masterplan	LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)	Contractors and the Applicant for operational management maintenance	Prior to commencement of construction of landscape masterplan	Approved LERMP and final design of pathways prior to construction of pathways and cycleways
Decommissioning						
Changes to health and wellbeing due to an increase in noise, air quality, dust, odour, traffic and visual effects	Neutral (not significant)	Relevant noise and traffic measures outlined in the CoCP as detailed in Chapter 19: Traffic and transport and Chapter 17: Noise and vibration. Relevant traffic measures outlined in the Construction Traffic Management Plan in Chapter 19: Traffic and transport.	Section 7.2, CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1). Sections 4.4 CEMP, Section 7.5 Water resources and flood risk (dewatering) and 5.7,	Appointed contractor(s)	Prior to start of decommissioning	Approved CTMP, CEMP and Decommissioning Plan required prior to the commencement of decommissioning activities

Description of impact	Effect	Design/mitigation measures adopted as part of the project	Secured by	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
			<p>Pollution Incident Control Plan, (Appendix 2.1, App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (Application Document Reference 2.1). WQMP, and (secured through Section 4.4 of the CoCP Part A) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CTMP (Appendix 19.7, App Doc Ref 5.4.19.7) secured through a requirement of the draft DCO (App Doc Ref 2.1).</p>			
Potential risk to human health from water pollution.	Neutral (not significant)	As detailed in Chapter 20: Water resources.	As above	Appointed contractor(s)	Prior to start of decommissioning	As above
Potential risk to human health from hazardous waste and substances	Neutral (not significant)	<p>Management of decommissioning activities as described within the CoCP Part A and B (Appendix 2.1, App Doc Ref 5.4.2.1) in particular section 4.4 which requires the Principal Contractor(s) to produce a Water Quality Management Plan(s), Pollution Incident Control Plan, and risk assessments before works commence on site. The plans will be appended to or incorporated into the CEMP(s).</p> <p>Management of decommissioning activities through application of measures within the outline Decommissioning Plan (Appendix 2.3, App Doc Ref 5.4.2.3) and the CoCP Part A, Section 4.4 (Construction Environment Management Plan) which requires that the contractors to prepare a Decommissioning Plan (secured through requirements in the DCO), and Section 7.5 (Water Resources and Flood Risk) (Appendix 2.1, App Doc Ref 5.4.2.1) which sets out measures to control activities related to decommissioning. These requirements will collectively secure deliver appropriate mitigation of the decommissioning activities.</p>	<p>CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1)</p> <p>Requirement to comply with the Decommissioning Management Plan (Appendix 2.3, App Doc Ref 5.4.2.3). Secured through a requirement in the draft DCO (App Doc Ref 2.1)</p>	Appointed contractor(s)	Prior to start of decommissioning	Approved Phasing plan Approved Decommissioning Plan prior to start of works

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Get in touch

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Emailing at info@cwwtpr.com



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



Writing to us at **Freepost: CWWTPR**



Visiting our website at 

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/>