Cambridge Waste Water Treatment Plant Relocation Project
Anglian Water Services Limited

Environmental Statement Chapter 22: Cumulative effects

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Introduction

This chapter assesses the potential for inter-related and cumulative effects as a result of the construction and operation of the Proposed Development (including the decommissioning of the existing Cambridge WWTP).

Inter-related effects may occur where several different effects resulting from the Proposed Development have the potential to affect a single receptor (for example a temporary effect on air quality, experienced at the same time as increase in noise disturbance and a change to visual amenity). Individually the effects resulting from these impacts may not be significant, but the accumulation of effects may collectively cause an overall significant effect at the receptor.

Cumulative effects are where there is the potential for two or more developments that are reasonably foreseeable and/or consented, but not yet constructed or operational, within close enough proximity to the Proposed Development to lead to effects on the same receptor.

Inter-related effects

The assessment of inter-related effects has considered the potential for the effects of minor significance and above, identified within each of the technical assessments, to combine at individual receptors.

Receptors such as ecological receptors and water resources are assessed in terms of the predicted change or impact on the resource or receptor, considering all impacts from a variety of sources e.g. changes to habitats, changes to water quality or volumes, or change in view. These effects are considered in combination in the relevant technical chapters 6-20 of the ES and are not repeated here.

Inter-related effects may also occur for individual receptors where different environmental pathways, such as visual, noise, traffic and emissions result in effects at the same time. These effects are likely to occur where activity is taking place in close proximity to the receptor. Examples include Red House Close and Poplar Hall which are in close proximity to the Shaft 4 construction compound. For a limited period of time there will be a visual impact, minor noise disturbance, minor traffic activity and the potential for dust at these receptors. The inter-related effects at these locations are not considered to be more significant than the individually assessed effects and are all controlled through the Code of Construction Practice (CoCP)/Construction Environmental Management Plan (CEMP)/Construction Transport Management Plan (CTMP).

Other examples include users of public rights of way or permissive footpaths in close proximity to the proposed WWTP. These users may experience occasional odour and the change in the local landscape as well as being able to see elements of the proposed WWTP.

These are, however, temporary effects which again are not considered to be more significant when experienced together than the individually assessed effects.

For receptors that are located further away, inter-related effects are expected to be of negligible significance.

Cumulative effects

The assessment of cumulative effects has considered the potential for cumulative effects from other developments within 2km of the order limits, in combination with the Proposed Development. Through consideration of the available information for each of the identified developments, no significant cumulative effects have been identified, other than the beneficial multiplier socio-economic effects associated with the relocation of the existing Cambridge WWTP, which facilitates the development of North East Cambridge.

1 Introduction

1.1 Purpose of this chapter

1.1.1 This chapter assesses the potential for inter-related and cumulative effects as a result of the construction and operation of the Proposed Development (including the decommissioning of the existing Cambridge WWTP).

1.1.2 Inter-related effects may occur where several different effects resulting from the Proposed Development have the potential to affect a single receptor (for example a temporary effect on air quality, experienced at the same time as increase in noise disturbance and a change to visual amenity). Individually the effects resulting from these impacts may not be significant, but the accumulation of effects may collectively cause an overall significant effect.

1.1.3 Cumulative effects are where there is the potential for two or more developments that are reasonably foreseeable and/or consented, but not yet constructed or operational, within close enough proximity to the Proposed Development lead to effects on the same receptor. Technical chapters 6 to 20 of this Environmental Statement (ES) present high-level conclusions of potential cumulative effects. A summary of the potential cumulative effects is provided in this chapter. A detailed description of the assessment methodology for cumulative effects can be found in Chapter 5: EIA Methodology.

1.1.4 The assessment presented in this chapter draws on the assessment of effects provided in ES chapters 6 to 20, and information in the public domain relating to other known developments within the study area, or Zone of Influence (ZoI).

1.2 Competency statement

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

1.2.2 Summaries of the qualifications and experience of each of the technical assessments is provided within Chapters 6 to 20 of the ES.

Table 1-1: Competent Experts

Qualification / Professional Membership	Years of experience	Project experience summary
[redacted] BSC Environmental Science MSc Aquatic Resource Management PG Cert Geographical Information Science	20	20 years postgraduate experience in EIA, ESIA, environmental management and monitoring. Focussing on major infrastructure in rail, ports, water and energy. Experience in UK based applications under TCPA, hybrid bill and TWAO consenting regime.

Qualification / Professional Membership	Years of experience	Project experience summary
		Experienced in developing and delivery comprehensive environmental management and monitoring programmes. Experience in UK consenting of works affecting watercourses and water quality regulation.
[redacted] BSc Geography MSc Environmental Impact Assessment & Management Practitioner member of the Institute of Environmental Management and Assessment	4	Supporting environmental coordinator and co-author of the Environmental Statement for a Transport and Works Act Order project. Authored the cumulative effects assessment as part of the EIA. Environmental lead and co-author of the Environmental Statement for a flood alleviation scheme consented through Town and Country Planning Act. Environmental support on a number of water, transport and international projects
[redacted]	30	EIA contributor on a number of TCPA, s36 and DCO projects, including Brig-y-Cwm, South Hook CHP, Thurrock Flexible Generation Plant and Gatwick Second Runway.
[redacted]	6	EIA co-ordination on a number of DCO projects, including Thurrock Flexible Generation Plant and Gatwick Northern Runway.

1.3 Planning policy context

National Planning Statement (NPS) requirements

1.3.1 National planning policy for nationally significant waste water projects, 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 Waste Water.

Table 1-2: Scope and NPS compliance

NPS requirement	Compliance of ES scope with NPS requirements
3.2.3 When considering cumulative effects, the ES should provide information on how the effects of the applicant's proposal would	Table 2-6**: Cumulative Effects Long List of Developments** provides the long-list of developments which have been considered

NPS requirement	Compliance of ES scope with NPS requirements
combine and interact with the effects of other development (including projects for which consent has been sought or granted, as well as those already in existence. The examining authority and the decision maker may also have other evidence before it, for example from appraisals of sustainability of relevant NPSs or development plans, on such effects and potential interactions. Any such information may assist the decision maker in reaching decisions on proposals and in assessing the mitigation measures that have been proposed by the applicant or considered in the examination	by each topic as part of the cumulative effects assessment.
3.7.8 The examining authority and decision maker should be satisfied that development consent can be granted taking full account of environmental impacts. This will require close cooperation with the Environment Agency (EA) and/or the pollution control authority, and other relevant bodies, such as the MMO, Natural England, Drainage Boards, and water and sewerage undertakers, to ensure that in the case of potentially polluting developments: • the relevant pollution control authority is satisfied that potential releases can be adequately regulated under the pollution control framework • the effects of existing sources of pollution in and around the site are not such that the cumulative effects of pollution when the Proposed Development is added would make that development unacceptable, particularly in relation to statutory environmental quality limits.	Regular liaison has been undertaken by the Applicant with the relevant statutory bodies, notably the Environment Agency, Natural England and the Internal Drainage Board. Discharges to the receiving water environment from this type of project are regulated by the Environment Agency as is the operation of both the existing and the proposed WWTP. The design of the Proposed Development has been guided by the consultation with relevant bodies to ensure that it is acceptable in terms of adhering to statutory environmental quality limits, when considering the existing sources of pollution in-combination with the development proposals.

1.4 Consultation

1.4.1 The Applicant has undertaken several forms of consultation as part of the design development process. This includes statutory consultation with statutory bodies and interested parties, as well as other forms including targeted Technical Working Groups for topic-specific matters. Further details of matters discussed in relation to the interaction of effects and cumulative effects are set out in the specific technical assessment to which the comment relates. The Consultation Report (Application Document Reference 6.1) also demonstrates how the Applicant has had regard to comments raised at the statutory consultation, including those which relate to cumulative effects.

Bilateral meetings

1.4.2 The developers of Waterbeach station have been consulted in relation to the location of temporary works for the construction of the northern extent of the Waterbeach pipelines. An area of land required for the construction is within the extent of land included within the permission for the construction of the relocated station.

1.4.3 During a meeting on 9th November 2022 discussions were held regarding the potential to work together to deliver an integrated layout, incorporating the Waterbeach Pumping Station, construction access via the new station access road and a revised layout for the station attenuation pond, which has a large surface area due to the shallow ground water. Discussions were also held on managing the interface between construction compounds and access, as well as the potential to lay a section of the Waterbeach pipeline at an early stage during or ahead of construction of the station. These discussions are ongoing.

2 Approach to cumulative effects assessment

2.1 Introduction

2.1.1 This section explains the approach to the inter-related effects assessment (Section 2.2) and cumulative effects assessment (Section 2.3).

2.2 Inter-related effects

Study area

2.2.1 The study areas for interrelated effects are taken from Chapters 6 to 20 of the ES. Study areas reflect the distance that likely effects will be experienced (i.e. the Zone of Influence).

Baseline data

2.2.2 The sources of data for the assessment of inter-related effects are the information used for the specialist environmental assessments presented within Chapters 6 to 20 of the ES.

Effect criteria

2.2.3 The assessment of inter-related effects does not assign significance levels; instead the assessment is to be used to identify where there is the potential for inter-related effects. A statement is made as to whether the inter-related effects would be worse or better than the effects considered alone, and if so, whether this would be adverse or beneficial.

Approach to assessment

2.2.4 A four stage process has been adopted as summarised in Figure 2.1 and discussed in the following paragraphs.

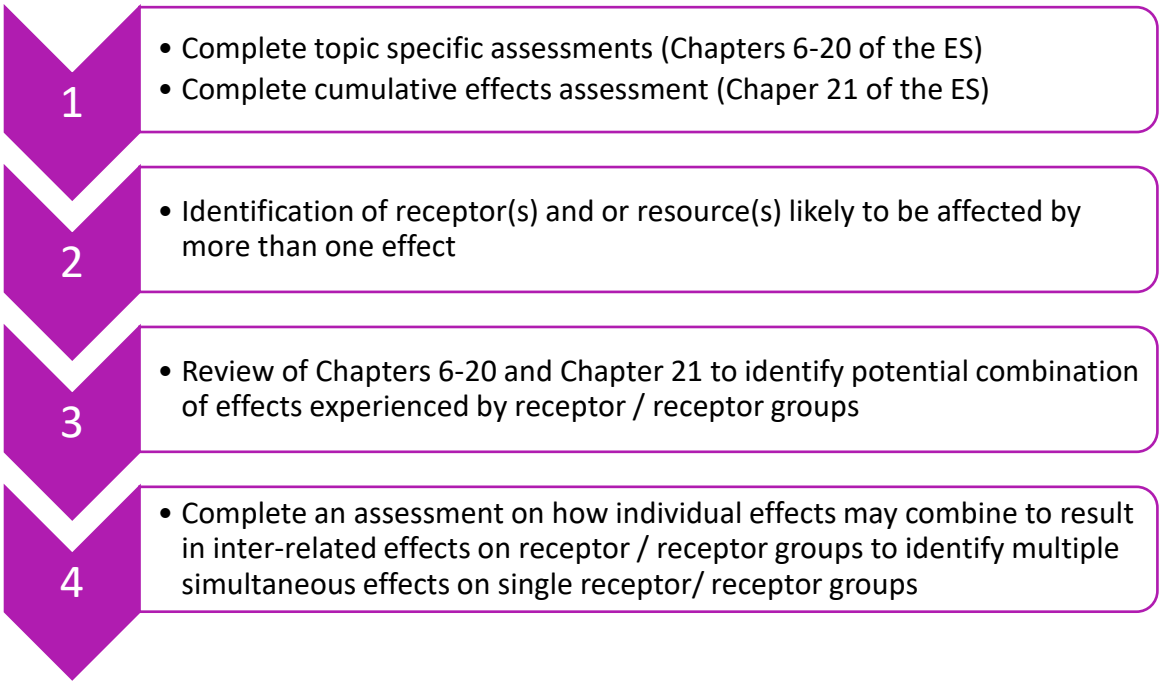

Figure 2.1: Staged approach to the inter-related effects assessment

Topic based assessments

2.2.5 Initial assessments take primary and tertiary mitigation into account. The assessments of residual effects take both primary and tertiary and any further mitigation measures into account. These assessments are reported within the relevant topic chapters of the Environmental Statement (ES) (Chapters 6-20).

2.2.6 Each topic-based assessment has considered the construction, operation (including maintenance) of the Proposed Development and decommissioning of the existing Cambridge WWTP within a set of development parameters which means that the assessment provides a reasonable worst-case scenario.

2.2.7 The potential interactions between individual effects have been identified by reviewing the final conclusions of the assessments within the topics presented in Chapters 6 to 20 of the ES. Some of these chapters address interactions between different types of impact relating to specified environmental resources and receptors, as described below:

- Chapter 7: Air Quality includes an assessment of the potential impacts of construction dust and nitrogen deposition upon ecological receptors. These have also been taken into account in the assessment of effects upon Biodiversity as reported in Chapter 8: Biodiversity.
- Chapter 8: Biodiversity takes into consideration the potential for air quality, light, dust and noise impacts and therefore how they could (in combination with other ecological impacts, such as habitat loss) affect ecological receptors.

- Chapter 10: Climate Resilience includes an In-combination Climate Change Impact (ICCI) assessment, which addresses the in-combination effects of a changing climate and the Proposed Development on receptors in the surrounding environment. Potential ICCIs have been assessed by technical disciplines and collated within Chapter 10.
- Chapter 11: Community takes into consideration the potential for air quality, light, dust and noise, traffic and landscape impacts and therefore, how they affect people and communities in-combination.
- Chapter 12: Health takes into consideration the potential for air quality, light, dust and noise, traffic and landscape impacts and therefore how they affect people and communities in-combination.
- Chapter 14: Land Quality considers the potential impacts of soils disturbance and mobilisation of contamination on ecological receptors.
- Chapter 19: Water Resources considers the potential impacts of climate change upon flood risk and drought.

2.2.8 Geological resources, mineral resources and soils are not considered likely to be affected by impacts other than those identified within the assessment in Chapter 6: Agricultural Land and Soils and Chapter 14: Land Quality, and are therefore not subject to consideration for inter-related effects.

2.2.9 Potential effects that may occur as a result of the in-combination of different types of impacts which form an inherent part of the technical assessments listed above are not included within this Chapter. The inter-related effects assessment considers only those effects which could occur as a result of multiple impacts on individual receptors which have not been identified elsewhere within this ES.

2.3 Cumulative effects

2.3.1 The requirement for cumulative effects assessment responds to Regulation 5(2), 14(2) and Schedule 4(5) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

2.3.2 Schedule 4(5) requires

> *"A description of the likely significant effects of the development on the environment resulting from, inter alia –*
>
> *…(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;"*

2.3.3 The approach to cumulative assessment considers each of the following categories of project: approved development that has not yet been implemented; other applications for development that are under consideration and those for which an EIA scoping request has been made.

2.3.4 The assessment considers existing development that is complete and operational at the time when construction of the Proposed Development would commence as part of the baseline. Development that is approved, but not yet developed or in operation, is included in the 'future baseline' scenario.

2.3.5 Other projects for which less detail is available to make a judgement are those that are identified in local planning authority development plans or frameworks for future development approvals. There is less clarity on when such projects may be implemented, or what the baseline situation will be at a future point in time.

2.3.6 Due to the complexity of considering multiple developments in various stages of project development or delivery, the consideration of cumulative effects in the ES is of a qualitative nature for many of the environmental aspects scoped into the assessment. Where it is necessary to have a descriptive consideration of cumulative effects, levels of effect or significance are not attributed in the assessment.

2.3.7 The transport, air quality and noise assessments factor in underlying growth associated with development and incorporate this in the relevant future baseline in each case. Therefore, the cumulative assessment does not specifically address operational traffic and the associated operational air quality and noise emissions as potential operational cumulative impacts associated with other developments are already included in the respective topic assessments.

2.3.8 Table 2-1 summarises the stages and activities involved in the CEA process described in the Planning Inspectorate's Advice Note Seventeen: "Cumulative effects assessment relevant to nationally significant infrastructure projects" (The Planning Inspectorate, 2019).

Table 2-1: Summary of stages and activities involved in the CEA process

CEA Stage	Activity
Stage 1 – Establish the project's ZoI and establish a long-list of other developments	The Project undertakes a desk study to identify the ZoI for the development for the topics that are proposed to be scoped into the EIA. The ZoI analysis is documented (i.e. table of topics and ZoI), with supporting Geographic Information System (GIS); The long list of other plans and projects/activities is drawn up through a desk study of planning applications, development plan documents, relevant development frameworks and any other available sources to identify 'other development' within the ZoI; Information on each project (location, development type and timing, etc.) is documented, along with the certainty or tier assigned to the 'other development' (i.e. confidence it will take place in the current form and when it will take place in relation to the project); and Advice Note Seventeen notes that the project should then consult with the relevant planning authority/authorities and statutory consultees regarding the long list (and ideally prior to the submission of the Scoping Report) (See Chapter 5: EIA Methodology).
Stage 2 – Screening of long list: Identify a	PINS have provided advice on the matters which the inclusion/exclusion threshold criteria should address, against

CEA Stage	Activity
shortlist of other developments for the CEA	which the potential for other development to give rise to significant cumulative effects by virtue of overlaps in temporal scope, the scale and nature of the 'other developments' and/or receiving environment, or any other relevant factors is assessed. From this assessment, a shortlist of 'other developments' to be included in the CEA is produced by the Applicant. It is noted that documented information on each of the 'other development' is likely to be high level at this stage, outlining the key issues to take forward. Advice Note Seventeen notes that the proposed inclusion/exclusion should ideally be finalised prior to the request for a Scoping Opinion, and the project must consult with the relevant planning authorities and statutory consultees regarding the shortlist.
Stage 3 – Information gathering	Information on the 'other developments' within the shortlist generated at Stage 2 is collated to inform the CEA.
Stage 4 – Assessment (this chapter)	Impacts associated with the project are assessed cumulatively with other plans and projects included within the shortlist and based on the information gathered at Stage 3. The assessment also includes, where relevant, consideration of any mitigation measures where adverse cumulative effects are identified and signposts to the relevant means of securing mitigation (e.g. DCO requirements and associated mitigation plans). It may be appropriate at this stage to ascertain the contribution of each development to the effect (done via professional judgement).

2.3.9 CEA project tiers Table 2-2 describes the tiered approach to defining cumulative projects, as defined in the Planning Inspectorate's Advice Note Seventeen: "Cumulative effects assessment relevant to nationally significant infrastructure projects" (The Planning Inspectorate, 2019).

Table 2-2 CEA Project Tiers

Tier	Description
Tier 1	Under construction
	Permitted application(s), whether under the PA2008 or other regimes, but not yet implemented.
	Submitted application(s) whether under the PA2008 or other regimes but not yet determined.
Tier 2	Projects on the Planning Inspectorate's Programme of Projects where a scoping report has been submitted.
Tier 3	Projects on the Planning Inspectorate's Programme of Projects where a scoping report has not been submitted.
	Identified in the relevant Development Plan (and emerging Development Plans – with appropriate weight being given as they move closer to adoption) recognising that there will be limited information available on the relevant proposals.

	Identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

2.4 Study area

2.4.1 For the consideration of inter-related effects the study area for each topic is defined within the relevant section of Chapters 6 to 20.

2.4.2 The ZoI for the cumulative assessment for each of the environmental aspects is set out in Table 2-3.

Table 2-3: Zones of influence (ZoI) for environmental aspects to be assessed

Aspect	Zone of influence
Agricultural Land	Construction – farm holdings wholly or partly within the Site. Operation – farm holdings wholly or partly within the Site.
Air Quality	Construction – 350m from the Site and 200m from roads meeting the EPUK assessment criteria due to increase in vehicles from construction traffic. Operation – 200m from roads meeting the EPUK assessment criteria due to changes in operational traffic. Energy plant (CHP, boiler plant) included within final design are of small scale, so emissions have been assessed based on the contour plots showing the location and spatial distribution of effects associated with these sources, based on the air quality assessment.
Biodiversity	International statutory designated sites – 10km from the Site. National statutory designated – 10km from the Site. National non-statutory designated sites – 5km from the Site. Waterbodies with potential for great crested newt – 250m from the Site. Ancient Woodlands – 200m from the Site. Habitats of Principal Importance – 100m from the Site. Protected species and Species of Principal Importance – 100m to 300m from the Site, depending on species. Desk Study – Results from a biological records search undertaken to obtain records of protected or notable species within a 5km radius of a central point (grid reference: TL 49740 61214) in the Core Zone are discussed within this section. Records were provided by the Cambridgeshire and Peterborough Environmental Records Centre (CPERC).
Community and Health	Construction – PRoW, business impacts: developments within 1km of site boundary and pipeline routes. Construction – PRoW, business impacts – developments within 1km of the Site. Construction employment and employee spending – major development sites within the local authority area that are likely to have a comparable employee base.

Aspect	Zone of influence
	Operation – PRoW: developments within 500m for the Proposed Development Site.Local spending – employment-generating Proposed Developments of comparable size and skillsets within the local authority area.
Historic Environment	1km from the Site.
Land Quality	250m from the Site.
Landscape and Visual Effects	2km from the Site.
Material Resources	Construction materials: Sources of raw and secondary materials within Cambridgeshire and East of England. Construction waste: Waste management facilities within 10km of the Site. Operation – no impact operationally due to infrequent use of materials and low generation of waste from maintenance activities.
Noise and Vibration	Construction – 300m from any construction works areas (including the main treatment site, pipelines, access roads and construction compounds). Operation – Area to include the closest noise sensitive properties to the main treatment site and any new fixed noise generating noise plant or equipment (no greater than 2km from the proposed WWTP boundary or other new plant and equipment).
Odour	The extent of the odour study area is based on odour dispersion modelling and odour surveys within the broader study area.
Traffic and Transport	Construction – the local and strategic highway network where disruption or severance is cause by the location of construction works. Construction and operation – where traffic flows on highway links increase by 30% or more, and/ or where sensitive areas experience traffic flows increasing by 10%.
Water Resources	Waterbodies located within 1km of the EIA Scoping boundary. An upstream reach of the Quy Water, together with a reach of the Bottisham Lode downstream of the Quy Water, are located within 1km of the boundary for zones comprising the EIA Scoping boundary. The study area includes the entire length of the Quy Water between these upstream and downstream areas. Stow-cum-Quy SSSI. Some flood zones along the western side of the River Cam extend more than 1km from the boundary for zones comprising the EIA Scoping boundary. The full extent of these flood zones has been included in the study area.

2.6 Topics addressed elsewhere or not relevant to CEA

2.6.1 Certain aspects of impact assessments have been scoped out of the cumulative assessment or have been inherently included in the topic specific assessment reported in individual chapters. Those aspects are listed in Table 2-4. As such, those aspects have not been considered further as part of the cumulative effects assessment reported on in Section 4.

Table 2-4: Aspects scoped out of the CEA

Topic	Aspect	Justification for scoping out of the CEA
Agricultural Land and Soils	Impacts to farm businesses	There are no farm businesses identified within the Scheme Order Limits of the Proposed Development at risk of being impacted by any other development within the ZoI. As such, impacts on farm businesses have not been further considered as part of the cumulative effects assessment.
Air Quality	Impacts on air quality from operational emissions	Cumulative assessment for operational traffic and plant emissions is inherent in the dispersion model and, as such, is included in Chapter 7: Air Quality.
Biodiversity	Impacts on internationally designated sites	Impacts upon internationally designated sites and the associated in-combination effects assessment with other developments within the ZoI is undertaken and presented within the HRA Report (Application Document Reference 5.4.20.11).
Carbon	Greenhouse Gas (GHG) assessment	The nature of GHG emissions means that the ultimate receptor is the global climate system. The GHG assessment does not consider cumulative effects as GHG emissions do not result in a regional effect on climate, and therefore the effect of the Proposed Development's emissions on climate would not differ when combined with other developments in the area.
Climate Resilience	Climate resilience assessment	Cumulative assessment for climate resilience is inherent in the climate resilience assessment, as such, it has not been further considered as part of the cumulative effects assessment.
Material Resources and Waste	Impacts on the sources of material resources and waste infrastructure	As per the Scoping Report, there are no operational cumulative effects likely for material resources and waste due to infrequent use of materials and low generation of waste from maintenance activities during operation of the Proposed Development.
Noise and Vibration	Noise effects from operational traffic	The assessment of operational traffic-related noise effects is inherently cumulative and, as such, is included in the Chapter 17: Noise and Vibration.
Odour	Odour assessment	Other developments located in the area are not sources of odour and, therefore, have not been considered further.

Topic	Aspect	Justification for scoping out of the CEA
Traffic and Transport	Operational traffic	The assessment of operational traffic is inherently cumulative and, as such, is included in the Chapter 19: Traffic and Transport.
	Drivers delay	The assessment of drivers delay is inherently cumulative and, as such, is included in Chapter 19: Traffic and Transport.

2.7 Baseline data

2.7.1 The sources of data for the assessment of inter-related effects are the information used for the specialist environmental assessments presented within Chapters 6 to 20 of the ES.

2.7.2 The sources of data for the assessment of cumulative effects are summarised in Table 2-5.

Table 2-5: Summary information sources to inform the assessment of cumulative effects

Committed development or allocation	Reference	Information referred to	Source
Waterbeach New Town (Waterbeach Barracks and Airfield)	S/0559/17OL - Outline Planning Application for up to 6500 dwellings and associated other uses and infrastructure – U&C	EIA Non Technical Summary	Waterbeach Barracks and Airfield Outline Planning Application Environmental Statement Non-Technical Summary ((Urban and Civic, 2018)
		Waterbeach Barracks and Airfield, Waterbeach, Cambridge Site-Wide Framework Travel Plan	Waterbeach Barracks and Airfield Waterbeach Transport Assessment (PBA, Transport Assessment , 2018)
		Waterbeach Barracks and Airfield, Cambridgeshire Lighting Assessment	Waterbeach Barracks and Airfield, Cambridgeshire Lighting Assessment (PBA, Lighting Assessment Version 3, 2017)
		Waterbeach Barracks and Airfield, Flood Risk Assessment	
Waterbeach New Town East	S/2075/18/OL – Outline Planning Application for up to 4500 dwellings and associated other uses	EIA Non Technical Summary	Waterbeach New Town East Environmental Statement Non Technical Summary (LDA Design, Planning – Planning Application Documents, 2019)
		Waterbeach New Town: East Flood Risk Assessment and	Flood Risk Assessment and Surface Water Drainage Strategy (MacDonald, 2019a)

Committed development or allocation	Reference	Information referred to	Source
	and infrastructure - RLW	Surface Water Drainage Strategy	
		Waterbeach New Town East Outline Planning Application Transport Assessment Addendum Volume 1 Main Report March 2019	Transport Assessment Addendum Volume 1 Main Report March 2019 (WSP, Planning – Planning Application Documents, 2019)
		Waterbeach New Town East Outline Planning Application Lighting Assessment May 2018	Waterbeach New Town East Outline Planning Application Lighting Assessment May 2018 (MacDonald, 2019a)
Waterbeach Station Relocation	S/0791/18/FL	Ecology impact assessment Figure 1: Biodiversity impact assessment figure	Full Planning Application :Station Ecological Assessment (LDA Design, Waterbeach New Town East Full Planning Applicaiton: Station Ecological Assessment, 2018)
		Flood Risk Assessment	Waterbeach Railway Station Relocation Flood Risk Assessment and Surface Water Drainage Strategy (MottMac Donald, 2018)
		Transport Assessment and Framework Travel Plan February 2018	Transport Assessment and Framework Travel Plan February 2018 (WSP, Greater Cambridge Shared Planning, 2018)
Cambridge North Station proposals	S/3102/15/FUL	Construction vehicle data, Transport Assessment	Cambridge Science Park Station Interchange Transport Assessment (Network Rail, May 2015)
Thanet Parkway station	KCC/TH/0256/2019	Constructability report,	Thanet Parkway Station, Constructability report, Bam Nuttall , November 2019
A428	NA	ES Chapter 10 Material Assets and Waste	A428 Black Cat to Caxton Gibblet ES Chapter 10:Materials Assets and Waste (Highways England, 2022)
Redevelopment Cambridge North Residential Quarter	20/03464/SCOP	Scoping Report	Cambridge North Residential Quarter Scoping Report (Bidwells, 2020)
Cambridge East Area	NA	Sustainability Appraisal (NTS)	North East Cambridge Area

Committed development or allocation	Reference	Information referred to	Source
Action Plan (AAP) 2008			Action Plan Sustainability Appraisal: Non-Technical Summary (LUC, North East Cambridge Area Action Plan Sustainability Appraisal:Non Technical Summary, 2021)
		Habitats Directive Assessment	Habitats Regulation Assessment Part 1 (Cambridge City Council, 2014)
North-East Cambridge AAP (in consultation)	NA	HRA Report	Habitats Regulation Assessment (LUC, 2021)
		Sustainability Appraisal	North East Cambridge NEECAPP Sustainability Appraisal (LUC, North East Cambridge Area Sustainability Appraisal: Non-Technical, 2021a)
		Outline Water Cycle Study 2021	Water Cycle Strategy (Stantec, Document Library -Integrated Water Management Study - Outline Water Cycle Strategy (Stantec), 2021)

2.7.3 The other developments identified and included in the assessment of cumulative effects have been categorised into three principal tiers (as outlined in), which assigns each according to the level of detail that is likely to be available and therefore the 'certainty' that may be attributed to the assessment of potential effects.

2.7.4 Each environmental aspect scoped into the cumulative assessment has been considered in relation to the temporal scope, scale and nature of the other developments identified in Stage 1, which were then used to determine which should be taken forward to Stage 2 and therefore be subject to CEA.

2.7.5 **Table *2-6*: Cumulative Effects Long List of Developments** sets out the long-list of developments that have been considered for the cumulative effects assessment and identifies those developments that have been taken forwards for further assessment at Stages 3 and 4 of the process.

2.7.6 Other developments that have been considered as part of this Stage 4 cumulative assessment are shown on Figure 2.2.

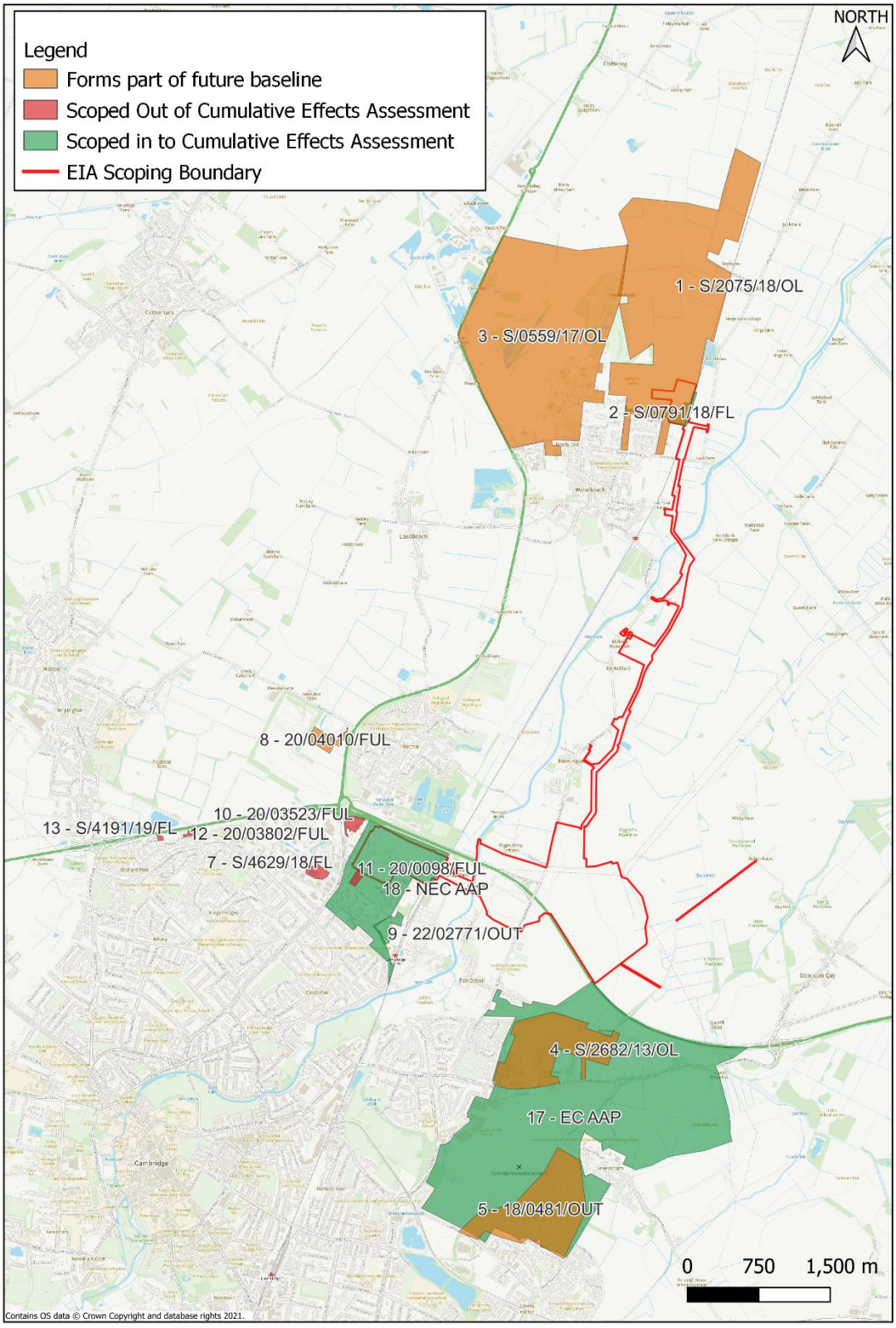

Figure 2.2: Proposed developments considered in cumulative effects assessment

Table 2-6: Cumulative Effects Long List of Developments

Scheme or plan ref No.	Stage 1: Application reference ID	Applicant for 'other development' and brief description	Distance from Order Limits	Status	Tier	Within ZoI?	Taken to Stage 2?	Stage 2: Overlap in temporal scope?	Scale and nature of development likely to have significant impact? Other factors?	Taken to stage 3 / 4?
1	S/2075/18/OL	Waterbeach New Town East OPP for development of up to 4,500 dwellings, business, retail, community, education and leisure uses.	Within	Application submitted 30/05/2018, Resolution to grant, awaiting decision.	Tier 1	Falls within Zone of Influence for all environmental aspects	Yes	Yes 2022 onwards 200 units p.a. between 2024-2028 OPP not yet granted – expected in 2023	Yes Large scale development site (231ha). Construction to commence prior to the construction of the proposed WWTP. **The build out will mean elements are future baseline with the majority to be delivered in a period that follows the construction phase of the Proposed Development**.	Yes
2	S/0791/18/FL	Waterbeach Station Relocated railway station comprising platforms pedestrian bridges access road pedestrian and cycle routes car and cycle parking with other associated facilities and infrastructure	Within	Application granted permission 09/07/2020.		Falls within Zone of Influence for all environmental aspects.	Yes	Yes	Construction likely to commence at an early stage of construction during 2025, requiring coordination between parties.	Yes
3	S/0559/17/OL	Waterbeach New Town OPP for up to 6,500 dwellings, business, retail, community, leisure, education and sports use.	590m	Application granted permission 27/09/2019. Reserved Matters application granted 06/07/2021	Tier 1	Falls within biodiversity, community & health (PRoW), historic environment, landscape and visual, material resources (waste), and water (surface water and flood risk) ZOI.	Yes	Yes – 2021 onwards Up to 400 units/yr between 2024-2028	Construction to commence prior to the construction of the proposed WWTP. **The build out will mean a combination of completed elements being part of the future baseline with the majority to be delivered after the construction phase of the Proposed Development.**	Yes
4	S/2682/13/OL	OPP at Marleigh for up to 1,300 dwellings, school food store, community and open spaces.	Within	Application granted permission 30/11/2016. Reserved Matters application granted 15/12/2020	Tier 1	Falls within Zone of Influence for all environmental aspects	Yes	Unlikely as possibly completed by 2024.	Yes Large scale consented development site (61ha). Likely to be fully built prior to construction of the proposed WWTP. **Rather than inclusion as a cumulative scheme, this development forms part of the future baseline.**	No
5	18/0481/OUT	OPP at land north of Cherry Hinton for up to 1,200 dwellings, retail, education and community facilities.	1.3km	Application granted permission 18/12/2020	Tier 1	Falls within biodiversity, landscape and visual, noise and vibration (operational), material resources and water (surface water and flood risk) ZOI.	Yes	Yes 2023 onwards	Yes Large scale consented development site (70ha). Construction to commence prior to the construction of the proposed WWTP. Separation distance mean that any cumulative effects are likely to be insignificant. **Rather than inclusion as a cumulative scheme, this development forms part of the future baseline.**	No
7	S/4629/18/FL	Hybrid application for demolition of gym trinity centre, and innovation centre and	140m	Application granted	Tier 1	Falls within Zone of Influence for all	Yes	Possible - scheme likely to be	This small scale consented development (2.55ha) is only likely to influence traffic	No

Scheme or plan ref No.	Stage 1: Application reference ID	Applicant for 'other development' and brief description	Distance from Order Limits	Status	Tier	Within ZoI?	Taken to Stage 2?	Stage 2: Overlap in temporal scope?	Scale and nature of development likely to have significant impact? Other factors?	Taken to stage 3 / 4?
		construction of hotel and commercial floorspace with outline for building of up to 7 stories with B1 floorspace at 24 Cambridge Science Park.		permission 20/12/2019.		environmental aspects with the exception of agricultural land		constructed from 2022 onwards	flows once built and during construction. These would be captured in the future growth prediction in the traffic assessment. No other likely cumulative impacts.	
8	20/04010/FUL	One and two storey building containing offices, custody suite and associated facilities south of Milton Park and Ride.	865m	Application granted permission 03/2021.	Tier 1	Falls within Zone of Influence for all environmental aspects except for land quality and agricultural land.	Yes	Unlikely (likely to be completed before 2024)	No. Small scale consented development (5ha). Likely to be fully built prior to construction of the proposed WWTP. **Rather than inclusion as a cumulative scheme, this development forms part of the future baseline.**	No
9	22/02771/OUT	<u>Cambridge North Residential Quarter</u> A hybrid planning application for: a) An outline application (all matters reserved apart from access and landscaping) for the construction of: three new residential blocks providing for up to 425 residential units and providing flexible Class E and Class F uses on the ground floor (excluding Class E (g) (iii)); and two commercial buildings for Use Classes E(g) i(offices), ii (research and development) providing flexible Class E and Class F uses on the ground floor (excluding Class E (g) (iii)),together with the construction of basements for parking and building services, car and cycle parking and infrastructure works. b) A full application for the construction of three commercial buildings for Use Classes E(g) i (offices) ii (research and development), providing flexible Class E and Class F uses on the ground floor (excluding Class E (g) (iii)) with associated car and cycle parking, the construction of a multi storey car and cycle park building, together with the construction of basements for parking and building services, car and cycle parking and associated landscaping, infrastructure works and demolition of existing structures. | Land North Of Cambridge North Station Milton Avenue Cambridge Cambridgeshire	220m	Application submitted 15/06/2022, awaiting decision.	Tier 1	Falls within Zone of Influence for all environmental aspects with the exception of agricultural land.	Yes	Possible – scheme likely to be constructed in 2023 onwards and completed/operational by 2027	Yes Large scale development (4.29ha). Potential to give rise to cumulative effects across several environmental aspects.	Yes
10	20/03523/FUL	Erection of 5 storey and 6 storey building for commercial/business use, transport hub and carpark with demolition of existing building (St John's House) and associated structures.	100m	Application submitted 17/08/2020, awaiting decision.	Tier 1	Falls within Zone of Influence for all environmental aspects with the exception of agricultural land	Yes	Unknown	No. Small scale consented development (2.56ha). Only likely to influence traffic flows once built and during construction. These would	No

Scheme or plan ref No.	Stage 1: Application reference ID	Applicant for 'other development' and brief description	Distance from Order Limits	Status	Tier	Within ZoI?	Taken to Stage 2?	Stage 2: Overlap in temporal scope?	Scale and nature of development likely to have significant impact? Other factors?	Taken to stage 3 / 4?
									be captured in the future growth prediction in the traffic assessment. No other likely cumulative impacts.	
11	20/0098/FUL	Application for continued temporary use of Cowley Road Park and Ride site as a depot until 19th December 2023.	Within	Application granted 07/2020	Tier 1	Falls within Zone of Influence for all environmental aspects	Yes	Operation to cease from December 2023.	Will cease operation prior to construction of the Proposed Development.	No
12	20/03802/FUL	Residential development of 75 dwellings along with access, car parking, landscaping and all associated infrastructure.	1.6km	Application submitted 11/9/20, awaiting decision	Tier 1	Falls within biodiversity, landscape and visual, noise and vibration (operational), material resources and water (surface water and flood risk) ZOI.	No	Unknown	No Small scale development (0.4ha). Given location and nature of the development, only likely to influence traffic flows once built and during construction. These would be captured in the future growth prediction in the traffic assessment. No other likely cumulative impacts.	No
13	S/4191/19/FL	Orchard Park Erection of new private rented residential block comprising a total of eighty studio one and two bedroom apartments.	1.9km	Submitted 4/12/19, awaiting decision	Tier 1	Falls within biodiversity, landscape and visual, noise and vibration (operational), material resources and water (surface water and flood risk) ZOI.	Yes	Unknown	No Small scale development (0.31ha). Given location and nature of development, only likely to influence traffic flows once built and during construction. These would be captured in the future growth prediction in the traffic assessment. No other likely cumulative impacts.	No
14	A428	Road scheme expected to be completed by March 2026	>20km	Consented scheme (NSIP)	Tier 1	Outside of ZOI but raised at scoping.	Yes	Construction expected to begin in 2023 and be completed by March 2026	Estimated waste arisings from construction are indicated as generating approximately 1,311 tonnes (570m^3) of hazardous construction and demolition waste, of which an estimated 262 tonnes (114m^3) is forecast to require off-site disposal to landfill (Highways England, 2022). These totals equate to 0.01% of the 1,156,000m^3 of hazardous (merchant) landfill capacity within the waste management study area, and 0.0006% of the 18.4 million cubic metres of hazardous (merchant) landfill capacity within England. No likely significant effects are identified and there will be no significant cumulative effect on waste management capacity in the region or nationally as a result of the waste volumes. No other cumulative effects have been identified.	No
15	South Cambridgeshire Local Plan Policy SS/4	Area, shown on the South Cambridgeshire Local Plan Policies Map, and illustrated in Figure 6, is allocated for high quality mixed-use development, primarily for employment within Use Classes B1, B2 and B8 as well as a range of supporting uses,	Within	Adopted allocation	Tier 3	Falls within Zone of Influence for all environmental aspects	Yes	Unknown	Yes Large scale development. Potential to give rise to cumulative effects across several environmental aspects.	Yes – **Covered by assessment of NECAAP (Ref 18) which will supersede this policy if it is**

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		commercial, retail, leisure and residential uses (subject to acceptable environmental conditions).								**adopted so excluded from the cumulative assessment to avoid double counting of cumulative effects.**
16	Cambridge City Local Plan	Policy 15	Within	Adopted allocation	Tier 3	Falls within Zone of Influence for all environmental aspects	Yes	Yes	Yes Large scale development. Potential to give rise to cumulative effects across several environmental aspects.	Yes - Policy equivalent of SS/4 for Cambridge City Administrative area. Covered by AAP so excluded from cumulative assessment to avoid double counting of cumulative effects.
17	Cambridge East Area Action Plan	<u>Cambridge East Area Action Plan</u> A new urban quarter of Cambridge of approximately 10,000 to 12,000 dwellings with appropriate employment, services, facilities and infrastructure.	Within	Adopted allocation	Tier 3	Falls within Zone of Influence for all environmental aspects	Yes	Unknown	Yes Large scale development (518ha). Potential to give rise to cumulative effects across several environmental aspects.	Yes
18	Emerging North East Cambridge AAP (Policy 1)	<u>North East Cambridge Area Action Plan</u> The planning policy framework that guides this process of regeneration of North East Cambridge in particular the creation of a new high quality mixed-use city district, providing approximately 8,350 new homes, 15,000 new jobs, and new physical, social and environmental infrastructure that meets the needs of new and existing residents and workers as well as delivering benefits for surrounding communities.	Within	Emerging allocation in Reg 18 Local Plan	Tier 3	Falls within Zone of Influence for all environmental aspects	Yes	Yes	182 hectares of brownfield land Development will take place across North East Cambridge over the next 20 years and beyond.	Yes
19	Emerging Greater Cambridge Local Plan Policy S/NEC	Once developed in full, which will extend beyond the Local Plan period of 2041, North East Cambridge is anticipated to deliver 8,350 new homes, 15,000 additional jobs as well as a wide range of necessary infrastructure to support the development including new schools, community and cultural facilities, open spaces as well as enhanced and new walking and cycling connections into and through the NECAPP area. Development amount is predicated on the relocation of	Within	Emerging allocation in Reg 18 Local Plan	Tier 3	Falls within Zone of Influence for all environmental aspects	Yes	Yes	Within	Yes - **Covered by assessment of NECAPP (Ref 18) so excluded from the cumulative assessment to avoid double counting of cumulative effects.**

Scheme or plan ref No.	Stage 1: Application reference ID	Applicant for 'other development' and brief description	Distance from Order Limits	Status	Tier	Within ZoI?	Taken to Stage 2?	Stage 2: Overlap in temporal scope?	Scale and nature of development likely to have significant impact? Other factors?	Taken to stage 3 / 4?
		the existing Waste Water Treatment Works. Is reliant on implementation of the North East Cambridge Trip Budget, calculated to ensure that there are no additional vehicle trips on Milton Road at peak times (from 2017 levels) and subsequently not result in queuing on the A14 at Milton Interchange (Junction 33).								
20	Decommissioning (demolition) the Waterbeach WRC	Either completed by Anglian Water or completed by developer of Waterbeach New Town East. Dates and approach to full decommissioning are linked to the pumping station construction for which the timeframe is currently not determined. The pumping station will be installed by either Anglian Water as part of developer services obligations to serve Waterbeach New Town with waste water drainage provision or by the developer of Waterbeach New Town East. The location of this may be in the footprint of the existing Waterbeach WRC.	Within	Activity that is known to be required but not currently allocated to any party	Tier 3	Falls within biodiversity, landscape and visual, noise and vibration (operational), material resources and water (surface water and flood risk) ZOI.	Yes	Operational – assumed to occur after Waterbeach pipeline has been constructed	Decommissioning the Waterbeach WRC will lead to a reduction in flow in Bannold Drain. This can be compensated by surface water management for Waterbeach New Town. The Waterbeach WRC is a relatively small asset which can be decommissioned in a similar way to the existing Cambridge WWTP, over a limited period (6-12 months). Its removal can be done as part of the phasing of Waterbeach New Town with no cumulative traffic effect. Its removal will be beneficial in terms of landscape and visual effects. Temporary noise effects can be controlled in accordance with a CEMP.	Yes
21	Decommissioning (demolition) the existing Cambridge WWTP	To be completed by the master developers who will become responsible for the existing Cambridge WWTP site.	Within	Known to be required not currently allocated to a specific party	Tier 3	Falls within biodiversity, landscape and visual, noise and vibration (operational), material resources, odour and water (surface water and flood risk) ZOI.	Yes	Operational phase overlap. Assumed to commence shortly after the existing permit for Cambridge WWTP is surrendered	Decommissioning the existing Cambridge WWTP will lead to a reduction in local discharges to the River Cam. The existing Cambridge WWTP is a relatively large asset which will be demolished and removed over an extended period exceeding 12 months. Its removal can be done as part of the phasing of the redevelopment of the site with no cumulative traffic effect. Its removal is likely to be beneficial in terms of landscape and visual effects. Temporary noise, air quality, surface water and resources and biodiversity effects can be controlled in accordance with a CEMP. No odour impacts would be expected beyond the decommissioning and draining of tanks.	Yes

2.8 Assumptions and limitations

2.8.1 The cumulative effects assessment does not consider other developments that are already constructed and operating, as such existing developments are already accounted for in the baseline conditions established for the main assessments within Chapters 6 to 20.

2.8.2 Limitations relating to the individual assessments are detailed within Chapters 6 to 20 of the ES.

2.8.3 The assessment of cumulative effects is based upon information currently available regarding other potential or committed developments in the vicinity of the Proposed Development as of September 2022.

2.8.4 Where a planning application for a development has not been formally submitted for determination, the assessment is constrained by the limited environmental information available within the public domain. Similarly, where plans are not yet adopted or relevant reasonably foreseeable activities are not yet scheduled, (i.e. demolition of the existing Waterbeach WRC and existing Cambridge WWTP), assumptions have been made to provide a reasonable basis for assessing the likely effects.

Existing water recycling assets

2.8.5 For Waterbeach WRC, it is assumed that the facility will be demolished at some point during 2027–2033 after the new access road is constructed to Waterbeach Station and potentially the new A10 link road. Concrete will be crushed and reused in the construction of Waterbeach New Town or Waterbeach East. Metal will be recovered and recycled at an off-site location. Traffic volumes are small and managed through construction traffic management plans associated with these developments, with negligible cumulative effect. Demolition is completed within a period of 4 to 8 months. The Waterbeach pumping station is constructed and commissioned within a 12 month period, before the Waterbeach WRC is demolished.

2.8.6 For the existing Cambridge WWTP, it is assumed that the facility will be demolished progressively from 2028 onwards, after it has been decommissioned. Concrete will be crushed and reused in the construction of North East Cambridge and/or other local developments. Metal will be recovered and recycled at an off-site location. Traffic volumes are managed through construction traffic management plans associated with these developments, with negligible cumulative effect. Demolition is completed within a period of 12 to 24 months.

Waterbeach station relocation

2.8.7 At the time of assessment limited information is available in relation to construction of the relocated Waterbeach station including predicted construction movements.

2.8.8 The Transport Assessment prepared for the Waterbeach station relocation accompanying the planning application does not contain specific information on construction vehicle movements or confirmed construction routes.

2.8.9 In relation to construction traffic movements the assessment of cumulative impacts has considered information from two similar railway station developments, Cambridge North Station, and Thanet Parkway Station, as comparable sites that would provide a similar level of construction traffic.

2.8.10 The two comparable railway sites have longer platform lengths and larger car parks and may present a slight overestimation of construction vehicles. Both applications indicate that around 40 construction vehicle movements per day would be expected and this is suitable to determine a reasonable worst-case assessment of cumulative impacts.

3 Other Developments Considered in Cumulative Assessment

3.1.1 The following four 'other developments' were shortlisted for inclusion in the assessment of cumulative effects:

- Waterbeach New Town East (Ref. 1);
- Waterbeach Station Relocation (Ref. 2);
- Waterbeach New Town (Ref. 3); and
- Cambridge North Residential Quarter (Ref. 9).

3.1.2 The following local planning authority development plans have been shortlisted for inclusion in the assessment of cumulative effects:

- Cambridge East AAP (Ref. 17); and
- Emerging North East Cambridge AAP (Policy 1) (Ref. 18).

3.1.3 Of these, the North East Cambridge AAP encompasses two of the development plans or specific allocations within them.

3.1.4 The demolition of both the existing Waterbeach WRC and the existing Cambridge WWTP are also considered within the list of cumulative activities under consideration.

3.1.5 This following sub-sections provide a summary of the above.

3.2 Waterbeach New Town East

Overview

3.2.1 The Site is located approximately 6km northeast of the urban edge of Cambridge, adjacent to the existing village of Waterbeach. It comprises 231ha of land between the 'Fen Line' railway that links Cambridge and King's Lynn, and the former Waterbeach airfield and barracks. The existing Anglian Water Waterbeach Recycling Centre (WRC) is located within the south east of the development site.

3.2.2 Outline planning granted for the provision of up to 4,500 residential units, including up to 450 carehome/residential institution dwellings, retail use, employment use, a new secondary school and sixth form centre, community and leisure facilities, relocated railway, energy centre, and new landscaping including formal and informal accessible land.

3.2.3 Construction dates are not provided, and the permission is not yet granted. Based on assumed consent in 2023 and assuming a build out rate of up to 400 units per year the construction phase is assumed to be between 10 to 15 years from no sooner than 2023 to 2033/2038.

Assessment findings

Environmental assessment

3.2.4 The following summarises details from the Non Technical Summary of the ES (LDA Design, Planning – Planning Application Documents, 2019).

3.2.5 The ES Addendum for Waterbeach New Town East comprises:

- A Non-Technical Summary (NTS) Update. The NTS (this document) which has been updated to reflect the updates to the Original ES; and
- ES Addendum: The updated, replacement and supplementary text, figures and appendices that are to be incorporated within the Original ES.

Air quality

3.2.6 The changes in traffic associated with the Proposed Development are expected to have a negligible impact on new and existing receptors. Overall, the impacts on air quality are not significant.

Ecology

3.2.7 There are no statutory designated sites located within the site boundary. The closest statutory site is Cam Washes Site of Special Scientific Interest (SSSI) located 2km to the northeast of the Site.

3.2.8 An area to the east of the existing Waterbeach WRC is earmarked as a reptile receptor site (this overlaps with the area of land required for the construction of the Waterbeach pipeline).

3.2.9 There will be no significant residual effects other than on breeding birds as a result of the loss of arable farmland. The Fenland Park and the areas to the north and east will help compensate some of the loss although due to the large area and number of territories lost, there will be a significant, residual adverse effect at local level.

Historic environment

3.2.10 It is assessed that there would be glimpsed views of the Proposed Development possible from the village core. The majority of the Proposed Development would however be screened by buildings and vegetation. The effect on the character and appearance (and therefore heritage significance) of the Conservation Area is considered to be negligible, resulting in a negligible adverse permanent effect.

3.2.11 The change in the setting of RAF Waterbeach is considered to result in a negligible adverse permanent effect.

3.2.12 No significant residual effects are identified within the assessment.

Landscape and visual

3.2.13 The assessment concludes that overall, the effects on the character of the Fenland Landscape Character Area (LCA) would be at most of minimal significance and neutral. Permanent major adverse and major-moderate adverse effects would be

experienced by people using public rights of way (PRoW), residents and motorists along Bannold Drove; Cross Drove and Long Drove; and within areas of Waterbeach village adjacent to the Site.

3.2.14 The assessment concludes that the greatest effects would be relatively localised and restricted to visual receptors within or immediately adjacent to the Site, where views are possible through and above intervening vegetation. Permanent major adverse and major-moderate adverse effects would be experienced by people using public rights of way, residents and motorists along Bannold Drove; Cross Drove and Long Drove; and within areas of Waterbeach village adjacent to the Site).

3.2.15 The assessment identifies visual effects would reduce with distance from the Site boundary resulting in moderate to slight effects by receptors at locations up to approximately 750m to the north of the Site and up to the eastern bank of the River Cam to the east of the Site. Receptors in these locations include recreational users of the River Cam, users of PRoW, including the Fen Rivers Way and residents in a small number of properties. Permanent effects are neutral from these locations.

3.2.16 Beyond these areas, the Proposed Development would result in permanent effects that are at most minimal and neutral. This includes locations within Waterbeach village (not immediately adjacent to the Site); along Long Drove (north of Dog & Duck Farm) and along the River Cam north of Swaffham Lock; on land east of the River Cam; and north and north west of the Site (including within Denny Abbey).

Land quality

3.2.17 The assessment identified the potential for significant effects to occur in relation to:

- Potential effects on future Site users from direct contact with reused soils in areas of gardens and public open space; and
- Permanent loss of agricultural soils during construction works and beneath proposed buildings.

3.2.18 These potential significant effects would be mitigated by implementing targeted ground investigation, particularly in areas where future end users will be in contact with public open space and where the Waterbeach Airfield previously encroaches into the Site. There would also be a Materials Management Plan (MMP) or environmental permit prepared to cover reuse of potentially contaminated soil. The effect on future land users is permanent minor adverse.

3.2.19 The effect on agricultural land is permanent minor adverse.

Noise and vibration

3.2.20 The assessment included noise modelling which identified noise level increases associated with development traffic are generally below 1 decibel and therefore represent a negligible impact.

3.2.21 In some cases, there are decreases in noise levels with an exception identified in the vicinity of Orchard Drive, Bannold Box Cottages and some properties at Abbey Place

where the increase in noise will be greater than 1 decibel. These increases are still below the upper threshold of unacceptable noise and therefore not significant.

3.2.22 The school requires primary mitigation in form of acoustic bund to reduce noise effects.

Population and human health

3.2.23 The construction phase assessment has identified that there will be minor temporary adverse effects arising from changes to community resources as a result of disruption and reduced connectivity within Waterbeach village.

3.2.24 Overall, no significant adverse effects on health are considered to occur as a result of the development proposals.

Traffic and transport

3.2.25 The Transport Assessment identifies that one link (Ely Road south of junction with A10) will experience an increase in vehicle movements of more than 30%.

3.2.26 Following the implementation of mitigation measures, the pedestrian, cycle and public transport networks will be largely unaffected by construction activities at the Site as construction access would be routed via the A10. However, it is noted that in the event that a strategic link to the A10 via Waterbeach New Town West is delayed, there would be negligible to moderate negative temporary effects for pedestrians and cyclists along Bannold Road, Cody Road and Bannold Drove.

Water resources

3.2.27 The assessment does not indicate any significant effects (taking into account mitigation), but entire development is on basis that there is a new WRC or that flows are diverted to the existing Cambridge WWTP.

3.3 Waterbeach Station Relocation

Overview

3.3.1 A full planning application for the relocation of Waterbeach Station has been granted and application documents indicated that this would be completed by 2021. From consultation with the Waterbeach Development Company (in November 2022) it is understood that the programme is to construct the station for opening by December 2025 with construction likely to commence in December 2024.

3.3.2 These activities are not yet initiated and it as a worst case it is assumed the work would overlap with the construction of the Waterbeach pipeline.

3.3.3 The programme for the Waterbeach Station redevelopment is indicated as taking 12 to 18 months to complete the construction works for the station and its link road.

3.3.4 The Committee report stated: "*In terms of accessing the site for construction, this is normally dealt with through the submission of a construction management plan (CEMP) submitted as a planning condition. The choice of routes for construction*

traffic will depend on a number of factors, such as what is being delivered and when it will be delivered. Some elements for the construction of the new railway could be delivered by rail, and some could use Cody Road and / or Bannold Road. It may be possible, depending on the timing of the construction of the proposed railway station and access road with the determination of the two outline planning applications, for some construction traffic to use the former barracks site to access the site. This issue will be dealt with by the submission of a CEMP required by planning condition".

3.3.5 A non material amendment application (reference S/0791/NMA1) was submitted in August 2022 and approved in September 2022. This approved an amendment to the wording of a number of planning conditions to allow 'site layout operations' to commence before pre-commencement conditions need be discharged. The effect of this is to allow the developer to make a lawful start on site. The 'site layout operations' will trigger the implementation of the planning permission and therefore keep it extant.

3.3.6 There would be a small area of overlap between the area of land required for the Waterbeach pipeline and the boundary of the relocation development.

3.3.7 These activities are not yet initiated and would potentially interact with construction of the northern part of the Waterbeach pipeline, either before, during or after this is installed. In many respects it would be useful to undertake both projects in parallel to minimize potential disturbance and potentially to provide an alternative access via thee former barracks site to the north. As a worst case in terms of traffic and available space, it is assumed the work would overlap with the construction of the Waterbeach pipeline. Ideally, this section of the Waterbeach pipeline would be laid at an early stage of the Waterbeach Station development and would not interfere with it. Alternatively if the pipeline was installed after the station is in place, there would be a need to reinstate any disturbed ground, or landscaping.

Assessment findings

Air quality

3.3.8 The Air Quality Assessment (Mott MacDonald, 2018) undertaken for the development concluded that there are no likely significant construction dust effects.

3.3.9 Additionally, the assessment found that the development is not predicted to cause any exceedances of the annual mean NO_2, PM_{10} or $PM_{2.5}$ objectives. The assessment also demonstrated that the short-term objectives for NO_2 and PM_{10} are not expected to be exceeded at nearby sensitive receptors. The overall change in concentrations of these pollutants as a result of the Proposed Development is not predicted to be significant.

Ecology

3.3.10 No construction or operational impacts on statutory or non-statutory designated sites are predicted, therefore no additional mitigation, compensation or enhancement measures are considered.

3.3.11 Ecological assessment has identified potential impacts on habitats as a result of loss of 70m of hedgerow within the south western section of the development, dredging or modification of the wet ditch east of Bannold Drove and permanent loss of semi-improved grassland.

3.3.12 Potential impacts on protected species include impacts from construction and operational lighting on bat activity patterns, foraging behaviour and commuting routes, potential impacts on badgers, water voles and breeding birds and loss of suitable reptile habitat.

3.3.13 Proposals include provision of a landscape ecology management plan and range of habitat mitigation measures in addition to net gain proposals. Some of that land proposed for habitat creation overlaps with the land required for the construction of the Waterbeach pipeline.

Health

3.3.14 The Health Impact Assessment undertaken for the development has identified indirect health benefits from improved access to transport and its associated indirect health benefits from the employment and training opportunities. These benefits have been assessed as being of permanent moderate benefit. Additionally, development is providing indirect health benefits as a consequence of reducing crime and public safety through safe urban design.

3.3.15 It also notes that the development contributes to adverse health outcomes as a consequence of reduced social cohesion as well as reduced neighbourhood amenity through the relocation of the existing station. A minor short-term adverse health outcome was predicted due to construction noise, though these are associated with night-time works, which will be limited in both duration and frequency.

Land quality

3.3.16 A geo-environmental preliminary risk assessment identified the following risks:

- potential for ground gas due to the potential peat deposits within the development location;
- unknown quality of the soil within the development location; and
- unknown quality of groundwater and its flow.

3.3.17 All mitigated risks were assessed as low assuming the associated control measures and mitigation were implemented.

Landscape and visual

3.3.18 The landscape and visual appraisal concluded that there are potential moderate adverse effects to the Western Claylands Landscape Character Area (LCA) in the area of the development itself and its immediate context. Beyond the immediate context, the effects on the Western Claylands LCA are neutral.

3.3.19 The landscape and visual appraisal identified moderate adverse effects on receptors in close proximity to the development, notably users of Bannold Drove, residents in areas in the northern area of Waterbeach and motorists along stretches of Long Drove and Bannold Road south and south east of the development, moderate neutral effects on the users of the Fen Rivers Way and slight neutral effects on the users of Bannold Road, Long Drove north and locations north east of the development.

Lighting

3.3.20 The Lighting Impact Assessment (MottMac Donald, 2018) identified minor adverse residual effects from construction. During operation, minor adverse effects are expected on residential areas and access routes, negligible effects on railways and moderate adverse effects on certain viewpoint locations in the area.

Noise and vibration

3.3.21 The Noise and Vibration Impact Assessment (Mott MacDonald, 2018a) has specified that the significant adverse effects for residential receptors can be avoided by specifying a readily attainable noise limit during construction. Additionally, construction vibration is unlikely to result in significant adverse effects.

3.3.22 Operational traffic arising from the construction of the new access road, noise from the operational railway and operational vibration is not expected to result in a significant adverse effect. A negligible noise reduction is expected for the villages of Clayhithe and Horningsea.

Transport

3.3.23 Transport Assessment (WSP, 2018) identified increases of highway flows on the A10 north of Waterbeach Road, Denny End Road, Bannold Road and Cody Road as these form the main access route to the station. The main impact is on Cody Road, which would experience an average hourly increase of 73 vehicles during peak period. This is not considered a severe impact as it is just over 1 vehicle per minute on average.

3.3.24 Highway flow reductions are likely on the A10 between Waterbeach Road and Car Dyke Road, along with reductions on Car Dyke Road itself, Station Road and High Street passing the Primary School.

3.3.25 Overall, the assessment considered it is that the impacts of the Proposed Development could be 'cost effectively limited through the proposed improvements in the transport network, and that the residual cumulative impacts of the relocation are not severe'.

3.3.26 The assessment also concluded that there are significant transport benefits to be secured by the removal of station-related travel demand in the vicinity of the existing Waterbeach station and reduced risk at the level crossing.

3.3.27 The construction route for vehicular access is indicated to be from the A10 following Denny End Road, Bannold Road and Bannold Drove to access the construction site. This is intended to be to be managed through a Construction Environmental

Management Plan (CEMP), secured through a planning condition. No construction numbers are included in the transport assessment included in the current planning application (WSP, 2018).

3.3.28 On completion of the construction, the vehicular access for the new station will be via Cody Road and the new link road. Bannold Drove will be changed to a walking and cycling only route connection from Bannold Road. Vehicle access from Bannold Drove will only for access/egress to adjacent properties.

3.3.29 As the wider development of Waterbeach New Town is progressed a new access road from the A10 will be provided. This future provision of the A10 access road will reduce vehicular access needs from Bannold Road and Cody Road.

3.3.30 During construction, transport flows would be managed through the respective CEMP/CTMPs for each project.

FRA

3.3.31 The FRA for completed for the station relocation application (MacDonald, 2019a) states that:

- Flood Zone mapping shows that while some of the Proposed Development lies in Flood Zone 1, the majority lies lie in Zone 2. A small section in the south-east corner lies in Zone 3. On the basis of the NPPG Flood Risk Vulnerability Classification Table (Figure 4) the proposed “essential infrastructure”, “less vulnerable” and “Water compatible” developments can all be placed in Flood Zone 1.On the basis of the geology encountered and the infiltration test results, it is considered that disposal of surface water to ground via infiltration is not feasible.
- As part of the strategic surface water runoff management strategy for the wider development it is proposed to incorporate SuDS features to best mimic current greenfield conditions, as well as provide source control, water quality, biodiversity and amenity benefits. These features could include swales, filter strips, ponds and permeable paving.

3.3.32 The site has also been considered for groundwater, pluvial, surface water overland flow, sewer capacity, Pump Station failure, Flood Defence Breach, tidal and estuary flooding. The following was concluded:

- There are pockets of the development at “more risk” of flooding from pluvial sources, and mitigation has been proposed to reduce the risk of this.
- The existing site comprises undeveloped greenfield land. It is considered that the risk of sewer capacity flooding is low.
- The site is at negligible risk of flooding from reservoir failure.
- The impact of any failure of pumps at Bottisham Lock and Cam pumping stations is considered unlikely to impact the Waterbeach Railway Station Relocation development.

- In a worst-case scenario breach, modelling shows a depth of flooding of approximately 0.53m in the area of the Proposed Development and mitigation measures have been proposed to reduce any potential impact should this occur. The existing railway line and proposed station platforms are above the modelled flood level and therefore considered to be at negligible risk of flooding in a breach event.
- The risk of potential of tidal and estuary flooding event causing a tidal lock at the confluence of the Ouse and Cam rivers, combined with a fluvial event in the River Cam is considered to be low.

3.4 Waterbeach New Town

Overview

3.4.1 The Application Site (S/0559/17/OL) is approximately 293ha and is located immediately north of Waterbeach village. It is approximately 5km north of the Cambridge urban area but within the district of South Cambridgeshire.

3.4.2 Outline planning was granted in 2019 for up to 6,500 dwellings (including up to 600 residential institutional units), business, retail, community, leisure and sports uses; a hotel; new primary and secondary schools; green open spaces including parks, ecological areas and woodlands; principal new accesses from the A10 and other points of access; associated infrastructure, groundworks and demolition; with all matters reserved except for the first primary junction from the A10.

3.4.3 No detailed phasing of the scheme was provided in the information available at the time of this assessment, with the exception of the proposed first phase of new build development located north of the lake, with primary access from the existing Cambridge Research Park roundabout on the A10.

3.4.4 The EIA supporting the outline planning assumed that the construction of the Waterbeach New Town would take place over a 16 to 20 year period from 2017-18 until 2033/4 to 2037/8.

Assessment findings

3.4.5 The applicant (Urban and Civic) prepared an EIA and reported in an ES in 2017. Subsequent to the 2017 assessment the EIA was updated to account for changes to environmental assessments as a result of the further and revised information.

Waterbeach New Town Environmental assessment (2017)

Agriculture

3.4.6 The Application Site includes 44.8ha of land capable of being put to agricultural use, of which some 21.8ha hectares was determined through a soil survey of the Site as being “best and most versatile” land (sub-grade 3a). No land is categorised as either grade 1 or 2.

3.4.7 The loss of best and most versatile agricultural land has been assessed as having a moderately adverse effect.

3.4.8 No changes were made to the Agricultural and Soil Resources chapter as a result of the update to the ES in 2018.

Air quality and odour

3.4.9 The air quality assessment was updated to include a review and update of air quality policy, an update of local air quality monitoring data and an update in vehicle emissions factors and background data since the initial assessment. In addition, the initial phase of 1,600 residential units (Early Phase) was been assessed

3.4.10 The assessment states that the construction effects would be managed through the application of a CEMP and would not be significant.

3.4.11 Although moderate adverse impacts were predicted at residential receptors along the A10, the overall effects of development traffic on existing human health receptors were judged to be not significant as the predicted pollutant concentrations are well below the relevant air quality objectives. To further reduce the impacts, a site-wide Framework Travel Plan and Low Emissions Strategy were developed and included within the application.

3.4.12 In the future, the modelling predicts a negligible effect on air quality at all off-site and on site receptors in terms of nitrogen dioxide and particulate matter. Whilst the odour source potential from the Waste Management Park is judged to be large, the frequency of odour exposure at the Application Site is infrequent due to the prevailing wind direction and overall it is considered to have a minor adverse effect.

Ecology

3.4.13 The updated assessment incorporated the findings of further surveys. No changes to the 2017 assessment were identified.

3.4.14 The Waterbeach New Town Ecological Assessment (EA) identified the potential for some minor adverse and indirect impacts on Wicken Fen and Cam Washes during the construction phase as a result of pollution. The EA states those impacts could be effectively mitigated through good construction management practices.

3.4.15 The Waterbeach New Town Ecological Appraisal determined that the completed development could, before mitigation, result in negligible or minor impacts on habitats and species (grassland, wetlands, woodlands, trees, lichens, reptiles, breeding birds, overwintering birds, bats, great crested newts, brown hare, flora and invertebrates and badgers).

3.4.16 Mitigation and measures to enhance the ecological resource would result in only negligible or positive (residual) impacts.

Historic environment

3.4.17 The assessment was reconsidered top account for changes to the Proposed Development relating to the widening of the extent of the buffer area in the

northern central part of the site, to the south of Denny Abbey. This change resulted in shifting the extent of built development further south. The buffer area was reduced in width slightly in the northeast and north-west corners of Application Site (pulling the extent of built development further north).

3.4.18 The original assessment identifies slight and moderate adverse effects upon a number of heritage assets are determined to be likely, prior to mitigation; with the likely effect on the setting of Denny Abbey and archaeological deposits being moderate and adverse.

3.4.19 The creation of a buffer and screen planting was taken into account to mitigate the impact upon Denny Abbey to a slight effect upon completion and recording and publishing of archaeological finds during the construction phases will mitigate the impact upon archaeology.

3.4.20 The change to the buffer area was reassessed and considered to reduce the impact of built development on the identified heritage assets within the northern part of the site (the retained Causeway and Soldiers Hill) and upon Denny Abbey, to the north of the site. The assessed benefit is not such that the potential effects and residual effects upon heritage assets would change from those set out in the submitted Environmental Statement.

Hydrology flood risk and drainage

3.4.21 The updated incorporated modelling and an updated Flood Risk Assessment and a revised flood extents plan.

3.4.22 The initial assessment states that construction effects would be managed through the application of a Construction Environment Management Plan (CEMP) and would not be significant. This remains unchanged.

3.4.23 Subject to the implementation of SuDS and other measures in the drainage strategy the effect on flooding within and beyond the site, and the effect on water quality, is identified as negligible. This remains unchanged.

3.4.24 The increased demand for potable water and increased waste water discharge is identified as a moderate and major adverse impact respectively if not mitigated. The assessment considers that there is some water supply capacity available for the Proposed Development but that there is limited capacity for the treatment of sewage at the existing Waterbeach Water Recycling Centre (WRC) and the connecting sewers.

3.4.25 In addition, updated information is provided regarding the strategy for foul water and the intention of Anglian Water to build a new Water Recycling Centre; and updated water quality monitoring data was been appended for completeness.

3.4.26 The assessment notes that there is existing capacity in the network to be used to support initial level of development prior to the construction of new water supply infrastructure. However, improved and new waste water drainage infrastructure is required for the completed development. The assessment defers to an Anglian Water proposed new Water Recycling Centre to support the development.

3.4.27 The assessment also accounts for the implementation of water conservation measures would be implemented to further mitigate impact of water demand and waste water generation. Following mitigation, the effects area assessed as being reduced to minor adverse.

Landscape and visual

3.4.28 The Landscape and Visual Impact Assessment (LVIA) was updated.

3.4.29 The initial assessment states that the greatest effect of the construction activities associated with the Waterbeach New Town on views would be limited to receptors near or adjacent to the Site, varying largely from negligible to moderate adverse depending on the nature and location of the receptors. These effects would be minimised through implementation of mitigation, such as preventing construction traffic through villages, retaining and protecting existing vegetation and managing construction lighting.

3.4.30 The effect of construction activity on the landscape character is considered to be negligible to minor adverse for most parts of the landscape and moderate adverse at Denny Abbey during works to the north of the site.

3.4.31 The assessment concludes that at the post-completion stage, the greatest effects of the Proposed Development would remain to receptors in close proximity. The implementation and establishment of the proposed green infrastructure and landscape measures would reduce most of the effects to negligible or minor adverse, with many improving to minor or moderate beneficial. At night-time, it is concluded that, provided lighting mitigation measures are implemented, the impact would be no greater than the daytime effects.

3.4.32 The LVIA Addendum concludes the following changes in likely effects, as a result of changes to the development proposals:

- For Denny Abbey, the development would be pulled back further from the northern boundary of the Application Site and a retained causeway approaching from the south, reducing effects on the landscape surrounding the Abbey from moderate adverse to minor-moderate adverse on completion of the development. Similarly, effects on views from and surrounding Denny Abbey would reduce from moderate-major adverse to moderate adverse. Long term effects would be neutral as reported in the 2017 ES.
- For properties to the west of Denny Abbey (viewpoint 18), the increase in width of the northern parkland (as a result of pulling the development back from the northern boundary) would improve the likely effects from minor-moderate adverse to minor adverse immediately on completion of the development. Long term effects would improve to neutral, as reported in the 2017 ES.
- For residents on Orchard Drive, the reduction in building heights in the south-east corner of the Site would improve the effect of the completed

development (on views directly to the west and northwest) from minor beneficial to minor-moderate beneficial.

3.4.33 In terms of cumulative impacts, the update considers the proposed Energy from Waste facility on the Amey Cespa site and that it would have a significant effect on the immediately surrounding landscape and views, including Denny Abbey. Although the effect of that development would remain into the long term, the effect of the Proposed Development on the Application Site would reduce to neutral, with any increase in the combined effect of these developments remaining negligible.

Noise and vibration

3.4.34 The assessment concludes that the construction effects would be managed through the application of a CEMP and would not be significant.

3.4.35 Operation phase effects mitigated through design measures at the detailed stage and leading to an overall impact associated with noise and vibration would be negligible.

3.4.36 Post-completion impacts are also assessed as being adequately mitigated through design measures at the detailed stage and leading to an overall impact associated with noise and vibration as negligible. This is also the case for the proposed energy centres that would be controlled via layout and design and appropriate conditions on operations.

Transport

3.4.37 The assessment establishes, with reference to the accompanying Transport Assessment, that a quantity of development (including 1,600 dwellings) can be constructed, alongside a range of defined transport improvements and travel planning measures, with only minor adverse impacts upon the transport network.

3.4.38 Major adverse effects without mitigation of which the details are to be identified through the A10 Study, each with their own separate assessments. Measures are stated as a new Park & Ride at or close to the Application Site, a new Busway to serve the Application Site, a capacity enhanced A10, and strategic improvements to the A14 and A10 Milton Interchange and relocation of Waterbeach Station.

3.4.39 The Transport Assessment accompanying the Outline Planning Application was substantially altered based upon revised modelling of transport impacts. The conclusions reached on the effects associated with the Proposed Development (reliant as the strategy is upon managing impacts going forward through an adaptive Monitor and Manage approach) did not differ from the previous conclusions.

3.5 Cambridge North Residential Quarter

3.5.1 Development proposals brought forward in relation to an area of land within the Northern East AAP. The South Cambridgeshire Local Plan 2018 local plan policy SS/4 (Cambridge Northern Fringe East and Cambridge North railway station) applies to this area.

3.5.2 The development proposals would provide the following:

- Approximately 700 private rental sector (PRS) residential units;
- Approximately 11,000 square metres of office space (Use Class B1 (a));
- Approximately 1,450 square metres of retail use (Use Classes A1/A2/A3/A4/A5);
- A maths college comprising 2,430sqm of Class D1 use; and
- Landscaping, public open space, parking, sustainable drainage and associated infrastructure works.

3.5.3 A Scoping Opinion was provided by Greater Cambridge Shared Planning (GCSP) in October 2020 which confirmed that the development proposals are Schedule 2 development as described in the EIA Regulations, being an urban development project, which exceeds the applicable thresholds/criteria (Category 10b, Urban Development Project). Given the characteristics of the development, the location of the development, and the characteristics of the potential impact, the Proposed Development constitutes EIA development.

3.5.4 There are no details in the Scoping Report on the expected phasing of the proposal and the EIA has not yet been completed. A summary of potential environmental effects, as per the Scoping Report, is presented in the sections below.

Scoping Report

Air quality

3.5.5 Effects likely to result from construction activities are associated with dust and PM_{10}, with the potential to cause nuisance and health impacts at nearby sensitive receptors. Traffic-related emissions generated by construction traffic have potential to result in impacts on local air quality. Impacts on local air quality are also likely during operation as a result of changes in traffic-related emissions associated with the development.

Ecology

3.5.6 Potential likely significant effects on ecology are due to loss of Open Mosaic Habitat, spread and management of invasive species, impacts on reptiles, birds, bats and invertebrates.

3.5.7 There is no readily available information about the potential impacts on designated sites.

Flood risk and drainage

3.5.8 The scoping report indicates that during construction, the effects of all potential impacts can be mitigated through implementation of a robust CEMP.

3.5.9 During operation, potential impacts may include an increase of the rate and volume of surface water run-off to River Cam catchment, thus increasing downstream flood risk and impacts on surface water and groundwater quality.

Historic environment

3.5.10 There are no Scheduled Monuments or Listed Buildings identified on the site or within the 500m of its boundary. There are also no Registered Parks or Gardens or historic battlefields in close proximity to the site.

Landscape and visual

3.5.11 There are likely significant effects to the visual receptors in close proximity to the development. Longer-distance views appear to be substantially screened by intervening vegetation and built form.

Noise and vibration

3.5.12 Potential impacts during construction include noise and vibration from construction activities and construction traffic. Potential impacts during operation include operational noise from the development such as building services plant, operational traffic noise generated by the development and the risk of adverse effects on the development itself from existing noise sources.

Odour

3.5.13 No significant sources of odour form part of the development resulting in no likely effects on odour.

Soils and groundwater

3.5.14 Potential impacts include impacts on human health from potential exposure of on- and off-site users to contaminants in soils, groundwater and ground gasses, impacts on controlled waters from potential infiltration of leachable contamination and migration of contaminated water, and impacts on infrastructure due to potential exposure of materials to a potentially aggressive environment causing damage.

Transport

3.5.15 Potential impacts on transport due to an increase in construction vehicles during the construction phase of the development and potential impacts on transport network during operation due to increase in vehicular movements associated with the operational development.

Subsequent application (June 2022)

3.5.16 The planning application in relation to the Cambridge North Residential Quarter was submitted in June 2022. In relation to the topics described above, as detailed in the summary of effects no significant adverse residual effects are predicted to occur during construction/operation of the scheme for: air quality; historic environment; ecology; flood risk and drainage; soil and groundwater; and transport.

3.5.17 There are moderate beneficial effects on human receptors, which are significant, as the Proposed Development would address surface water flood risk associated with poor drainage of the existing car park at the Site, and will provide new surface water drainage systems designed to manage the risk of flooding for the life of the development, accounting for the effects of climate change.

3.5.18 In addition, there are significant beneficial health effects during operation on accessible housing, housing mix and affordability, walking and cycling, open space, play space and access to nature, and local employment.

3.5.19 Significant adverse residual noise and vibration effects have been identified during the construction phase, with associated significant adverse health effects. In addition, the Proposed Development will result in one significant visual effect associated with the erosion of the rural context of Cambridge, as experienced from the Public Right of Way to the north of Fen Ditton.

3.6 Cambridge East AAP

Overview

3.6.1 The Cambridge East AAP has been prepared jointly with Cambridge City Council. The AAP identifies the site for a sustainable new urban quarter of approximately 10,000 to 12,000 dwellings and associated development as well as the off-site infrastructure needed to deliver and serve the urban quarter.

3.6.2 There is no firm timeframe indicated in the policy documents, and the development of Cambridge East is stated to take 'many years to complete'. The AAP provides a general policy framework for the development as a whole, and more detailed policies for first phase of development of land to the north of Newmarket Road that can take place ahead of the relocation of Cambridge Airport. It also identifies potential for land north of Cherry Hinton to come forward before the Airport is relocated. There is currently no confirmation that the airport would be relocated.

Assessment findings

Development Plan Document Habitats Directive Assessment (South Cambridge District Council, 2007)

3.6.3 The report states that the conclusion of the screening assessment is that the Draft Cambridge Local Plan 2014 is not likely to have any significant effects on the Natura 2000 or Ramsar sites identified. The City Council therefore considers that it is not necessary to proceed to further stages of appropriate assessment (Cambridge City Council, 2014).

3.6.4 There is no readily available information about the potential impacts on nationally and locally designated sites and protected species as those will be considered as part of environmental assessments for individual developments.

Sustainability Appraisal

3.6.5 Relevant social, environmental and economic issues and problems identified in the report:

- Development will create additional demands of water supply (for homes, industry, etc.) in an area where the capacity of natural systems is limited.
- Limited stock of brownfield land means new development will inevitably result in the loss of high-quality agricultural land.
- The rural nature of the district means that development may result in the loss or deterioration of local habitats such as hedgerows and verges.
- The district straddles several important transport arteries, and addressing local transport issues such as encouraging a modal shift to public transport will not solve the whole problem.
- Uncontrolled or unsympathetic development could harm local landscape character if it occurs on a large enough scale, or repeatedly through a particular area.
- South Cambridgeshire's archaeological heritage could be threatened by development that in effect sterilises known sites, or which harms the setting of sites with important historical or cultural associations.
- Development may encroach on existing areas of open space, amenity and recreation value, or it may harm their setting and tranquillity.
- Stow cum Quy Fen lies approximately 2km to the north, comprising neutral grassland of 'unfavourable but recovering' status, and areas of standing water important for dragonfly breeding. The site is currently subject to an English Nature enforcement notice requiring management procedures and improvements to prevent fluctuation in water levels (note that water quality is not mentioned specifically). Supporting detail for policy CE/26 indicates that water draining of the eastern side of the site passes through Quy Water which crosses the north-western side of the SSSI.

3.6.6 The development of Cambridge East will be subject to EIA, will provide the necessary infrastructure to support the development and is not likely to commence before the Proposed WWTP is completed and commissioned. The Proposed WWTP will treat flows associated with Cambridge East. It will have its own SUDS design to manage surface water effectively and waste water and surface water drainage systems will be separate. All other environmental effects will be mitigated and managed to an acceptable level and being consecutive, no significant cumulative effects are expected that are more significant than the effects of Cambridge East in isolation.

3.6.7 The AAP documents and associated policies contain mitigation proposals for almost half of the policies. It is noted within the Sustainability Appraisal that 'many of these proposals require further investigation or monitoring to better understand the likely impacts of the development once an initial Master Plan showing the layout of the

main land uses, transport links, etc., has been prepared, and once the timing of building the different parts of the urban quarter can be interpreted in terms of its effect on construction activities at different points and on the surrounding villages and roads' (South Cambridge District Council,, 2007).

3.6.8 It goes on to state that the mitigation requirements would be delivered either through planning activities, or through the Environmental Impact Assessment (EIA) prepared for the development. Furthermore, it is stated that the application may also be subjected to planning conditions (which may include 'Grampian' style conditions) linking the start and phasing of development to the availability of waste water infrastructure.

3.7 North East Cambridge AAP

Overview

3.7.1 Cambridge City Council and South Cambridgeshire District Council, working with Cambridgeshire County Council and Highways England, are jointly preparing an Area Action Plan (AAP) for the North East Cambridge (NEC) area. This plan is currently at the consultation stage. It is currently expected that the consultation period on the Proposed Submission for the NEC AAP will take place around 2024 (Greater Cambridge Shared Planning, 2022).

3.7.2 It covers the development of new high environmental quality urban land either side of city border. Development of 12,000 houses near employment creating 5,000 new jobs, with green spaces and public transport access, cycle routes and footpaths. This AAP encompasses the entirety of the existing Cambridge WWTP.

3.7.3 The HRA Report (LUC, 2021), the NTS of the sustainability appraisal (LUC, 2021a) and the Outline Water Cycle Strategy (Stantec, 2021) have been reviewed.

Greater Cambridge North East Cambridge Area Action Plan - Habitats Regulations Assessment 2021

3.7.4 The findings of the HRA screening stage determined that impacts from recreation and water quantity and quality could result in a likely significant effect in relation to:

- Recreation – in relation to Wicken Fen Ramsar SAC and Fenland SAC.
- Water quantity and quality – in relation to Ouse Washes SAC, SPA and Ramsar site, Wicken Fen Ramsar site, Chippenham Fen Ramsar site and Fenland SAC.

3.7.5 The Appropriate Assessment stage then concluded no adverse effect on integrity as a result of increased recreational pressure in relation to Wicken Fen Ramsar site and Fenland SAC provided safeguards and mitigation measures required by the plan in Policy 8: Open spaces for recreation and sport, Policy 5: Biodiversity and Net Gain and Policy 27: Planning Contributions are successfully implemented. These are summarised below:

- Development proposals will be required to make provision for new or enhanced open space and recreation sites. These will be in line with the Cambridge City local standards of provision of all relevant types of open space and the Councils' open space and sports strategies, where applicable.
- Development proposals in the NECAAP will make provision for and deliver a total of 22.54ha of additional open space alongside the protection of existing open space located at Cambridge Science Park and St John's Innovation Parks. All informal open space requirements are expected to be met within the North East Cambridge area.
- Applicants for development will be required to provide open space and to secure it in perpetuity, and provide arrangements for its future management and maintenance.
- Specific off-site contributions will be sought towards a new pedestrian/cycle bridge over the railway to improve recreational access to the River Cam and wider countryside as part of the wider green infrastructure network.
- Protection of existing open spaces, including Cambridge Science Park and St John's Innovation Parks.
- All residential housing proposed in the plan will be within a five minute walk of an open space and will align with Natural England Accessible where all homes will be within 300m of an open space (>2ha).
- Protection and enhancement of habitats is required to ensure a coherent and high quality ecological network in North East Cambridge and the surrounding areas.
- All development will be required to avoid any adverse impacts on the conservation value of any designated environmental and nature conservation sites and protected habitats.
- All new development proposals within NEC are required to contribute towards the necessary supporting infrastructure, through both on-site provision and financial contributions to relevant area-wide requirements. Including management and maintenance of strategic infrastructure, and green infrastructure.

3.7.6 The Appropriate Assessment concluded no adverse effect on integrity as a result of increased demand for water supply in relation to Ouse Washes SAC, SPA and Ramsar, Wicken Fen Ramsar, Chippenham Fen Ramsar and Fenland SAC provided that the safeguards and mitigation measures within Policy 4a: Water Efficiency and Policy 4b: Water quality of the plan are successfully implemented and that the WRE Water Management Plan with adequate new water supply sources identified is in place prior to adoption of the plan. Policy 4b requires the following:

- Development proposals will need to demonstrate that they will be served by an adequate supply of water that will not cause unacceptable environmental

harm, that there is appropriate sewerage infrastructure, and that there is sufficient sewage treatment capacity to ensure that there is no deterioration of water quality.

- For phased development, each phase must demonstrate sufficient water supply and waste water conveyance, treatment and discharge capacity. A planning condition or obligation may be secured to ensure all necessary works relating to water supply, quality and wastewater have been carried out prior to development being occupied.
- All development proposals should include an assessment of the measures taken to protect and enhance water quality within the surrounding water environment including local surface water and groundwater, in particular, where there is known or potential land contamination; the proposal alters ground conditions; and in the consideration of the form(s) of sustainable drainage scheme to be incorporated.

3.7.7 The Appropriate Assessment concluded no adverse effect on integrity as a result of increased demand for water supply in relation to Ouse Washes SAC, SPA and Ramsar, Wicken Fen Ramsar, Chippenham Fen Ramsar and Fenland SAC provided that appropriate wastewater treatment infrastructure with sufficient capacity is delivered as part of the relocation of the Cambridge WRC being undertaken by Anglian Water.

3.7.8 For water quality the additional mitigation measures implemented through Policy 4b: Water quality and ensuring supply, are also applicable. This policy requires new development to demonstrate appropriate sewerage infrastructure and that there is sufficient sewage treatment capacity before development is permitted. Through Policy 4a: Water Efficiency, which ensure high water efficiency standards and Policy 4c: Flood Risk and Sustainable Drainage requires that development includes a suitable Sustainable Drainage System (SuDS) in line with best practice. These are considered to result in multiple benefits including minimising surface water run-off rates from development and helping to improve the quality of the run-off.

Sustainability Appraisal: Non-Technical Summary (NTS)

3.7.9 The Sustainability Appraisal NTS states that in-combination effects are likely to be limited, given the separation of the A14 and the existing built-up nature of North East Cambridge. In-combination effects are likely with regards to SA objective 6 (landscape), which are mitigated by the design of the proposed WWTP and its integrated landscape plan.

3.7.10 Positive in-combination effects on SA objective 14 (economy) are expected as the development of NEC is facilitated by the relocation of the WWTP. The effects of the development of NEC will be considered in detail in the Environmental Impact Assessment (EIA) accompanying the planning application, which will include consideration of in-combination effects, mitigation of likely significant environmental effects on factors such as traffic, noise, air quality, visual impact, health and well-

being. Overall it is expected that both developments make a positive contribution which are multiplicative.

3.7.11 A cumulative effects assessment is presented for each of the 16 Sustainability Appraisal objectives, these are summarised in Table 3-1.

Table 3-1: Summary cumulative assessment of NECAAP Sustainability Appraisal objectives

SA Objective	Cumulative assessment
1 - Minimise the irreversible loss of undeveloped land, protect soils and economic mineral reserves	The majority of NEC consists of previously developed land and AAP seeks to make efficient use of land in this area. As such, cumulative significant positive effects **(++)** are expected for this SA objective
2 - Improve air quality and minimise or mitigate against sources of environmental pollution	Overall, cumulative significant positive uncertain effects **(++?)** are expected for this SA objective. Uncertainty arises because the AAP aims to reduce vehicle trip generation below current levels, which could be very challenging to achieve, given the scale of development in the AAP. If this is not achieved, there is potential for negative effects to arise, given the potential effects on the A14 Corridor AQMA.
3- Protect and where possible enhance the quality of the water environment	Overall, cumulative minor positive effects **(+)** are expected for this SA objective
4 - Avoid adverse effects on designated sites and protected species	Taking into account the findings of the Habitats Regulations Assessment at this stage of plan-making, cumulative mixed minor positive effects **(+)** are expected for this SA objective.
5- Maintain and enhance the range and viability of characteristic habitats and species and improve opportunities for people to access and appreciate wildlife and green spaces	Open Spaces for Recreation and Sport may lead to creation of green space with biodiversity value. Overall, cumulative minor positive effects **(+)** are expected for this SA objective
6 - Maintain and enhance the diversity and local distinctiveness of landscape and townscape character	The AAP seeks to create a distinctive, attractive city district, through the policies set out in Chapter 3 – Design and Built Character. In particular, Policy 6a: Distinctive Design for North East Cambridge is expected to ensure development is integrated into and contributes positively to the existing landscape and townscape. A number of other policies also require improvements to the quality of the public realm, providing spaces for movement, and interaction, which will help ensure a vibrant townscape. Overall, a cumulative significant positive effect **(++)** is expected for this SA objective.
7 - Minimise impacts on climate change (including greenhouse gas emissions)	Overall, cumulative significant positive and minor negative effects **(++/-)** are expected for this SA objective.
8 - Reduce vulnerability to future climate change effects	Overall, the AAP includes a number of measures to help development adapt to climate change, therefore cumulative

SA Objective	Cumulative assessment
	significant positive effects (++) are expected for this SA objective
9 - Maintain and enhance human health and wellbeing and reduce inequalities	Overall, cumulative significant positive effects **(++)** are expected for this SA objective.
10 - Improve the quantity and quality of publicly accessible open space	The 'centres' policies (10a to e) also include provision of open/civic space. Overall, cumulative significant positive effects **(++)** are expected for this SA objective
11 - Ensure everyone has access to decent, appropriate, and affordable housing	Policies 13b to 13f give further details on the variety of housing to be provided, which together are expected to provide a suitably diverse range of housing stock. As such, cumulative significant positive effects (++) are expected for this SA objective.
12 - Redress inequalities related to age, disability, gender, race, faith, location, and income	Overall, a cumulative minor positive effect **(+)** is expected for this SA objective.
13 - Improve the quality, range and accessibility of services and facilities (e.g. health, transport, education, training, leisure opportunities)	Overall, cumulative significant positive effects **(++)** are expected for this SA objective.
14 - Improve the efficiency, competitiveness, and adaptability of the local economy	Overall, cumulative significant positive effects **(++)** are expected in relation to this SA objective, as the AAP will help provide jobs for NEC and the wider area, as well as boosting the local economy.
15 - Support appropriate investment in people, places, communities, and other infrastructure	Overall, cumulative significant positive effects **(++)** are expected for this SA objective
16 - Reduce the need to travel and promote more sustainable travel choices	The AAP has a strong focus on reducing the need to travel and promoting sustainable modes of transport, including walking and cycling connectivity, particularly via Policy 16: Sustainable Connectivity, Policy 18: Cycle Parking, Policy 19: Safeguarding for Public Transport and Policy 21: Street Hierarchy. North East Cambridge Area Action Plan 33

Source: (LUC, North East Cambridge Area Sustainability Appraisal: Non-Technical, 2021a)

In combination effects

3.7.12 The appraisal includes a consideration of in-combination effects including a consideration of the relocation of the existing Cambridge WWTP. The assessment acknowledges the location of the proposed WWTP is relatively close to the AAP area and indicates that in-combination effects are likely to be limited, given the separation of the A14 and the existing built-up nature of North East Cambridge. The

following summarises the in-combination assessment presented in the AAP documentation.

Water quality

3.7.13 It is concluded that there is potential for negative in-combination effects with regards to water quality (SA objective 3), given:

- the proximity of both sites (NEECAPP and the proposed WWTP) to the River Cam, the potential for release of contaminants into waterbodies and ground water at North East Cambridge; and
- the increased demand on wastewater as a result of development at North East Cambridge, and other housing/employment provision within the adopted Local Plans, and potentially the Greater Cambridge Local Plan.

Landscape

3.7.14 Adverse in-combination effects are also considered likely with regards to SA objective 6 (landscape). This attributed to the density of development at North East Cambridge being increased and the proposed WWTP bringing a degree of urbanisation to the east of NEC, on the other side of the A14. The assessment considers that cumulatively, and along with development proposed in the emerging Greater Cambridge Local Plan, this could detract from the setting of the historic city of Cambridge and affect views into and out of the city.

Economy

3.7.15 The appraisal identified potential for positive in-combination effects on SA objective 14 (economy) as the relocation of the WWTP may create new jobs in itself (although additional long-term employment opportunities are likely to be limited) and significant new job creation at North East Cambridge.

Carbon / GHG emissions

3.7.16 The appraisal notes that there would be carbon emissions resulting from construction of the new WWTP and embodied carbon in the construction materials. It then refers to the Anglian Water commitment to achieving an operationally net zero plant. As such, increases in carbon emissions from the WWTP are likely to be negligible, resulting in no in-combination effects in this regard.

3.7.17 The appraisal defers the assessment of effects of the WWTP being 'considered in detail in the Environmental Impact Assessment (EIA) accompanying the DCO, which will include consideration of in-combination effects.'

Water Cycle Strategy 2021

3.7.18 This document aims to provide an evidence base to support the AAP proposals. This includes identifying the water services infrastructure requirements, including their phasing and costs, to support this development strategy.

3.7.19 The Water Cycle Strategy estimates an increase in the Greater Cambridge population (from 2020 to 2041) to be approximately 104,000. It states that 'the additional

capacity being constructed at Cambridge WRC is equivalent to approximately 86,300, or approximately 83% of the Greater Cambridge future requirement'. The document states that whilst the relocated WWTP would be meet most growth needs, it would not be possible from all growth locations where local treatment options are also viable.

3.7.20 The report notes that the approach to the assessment of environmental permit requirements of WRCs to meet water quality objectives at points downstream [of the effluent discharge location] and throughout the catchment is to undertake catchment water quality modelling. It states that this is normally a function undertaken by the Environment Agency in partnership with the water company.

3.7.21 The report states that it is assumed that a new facility (the proposed WWTP) will be constructed and commissioned before 2030 and that the [future development] proposals outlined in the North East Cambridge AAP are dependent on the relocation of the existing Cambridge WWTP.

3.8 Decommissioning and demolition Waterbeach WRC

3.8.1 There will be a need to demolish the existing Waterbeach WRC in the future which is within the development area for Waterbeach New Town East.

3.8.2 There is currently no specified timeframe for this activity which will depend on a number of factors such as the build rate of specific parts of Waterbeach New Town. This activity would be after the completion of the works to construct the Waterbeach pipeline and pumping station.

3.8.3 This activity is expected to be the responsibility of the developer of Waterbeach New Town East, and could be undertaken by Anglian Water on behalf of the developer.

3.8.4 The timeframe for this is likely to be approximately 4 to 8 months, but the approach or details on aspects relating to this activity, such as waste volumes are not known but are relatively small.

3.8.5 This relatively minor demolition exercise would be undertaken in accordance with applicable health and safety controls and a CoCP/CEMP applicable to the application. This would ensure construction and demolition activity is effectively controlled to minimise the duration and magnitude of any temporary effects.

3.9 Demolition of the existing Cambridge WWTP

3.9.1 There will be a need to demolish the existing Cambridge WWTP in the future which is within the emerging NEC AAP allocation and redevelopment of the existing Cambridge WWTP.

3.9.2 There is currently no indicative timeframe or phasing for this activity which will depend on a number of factors. This activity would be the responsibility of the developer and could begin once the decommissioning related to permit surrender has been completed. It is likely to be phased over an extended period as and when

land is needed and to achieve a cleared site as and when required. As a worst case it is expected that demolition would commence in 2028 and take one to two years to complete.

3.9.3 The precise timeframe for this, the approach or details on aspects relating to this activity, such as waste volumes are not known but it is anticipated that re-use, recycling and recovery of materials would be maximised.

3.9.4 Redevelopment of the existing Cambridge WWTP would be subject to separate consents and supported by an assessment of environmental impacts including the development of mitigation measures. These measures would cover demolition activities and be controlled via a CEMP/CTMP.

3.10 Summary

3.10.1 Figure 3.1 provides the likely worst case temporal overlap with the construction and operation of the Proposed Development with the short list developments and plans.

Figure 3.1: Likely worst case temporal overlap

4 Assessment of Cumulative Effects

4.1.1 Technical Chapters 6 to 20 of the ES present high-level conclusions of potential cumulative effects derived from their own short list of schemes, based on the long list of cumulative schemes. A summary is presented below.

Cumulative assessment vehicle movements Waterbeach

4.1.2 This section sets out the consideration of vehicle traffic movements occurring in Waterbeach as a result of a number of development proposals in this area, i.e.:

- Waterbeach New Town East;
- Waterbeach New Town West; and
- Waterbeach station relocation.

4.1.3 Specific attention is made to the approved development to relocate Waterbeach station owing to the partial overlap of the Proposed Development limits and the development boundary for the station (Figure 4.1).

4.1.4 The cumulative assessment considers scenarios where the potential construction projects in this location could all occur simultaneously. Due to delays in the construction programme to the Waterbeach station relocation and Waterbeach New Town development sites this is assumed to be a reasonable worst-case assumption.

4.1.5 Construction overlap for different developments would mean that some road links could be used by more than one development. Although each development would apply control measures, the overlapping developments could mean incremental traffic increases resulting in greater or different effects than if each project were completed in isolation.

4.1.6 The completion of the Waterbeach pipelines could be in year 1 or year 4 of the programme for the Proposed Development. Each of these is considered in the following assessment.

4.1.7 As part of the Waterbeach New Town West development there will eventually be a purpose built haul road connecting the land parcel to the A10.

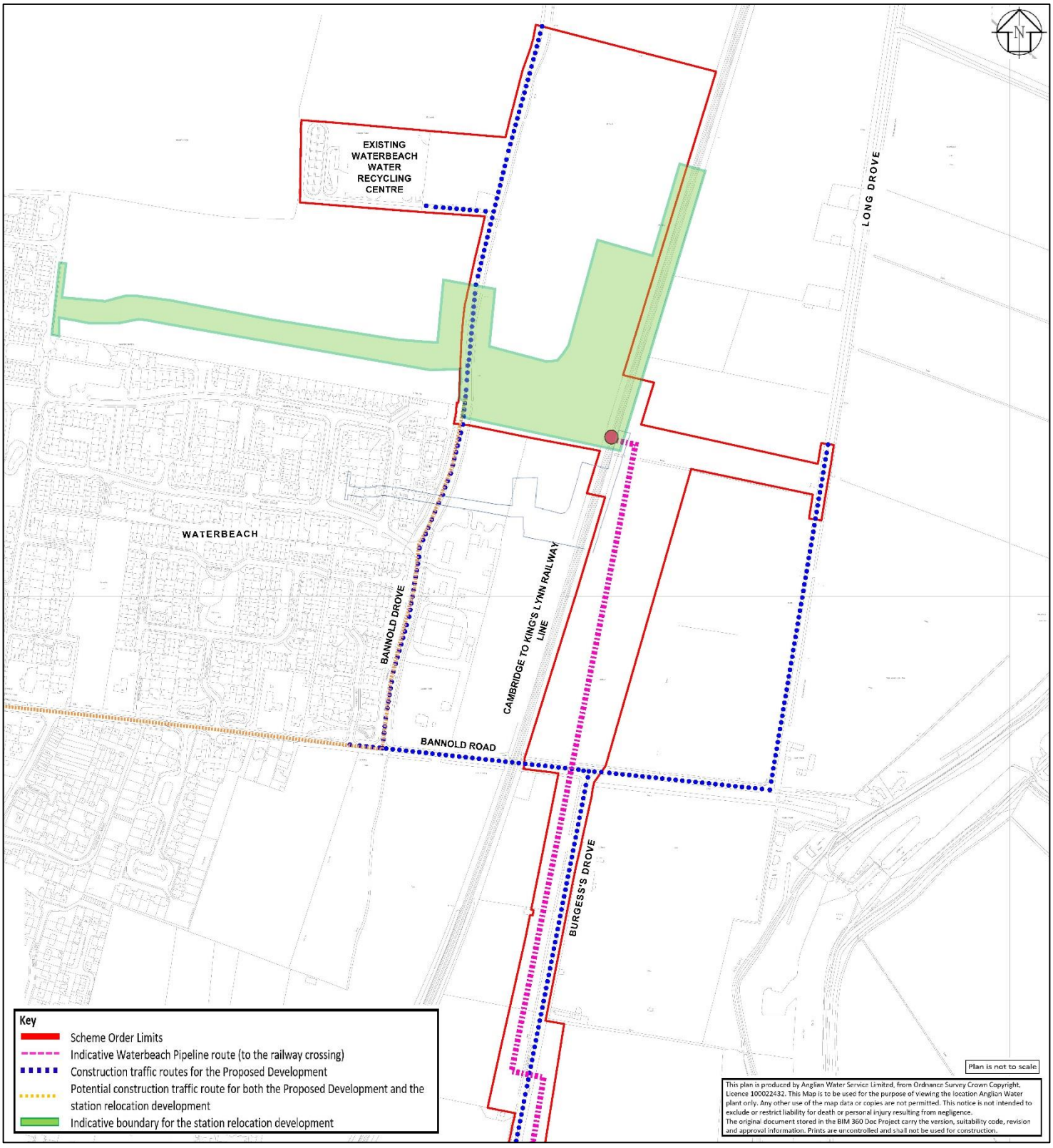

Figure 4.1: Overlap of Proposed Development and Waterbeach Station relocation development

Cumulative assessment scenarios vehicle movements

Waterbeach pipelines construction early start

4.1.8 The construction of the Waterbeach pipelines could be carried out early, in Year 1, in advance of the peak construction of the proposed WWTP but potentially coinciding with the construction of the relocated Waterbeach Station. This may also coincide with the initial housing construction phase for the Waterbeach New Town East development and ongoing works for the Waterbeach New Town West.

4.1.9 Construction traffic for the Waterbeach New Town West development is still assumed to use the access from Denny Road junction, close to the A10 junction.

Waterbeach station construction phase traffic and access

4.1.10 Vehicles will travel from the A10 along Denny End Road, Bannold Road and Bannold Drove to access the area of land required for the construction of the station.

4.1.11 The Transport Assessment (WSP, 2019) sets out that there is a preference to avoid Cody Road, which is also reiterated by the planning authority. The Condition 14 within the Decision Notice (GCSP, 2021)requires the developer to prepare a CEMP. Of this part parts a-d and l-s, are relevant to construction traffic management:

- No development shall commence, apart from site layout operations, until a site wide Construction Environmental Management Plan (CEMP) has been submitted to and approved in writing by the Local Planning Authority. The CEMP shall include the consideration of the following aspects of construction:

  a) Indicative site wide construction and phasing programme;

  b) Contractors' access arrangements for vehicles, plant and personnel including the location of construction traffic routes to and from the site, details of their signing, monitoring, location of contractors' compound / offices and method of moving materials, building material plant and equipment storage around the site and enforcements;

  c) Construction hours and days for work undertaken within the boundaries of the operational railway ii. Construction hours and days for work undertaken within the remainder of the site;

  d) Delivery times for construction purposes;

  l) Access and protection arrangements around the site for pedestrians, cyclists and other road users;

  m) Procedures for interference with public highways, including permanent and temporary; realignment, diversions and road closures;

  n) External safety and information signing and notices;

o) Liaison, consultation and publicity arrangements including dedicated points of contact;

p) Consideration of sensitive receptors;

q) Prior notice and agreement procedures for works outside agreed limits;

r) Complaints procedures, including complaints response procedures; and

s) Membership of the Considerate Contractors Scheme.

4.1.12 It is therefore assumed that the CEMP prepared for the Waterbeach station relocation will include confirmed access arrangements and predicted vehicle movements.

4.1.13 As there are no available data for predicted vehicle movements the construction volumes prepared for a different but similar station assessment has been considered. The two similar stations considered are Cambridge North and Thanet Parkway, Kent. The application details for these sites are contained in Table 2-6. This sets construction vehicle movements to 42 vehicle movements per day. The split between types of vehicles is assumed to be 12 HGVs and 30 cars/van/LGVs.

Waterbeach pipelines construction late start

4.1.14 The alternative for the construction of the Waterbeach Pipelines is that it could be carried out later. Assuming this takes place in year 4, based on the current programme information, the relocated Waterbeach Station would be in operation, and the first 200 houses of Waterbeach New Town East could have been delivered and be occupied (occupation of the property is contingent on the station being relocated).

4.1.15 Construction traffic for both Waterbeach New Town East and West development are assumed to use the purpose-built construction haul road at this point.

Summary of potential cumulative vehicle movements within Waterbeach

4.1.16 Table 4-1 shows the indicative traffic volumes obtained from the relevant planning application documents or assumed.

Table 4-1: Indicative traffic volumes for cumulative projects in Waterbeach

Scenario	Affected road links	Assumed year	Peak movements
Waterbeach early start coincides with Waterbeach station	Denny end Road – A10 junction Denny End Road – Bannold Road junction	Year 1 of construction	Waterbeach pipeline – 8 weeks start/finish - peak 110 daily vehicle movements

Scenario	Affected road links	Assumed year	Peak movements
construction and Waterbeach New Town East initial and West ongoing construction routes.	Bannold Drove		Waterbeach station construction peak assumed as 42 vehicle movements Waterbeach New Town East construction of initial 200 units average daily 234 vehicle movements Waterbeach New Town West construction access via Denny End Road average daily 590 vehicle movements
Waterbeach late start occurs once Waterbeach station is operational	Denny end Road – A10 junction Denny End Road – Bannold Road junction Cody Road	Year 3 of construction	Waterbeach pipeline – 8 weeks start/finish peak 110 daily vehicle movements Waterbeach station in operation year one usage hourly 73 vehicle movements Waterbeach New Town East and West developments use the proposed A10 haul road for construction traffic

Construction phase impact assessment

4.1.17 The information set out in Table 4-1 is indicative but presents a reasonable worst case should the Waterbeach station and New Town developments coincide with the Waterbeach pipeline construction phase.

Waterbeach early start

4.1.18 Should the construction periods overlap as set out in Table 4-1 then a short term major significant effect on driver delay at the junctions of Denny End Road with the A10 and Bannold Road would be expected during the 8 week start and end period of the Waterbeach pipeline construction. This would mean that traffic would be delayed when passing through these junctions, without management. Overall traffic flow increase is likely to have a minor effect on the road links themselves.

4.1.19 The CTMP (Application Document Reference 5.4.19.7) submitted as part of the Proposed Development has provision for traffic management measures in the form of prohibiting peak hour movements for construction vehicle. Furthermore, it includes the provision for traffic management at the Denny End Road / Bannold Road to manage peak traffic volumes.

4.1.20 Taking account of planning condition 14 for the planning permission for Waterbeach Station there would also be traffic control measures as part of the CEMP to be submitted for the Waterbeach station relocation.

4.1.21 The requirements for all projects to agree construction traffic control measures (either within a CTMP or CEMP) with the local authority would mean peak delivery periods could be managed between the individual developers and the highway authority in order to minimise the likelihood and impacts of coincident construction of the individual developments.

4.1.22 During a meeting between The Applicant and Waterbeach Development Company (on 9 November 2022) it was proposed that an interface plan be developed to manage coincidental development. This would provide a platform to develop a realistic scenario for the timing of construction vehicle movements and would be facilitated by the respective CEMP/CTMP interfaces and joint management of construction traffic to minimize and manage movements during the peak hour. This is common practice.

4.1.23 The potential significant effect could be reduced to a non significant effect through the CTMP / CEMP for each development which could include the following:

- Delivery time restrictions or staggering to avoid peaks
- Construction start / finish times for the Waterbeach pipelines construction mobilisation period to avoid peaks
- Use of traffic management on potentially affected road links (for example signal controls, temporary parking restrictions, use of radio control for one way traffic control)
- Sequencing of activities to allow earlier use of the station access road

- Sequencing activities to delay works to Bannold Drove

Waterbeach later start

4.1.24 Assuming the later start for Waterbeach pipeline, the overlap of the Waterbeach pipeline construction period and the operation of the relocated Waterbeach station and occupation of the first 200 homes within Waterbeach New Town West would be likely to have a moderate to major significant effect on driver delay at the Denny End Road / Bannold Road junction. This would mean that traffic would be delayed when passing through this junction, without management.

4.1.25 The use of the CTMP for the Proposed Development would be the primary mechanism for controlling construction vehicle movements for a late Waterbeach start scenario to ensure that there are no significant effects.

4.1.26 Further to the use of the CTMP the Applicant would maintain dialogue with the Waterbeach Development Company, the promoter of Waterbeach New Town and Greater Cambridge Shared Planning in order to refine detailed plans and scheduling to avoid and minimise impacts resulting from operational phase overlap.

Mitigation summary

4.1.27 Ongoing dialogue with the local highway authority and the developers of the Waterbeach Station and New Town is expected to provide greater clarity on timings and vehicle volumes as well as the sequencing of temporary and permanent accesses for each development. As this information becomes available the assessment of the cumulative impacts can be updated and the CTMP mitigation measures will be updated in line with the updated impact assessment findings.

Construction phase effects assessment

4.1.28 Table 4-2 presents the assessment of cumulative effects associated with the construction phase of the Proposed Development.

4.1.29 There would be no additional cumulative overlap of construction phase of the NEC AAP (policy dependent on the operation of the Proposed Development) and the demolition of existing Cambridge WWTP as these activities would be undertaken by the same developer. Similarly there would be no additional cumulative overlap of the demolition of existing Waterbeach WRC and development of Waterbeach New Town, as these activities would be undertaken by the same developer. Therefore, no potential cumulative effects are anticipated in association with construction of those developments. As such, they are excluded from consideration in Table 4-2.

Table **4-2***: Potential cumulative effects during construction*

Discipline	Cumulative scheme(s) within the ZoI	Potential impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
Agriculture and soils	Waterbeach Station Relocation Waterbeach New Town East	Loss of agricultural land	The Proposed Development will result in the permanent loss of 63ha Grade 2 and 50h Grade 3a land. None of the permanently lost land is located within the Waterbeach pipeline area. Most of the land within the Waterbeach New Town East and Waterbeach Station Relocation developments which is overlapping with the Proposed Development is arable farmland. As per the Provisional Agricultural Land Classification, agricultural land impacted by all three developments is identified as Grade 2 and Grade 3. Agricultural land is a national resource and, as such, the potential cumulative effect from the Proposed Development, Waterbeach New Town East and Waterbeach Station Relocation is not considered significant on a national scale.	No likely cumulative effects	None required
		Loss or damage to soil resources	Loss of or damage to soil resources from the construction of the Proposed Development and all other developments within the ZoI are resulting in temporary or permanent construction effects which are expected	No likely cumulative effects	None required

Discipline	Cumulative scheme(s) within the ZoI	Potential impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
			to be managed through Soil Management Plans. The purpose of SMPs is to ensure there are no residual effects to soil resources. As such, there are no likely cumulative effects on soil resources.		
Air quality	Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter CEAAP	Dust generation from construction activities	The dust assessment identified no residual effect from the Proposed Development during construction. All other developments are expected to include suitable mitigation measures to minimise dust emissions in accordance with local policy and would also not lead to significant dust emissions. Should construction of developments happen simultaneously, communication between the respective principal contractors is recommended to minimise dust emission and reduce the likelihood of cumulative effects.	No likely cumulative effects	None required
		Construction plant emissions	Emissions associated with the construction plant would quickly disperse and would be localised to the source resulting in a negligible residual effect and an unlikely cumulative effect.	No likely cumulative effects	None required
		Construction traffic	The increase in construction traffic for the Proposed Development with other committed developments may result in a temporary increase in emissions.	No likely significant cumulative effects	None required

Discipline	Cumulative scheme(s) within the ZoI	Potential impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
			However, this is unlikely to be of a magnitude that would result in significant adverse cumulative effects, especially when assessed in relation to the low background concentrations presented in Chapter 7: Air Quality.		
Biodiversity	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter CEAAP	Impacts on nationally and locally designated sites	The Proposed Development is likely to result in a slight adverse, not significant effect on Stow-cum-Quy Fen SSSI (statutory designated sites); moderate adverse, significant effect on the river bed of the River Cam CWS (non-statutory designated site); and neutral, not significant effect on Low Fen Drove Way Grassland, Hedges CWS and Milton Road Hedgerows CiWS (non-statutory designated sites). There are no likely impacts on the same designated sites from construction of the Waterbeach New Town, Waterbeach Station Relocation and Waterbeach New Town East. There is no readily available information about the impacts on nationally and locally designated sites from Cambridge North Residential Quarter and CEAAP.	No likely cumulative effects	None required
		Loss of / disturbanc	The Proposed Development is likely to result in a moderate beneficial, significant effect on terrestrial habitats,	No likely significant	None required with the exception of an interface plan

Discipline	Cumulative scheme(s) within the ZoI	Potential impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
		e to habitats	slight adverse, not significant effect on the ditch parallel to the River Cam and to the aquatic habitat of the River Cam and neutral, not significant effect on hedgerows. Due to the distance between the Proposed Development and the Waterbeach New Town, the CEAAP and the Cambridge North Residential Quarter, there is no spatial overlap of the impacted habitats and, as such, there is no potential for a cumulative effect. There will be some disturbance, losses and potential degradations of hedgerow and ditch habitats which overlap with those being affected by the Waterbeach pipeline route, as a result of the Waterbeach Station and Waterbeach New Town East developments. All developments are expected to include suitable mitigation measures to minimise impacts on habitats. For sites downstream of the existing Cambridge WWTP, the existing permit conditions derived through catchment model to set limits which serve to deliver no deterioration.	cumulative effects	between the Proposed Development and the Waterbeach Station relocation project to ensure that neither project results in new or exacerbated impacts to habitats and that mitigation measures (habitat creation) remain effective

Discipline	Cumulative scheme(s) within the ZoI	Potential impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
			In the case of Waterbeach Station Relocation and Waterbeach New Town East, the requirements to apply the CoCP including reinstatement of hedgerows and measures to prevent water quality impacts, would mean that there are no residual significant effects to the habitat mitigation proposals which interface with an element of the Waterbeach pipeline.		
		Impact on protected species	The Proposed Development has the potential to result in neutral, not significant effect on otters; slight adverse, not significant impact on water voles, bats, badgers, reptiles and breeding birds. Waterbeach New Town – negligible or minor impacts on reptiles, breeding birds, bats and badgers were noted within the available information. Waterbeach Station Relocation – potential impacts on bats (commuting and foraging) as a result of lighting; construction related impacts on badgers; habitat losses and disturbance impacts to water voles; habitat loss impacts on breeding birds; and habitat loss and potential killing/injury impacts upon reptiles.	Based on the information available on other developments, there are no likely significant effects on protected species.	None required with the exception of an interface plan between the Proposed Development and the Waterbeach Station relocation project to ensure that neither project results in new or exacerbated impacts and that mitigation measures (habitat creation) remain effective.

Discipline	Cumulative scheme(s) within the ZoI	Potential impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
			Waterbeach New Town East – impacts on breeding birds as a result of the loss of arable farmland. Cambridge North Residential Quarter – potential impacts on reptiles, bats and birds. CEAAP – no readily available information on potential impacts on protected species.		
Community	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter CEAAP	Employment	The Proposed Development is likely to result in a beneficial effect on employment due to the necessity of a construction workforce, which is not considered to be significant.	No likely significant cumulative effects across communities are expected	None required
		Land requirement	Most of the land within the Waterbeach New Town East and Waterbeach Station Relocation developments which is overlapping with the Proposed Development is arable farmland, which is not a community resource.	No likely cumulative effects	None required
		Amenity	Potential residual noise, air quality and visual effects are unlikely to produce any in-combination amenity impacts. This is based on no significant cumulative traffic, air, lighting or noise effects.	No likely cumulative effects due to mitigation measures undertaken	None required

Discipline	Cumulative scheme(s) within the ZoI	Potential impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
		Recreational resources and open spaces	There would be no significant changes in access to recreational spaces as a result of construction activities.	No likely cumulative effects	None required
Health	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter CEAAP	Access to health and social care services	There would be no significant changes in access to health and social care services as a result of construction activities.	No likely cumulative effects	None required
		Access to outdoor recreational space and to the River Cam	There would be no significant changes in access to recreational spaces as a result of construction activities.	No likely cumulative effects	None required
Historic environment	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter CEAAP	Impact on heritage assets	A review of information available on the developments in the area identified a slight effect on Denny Abbey from Waterbeach New Town and no impacts on heritage assets from the Waterbeach New Town East development and the Proposed redevelopment of Cambridge North Residential Quarter. There is no readily available information about heritage assets potentially affected by the Waterbeach Station Relocation and the CEAAP. The assessment undertaken for the construction of the Proposed	No likely cumulative effects	None required

Discipline	Cumulative scheme(s) within the ZoI	Potential impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
			Development did not identify effects on the above specified heritage assets thus indicating no potential for cumulative effects.		
		Archaeology	The investigation and recording of archaeological remains and publicly accessible dissemination of this knowledge will offset the physical loss of the archaeological remains within the footprint of the Proposed Development. However, the irreplaceable resource will still be lost. Therefore, the residual effect on archaeology from the Proposed Development is still a large adverse significant effect. However, the loss of the archaeological remains within the Proposed Development and more precisely within the proposed WWTP are not predicted to cause a significant negative direct nor indirect cumulative effect in conjunction with other developments within the ZoI on the overall archaeological landscape.	No likely cumulative effects	None required
Landscape and visual	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East	Visual impacts	Construction of the Proposed Development, Waterbeach Station Relocation and the Waterbeach New Town East has the potential to result in temporary cumulative effect on VP39 (residents in northern Waterbeach) due to introduction of construction into the	Potential temporary cumulative effects on VP38, VP39 and VP40 unlikely to	None required with the exception of an interface plan between the Proposed Development and the Waterbeach Station

Discipline	Cumulative scheme(s) within the ZoI	Potential impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
	Cambridge North Residential Quarter CEAAP		view. Additionally, there are potential temporary cumulative effects on VP38 (residents on Bannold Road) and VP40 (users of Byway Waterbeach 247/14) due to the increased extent of the construction in view of those receptors. Due to the distance and existing landscape screening between the Proposed Development and the Waterbeach New Town, Cambridge North Residential Quarter and the CEAAP, there are no likely cumulative effects identified on views.	change the Proposed Development assessment findings.	relocation project to ensure that temporary construction works activities including compounds in close proximity do not result in new or worse temporary impacts to visual amenity including controls on lighting and the positioning / heights of temporary structures.
		Impacts on Landscape Character Areas	Due to partly overlapping construction footprints of the Proposed Development, Waterbeach Station Relocation and Waterbeach New Town East, there is potential for a cumulative impact on the Western Fen Edge Claylands LCA. However, since a small proportion of the LCA would be affected by each development when considered separately and they would affect the same area of the LCA, this remains the case when their cumulative effects are considered. Therefore, the cumulative effect is expected to remain neutral.	Neutral cumulative effects	None

Discipline	Cumulative scheme(s) within the ZoI	Potential impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
	Waterbeach Station Relocation	Lighting	Construction of the Proposed Development, Waterbeach Station Relocation and the Waterbeach New Town East has the potential to result in temporary cumulative effect on lighting. Temporary construction works associated with each development may include compounds in close proximity and could result in new or worse temporary impacts to visual amenity		Requirement for interface plan between the Proposed Development and the Station relocation project to ensure temporary works areas do combine to result in lighting impacts to nearby residents
Land quality	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter CEAAP	Impacts to the MSAs (Chalk MSA and Sand and gravel MSA)	The Proposed Development is not likely to result in effects on the Sand and Gravel MSA during construction as the resources which are likely to be excavated will be reused. As such, there is no potential for cumulative effect on the Sand and Gravel MSA. Permanent above ground infrastructure associated with the proposed WWTP will sterilise 0.18% of the Chalk MSA, which is considered a negligible, not significant effect. CEAAP has the potential to sterilise the same Chalk MSA, however, when combined, the two developments will sterilise 0.8% of the Chalk MSA should the entire area of the CEAAP be developed. As such, the cumulative	No likely cumulative effects	None

Discipline	Cumulative scheme(s) within the ZoI	Potential impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
			effect remains negligible, which is not significant.		
		Contaminated land	The contaminated land assessment identified no residual effect from the Proposed Development during construction. All other developments are expected to include suitable mitigation measures to avoid/minimise pollution in accordance with the best practice and local policy and would also not lead to significant effects.	No likely cumulative effects	None
Material resources and waste	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter CEAAP	Impacts on sources of material resources and on landfills and other waste management infrastructure	There is the potential that most of the short-listed developments could have an adverse impact on the capacity of receiving waste management facilities within the two study areas. It is anticipated that the developments would all generate waste and require materials during construction phase and that such waste would require treatment and/or disposal at third party waste management facilities. There would also be a significant requirement for materials, particularly during the construction of each of the developments unrelated to the Proposed Development. The waste and materials anticipated to be generated or used by these short-listed developments or the timescales	No likely cumulative effects	None

Discipline	Cumulative scheme(s) within the ZoI	Potential impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
			over which waste would be generated and materials required are not known at this time. Thus, it has not been possible to assess the cumulative effects due to the lack of waste and materials arisings information. However, it is recognised that the cumulative effects are likely to be greater than the individual effects, although good practice would seek to reuse material on the development sites where possible to reduce waste arisings as far as practicable. Mitigation measures will be implemented as part of the construction of the Proposed Development. Other developments will also be subject to the National Planning Policy Framework and will require mitigation and control measures to be adopted during their construction through management plans to reduce impacts to the environment, including dust generation and potential mobilisation of contaminants.		
Noise and vibration	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East	Construction traffic	The increase in construction traffic for the Proposed Development with other committed developments may result in temporary increase in noise levels, however, would not be of a magnitude that would result in significant adverse cumulative effects.	No likely significant cumulative effects	None required

Discipline	Cumulative scheme(s) within the ZoI	Potential impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
	Cambridge North Residential Quarter CEAAP	Construction and decommissioning noise and vibration from plant and equipment	The greatest cumulative impacts would occur during the worst-case scenario assuming concurrent construction activities between the Proposed Development and relevant committed developments. Given the duration of works in most areas through Waterbeach, significant cumulative effects are however unlikely. In the case of Waterbeach Station Relocation, management of construction traffic would be needed through continued dialogue and coordination with the promoters of the station development. Considering this mitigation, no significant cumulative effects are likely as construction vehicle traffic movements will be managed through coordination of CEMP and CTMP. Other committed developments including the Cambridge North Residential Quarter and CEAAP area on the south side of the A14 are too distant from the Proposed Development to result in noise impacts that would result in a cumulative effect on receptors identified within Chapter 16: Noise and Vibration.	No likely significant cumulative effects	None required

Discipline	Cumulative scheme(s) within the ZoI	Potential impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
Traffic and transport	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter CEAAP	Construction traffic	The construction of Waterbeach New Town East has the potential to overlap with the construction of the Proposed Development and may cause cumulative effects along the A10, Denny End Road and Bannold Road which are not considered to be significant. The construction of Waterbeach Station Relocation has the potential to overlap with the construction of the Proposed Development and the Waterbeach New Town East. However, due to the lack of readily available construction traffic information, it is not possible to determine whether the cumulative effect of the simultaneous construction of the three developments would result in a significant cumulative effect. However, should construction of developments happen simultaneously, each developer would need to agree their Construction Transport Management Plan with the relevant highway and local planning authority. Suitable mitigation measures would need to be implemented to ensure that the potential cumulative effects arising from the construction are not significant.	No likely significant cumulative effects	Requirement for interface plan between the Proposed Development and the Station relocation project to develop aligned traffic control measures

Discipline	Cumulative scheme(s) within the ZoI	Potential impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
Water resources	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter CEAAP	Impacts on water quality	No significant residual effects have been identified in relation to surface water quality or groundwater quality from the Proposed Development during construction. All other developments are expected to include suitable mitigation measures to avoid/minimise pollution, surface water run-off and silt-laden discharge in accordance with the best practice and local policy and would also not lead to significant effects. Each development would be responsible for obtaining required consents and permits in relation to temporary discharges to water course / dewatering thus ensuring no residual effects on water quality.	No likely cumulative effects	None required
		Incremental increase in flood risk owing to temporary structures in the floodplain	Each development is obligated to complete FRA and to integrate surface water drainage design to meet greenfield run-off rates. This will avoid increasing surface water and fluvial flood risk elsewhere and, as such, any potential cumulative effects.	No likely cumulative effects	None required
	Waterbeach Station Relocation		The station relocation may overlap with works to construction the Waterbeach pipeline including affecting the delivery of surface water management features required for the relocated station.	No likely cumulative effects	Requirement for interface plan between the Proposed Development and the

Discipline	Cumulative scheme(s) within the ZoI	Potential impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
			As with the Proposed Development the Waterbeach station relocation will be required to manage the risk of flooding to and from its site when in construction. To ensure that flood control measures are mutually compatible there will be an interface plan and ongoing coordination between the Applicant for the Proposed Development and the promoters of the Waterbeach Station Redevelopment.		Station relocation project to ensure temporary works areas, including compounds, do not result in an overall increase in flood risk

Operation phase effects assessment

4.1.30 This assessment considers the overlap with developments to 2040. Phase 2 of the Proposed Development which would include relatively minor works to increase the proposed WWTP capacity from 275,000 to 300,000 Population Equivalent (PE) would be limited to construction activities within the boundary of the proposed WWTP. The traffic scenarios have accounted for peak movements in the future.

Table 4-3: Potential cumulative effects during operation

Discipline	Cumulative scheme(s) within the ZoI	Potential Impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
Agriculture and soils	Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter NECAAP Demolition of existing Cambridge WWTP Demolition of existing Waterbeach WRC	Loss of or damage to soil resources	There are no operational effects on soil resources as any impact on soil resources is considered as a permanent construction impact and, as such, considered as part of the construction phase.	No likely cumulative effects	None required
Biodiversity	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter CEAAP NECAAP Demolition of existing Cambridge WWTP Demolition of existing Waterbeach WRC	Impacts on nationally and locally designated sites / habitats / protected species	Due to the operational nature of the Waterbeach pipeline, there are no likely interactions of the Proposed Development with the Waterbeach New Town during operation. No significant effects as a result of the mitigation, compensation and enhancement measures within each proposal. In the case of Waterbeach Station Relocation, the requirements to apply the CoCP including reinstatement would mean that there are no residual significant effects to the habitat mitigation proposals which interface with an element of the Waterbeach pipeline.	Potential for beneficial cumulative effects	Requirement for interface plan between the Proposed Development and the Station relocation project to ensure that under the late start Waterbeach scenario there would be no disturbance to any areas used for species relocation by the station

Discipline	Cumulative scheme(s) within the ZoI	Potential Impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
			Potential cumulative benefits to biodiversity over time in particular if NECAPP AAP policies in relation to net gain and recreational are effectively implemented.		
Community	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter CEAAP NECAAP Demolition of existing Cambridge WWTP Demolition of existing Waterbeach WRC	Employment	Slight beneficial effects may occur, but there would be no significant changes to employment during operation or demolition.	Potential for beneficial cumulative effects	None required
		Land requirement	N/A	N/A	N/A
		Amenity	No in-combination amenity effects are expected during operation.	No likely cumulative effects	None required
		Recreational resources and open spaces	Slight beneficial improvements are likely, but there would be no significant changes in access to recreational spaces during operation or demolition.	No likely cumulative effects as a result of landscape mitigation measures in place (including monitoring users of the Landscape Masterplan area and instigating feedback mechanism to adaptively	No further mitigation required

Discipline	Cumulative scheme(s) within the ZoI	Potential Impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
				manage the LERMP area)	
Health	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter CEAAP NECAAP Demolition of existing Cambridge WWTP Demolition of existing Waterbeach WRC	Access to health and social care services	There would be no significant changes in access to health and social care services as a result of construction activities during operation or demolition.	No likely cumulative effects	None required
		Access to outdoor recreational space and to the River Cam	Slight beneficial improvements are likely, but there would be no significant changes in access to outdoor recreational space and to the River Cam during operation or demolition.	No likely cumulative effects	None required
Historic environment	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East	Impact on heritage assets	A review of readily available information did not identify residual effects from other developments to the same receptors identified as impacted by the Proposed Development.	No likely cumulative effects	None required

Discipline	Cumulative scheme(s) within the ZoI	Potential Impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
	Cambridge North Residential Quarter CEAAP NECAAP Demolition of existing Cambridge WWTP Demolition of existing Waterbeach WRC				
Landscape and visual	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter CEAAP NECAAP Demolition of existing Cambridge WWTP Demolition of existing Waterbeach WRC	Visual impacts	**Waterbeach New Town, Waterbeach Station Relocation, Waterbeach New Town East and demolition of the existing Waterbeach WRC** The Waterbeach pipeline will be underground, and the land disturbed in construction will be restored to its former condition, with at most, very localised minor adverse effects close to the route of the pipeline in year 1 of operation due to removal of vegetation. The visual effects of the four committed developments in Waterbeach and the Waterbeach pipeline will not overlap. **Cambridge North Residential Quarter, NEAAP and demolition of existing Cambridge WWTP** There will be no overlapping effects of the Proposed Development and the Cambridge North Residential Quarter, NEAAP area or the demolition of the Cambridge WWTP because of the distance between the Proposed Development and the committed developments/AAP/Cambridge WWTP sites and the intervening screening provided by existing built	No likely cumulative effects	None

Discipline	Cumulative scheme(s) within the ZoI	Potential Impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
			development and vegetation lining the River Cam corridor and the railway line. **CEAAP** There will be no overlapping effects of the Proposed Development and the CEAAP because of the intervening screening between the two sites provided by vegetation bordering the dismantled railway line and along High Ditch Road.		
		Impacts on Landscape Character Areas	**Waterbeach New Town, Waterbeach Station Relocation, Waterbeach New Town East and demolition of the existing Waterbeach WRC** The Waterbeach pipeline, being underground, will have at most, very localised minor adverse effects close to the route of the pipeline in year 1 of operation due to removal of vegetation. The landscape effects of the four proposed developments in Waterbeach and the Waterbeach pipeline will not overlap. **Cambridge North Residential Quarter, NEAAP and demolition of existing Cambridge WWTP** There will be no overlapping landscape effects of the Proposed Development and the Cambridge North Residential Quarter, NEAAP area or the demolition of the Cambridge WWTP because of the distance between the Proposed Development and the committed developments/AAP/Cambridge WWTP sites and the intervening screening provided by existing built development and vegetation lining the River Cam corridor and the railway line.	No likely cumulative effects	None

Discipline	Cumulative scheme(s) within the ZoI	Potential Impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
			CEAAP There will be no overlapping landscape effects of the Proposed Development and the CEAAP because of the intervening screening between the two sites provided by vegetation bordering the dismantled railway line and along High Ditch Road.		
Land quality	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter CEAAP NEAAP Demolition of existing Cambridge WWTP Demolition of existing Waterbeach WRC	Impacts to the MSAs (Chalk MSA and Sand and gravel MSA)	The impact of permanent infrastructure on MSA and potential cumulative effects with other developments are considered as a permanent construction effect and included in the table above.	N/A	N/A
		Contaminated land	The contaminated land assessment identified no residual effect from the Proposed Development during operation. All other developments are expected to include suitable mitigation measures to avoid/minimise pollution in accordance with the best practice and local policy and would also not lead to significant effects.	No likely cumulative effects	None
Noise and vibration	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter CEAAP	Operation noise and vibration from plant and equipment	There is no spatial overlap within 300m of the operational WWTP and committed developments, with the exception of CEAAP. Taking into account the distance to noise sensitive receptors, presence of the A14 as the dominant source of noise and the low level of noise related with operation of the proposed WWTP there are no cumulative effects for noise associated with the Proposed Development.	No likely cumulative effects	None

Discipline	Cumulative scheme(s) within the ZoI	Potential Impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
	NECAAP Demolition of existing Cambridge WWTP Demolition of existing Waterbeach WRC		Operational vibration from the Proposed Development is scoped out from assessment. Therefore, there are no resulting residual effects from operational vibration.		
Water resources	Waterbeach New Town Waterbeach Station Relocation Waterbeach New Town East Cambridge North Residential Quarter CEAAP NEAAP Demolition of existing Cambridge WWTP Demolition of existing Waterbeach WRC	Impacts on water quality	The proposed WWTP includes consideration for population growth and as such inherently mitigates impacts to surface water quality resulting from increased discharges associated with future residential development in the area. The operation of the Proposed Development is therefore considered as a requirement to avoid cumulative effects of the developments in the area. All developments in the wider catchment area would be responsible for obtaining required consents and permits in relation to temporary and permanent discharges to surface water or groundwater thus ensuring no residual effects on water quality.	No likely cumulative effects	None required
		Incremental increase in flood risk owing to permanent structures in the floodplain	The proposed WWTP is located outside of the fluvial floodplain and does not impact flood plain storage. Each development is obligated to complete an FRA and to integrate surface water drainage design to reduce surface water runoff to greenfield rates. Future development should therefore have a negligible impact on surface water and fluvial flood risk elsewhere and, as such, any potential cumulative effects.	No likely cumulative effects	None required

Discipline	Cumulative scheme(s) within the ZoI	Potential Impact	Assessment of cumulative effects	Likely significant cumulative effect	Mitigation and monitoring
	Waterbeach New Town East	Bannold Drain water levels	The ceasing of treated effluent to Bannold Drain will occur once the Waterbeach WRC flows are transferred to the Waterbeach pipeline. There are no additional changes to Bannold Drain required as part of the Proposed Development.	No likely cumulative effects	None required as subject to detailed design and management measures as part of Waterbeach New Town East

4.2 Inter-related effects

4.2.1 Receptors such as ecological receptors, water resources and the landscape area are assessed in terms of the predicted change or impact on the resource or receptor, considering all impacts from a variety of sources e.g. changes to habitats, changes to water quality or volumes, or change in view. These effects are considered cumulatively in the relevant chapters of the ES and do not need to be repeated here.

4.2.2 Inter-related effects may also occur for individual receptors where different environmental pathways, such as visual, noise, traffic and emissions result in effects at the same time. These effects are likely to occur where activity is taking place in close proximity to the receptor. Examples include Red House Close and Poplar Hall which are in close proximity to the Shaft 4 construction compound. For a limited period of time there will be a visual impact, minor noise disturbance, minor traffic activity and the potential for dust. The inter-related effects at these locations are not considered to be more significant than the individually assessed effects and are all controlled through the CoCP/CEMP/CTMP. Other examples include users of public rights of way or permissive footpaths in close proximity to the proposed WWTP. These users may experience occasional odour and the change in the local landscape as well as being able to see the facility. These are, however, temporary effects which again are not considered to be more significant when experienced together than the individually assessed effects.

4.2.3 For receptors that are located further away, no inter-related effects are expected.

5 Conclusion and Summary

5.1 Inter-related effects

5.1.1 The assessment of inter-related effects has considered the potential for the effects of minor significance and above, identified within each of the technical assessments reported within Chapters 6 to 20 of the ES), to interact and combine inter-related effects during either construction or operation of the Proposed Development. This assessment concludes that there would be no significant inter-related effects during either construction or operation of the Proposed Development.

5.2 Cumulative effects

5.2.1 The assessment of cumulative effects has considered other developments within 2km of the order limits (identifying 20 developments for consideration at Stage 1 in the longlist, and ten for inclusion in the shortlist of developments and assessment at Stages 3 and 4); the potential for cumulative effects to occur, from one or several of these developments in combination with the Proposed Development has been assessed. Through consideration of the available information for each of the identified developments, no significant cumulative effects have been identified, other than the beneficial multiplier socio-economic effects associated with the relocation of the existing Cambridge WWTP, which facilitates the development of North East Cambridge.

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