Northstowe Phase 1
EIA Scoping Report

Gallagher
July 2011

Terence O'Rourke Ltd
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1 Introduction

Background and purpose of the scoping report

1.1 In 2007, Gallagher and English Partnerships (now the Homes and Communities Agency, HCA) submitted an outline planning application for the new town of Northstowe, located approximately 10 km to the north west of Cambridge. Three detailed infrastructure applications were also submitted. An environmental impact assessment (EIA) of the proposals was undertaken and an environmental statement (ES) was submitted with the applications.

1.2 The consultation and determination process for the 2007 applications is ongoing. The 2007 application was consistent with the Highways Agency A14 Ellington to Fen Ditton scheme, which has now been withdrawn following the recent government spending review and the A14 will be the subject of a new Department for Transport study. With proposals for the A14 in abeyance, Gallagher intends to submit a new outline planning application to South Cambridgeshire District Council (SCDC) for an initial phase of Northstowe (figure 1), to comprise approximately 1,500 dwellings, school, local retail and community facilities, employment land, formal and informal open space and associated infrastructure.

1.3 The proposal for the initial phase of Northstowe is considered to be an EIA development as defined by the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (as amended), hereafter the EIA Regulations, and as such the new planning application will need to be accompanied by an ES prepared in accordance with the EIA Regulations. Gallagher therefore submits this report as a request to SCDC for an EIA scoping opinion.

1.4 This report presents information to assist SCDC in the process of scoping the EIA and outlines Gallagher's view as to the significant effects that the EIA would need to examine and the preliminary scope of the information to be provided in the ES.

Report structure

1.5 This report is broadly structured as follows:

- A brief description of the nature and purpose of the proposed development
- The preliminary scoping process
- The results of the scoping exercise
- Conclusion with the information to be provided in the ES and its proposed structure

2 The site

2.1 The site is divided into three blocks: the primary development site that will accommodate the proposed dwellings, employment land, facilities and open space and two potential areas of excavation for fill and infrastructure work (figure 1). The 96 ha primary development site lies at the northern end of the wider Northstowe site and comprises the 18-hole Cambridge Golf Course and driving range in the south and centre and agricultural fields in the north and south east. There are several engineered ponds within the golf course, which largely consists of amenity grassland, and a number of fen drains that drain surface water from the course. There is an area of marshy grassland in the south west of the site. There are trees across the site associated with the landscaping of the golf course and several hedgerows that run along the fen drains. There are three public rights of way in the west of the site.

2.2 The 90 ha southern potential area of excavation and infrastructure work lies adjacent to the B1050, to the south west of Longstanton and the north of New Close Farm (figure 1). It is in arable agricultural use. Longstanton Brook runs through the west of the area. The 25 ha northern potential area of excavation and infrastructure work lies within the former Oakington airfield, adjacent to the route of the Cambridgeshire Guided Busway (CGB, due to open in August 2011). It includes part of the former runway and is used for grazing cattle. A small watercourse runs through the north of the area.

The surrounding area

2.3 The primary development site is bordered to the north and east by the Longstanton Park and Ride and the route of the CGB, beyond which are fields, and to the south by the remainder of the wider Northstowe site, including an area of fields to the north of Rampton Road, and the former Oakington Immigration Centre, barracks and airfield. The village of Longstanton forms the western site boundary.

2.4 The southern potential area of excavation and infrastructure work is bordered to the west by the B1050 and to the east, south and north by agricultural fields, while the northern area is bordered to the east by the route of the CGB and to the north, south and west by the wider Oakington airfield.

2.5 Agricultural land to the north of the primary development site (approximately 58 ha) is identified in the Northstowe Area Action Plan as strategic reserve land to form part of Northstowe. The settlement of Willingham lies to the north east, Rampton lies to the east and Oakington to the south.

2.6 The A14 runs approximately 3 km to the south west of the site and the B1050 Hatton's Road / Longstanton western bypass runs north from the A14 to a new roundabout adjacent to the site.

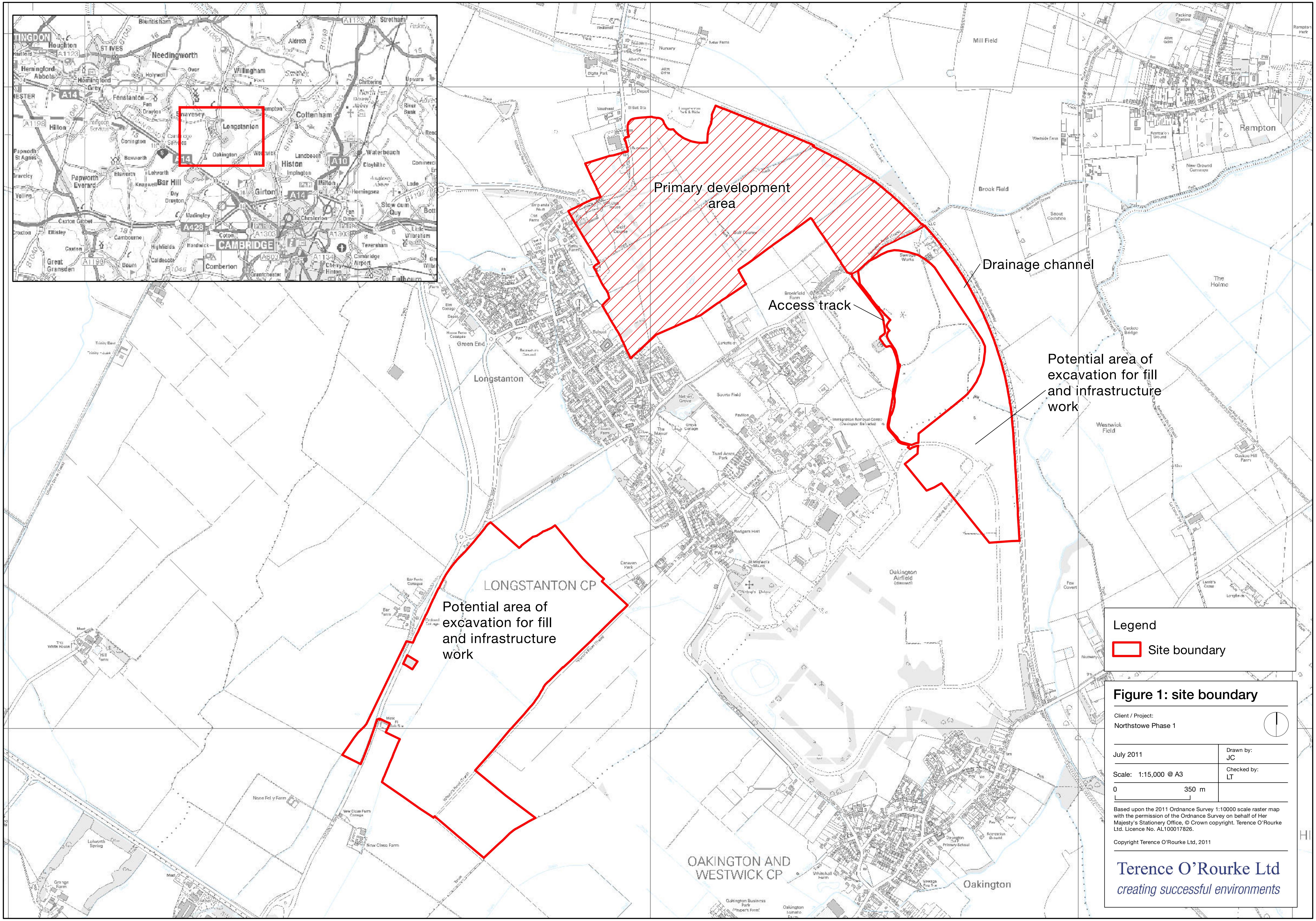

Figure 1: site boundary

Client / Project:
Northstowe Phase 1

July 2011

Drawn by: JC

Scale: 1:15,000 @ A3

Checked by: LT

0 350 m

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3 The proposed development

3.1 The proposals are likely to include the following:

- Approximately 1,500 dwellings at an average density of 40 dwellings per hectare, approximately 35% of which will be affordable housing
- At least one small mixed use local centre, including shops, dwellings and community facilities
- School
- Approximately 3.5 ha of employment land
- A household recycling centre and foul water pumping station
- Approximately 35 ha of formal and informal public open space, including a sports hub

3.2 The proposed infrastructure works include the following:

- Improvements to the existing B1050
- Internal road network
- Reservation of land for the first length of an internal busway link to the Cambridgeshire Guided Busway
- Balancing ponds
- Earthworks and cut and fill to enable land raising and re-profiling of the site for drainage purposes
- Energy infrastructure

3.3 The potential for cumulative effects with the wider Northstowe scheme will need to be considered in the EIA (see section 17 for further details).

4 Scoping an environmental impact assessment

The purpose of scoping

4.1 There is no standard format for an ES, but it must contain the information specified in Part II of Schedule 4 of the EIA Regulations, and such of the relevant information in Part I as is reasonably required to assess the effects of the proposed development and that the developer can, having regard to current knowledge and methods of assessment, reasonably be required to compile. Parts I and II of Schedule 4 are set out in appendix A of this report.

4.2 The purpose of an ES is to report the findings of the EIA of the significant effects of an EIA development on its receiving environment. This is encapsulated in the advice given in paragraph 82 of DETR Circular 02/99:

> "Whilst every ES should provide a full factual description of the development, the emphasis of Schedule 4 is on the 'main' or 'significant' environmental effects to which a development is likely to give rise. In many cases, only a few of the effects will be significant and will need to be discussed in the ES in any great depth. Other impacts may be of little or no significance for the particular development in

> question and will need only very brief treatment to indicate that their possible relevance has been considered. While each ES must comply with the requirements of the Regulations, it is important that they should be prepared on a realistic basis and without unnecessary elaboration".

4.3 This approach is reinforced by case law from UK and European courts. The Milne judgement (R v Rochdale MBC ex parte Milne) states that "the environmental statement does not have to describe every environmental effect, however minor, but only the main effects or likely significant effects". There is no formal definition of main or significant effects in the EIA Regulations, although guidance provided by the European Commission[1] advises that:

> "Those responsible for scoping often find difficulties in defining what is 'significant'. A useful simple check is to ask whether the effect is one that ought to be considered and to have an influence on the development consent decision".

4.4 Significant effects are considered to be a subset of an EIA development's main effects. A key element of the scoping process is to examine the main effects to determine those that are likely to be significant and thus should be included within the scope of the EIA.

The focus of scoping

4.5 A planning authority's scoping opinion represents its opinion as to the information that needs to be presented in the ES that will accompany the planning application for an EIA development. This information can be grouped under the following areas:

1. The identification of environmental features likely to be affected by the development and a consideration of which of these effects will be significant effects.
2. A description of the EIA methodologies that will be used to determine the degree of significance to be attached to the significant effects.
3. A description of the possible mitigation measures or enhancement that might be relevant.

4.6 If the required information is defined too narrowly, some critical area of uncertainty or a significance adverse effect may emerge late in the process, with consequences for the design of the proposals and timetables for development. If the required information is too loosely defined, much time, expense and effort may be wasted on pursuing unnecessary detail. Item 1 is therefore considered to be the primary focus of this scoping report.

4.7 When considering item 1, the scale and nature of the proposed development and the site specific and local environmental baseline conditions should be taken into account. The aim is to 'scope in' only those issues considered to be

[1] Guidance on EIA: Scoping, June 2001, Office for official publications of the European Communities.

likely significant effects. Where a particular environmental feature or component has not been included within the proposed EIA scope, this is not to suggest that there will be no associated effects, rather that these are not considered to be among the significant effects. In line with the guidance in Circular 02/99, these effects will be given "brief treatment [in the ES] to indicate that their possible relevance has been considered", but that no detailed assessment work was carried out on them.

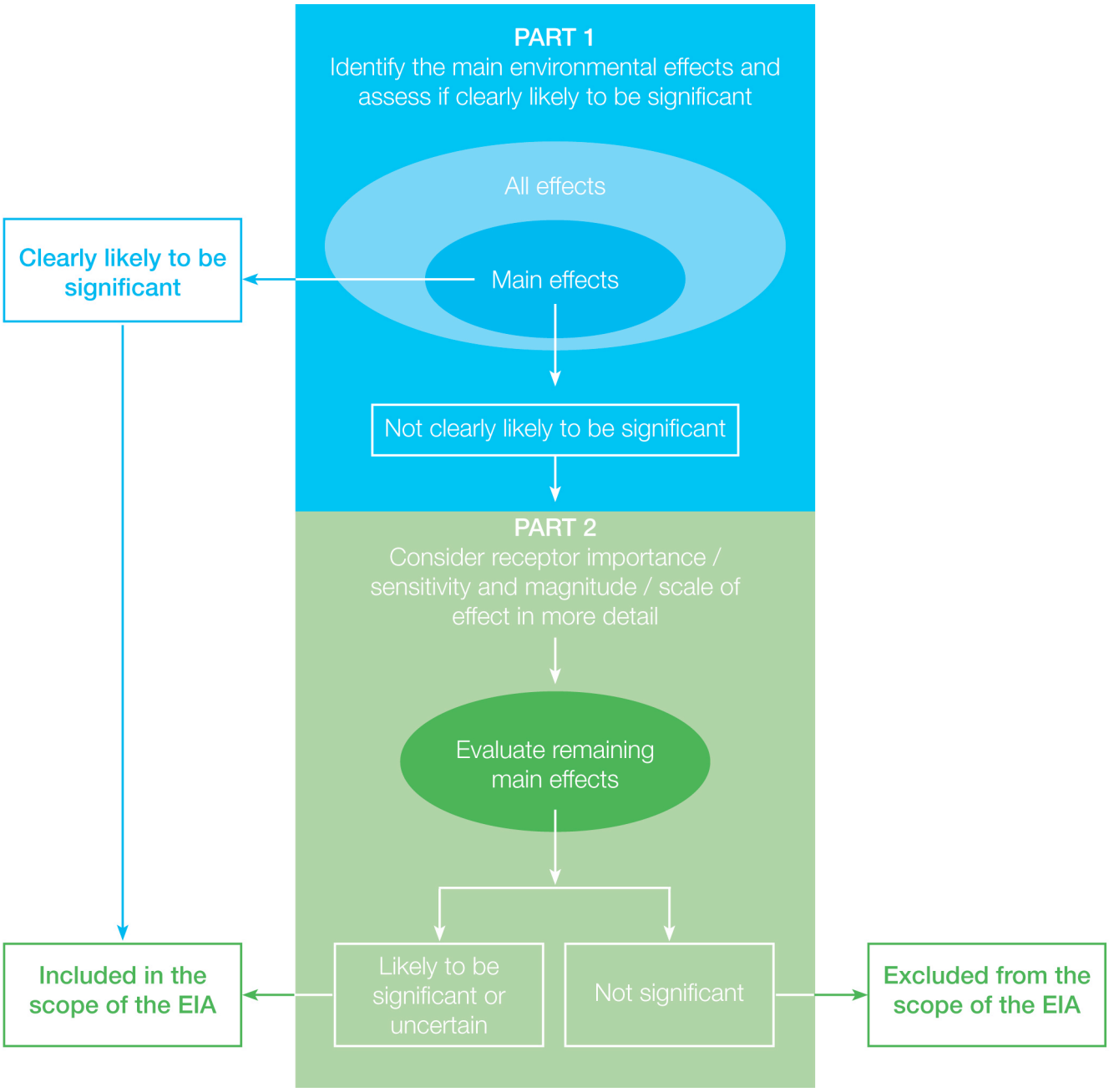
4.8 A comprehensive and focused scoping process, culminating in a constructive scoping opinion that identifies the likely significant effects and any EIA methodologies that SCDC wishes to see employed, will enable the production of an ES that provides a concise and objective analysis that deals with all the significant areas of impact and highlights the key issues relevant to the decision making process.

5 Identification of main and significant effects

Scoping methodology

5.1 The development proposals were examined to identify the likely significant environmental effects, which were then further refined using the methodology described below and illustrated in figure 2, to arrive at a preliminary scope for consideration by SCDC. This scoping examination was in two parts and was based on the currently available baseline data, the findings of the 2007 EIA for the wider Northstowe scheme and the judgement of experienced EIA practitioners.

Figure 2: The EIA scoping process



Part 1

5.2 Part 1 identified the likely main effects, and of those the ones that are clearly likely to be significant, in accordance with the features of the environment referred to in the EIA Regulations and in the *Preparation of environmental statements for planning projects that require environmental assessment – a good practice guide* (Department of the Environment, 1995). The checklist set out in appendix B was used to inform this process. In particular, Part 1 identified:

- Those environmental features, or components of them, that will be subjected to main effects arising from the EIA development that are clearly likely to be significant
- Those environmental features, or components of them, that are either of no relevance to the EIA development, or will clearly not be subjected to the development's main effects

Part 2

5.3 Part 2 then examined the remaining 'main effects' in more detail to assess, where possible, if any are likely to be significant. To do this, the relative importance of the potential receptors was compared to the envisaged magnitude of the changes to which they would be subjected, using the matrix shown in appendix C.

5.4 Where a main effect falls within the yellow shaded area of the matrix in appendix C, it is considered likely to be significant and should be included within the scope of the EIA. Main effects falling within the green areas on the matrix are considered to have no likelihood of being significant and should not be included within the scope of the EIA. Where a main effect falls within the blue area on the matrix, the uncertainty is such that it cannot be confirmed at the scoping stage whether it is likely to be a significant effect or not. Such effects warrant further consideration through the EIA process and so these effects will be included in the scope of the EIA.

5.5 The effects on relevant environmental features, grouped under broad generic headings, are set out in the following chapters of this report.

6 Air quality

Introduction

6.1 The proposed development has the potential to give rise to changes in the air quality at sensitive receptors in the vicinity of the site through fugitive dust emissions associated with earthworks and construction work, and the increase in traffic on the local roads. The key potential climatic issue relating to the proposed development is the generation of carbon dioxide associated with the additional heating / power requirements of the new dwellings.

6.2 The key pollutants affecting human health are nitrogen dioxide (NO_2) and particulate matter of less than 10 microns (PM_{10}). The concentrations of these pollutants at sensitive receptors in the vicinity of the site and along the local road network should be examined and compared with air quality objectives.

Currently known baseline

6.3 An air quality management area (AQMA) for NO_2 and PM_{10} has been designated along the A14 between Bar Hill and Milton, as air quality objectives are currently being exceeded for both pollutants.

Key issues

6.4 Following the methodology identified in section 5 of this report, the scoping process has identified the following likely significant effects of this project, which are included within the preliminary EIA scope:

- Emissions of NO_2 and PM_{10} from construction and post-construction traffic
- Potential for emissions of NO_2 and PM_{10} from biomass boilers if these are required as part of the energy strategy for the site
- Generation of dust and particulate matter during construction

6.5 The analysis is summarised in the table at the end of this section.

6.6 The energy strategy for the site has not yet been determined, so the potential for emissions of NO_2 and PM_{10} from biomass boilers has been included within the scope of the EIA on a precautionary basis.

6.7 The potential for odour effects from the proposed foul water pumping station and household recycling centre was examined, but this is not considered likely to be significant as these uses are proposed in the north of the site, away from sensitive receptors both within and outside the proposed development. In addition, both facilities will be enclosed and will feature appropriate abatement technology, and standard procedures relating to the handling and storage of waste will be put in place at the household recycling centre to minimise odour.

6.8 The potential effects on carbon dioxide emissions as a result of increased heating / power demand will be examined in the separate energy statement, rather than in the EIA.

Assessment methodology

6.9 The air quality baseline will be examined using historic empirical data and current monitoring data from SCDC's diffusion tube and continuous analyser network. As the concentrations of NO_2 recorded in the 2007 monitoring undertaken by WSP in the vicinity of the site were all well below the air quality objective concentrations, no additional monitoring is proposed. The council's environmental health officer will be contacted regarding the provision of background data and additional reports and to agree the proposed assessment methodologies.

6.10 The construction dust assessment will examine the impact of dust generation on sensitive receptors by considering likely dust-generating activities and prevailing wind directions. The geographical extent of the assessment will comprise a radius of 200 m around the site, as dust generally settles out within this distance.

6.11 The traffic-related air quality assessment will appraise the impact of construction and post-construction traffic movements. Detailed dispersion modelling using ADMS-Roads will be undertaken. The focus of the modelling will be NO_2 and PM_{10} and the potential for effects on specific sensitive receptors and the AQMA. The likely geographical extent of the assessment will comprise the local road network in the vicinity of the site, including the nearest section of the A14.

6.12 If biomass boilers are to be included as part of the energy strategy for the development, a point-source dispersion modelling exercise (using a programme such as ADMS4) will be undertaken to predict emissions of NO_2 and PM_{10} and to determine the potential for effects on sensitive receptors in the vicinity of the site.

6.13 The assessment is likely to be undertaken using the best practice methodology published by Environmental Protection UK in *Development Control: Planning for Air Quality (2010 Update)* (April 2010).

Likely mitigation measures

6.14 Based on this initial consideration of the air quality and climate features that could possibly be affected by this EIA development proposal, it is considered that the following mitigation measures may be appropriate. The precise measures to prevent, reduce and offset any significant adverse effects will be determined through the EIA process.

- Implementation of a construction environmental management plan, to include a range of best practice measures to minimise dust generation
- Travel planning measures to minimise private car travel

Air quality effects summary

Part 1		Part 2		
Main effect	**Clearly significant?(1)**	**Receptor importance / sensitivity(2)**	**Magnitude or scale of effect(3)**	**Likely significant?**
Road vehicle emissions during construction	✗	Neighbouring population and AQMA High	Small Short term	✓
Road vehicle emissions post-construction	✗	Neighbouring population and AQMA High	Small to medium Long term	✓
Dust generation during construction	✓			
Emissions from biomass boilers post-construction	✗	Neighbouring population High	Uncertain Long term	✓
Odour from foul water pumping station and household recycling centre	✗	Neighbouring population High	Negligible Long term	✗
Carbon dioxide emissions post-construction	✗	Global climate High	Negligible Long term	✗

Notes

1. Effects that are classified as clearly significant in part 1 of the process do not need to be considered further in part 2

2. Categories = high, medium, low, negligible (takes into account geographical level of importance)

3. Categories = large, medium, small, negligible (takes into account whether effect is short or long term)

7 Community, economic and social effects

Introduction

7.1 The proposed mixed use development is likely to cause a range of community, economic and social effects. These include increased population and potential demographic effects, increased provision of market and affordable housing, increased demand for and provision of local services and community facilities and the potential generation of employment.

Currently known baseline

7.2 The site lies within Longstanton ward, which had a population of 1,700 at the time of the 2001 Census, while the population of South Cambridgeshire as a whole was 130,100. There is a continuing strong demand for housing in South Cambridgeshire and there is an ongoing shortage of affordable housing. Unemployment in Longstanton ward and South Cambridgeshire is below the national average. Community facilities in Longstanton include a primary school, GP surgery, dental surgery, sports and social centre, recreation ground with two football pitches, bowls green, two tennis courts and a cricket square, and a post office and village store.

Key issues

7.3 Following the methodology identified in section 5 of this report, the scoping process has identified the following likely significant effects of this project, which are included within the preliminary EIA scope:

- Increase in population and potential effects on local demography
- Provision of new market and affordable housing
- Generation of employment during and post-construction
- Increased pressure on local services and facilities, provision of new facilities and loss of existing golf course
- Potential for effects on demand for local businesses as a result of increased population and provision of local shops

7.4 The analysis is summarised in the table at the end of this section.

7.5 The potential for a reduction in local amenity during construction works was considered, but the effects that could cause this reduction are examined in other topics, including air quality, noise and traffic, so it was not considered appropriate to duplicate coverage in this section.

Assessment methodology

7.6 The existing baseline conditions will be established in detail through a desk-study. The significance of effects will be determined by combining the sensitivity of identified receptors with the predicted magnitude of change, using a matrix. Potential effects will be considered at the ward and district level as appropriate.

Likely mitigation measures

7.7 Based on this initial consideration of the community, economic and social features that could possibly be affected by this EIA development proposal, it is considered that the following mitigation measure may be appropriate. The precise measures to prevent, reduce and offset any significant adverse effects will be determined through the EIA process.

- Financial contributions to minimise increased pressure on local services and facilities, secured by a section 106 legal agreement with the council

Community, economic and social effects summary

Part 1		**Part 2**		
Main effect	**Clearly significant?(1)**	**Receptor importance / sensitivity(2)**	**Magnitude or scale of effect(3)**	**Likely significant?**
Increased population	✓			
Changes to local demography	✗	Local population High	Small to medium Long term	✓
Increased housing provision	✓			
Generation of employment	✗	Local population High	Small to medium Short and long term	✓
Increased pressure on local services and provision of new facilities	✓			
Effects on demand for local businesses	✗	Local businesses High	Small Long term	✓

Notes

1. Effects that are classified as clearly significant in part 1 of the process do not need to be considered further in part 2

2. Categories = high, medium, low, negligible (takes into account geographical level of importance)

3. Categories = large, medium, small, negligible (takes into account whether effect is short or long term)

8 Cultural heritage

Introduction

8.1 New development can affect cultural heritage assets, including buried archaeology, the historic landscape and built heritage features. A development can directly impact on features of interest, such as through the loss of buried archaeology, and can also have indirect effects, such as altering the setting of listed structures and monuments. A development necessitating archaeological investigations can be beneficial to improve understanding of an area's history or provide a better understanding of the archaeological record.

Currently known baseline

8.2 A programme of archaeological works, including a desk-based study, geophysical survey and trial trenching was undertaken by Cambridge Archaeological Unit and Oxford Archaeotechnics from 2004 to 2006. These revealed several areas of important archaeological remains on the primary development site, including Iron Age enclosures, an Iron Age settlement and a Romano-British settlement. Trenching was not undertaken on the golf course because of access restrictions.

8.3 Areas of important archaeological remains were also found in the two potential areas of excavation for fill and infrastructure work, including two identified Iron Age settlement enclosures in the southern area and an extensive Romano-British settlement site in the northern area. Selective evaluation in the northern area of RAF Oakington has shown that archaeological features extend beyond the geophysical survey area and have, more significantly, survived runway-related disturbance / truncation. Proposed access tracks between this area and the primary development area will utilise an extant track on the eastern perimeter of the former airfield.

8.4 There are no scheduled monuments within 2 km of the site and no registered historic parks and gardens within 5 km.

8.5 The St Michael's and All Saints conservation areas lie to the south west of the site in Longstanton and contain several listed buildings, including the grade I listed Church of All Saints and the grade II* listed St Michael's Church. The closest listed structure to the site is the grade II listed village water pump on Longstanton High Street.

Key issues

8.6 Following the methodology identified in section 5 of this report, the scoping process has identified the following likely significant effects of this project, which are included within the preliminary EIA scope:

- Impact on buried archaeological remains on site during construction

- Impact on the setting of nationally listed buildings in the vicinity of the site during and post-construction
- Impact on the setting of the Longstanton conservation area during and post-construction
- Impact upon the archaeology and historic land use of RAF Oakington
- Impact on the historic landscape in the potential areas of excavation for fill and infrastructure work

8.7 The analysis is summarised in the table at the end of this section.

8.8 It is not considered that there would be significant effects on the historic landscape of the primary development site because it has been largely erased by the creation of the golf course and driving range.

Assessment methodology

8.9 An assessment of archaeological assets, designated sites and listed buildings will be undertaken in accordance with Planning Policy Statement 5: Planning for the Historic Environment and *The Setting of Heritage Assets: English Heritage Guidance*. The previous desk-based study will be reviewed to ensure the baseline is comprehensive and the Historic Environment Record search is up to date, and the findings of the earlier site investigations will form the basis for the assessment. The scope of works will be discussed with the county archaeologist.

8.10 The assessment will be supported by an analysis of viewpoints to and from key locations, including selected listed buildings and Longstanton conservation area. The assessment will cross-reference with the landscape and visual assessment as appropriate.

8.11 The significance of effects will be determined by combining the importance of identified receptors with the predicted magnitude of change, using a matrix.

Likely mitigation measures

8.12 Based on this initial consideration of the cultural heritage assets that could possibly be affected by this EIA development proposal, it is considered that the following mitigation measures may be appropriate. The precise measures to prevent, reduce and offset any significant adverse effects will be determined through the EIA process.

- Development of a detailed archaeological mitigation strategy, including sampling, an archaeological watching brief during construction and determination of appropriate methods of preservation (in situ or by recording) for the various areas of archaeological remains identified
- Implementation of a construction environmental management plan, to include a range of best practice measures to minimise noise and dust and control construction traffic movements to reduce setting effects
- Sensitive design of the proposals in the areas adjacent to Longstanton

Cultural heritage effects summary

Part 1		Part 2		
Main effect	**Clearly significant?(1)**	**Receptor importance / sensitivity(2)**	**Magnitude or scale of effect(3)**	**Likely significant?**
Impact on archaeological remains on site	✓			
Impact on setting of listed buildings in the vicinity during and post-construction	✓			
Impact on setting of Longstanton conservation area during and post-construction	✓			
Impact on archaeology and historic land use of RAF Oakington	✗	Archaeology and historic land use of RAF Oakington Medium	Medium Long term	✓
Impact on the historic landscape of the site	✗	Historic landscape of site Medium	Medium Long term	✓

Notes

1. Effects that are classified as clearly significant in part 1 of the process do not need to be considered further in part 2

2. Categories = high, medium, low, negligible (takes into account geographical level of importance)

3. Categories = large, medium, small, negligible (takes into account whether effect is short or long term)

9 Geology, hydrogeology and contamination

Introduction

9.1 The existing ground conditions of a site can be of concern due to the potential for mobilisation of contaminants during construction, or exposure of sensitive receptors such as construction workers, groundwater and future residents to such material. The potential for the proposed development to alter the ground conditions of the site post-construction is limited. The potential for effects on surface water and groundwater chemical quality will also be examined.

Currently known baseline

9.2 The primary development site is currently in use as a golf course, driving range and agricultural fields. There are potentially contaminative former land uses close to the site, including the former railway line to the east and a farm and the former Oakington Barracks and airfield to the south. A desk based assessment and intrusive investigations were undertaken by WSP between 2005 and 2007, which found elevated concentrations of arsenic, petroleum hydrocarbons and polycyclic aromatic hydrocarbons in isolated hotspots in the golf course car park and the agricultural field in the south east of the site.

9.3 The northern potential area of excavation for fill and infrastructure works lies within the former Oakington airfield. There is a range of possible contaminants associated with this area, including the potential for buried munitions and ordnance. The southern area is currently in agricultural use and is unlikely to be significantly contaminated.

Key issues

9.4 Following the methodology identified in section 5 of this report, the scoping process has identified the following likely significant effects of this project, which are included within the preliminary EIA scope:

- Potential for health effects due to contact with contaminants during construction (including asbestos-containing materials in existing buildings)
- Mobilisation of contaminants into the water environment during and post-construction
- Potential for health effects due to contact with contaminants post-construction arising from the use of gardens, landscaped areas and public open space
- Potential for the presence of ground gas or landfill gas to pose a risk to future site users and new structures (explosive and asphyxiant)
- Potential presence of buried munitions and / or ordnance or munitions on the surface posing a risk to human health and new structures
- Effects on surface water and groundwater quality from pollution due to spills during construction and from contaminated run-off post-construction

9.5 The analysis is summarised in the table at the end of this section.

9.6 The potential for stability effects as a result of the proposed earthworks on site was examined, but it was considered that the earthworks would be engineered to ensure that this would not be a significant issue.

9.7 Effects on agricultural land quality and soil resources are examined in the land use section below.

Assessment methodology

9.8 The 2007 desk-based assessment will be reviewed and updated to determine the site's geology and existing and past land uses. An updated Landmark Envirocheck report will be obtained to inform this process. The results of the 2007 intrusive investigations will be analysed in relation to current guidance and best practice (e.g. current soil guideline values, PPS23 and CLR11) and reported quantitatively. The potential for activities associated with the construction or operation of the development to result in the migration of any historic contaminants will then be assessed.

9.9 The potential for contamination effects will be examined as part of the EIA using a source-pathway-receptor conceptual model. This will identify if there is the potential for any link between a source of contamination and a sensitive receptor(s), resulting in a significant adverse environmental effect. Statutory regulators will be consulted on all contamination matters.

Likely mitigation measures

9.10 Based on this initial consideration of the potential receptors that could possibly be affected by this EIA development proposal, it is considered that the following mitigation measures may be appropriate. The precise measures to prevent, reduce and offset any significant adverse effects will be determined through the EIA process.

- Preparation and implementation of a construction environmental management plan, including health and safety procedures
- Development of a remediation strategy for areas of contaminated land and / or groundwater
- Preparation of an earthworks strategy

9.11 Mitigation measures relating to buried ordnance and munitions will be determined by a specialist subcontractor and stated as part of the earthworks strategy to be produced for the site.

Geology, hydrogeology and contamination effects summary

Part 1		Part 2		
Main effect	**Clearly significant?(1)**	**Receptor importance / sensitivity(2)**	**Magnitude or scale of effect(3)**	**Likely significant?**
Health effects due to contact with contaminants during construction	✗	Construction workers High	Small Short term	✓
Mobilisation of contaminants	✗	Water environment High	Small Short term and long term	✓
Effects on surface water and groundwater quality due to spills and contaminated road run-off	✓			
Health effects due to contact with contaminants post-construction	✗	New residents and visitors to the site High	Small Long term	✓
Risk to humans and new structures from buried munitions / ordnance	✓			
Stability issues associated with earthworks	✗	New buildings High	Negligible Long term	✗

Notes

1. Effects that are classified as clearly significant in part 1 of the process do not need to be considered further in part 2

2. Categories = high, medium, low, negligible (takes into account geographical level of importance)

3. Categories = large, medium, small, negligible (takes into account whether effect is short or long term)

10 Landscape and visual effects

Introduction

10.1 Effects on the landscape can arise from a development giving rise to direct changes to the physical elements of the receiving landscape, which may affect its features, character and quality; or from indirect effects on the character and quality of the surrounding landscape. Visual effects can result if the development changes the character and quality of people's views. Landscape and visual effects are linked but have different attributes, so are considered as two elements.

Currently known baseline

10.2 The site lies within the Bedfordshire and Cambridgeshire Claylands character area, the key characteristic of which is a gently undulating landscape of open arable fields, sparse woodland cover and river corridors emphasised by willow and stands of poplar.

10.3 The primary development site is low lying at approximately 5 m AOD and is governed by the remodelled terrain of the golf course and driving range. It is an immature, but establishing, golf course parkland landscape with a variety of tree species. The southern potential area of excavation for fill and infrastructure works is an agricultural landscape and the northern area forms part of the former Oakington airfield. Protected landscapes and townscapes in the vicinity of the site include the Longstanton conservation area to the south west.

10.4 The site is visible from the Guided Busway route to the east, surrounding villages including Longstanton to the west and Rampton to the east, and public rights of way in the vicinity.

Key issues

10.5 Following the methodology identified in section 5 of this report, the scoping process has identified the following likely significant effects of this project, which are included within the preliminary EIA scope:

- Changes to the landform / topography of the site as a result of earthworks associated with the proposed drainage scheme
- Changes to local landscape character
- Changes to land cover on site
- Changes to landscape quality of the site
- Changes to sensitive views into the site, including from designated areas such as Longstanton conservation area, and including changes to night time views as a result of increased lighting

10.6 The analysis is summarised in the table at the end of this section.

Assessment methodology

10.7 The Countryside Agency's *Landscape Character Assessment Guidance for England and Scotland* (2002) and the *Guidelines for Landscape and Visual Impact Assessment* produced by the Landscape Institute and the Institute of Environmental Management and Assessment (2002) will be used to guide the assessment of the site and surrounding area.

10.8 The landscape assessment will include determination of the landscape character of the site and study area, the quality of the landscape, the existing land cover on site and the site's existing topography. This will be undertaken through a desk study to update the earlier studies undertaken by WSP in 2006 and site visits to determine changes in the baseline. A detailed study of the visual setting of the site and the potential visual receptors that may be affected by the development proposals will be undertaken. This will include mapping of the zone of visual influence of the proposals, which will inform the extent of the study area (potentially up to 10 km).

10.9 Representative viewpoints used in the 2007 assessment will be reviewed and discussed with SCDC. Photographs will be taken at each viewpoint and used to create a panorama of the view. Photomontages may be produced for some of the viewpoints if required (superimposing geometrically accurate wire lines of the proposal over the photographic image), which would be agreed in advance with the council. The precise locations, (Ordnance Survey grid reference), date, time of day and weather conditions will be described for each viewpoint taken.

10.10 The night time visual assessment will be informed by a lighting study, which will include a night time survey of baseline lighting levels and consideration of new sources of light associated with the proposed development, such as roads, buildings and sports pitches. Given that this issue will be addressed in the landscape and visual effects assessment, it is not considered appropriate to include a separate lighting assessment within the ES.

10.11 An updated tree survey will be undertaken on site in accordance with the requirements of BS5837 to assess the conditions of trees on site and identify root protection zones. The findings of this will be summarised in the ES and the report will be submitted separately in support of the application.

10.12 The significance of the effects on landscape and visual receptors will be determined by combining the sensitivity of identified receptors with the predicted magnitude of change, using matrices. The assessment will cross-reference with the cultural heritage assessment where appropriate.

Likely mitigation measures

10.13 Based on this initial consideration of the landscape and visual features that could possibly be affected by this EIA development proposal, it is considered that the following mitigation measures may be appropriate. The precise

measures to prevent, reduce and offset any significant adverse effects will be determined through the EIA process.

- Retention of key landscape features where possible and new tree planting
- High quality and sensitive design of the proposed master plan

Landscape and visual effects summary

Part 1		**Part 2**		
Main effect	**Clearly significant?(1)**	**Receptor importance / sensitivity(2)**	**Magnitude or scale of effect(3)**	**Likely significant?**
Changes to site topography / landform	✓			
Changes to local landscape character	✓			
Changes to land cover on site	✓			
Changes to landscape quality on site	✓			
Changes to sensitive views into the site	✓			

Notes

1. Effects that are classified as clearly significant in part 1 of the process do not need to be considered further in part 2

2. Categories = high, medium, low, negligible (takes into account geographical level of importance)

3. Categories = large, medium, small, negligible (takes into account whether effect is short or long term)

11 Land use and agriculture

Introduction

11.1 Proposed developments can have an effect on the local area through the introduction of a new land use, which can complement, co-exist or conflict with the existing land uses, and through the loss of existing uses on the site.

Currently known baseline

11.2 The principal existing land use on the primary development site is the golf course and driving range. In addition, there are small areas of agricultural land in the north and south east of this site, totalling approximately 19 ha. Parts of the agricultural land were surveyed in 2004 and found to be of grade 2 (very good) and grade 3a (good) quality in the north and grade 3a and 3b (moderate) quality in the south. The remaining land in the north was not surveyed due to access restrictions, but is likely to be of similar quality. There are three public rights of way in the west of the primary development site.

11.3 The potential areas of excavation for fill and infrastructure works are currently in agricultural use. These areas of land were surveyed in 2004. The 90 ha southern area was found to be of grade 3a quality in the north and grade 3b quality in the south, while the 25 ha northern area was found to be largely of grade 3a quality. There are no public rights of way in these areas.

Key issues

11.4 Following the methodology identified in section 5 of this report, the scoping process has identified the following likely significant effects of this project, which are included within the preliminary EIA scope:

- Loss of best and most versatile agricultural land
- Loss of / damage to soil resources during earthworks
- Loss and / or fragmentation of agricultural holdings and effects on the viability of agricultural businesses

11.5 The effects associated with the loss of the golf course and the introduction of new residential, commercial, education and public open space land uses on site will be examined in the community, economic and social effects assessment. The effects associated with the introduction of a new waste use (a household recycling centre) will be considered in the operational waste management and minimisation strategy. The effects associated with changes to the existing public rights of way on site and provision of new public rights of way will be examined in the traffic and transport assessment. It is therefore not considered appropriate to duplicate coverage in this section.

11.6 The analysis is summarised in the table below.

Assessment methodology

11.7 The agricultural land classification and soil surveys undertaken for the 2007 ES will be reviewed to determine the quality of the agricultural land and soils on site. The need for additional surveys of areas not covered by the 2007 works will be considered. Due to the scale and nature of the proposals, it is not likely that land uses off site will be significantly affected by the proposed development. As a result, the assessment will focus on the site. The significance of effects will be determined by combining the importance of the agricultural land and soil resources with the predicted magnitude of change, using a matrix.

Likely mitigation measures

11.8 Based on this initial consideration of the land use and agriculture features that could possibly be affected by this EIA development proposal, it is considered that the following mitigation measure may be appropriate. The precise measures to prevent, reduce and offset any significant adverse effects will be determined through the EIA process.

- Preparation of a soil management plan

Land use and agriculture effects summary

Part 1		**Part 2**		
Main effect	**Clearly significant?(1)**	**Receptor importance / sensitivity(2)**	**Magnitude or scale of effect(3)**	**Likely significant?**
Loss of existing agricultural land on site	✓			
Damage to soil resources during earthworks	✓			
Loss / fragmentation of agricultural holdings and effects on viability of businesses	✗	Existing holdings / businesses High	Small to medium Long term	✓
Introduction of new land uses on site	✗	Land uses on site Low	Medium Long term	✗

Notes

1. Effects that are classified as clearly significant in part 1 of the process do not need to be considered further in part 2

2. Categories = high, medium, low, negligible (takes into account geographical level of importance)

3. Categories = large, medium, small, negligible (takes into account whether effect is short or long term)

12 Natural heritage

Introduction

12.1 Potential natural heritage effects that could arise from a development such as that proposed at Northstowe include habitat loss, disturbance of animals during and post-construction, loss of breeding and foraging habitat and increased recreational use of designated areas.

Currently known baseline

12.2 A number of surveys have been undertaken on site, including a phase 1 habitat and hedgerow survey, and surveys for birds, reptiles, fish, aquatic macro-invertebrates, terrestrial invertebrates, bats, amphibians and badgers. There is a range of habitats on site, including amenity grassland, arable set-aside, improved and semi-improved grassland, hedgerows, ponds and ditches.

12.3 The surveys identified populations of grass snake and common lizard on the primary development site and several of the ponds were found to be of high conservation value for aquatic macroinvertebrates. Common pipistrelles were recorded foraging on site. Badgers also use the site for foraging.

12.4 Evidence of water voles was recorded in Longstanton Brook within the southern potential area of excavation and infrastructure works. Badgers use both potential areas of excavation and infrastructure works for foraging. A population of common lizard was recorded on the edge of the northern area.

12.5 The great crested newt survey undertaken in 2011 recorded no evidence of breeding great crested newts in any of the 34 ponds surveyed. The breeding bird surveys recorded a total of 40 bird species within the primary development site, one of which is a UK BAP species and three of which feature on the Species of Conservation Concern (SoCC) red list. Twenty-four species were recorded within the southern excavation and infrastructure area, six of which are UK BAP species and four of which feature on the SoCC red list. Surveys of the northern area are to be completed.

12.6 There are no internationally or nationally designated nature conservation sites within 2 km of the site. The nearest locally designated site is the Over Railway Cutting County Wildlife Site (CWS), approximately 1.4 km to the north west, which consists of the south-facing slope of a disused railway.

Key issues

12.7 Following the methodology identified in section 5 of this report, the scoping process has identified the following likely significant effects of this project, which are included within the preliminary EIA scope:

- Loss of existing habitats and creation of new habitats on site
- Changes in the composition of on site vegetation communities

- Effects on the use of the site by animals due to habitat loss and fragmentation
- Disturbance of protected species, both during and after construction

12.8 The analysis is summarised in the table at the end of this section.

12.9 The distance from the site to Over Railway CWS, and the nature of the CWS, were considered to make significant effects due to increased recreational use of this area unlikely.

Assessment methodology

12.10 The findings of the desk study and survey work undertaken to support the 2007 ES have been reviewed. Following a meeting with the SCDC ecologist in April 2011, it was agreed that the following surveys require updating:

- Phase 1 habitat survey (update of survey results submitted in 2007)
- Aquatic invertebrates (update of survey results of the seven ponds that scored over 2 in the assessment that was carried out by Norfolk Wildlife Services in 2007)
- Butterflies (a fixed transect will be walked on a total of three occasions during July and August. The transect route will be walked at a slow steady pace between 10.45 and 3.45 in suitable weather conditions)
- Great crested newts (already completed for the primary development site and southern excavation and infrastructure area)
- Breeding birds (already completed for the primary development site and southern excavation and infrastructure area)
- Barn owl (buildings and boxes will be assessed for signs of occupation)
- Otter and water vole (survey of all ditches on the primary development site and ten ponds. Ponds 3, 4, 5, 9, 10, 16, 17, 18, 19 and 21 will be surveyed either because they support a vegetation structure favoured by these species or because of their proximity to ditches within the site. Ditches / watercourses within the potential areas of excavation and infrastructure works will also be surveyed)
- Badgers (a survey of activity will be undertaken alongside the phase 1 survey)
- Bats (phase 1 bat surveys / building inspections will be undertaken on all buildings on site. The bat activity surveys will be undertaken in accordance with the Bat Conservation Trust's guidelines. According to these, eight surveyors will be required because the site falls within the size category of 75-200 ha)
- Reptiles (a standard seven visit survey will be undertaken using artificial refugia located in areas of suitable habitat)

12.11 The scope of the surveys and methodologies have been, or will be, agreed with the SCDC ecologist.

12.12 The assessment will be undertaken in accordance with the Institute of Ecology and Environmental Management's *Guidelines for Ecological Impact Assessment in the United Kingdom* (2006). In order to facilitate consistency of

assessment methodology throughout the ES, the method may be adapted to include consideration of the significance of effects by combining the importance of the identified receptors with the predicted magnitude of change, using a matrix.

Likely mitigation measures

12.13 Based on this initial consideration of the natural heritage features that could possibly be affected by this EIA development proposal, it is considered that the following mitigation measures may be appropriate. The precise measures to prevent, reduce and offset significant adverse effects will be determined through the EIA process:

- Retention of sensitive habitats on site where possible and creation of a suitable area and variety of new habitats for mitigation and enhancement
- Implementation of a construction environmental management plan, to include a range of best practice measures to minimise disturbance to protected species, such as buffer zones, seasonal restrictions etc as appropriate

Natural heritage effects summary

Part 1		Part 2		
Main effect	**Clearly significant?(1)**	**Receptor importance / sensitivity(2)**	**Magnitude or scale of effect(3)**	**Likely significant?**
Loss of existing habitats and creation of new habitats on site	✓			
Changes in the composition of on site vegetation communities	✓			
Effects on the use of the site by animals due to habitat loss and fragmentation	✓			
Disturbance of protected species during and post-construction	✓			
Increased recreational use of Over Railway CWS	✗	Over Railway CWS Medium	Negligible Long term	✗

Notes

1. Effects that are classified as clearly significant in part 1 of the process do not need to be considered further in part 2

2. Categories = high, medium, low, negligible (takes into account geographical level of importance)

3. Categories = large, medium, small, negligible (takes into account whether effect is short or long term)

13 Noise and vibration

Introduction

13.1 The proposed development has the potential to generate noise and vibration during site preparation, earthworks and construction. Additional road traffic has the potential to increase noise levels post-construction, as do fixed plant associated with the employment area and the operation of the proposed household recycling centre.

Currently known baseline

13.2 Noise measurements carried out by WSP in 2003 and 2006 found that a variety of sources contribute to noise levels at the site. These include road traffic on local roads and the A14, agricultural activities and occasional aircraft.

Key issues

13.3 Following the methodology identified in section 5 of this report, the scoping process has identified the following likely significant effects of this project, which are included within the preliminary EIA scope:

- Increase in noise from site preparation, earthworks and construction activities
- Increase in noise from construction traffic associated with haul movements from the southern potential area of excavation to the primary development site along the B1050
- Increase in noise from post-construction traffic

13.4 The analysis is summarised in the table at the end of this section.

13.5 Consideration was given to the potential for significant noise effects from plant in the proposed employment area and operation of the proposed household recycling centre and foul water pumping station. However, these will be located in the north of the site, away from sensitive receptors, so significant effects are not considered likely.

13.6 The potential for significant effects from vibration during construction as a result of piling was considered. Where possible, continuous flight auger piling will be used, which does not give rise to significant levels of vibration. If ground conditions dictate that vibratory or impact piling is required, then vibration may be perceptible at receptors adjacent to the site. However, the distance from piling works to these receptors will mean that any vibration would be well below the level that could cause damage to buildings, and significant effects are therefore not likely.

Assessment methodology

13.7 Validation testing of the 2003 baseline noise survey will be undertaken to confirm its suitability for use in the new assessment. The proposed assessment methodology will be agreed with the council's environmental health officer.

13.8 The potential for increases in noise during construction will be assessed in accordance with the methodology set out in BS5228, and best practice recommendations will be given. It is envisaged that post-construction traffic noise increases will be assessed using the former Department of Transport / Welsh Office technical memorandum *Calculation of Road Traffic Noise* (CRTN) and traffic data obtained from the transport assessment.

13.9 The potential for existing noise sources, the Guided Busway and new proposed noise sources to affect the proposed dwellings will be considered in the design of the proposals. These issues are principally related to design and the suitability of the proposals in terms of land use planning and are therefore not considered to be EIA issues (EIA deals with the effects of the proposal on the environment, and not the effects of the environment on the proposal). These issues will therefore be examined in the planning supporting statement and the design and access statement as appropriate.

Likely mitigation measures

13.10 Based on this initial consideration of the noise and vibration features that could possibly be affected by this EIA development proposal, it is considered that the following mitigation measures may be appropriate. The precise measures to prevent, reduce and offset any significant adverse effects will be determined through the EIA process.

- Implementation of a construction environmental management plan, to include a range of best practice measures to minimise the generation of noise
- Travel planning measures to minimise private car travel

Noise and vibration effects summary

Part 1		Part 2		
Main effect	**Clearly significant?(1)**	**Receptor importance / sensitivity(2)**	**Magnitude or scale of effect(3)**	**Likely significant?**
Increase in noise from site preparation and construction activities	✓			
Increase in noise from construction traffic haul movements along B1050 from southern excavation area	✗	Neighbouring population High	Small to medium Short term	✓
Increase in noise from post-construction traffic	✗	Neighbouring population High	Small to medium Long term	✓
Increase in noise from plant and the operation of the recycling centre and pumping station	✗	Neighbouring population High	Negligible Long term	✗
Increase in vibration from construction activities	✗	Neighbouring population High	Negligible to small Short term	✗

Notes

1. Effects that are classified as clearly significant in part 1 of the process do not need to be considered further in part 2

2. Categories = high, medium, low, negligible (takes into account geographical level of importance)

3. Categories = large, medium, small, negligible (takes into account whether effect is short or long term)

14 Traffic and transport

Introduction

14.1 The proposed development will lead to increased traffic on the local road network during and post-construction. There will also be an effect on the local road infrastructure, as the proposal includes new site accesses and improvements to the existing B1050. New pedestrian and cycle links will also be provided.

Currently known baseline

14.2 The B1050 Longstanton western bypass opened in December 2008 to divert over 7,300 vehicles a day away from the town. It runs from Hatton's Road to the south of Longstanton to a roundabout adjacent to the site, where it rejoins the previous route of the B1050.

14.3 The A14 is the main strategic route around the north of Cambridge. Peak hour two-way flows reported in the 2007 ES for the stretch closest to the site were 4,629 for the AM peak and 5,577 for the PM peak, with relatively high percentages of HGVs (23% in the AM peak and 17% in the PM peak). The A14 in the vicinity of the site experiences serious congestion and a programme of improvement works was planned by the Highways Agency, including upgrading the carriageway to three lanes in each direction between Ellington and Fen Ditton, limiting junctions and creating a parallel distributor road for local traffic between Fenstanton and the Girton interchange. However, government funding reviews mean that the implementation of these works has been withdrawn and the A14 will be the subject of a new study.

14.4 The primary development site is adjacent to the route of the CGB, which is due to open in August 2011. The CGB will provide a public transit system along the disused Cambridge to St Ives railway line between Huntingdon and Cambridge. A park and ride stop will be provided at Longstanton, immediately to the north of the site, with up to 16 services per hour in each direction between the park and ride and Cambridge and a further six services per hour extending north to Huntingdon.

Key issues

14.5 Following the methodology identified in section 5 of this report, the scoping process has identified the following likely significant effects of this project, which are included within the preliminary EIA scope:

- Increased traffic flows during and post-construction leading to impacts on the highway network and associated potential for increased pedestrian severance, driver delay and accident rates
- Changes to local road infrastructure, including upgrades to the B1050
- Creation of new non-motorised user (NMU) pedestrian, cycle and equestrian infrstructure

- Increased use of public transport and provision of part of a new bus route

14.6 The analysis is summarised in the table at the end of this section.

Assessment methodology

14.7 A transport assessment (TA) will be submitted in support of the planning application that will assess the impact of the proposed development on the capacity of highway infrastructure. The EIA will summarise the findings of this, but will focus on environmental issues associated with potential increases in traffic flows and any consequent effects on the local community, such as severance, driver delay or an increased accident rate.

14.8 The assessment will take account of *Planning Policy Guidance Note 13: Transport* (2011) and the IEMA *Guidelines for the Environmental Assessment of Road Traffic* (2003). Close consultation with key stakeholders, such as the Highways Agency and Cambridgeshire County Council's transport department, will be maintained throughout the assessment. In the first instance, a TA scoping report will be produced in addition to this document, for agreement with these consultees.

14.9 It is proposed that 2011 traffic flows to inform the baseline will be obtained from Cambridgeshire County Council's Cambridge sub-regional model (CSRM) and that potential effects will be assessed using data from the CSRM.

14.10 The significance of traffic and transport effects on sensitive receptors will be determined by combining the sensitivity of identified receptors with the predicted magnitude of change, using a matrix.

Likely mitigation measures

14.11 Based on this initial consideration of the traffic and transport features that could possibly be affected by this EIA development proposal, it is considered that the following mitigation measures may be appropriate. The precise measures to prevent, reduce and offset any significant adverse effects will be determined through the EIA process.

- Implementation of a construction management plan, to include measures to manage construction traffic movements
- Travel planning measures to minimise private car travel
- NMU infrastructure

Traffic and transport effects summary

Part 1		Part 2		
Main effect	**Clearly significant?(1)**	**Receptor importance / sensitivity(2)**	**Magnitude or scale of effect(3)**	**Likely significant?**
Increased traffic flows during construction	✗	Local traffic network / users / pedestrians High	Small Short term	✓
Increased traffic flows post-construction	✓			
Changes to local road infrastructure	✓			
Provision of new pedestrian and cycle routes	✗	Users of local cycle / pedestrian network High	Small to medium Long term	✓
Increased use of public transport and provision of new bus route	✗	Local public transport network / users High	Small to medium Long term	✓

Notes

1. Effects that are classified as clearly significant in part 1 of the process do not need to be considered further in part 2

2. Categories = high, medium, low, negligible (takes into account geographical level of importance)

3. Categories = large, medium, small, negligible (takes into account whether effect is short or long term)

15 Waste

Introduction

15.1 Proposals for development should ensure that waste is reduced as much as possible, and that during the construction and post-construction phases of the proposals waste arisings are either re-used or recycled where feasible. During construction, wastes should be correctly segregated to maximise re-use and recycling. Where any contaminated or hazardous arisings cannot be treated on site during remediation works, suitable disposal options should be identified as part of the environmental assessment process.

Currently known baseline

15.2 At present, the site is a source of agricultural and green waste and small quantities of commercial waste from the clubhouse, although the exact existing quantities of waste generated at the site are unknown. South Cambridgeshire's waste is largely managed at the Waterbeach Waste Management Park, which includes composting facilities and landfill, although recyclables are currently sent to a materials recovery facility in north London. A mechanical biological treatment plant is currently under development at Waterbeach.

Key issues

15.3 Waste arising from the site preparation and construction processes will require management. However, site waste management plans (SWMPs) are now required for all construction projects with a value over £300,000. This requirement, together with other construction phase waste management measures, will help to ensure that construction waste is minimised, re-used and recycled wherever possible and will ensure that there are no significant effects on the capacity of the local waste management infrastructure as a result of this phase of the development. A framework SWMP will be submitted with the planning application as an appendix to the waste management strategy.

15.4 There is generally limited likelihood of contamination across the majority of the primary development site and southern potential area of excavation for fill and infrastructure work, although there is a higher likelihood of contamination in the northern area that falls within the former airfield. The need for remediation of any contamination could generate contaminated waste that would require management and / or disposal, but this would be examined in the ground conditions assessment.

15.5 Post-construction, the proposals will lead to the generation of increased amounts of municipal and commercial waste and the introduction of a new household recycling centre. A waste design toolkit (in accordance with SCDC's requirements) will be included within the waste management strategy to be submitted with the planning application, which will detail proposed waste management, storage and collection arrangements and measures to minimise waste generation. It is therefore proposed that the issue of post-

construction waste should be examined in this toolkit, rather than in the EIA, as the quantities of waste involved with the toolkit and the new household recycling centre in place are likely to be insignificant in relation to existing waste generation levels within the county.

15.6 It is therefore proposed that waste is not scoped into the EIA and will not be considered in the ES.

15.7 The analysis is summarised in the table below.

Waste effects summary

Part 1		**Part 2**		
Main effect	**Clearly significant?(1)**	**Receptor importance / sensitivity(2)**	**Magnitude or scale of effect(3)**	**Likely significant?**
Generation of construction waste that requires management / disposal	✗	Local waste management facilities Medium	Negligible Short term	✗
Generation of municipal and commercial waste that requires management / disposal	✗	Local waste management facilities Medium	Small Long term	✗

Notes

1. Effects that are classified as clearly significant in part 1 of the process do not need to be considered further in part 2

2. Categories = high, medium, low, negligible (takes into account geographical level of importance)

3. Categories = large, medium, small, negligible (takes into account whether effect is short or long term)

16 Water, flooding and drainage

Introduction

16.1 The water, flooding and drainage assessment will focus on effects associated with the potential increase in run-off from the site, reduced groundwater recharge rates and any physical effects on surface water quality. The assessment will also examine the proposed surface water drainage system and consider the increase in demand for wastewater treatment and drinking water supply.

Currently known baseline

16.2 There are several man-made ponds on the primary development site and fen drains that drain the surface water run-off from the golf course. These discharge into Reynolds Drain via culverts beneath the route of the CGB. Reynolds Drain generally flows to the east, discharging either into the Cottenham Lode or the Burgess Drain (north of Cottenham), depending on flow conditions within the Cottenham Lode. The Burgess Drain discharges into the Left Wing Drain to the north of Cottenham, which then discharges into the Great Ouse. The Cottenham Lode discharges into the Old West River to the north east of the site.

16.3 Longstanton Brook runs through the west of the southern potential area of excavation and infrastructure work, and there is a small watercourse in the north of the northern area that discharges into Reynolds Drain via a culvert. Longstanton Brook becomes the Swavesey Drain at Gravel Bridge, which eventually discharges into the Great Ouse via the Webbs Hole Sluice.

16.4 The Environment Agency's flood maps indicate that the majority of the primary development site is located in flood zone 1, although the south east is within an area of floodplain protected by existing flood defences. Detailed flood modelling undertaken as part of the 2007 EIA indicates that part of the site along its eastern boundary is theoretically sensitive to flooding from flood waters backing up through the culverts beneath the CGB route. This is a worst-case scenario, as the model did not take account of the CGB track embankment or the restrictive nature of the culverts. The surrounding villages, including Longstanton, are vulnerable to flooding from several watercourses.

16.5 The majority of the southern potential area of excavation and infrastructure work is in flood zone 1, although the western edge is within an area of extreme flood. The northern area falls within the area of floodplain protected by existing flood defences.

16.6 The primary development site is partially underlain by a secondary (A) aquifer (River Terrace Deposits) and partially by unproductive strata (Ampthill Clay). Site investigations undertaken for the 2007 EIA found shallow groundwater, largely contained within the sand and gravel of the River Terrace Deposits. The southern and northern potential areas of excavation and infrastructure are

underlain by unproductive strata (Ampthill Clay and Kimmeridge Clay respectively). The site is not within a groundwater source protection zone.

16.7 Potable water for the existing uses on site is currently supplied via private abstractions. Longstanton is served by a public sewer network operated by Anglian Water. Foul effluent from Longstanton and the surrounding area is pumped to existing sewage treatment works (STW) at Over and Uttons Drove. The Over STW discharges directly to the Great Ouse, while the Uttons Drove STW discharges into the Swavesey Drain system. The Environment Agency has raised concerns regarding the impact of effluent discharge on flood risks within the Swavesey Drain system. In addition, Longstanton currently has severe capacity issues and sewerage overloading and flooding have become frequent events due to failure of the main pumping stations.

Key issues

16.8 Following the methodology identified in section 5 of this report, the scoping process has identified the following likely significant effects of this project, which are included within the preliminary EIA scope:

- Effects on surface water physical quality from pollution due to increased sediment during construction
- Effects on the hydrology and associated flood risk of surrounding watercourses due to increased surface water run-off
- Effects on groundwater hydrology on site from reduced recharge rates associated with the increased impermeable area on site
- Effects arising from the increased demand for potable water and wastewater treatment and the associated upgrade works required

16.9 The analysis is summarised in the table at the end of this section.

Assessment methodology

16.10 The surface water features survey undertaken to inform the 2007 EIA and an updated desk study will be used to determine the existing water environment on and in the vicinity of the site and to identify potential sensitive receptors. Proposals to address surface water run-off will be considered, taking account of the need to integrate with future development at Northstowe, and sustainable drainage systems will be incorporated into the master plan where possible. The Environment Agency will be consulted throughout the assessment work.

16.11 A flood risk assessment will be undertaken in accordance with *Planning Policy Statement 25: Development and Flood Risk* (2010), and the results will be summarised in the ES chapter. The assessment methodology and findings will be discussed with the Environment Agency and the Internal Drainage Board.

16.12 Cambridge Water Company and Anglian Water will be consulted on existing water supply and wastewater drainage capacity and any upgrade works

required to serve the proposed development. The potential effects of such works, and any constraints to delivery, will be examined in the assessment.

16.13 The significance of effects on the water environment will be determined by combining the sensitivity of the identified receptors with the predicted magnitude of change, using a matrix.

Likely mitigation measures

16.14 Based on this initial consideration of the water environment features that could possibly be affected by this EIA development proposal, it is considered that the following mitigation measures may be appropriate. The precise measures to prevent, reduce and offset any significant adverse effects will be determined through the EIA process.

- Implementation of a construction environmental management plan, to include a range of best practice measures to minimise pollution of surface water
- Use of sustainable drainage systems
- Preparation of a Water Conservation Strategy to set out measures to minimise water consumption

Water, flooding and drainage summary

Part 1		Part 2		
Main effect	**Clearly significant?(1)**	**Receptor importance / sensitivity(2)**	**Magnitude or scale of effect(3)**	**Likely significant?**
Effects on surface water quality from increased sedimentation during construction	✓			
Increased surface water run-off post-construction and associated potential increase in flood risk	✓			
Reduced groundwater recharge post-construction	✗	Groundwater beneath site Medium	Medium to large Long term	✓
Increased demand for wastewater treatment and potable water supply (and any associated upgrade works)	✓			

Notes

1. Effects that are classified as clearly significant in part 1 of the process do not need to be considered further in part 2

2. Categories = high, medium, low, negligible (takes into account geographical level of importance)

3. Categories = large, medium, small, negligible (takes into account whether effect is short or long term)

17 Cumulative effects

17.1 The proposed development will form an initial phase of the wider Northstowe new town development. In accordance with good practice, it will be necessary to consider the potential cumulative effects of the full Northstowe development. A qualitative cumulative effects assessment will therefore be included in a separate chapter of the ES following the main assessments. The 2007 EIA examined the potential effects of the wider new town development, so the significant residual effects identified in the 2007 ES will be used as the basis for the cumulative effects assessment. The assessment will therefore be based on the 2007 master plan as updated by a forthcoming refreshed vision, including consideration of the 'reserve land' as part of the future Northstowe wider development.

17.2 Cumulative effects can only arise where the Northstowe phase 1 scheme has a significant effect in its own right. Where the effects of this scheme are not significant, any significant effects of the full Northstowe development would result solely from the future phases of development. These effects would need to be examined in any future applications for the wider development, which would then have to take account of the phase 1 scheme.

17.3 The potential for effects in combination with other schemes that are operational / constructed, consented, or for which planning permissions are currently being sought will also be examined within the EIA where appropriate. The potential for cumulative effects with other developments will be considered only when sufficient information is available, i.e. when a project is within the planning domain and there is adequate information publicly available.

17.4 The potential for cumulative effects as a result of impact interactions at the receptor level will also be considered where necessary.

18 Summary

18.1 From this scoping exercise it has been possible to reach a preliminary view on the environmental features that are likely to be significantly affected by the proposed development and should be included within the EIA. The environmental features are described here under separate headings, but the EIA will pay close attention to the interrelationships of the various factors, in order to assemble a holistic picture of the likely significant effects and mitigation measures. It should also be noted that EIA is an iterative process, enabling matters not recognised early in the project to be addressed subsequently.

18.2 Based on the preliminary scope determined within this report, the provisional ES chapters will be as follows:

Non-technical summary
1. Introduction
2. Site description and development proposals (including alternatives)
3. Environmental issues and methodology
4. Landscape and visual effects
5. Cultural heritage
6. Natural heritage
7. Traffic and transport
8. Air quality
9. Noise
10. Geology, hydrogeology and contamination
11. Water, flooding and drainage
12. Community, economic and social effects
13. Agriculture and soil resources
14. Cumulative effects
15. Summary tables
16. Glossary

18.3 Each ES topic chapter will follow a similar format, including sections on guidance and legislation, methodologies, reporting the baseline conditions, discussion of future baseline, impact assessment during and post-construction, mitigation, and residual effects. The ES will include appropriate illustration material (maps, diagrams and photographs) and will be supported by technical documents that will be supplied as appendices.

18.4 The consideration of the likely significant effects in this scoping report is preliminary. The local planning authority and its consultees are invited to comment on the intended scope of the EIA and to highlight any likely significant environmental issues that may have inadvertently been omitted.

Appendix A: Schedule 4 of the of the EIA Regulations

PART I

1. Description of the development, including in particular:

(a) A description of the physical characteristics of the whole development and the land-use requirements during the construction and operational phases
(b) A description of the main characteristics of the production processes, for instance, nature and quantity of the materials used
(c) An estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the development

2. An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.

3. A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors.

4. A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development, resulting from:

(a) The existence of the development
(b) The use of natural resources
(c) The emission of pollutants, the creation of nuisances and the elimination of waste, and the description by the applicant or appellant of the forecasting methods used to assess the effects on the environment

5. A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.

6. A non-technical summary of the information provided under paragraphs 1 to 5 of this Part.

7. An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant or appellant in compiling the required information.

PART II

1. A description of the development comprising information on the site, design and size of the development.

2. A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects.

3. The data required to identify and assess the main effects which the development is likely to have on the environment.

4. An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.

5. A non-technical summary of the information provided under paragraphs 1 to 4 of this Part.

Appendix B: Scoping checklist

Environmental Feature	Component	Possible construction effect envisaged?	Possible post-construction effect envisaged?	Main effect?	Likely significant effect?	Comments / reason for exclusion from further consideration in the scoping process
AIR AND CLIMATE	Local air quality	Y	Y	Y	?	Increased emissions of NO_2 and PM_{10} on the local road network around the site due to increased traffic.
	Particulates and dust	Y	N	Y	Y	Properties within 200 m of the site may be affected by dust generated during earthworks and construction.
	Odour	N	Y	?	?	Potential for odour from the proposed foul water pumping station and household recycling centre.
	Local climatic effects	N	N	N	N	The nature of the proposed development limits the potential for local climatic effects.
	Transboundary air quality	N	N	N	N	The scale, nature and location of the proposed development limit the potential for transboundary effects.
	Global climate	N	N	N	N	The scale, nature and location of the proposed development limit the potential for effects on the global climate.
	Carbon dioxide budget / emissions	Y	Y	Y	?	There will be CO_2 emissions associated with materials / construction, travel and occupation of the development.
COMMUNITY, ECONOMIC AND SOCIAL EFFECTS	Population profile and density	N	Y	Y	Y	The influx of new population has the potential to affect local population profile and density.
	Demography	N	Y	Y	?	The influx of new population has the potential to affect the local area's demography.
	Housing	N	Y	Y	Y	Provision of new market and affordable housing.
	Employment	Y	Y	Y	?	Creation of employment during construction and provision of employment land post-construction.
	Lifestyle / standard of living	N	N	N	N	The nature of the proposed development means it will not affect local lifestyles or standards of living.
	Education / health / local services	N	Y	Y	Y	Potential increase in pressure on local services as a result of the population increase. Provision of new school, community facilities and public open space. Potential effects on local businesses from increased demand and competition.
	Public health and safety	N	N	N	N	The nature of the proposed development limits the potential for health and safety effects.
	Social inclusion / exclusion	N	N	N	N	The nature of the proposed development means it will not affect social inclusion.
	Local environmental amenity	Y	N	Y	?	Construction works may affect the amenity of local residents and users of the public rights of way in the west of the site.
	Electromagnetism / radiation	N	N	N	N	The nature of the proposed development means that this issue is not applicable.
	Telecommunications	N	N	N	N	The nature of the proposed development means that telecommunications links will not be affected.
	Tourism	N	N	N	N	The nature and location of the proposed development mean that there will be no tourism effects.
	Microclimate	N	N	N	N	The scale of the proposed development limits the potential for microclimate effects.
CULTURAL HERITAGE	Archaeology / monuments	Y	N	Y	Y	Potential for disturbance of archaeological remains during construction. There are no scheduled monuments close to the site, so no setting effects are envisaged post-construction.
	Buildings / structures / architecture	Y	Y	Y	Y	Potential for setting effects on listed buildings in the vicinity of the site and on Longstanton conservation area.
	Historic parks and gardens	N	N	N	N	There are no registered historic parks and gardens with 5 km of the site.
	Other historic interest	Y	Y	?	?	There is the potential for effects on the historic landscape of the site.
GROUND CONDITIONS	Geology and geomorphology	N	N	N	N	No known sensitivity (i.e. no geological SSSIs in the vicinity of the site).
	Ground contamination	Y	Y	Y	?	Potential for mobilisation of existing contamination during and post-construction.
	Erosion / deposition / stability	Y	Y	Y	?	Significant earthworks are proposed across the site.
	Mineral resources	N	N	N	N	The site is not used or allocated for commercial minerals extraction.
	Soils / agricultural land quality	Y	N	Y	?	Loss of agricultural land and movement of soils during earthworks.
LANDSCAPE AND VISUAL EFFECTS	Landform / topography	Y	N	Y	Y	Change to landform and topography of the site as a result of the proposed earthworks.
	Land cover	Y	Y	Y	Y	Land cover will change from a golf course and agricultural land to buildings and public open space.
	Landscape character	Y	Y	Y	Y	Character will change from golf course / agriculture to urban.
	Landscape quality	Y	Y	Y	Y	Quality will change from golf course / agriculture to urban.
	Protected landscapes / townscapes	Y	Y	Y	Y	Changes to views from Longstanton conservation area.
	Sensitive views	Y	Y	Y	Y	Potential for effects on views from surrounding villages and public rights of way.
	Wilderness	N	N	N	N	The development area and its surrounding environment are not classified as wilderness.

Environmental Feature	Component	Possible construction effect envisaged?	Possible post-construction effect envisaged?	Main effect?	Likely significant effect?	Comments / reason for exclusion from further consideration in the scoping process
LAND USE	Agriculture / horticulture	Y	N	?	?	Loss of existing agricultural land.
	Forestry	N	N	N	N	No forestry on site or proposed.
	Open space / rights of way	N	Y	Y	?	Introduction of new public open space and rights of way. Loss of existing golf course.
	Mineral extraction	N	N	N	N	No minerals uses on site or proposed.
	Industrial / commercial / retail	N	Y	Y	?	Introduction of new commercial / retail uses.
	Residential	N	Y	Y	?	Introduction of new residential use.
	Health / social / education	N	Y	Y	?	Introduction of new education use.
	Waste disposal / processing	N	Y	Y	?	Introduction of new waste use (household waste recycling facility).
NATURAL HERITAGE	Habitat types	Y	Y	Y	Y	Loss of on site habitats and creation of new habitats.
	Plant communities	Y	Y	Y	Y	The proposed development will change the site's flora.
	Animal communities	Y	Y	Y	Y	The proposed development could change the way the site is used by animal groups.
	Individual / protected species	Y	Y	Y	Y	There is a range of protected species on site – potential for disturbance and habitat loss effects.
	Ecosystem integrity	N	N	N	N	The nature of the surrounding habitats suggests overall integrity will not be affected.
	Wildlife conservation	Y	Y	Y	Y	Potential for effects on protected species and a locally designated nature conservation site.
	Resource management	N	N	N	N	The management of natural resources will not be affected.
	Natural processes	N	N	N	N	No changes are predicted to natural processes.
NOISE AND VIBRATION	Noise	Y	Y	Y	Y	Noise will be generated by earthworks, construction and increased traffic.
	Vibration	Y	N	Y	?	Potential for vibration from piling during construction.
WATER ENVIRONMENT	Surface water quality	Y	Y	Y	Y	Pollution during construction and run-off from roads post-construction may affect the ponds and ditches on site.
	Surface water hydrology	N	Y	Y	Y	Increased impermeable area could increase run-off rates.
	Surface water temperature	N	N	N	N	No processes are proposed that could change surface water temperature.
	Groundwater quality	Y	Y	Y	Y	Pollution during construction and run-off from roads post-construction may affect groundwater.
	Groundwater hydrology / recharge	N	Y	Y	?	Potential for reduced groundwater recharge due to increased impermeable area.
	Groundwater temperature	N	N	N	N	No processes are proposed that could change groundwater temperature.
	Coastal / oceanic water quality	N	N	N	N	The site is not located near the coast.
	Coastal water temperature	N	N	N	N	The site is not located near the coast.
	Coastal processes / hydrodynamics	N	N	N	N	The site is not located near the coast.
	Flood risk	N	Y	Y	Y	The scale and nature of the development require a flood risk assessment to be undertaken.
	Availability of utility services	N	Y	Y	Y	The development will increase the demand for water supply and wastewater treatment.
TRAFFIC AND TRANSPORT	Traffic flows	Y	Y	Y	Y	Construction and post-construction traffic increases could affect severance, driver stress and delay.
	Infrastructure	N	Y	Y	Y	Works to the B1050 and new site accesses.
	Road safety	N	Y	Y	?	Increased traffic could affect the accident rate.
	Pedestrians and cyclists	N	Y	Y	?	New pedestrian and cycle links will be created and increased traffic could affect amenity of adjacent NMU routes and crossing time.
	Public transport (bus, rail, tram)	N	Y	Y	?	Increased use of bus and train services and provision of part of a new bus route.
	Air traffic	N	N	N	N	No association with air traffic.
	Water traffic	N	N	N	N	No association with water traffic.
WASTE	Waste management	Y	Y	Y	?	Increased waste generation will require management.
	Waste characterisation	Y	Y	N	N	Change from generation of agricultural and green waste to construction, municipal and commercial waste.

Appendix C: Scoping matrix

Determining whether a main effect could be significant