CARLYLE LAND
LIMITED

Land south and east of Adastral Park

Suffolk

Non-Technical Summary

March 2017

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EIA Quality Mark

This Environmental Statement, and the Environmental Impact Assessment (EIA) carried out to identify the significant environmental effects of the proposed development, was undertaken in line with the EIA Quality Mark Commitments.

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1 INTRODUCTION

1.1 Background to Proposed Scheme

1.1.1 Carlyle Land Ltd and CEG (the Applicant) are seeking to develop land south and east of Adastral Park, near Martlesham, Ipswich, to provide a proposed urban extension of up to 2,000 dwellings and associated infrastructure.

1.1.2 The applicant is seeking to secure outline planning permission for the proposed scheme by way of a planning application under the Town & Country Planning Act 1990 submitted to Suffolk Coastal District Council (SCDC).

1.1.3 The site covers approximately 113.3ha. The majority of the site is being used for mineral extraction or has been restored following mineral extraction. The site lies to the east of Martlesham Heath and is separated from the existing residential area by the A12. The site is approximately 8.5km east of Ipswich city centre.

1.1.4 The development of 2,000 new homes on land to the south and east of Adastral Park is identified in 'Suffolk Coastal District Local Plan, Core Strategy and Development Management Policies, July 2013'.

The proposal includes:

- up to 2,000 dwellings:
- employment area of c0.6ha;
- primary local centre;
- secondary centre;
- safeguarded education land totalling 5.5ha and, as appropriate, provision of all through school comprising early years, primary and secondary facilities;
- green infrastructure including SANGs (25.1ha), sports ground (7.9ha) and allotments/community orchards (0.83ha);
- network of linked public footpaths and cycleways;
- new vehicle accesses onto A12, Ipswich Road and Gloster Road; and
- associated infrastructure including drainage and utility supplies.

2 OVERVIEW OF EXISTING ENVIRONMENT

2.1 Location and History

2.1.1 The application site covers approximately 113.3ha. The majority of the site is used for mineral extraction or has been restored following mineral extraction. The site lies to the east of Martlesham Heath and is separated from the residential area by the A12. The site is approximately 8.5km east of Ipswich city centre.

2.1.2 The science and business park to the north and west of the site is BT's research campus. The campus includes buildings, car parks, private leisure facilities, landscape areas and woodland.

2.1.3 Parcels of land to the south of the site are currently used for agriculture. The remaining land is currently occupied by Brett Aggregates, and comprises several quarries, temporary site buildings and ponds.

2.2 Air Quality

2.2.1 Suffolk Coastal District Council (SCDC) has carried out detailed assessments of air quality in the area and as a result has declared two areas as AQMA due to potential exceedences of the AQS objectives for annual mean NO_2 concentrations. These are:

- Woodbridge Junction AQMA, which was declared in 2006 and covers 6 properties on the western side of the Throughfare / Melton Hill arm of Woodbridge Junction; and
- Stratford St Andrew AQMA which was declared in 2014 and covers 4 properties at Long Row, Main Road in Stratford St Andrew.

2.2.2 The closest is the Woodbridge Junction AQMA, which is located approximately 4.2km to the northeast of the site .

2.3 Archaeology and Built Heritage

2.3.1 The site has been subject to a series of archaeological investigations in relation to the previous BT planning application on the site in 2009. These studies have established that there are two scheduled Bronze Age barrows within the site and with further barrows (scheduled and non-scheduled) within the wider area. The archaeological evaluation of the site in 2008 revealed that the site contains Iron Age settlement remains of local significance to the east of Spratts Plantation. The site also contains a WWII trench shelter which is considered to be of local significance. Large parts of the site have been subject to previous quarrying works which will have removed all archaeological remains within the area.

2.3.2 Archaeological evaluation has occurred across the majority of the site . The central part of the site is occupied by Waldringfield Quarry. Taking into consideration the historic quarrying, this suggests that small areas to the south-west and north-west of the main area have not been quarried or archaeologically investigated. Archaeological investigations adjacent to both of these areas, recorded negative archaeological results.

Based on available evidence, the potential for significant remains in these areas is considered low. The below ground remains resource is not considered likely to be of more than local significance in these areas.

2.4 Ecology

2.4.1 Adastral Park is a varied area of land consisting of habitats of generally low ecological value such as arable land and quarry as well as areas of relatively higher ecological value, such as woodland, a lake and semi-natural grasslands.

2.5 Flood Risk and Drainage

2.5.1 The site lies entirely within Flood Zone 1. This area is defined as being at little or no flood risk at all, with a 1 in 1000 annual probability (0.1% chance) or less of flooding from rivers or the sea in any one year.

2.5.2 Assessment of other potential flooding mechanisms shows the land to have a low probability of flooding from overland flow, ground water and sewer flooding.

2.6 Ground Conditions

2.6.1 The underlying ground conditions are considered to be sensitive, as the site is situated on sand bedrock geology which forms a Principal Aquifer and the superficial deposits of sand and gravel which form a Secondary A Aquifer. In terms of groundwater vulnerability the site lies on a Minor Aquifer, with soils of High Leaching Potential.

2.7 Landscape

2.7.1 The site consists of different land uses and areas with distinct character. These include areas of agricultural land, gravel and sand extraction, quarry operations and associated infrastructure, as well as areas of restored landscape to include a large central water body.

2.7.2 The site lies to the immediate south of Adastral Park Innovation Centre. The A12 bounds the site to the west with the Suffolk Coast Area of Outstanding Natural Beauty (AONB) to the east.

2.7.3 The site landform has been altered due to the mineral extraction operations which have resulted in a landscape containing large man made features.

2.7.4 The site boundary contains mature tree belts and woodland to the east and southern boundaries. A large coniferous tree belt runs adjacent to the southern boundary and heavily screens the site from the wider landscape to the south. Mature woodland defines the majority of the north-eastern boundary and is associated with existing development to include the Moon and Sixpence Caravan Park. This woodland heavily screens the site from the wider landscape to the north and north-east. These features along with other tree plantations and woodland located to the south and south west offer a level of containment and screening to the majority of the site in the local area.

2.7.5 The northern and western areas of the site are influenced by the urbanising effects of Adastral Park Innovation Centre, including the dominant structure of the BT building and

associated tower and array of large satellite dishes to the western site boundary. The dishes and BT tower are prominent features and focal points in the local landscape. The western site boundary with the A12 corridor is formed by a further large earth bund.

2.7.6 The site is crossed by two Public Rights of Way which run north-south from the southern boundary of Adastral Park to Ipswich Road. Further Public Rights of Way run around the periphery of the site and create a circular route that links up with Public Rights of Way within the wider landscape. At present the Public Rights of Way are separated from the site by the engineered bunds and planting. The bunds heavily screen the site for the majority of the site with elevated views possible from users of the bridleway which runs adjacent to the southern boundary.

2.7.7 The site is bisected by the BT sound testing corridor which runs from the satellite dishes in a south easterly direction with a receiving tower located at the southern extent. The height of the tower results in it being visible from the peripheral boundary rights of way.

2.8 Noise

2.8.1 Existing noise levels around the site are principally influenced by road traffic on the A12 and are likely to be high both during the day and night-time periods. Noise from the operation of the site is not anticipated to lead to adverse effects with appropriate mitigation measures implemented within the design.

2.9 Transport

2.9.1 Adastral Park is located to the east of the A12 which provides a main route to Lowestoft and Great Yarmouth in the north. Adjacent to the site , the A12 is a dual carriageway road subject to a 70mph speed limit. Through discussions with SCC, the aspiration to reduce the speed limit has been identified.

2.9.2 The A12 continuous to the south and connects to the A14. The A14 is a major international, national and regional route connection Felixstowe to the M6 and M1.

2.9.3 The A12 to the north connects to the A1214 at Martlesham heath and provides access to the route towards Ipswich. Foxhall, to the south of Adastral Park provides an alternative route into Ipswich from the east.

2.9.4 At the present day, the development land does not have any significant traffic generators within the boundary. As such, there has been no material requirement for footway / cycleway provision on-site or to access the site.

2.9.5 There is a public footpath which runs from the north of Marlesham heath along Gloster Road and the western edge of, to Newborne Road to the south of the Park.

2.9.6 The bus route 66 currently serves high quality service to the existing park, which links Martlesham Heath-Grange Farm-Kesgrave - Ipswich. The bus service 173/174 (Woodbridge to Felixstowe) has just two services during peak hours. The rest of the buses also operate through Adastral Park.

2.9.7 The closest train station is located in Woodbridge. The stations provide excellent nodes for onward routes to Ipswich (having a journey time of circa 15 minutes) and Lowestoft (having a journey time of circa 1 hour 10 minutes).

2.10 Socio-economics

2.10.1 The site is located in the Martlesham Ward of SCDC, with an estimated population of 4,796. The district population is increasing, and has a significantly older than average population.

The Index of Multiple Deprivation is an overall measure of multiple deprivation experienced by people living in an area. No area of SCDC falls within the 10% most multiple deprived areas of the country, however, two areas fall within the 11-20% most multiple deprived areas[1].

2.10.2 At a district level key employment sectors include transport and logistics, Information and Communications Technology (ICT), energy generation, agriculture and food production and tourism[2]. Employment levels are above average, with 64% of the population economically active and employed, in comparison to the national average of 62.1%.

2.10.3 The nearest hospital is the Ipswich Hospital approximately 5.3km directly west of the site. In addition there are a number of health facilities in the local area.

2.10.4 AtLAS is the leisure and sport umbrella organisation for Adastral Park employees (current and previous), with an ongoing programme of activities, events, societies and clubs.

[1] http://www.healthysuffolk.org.uk/assets/JSNA/20150215-AMD-Infographics-Indices-of-Deprivation-2015-HR.pdf, accessed 17/11/16

[2] Suffolk Coastal District Council, 2013 Suffolk Coastal Local Plan Core Strategy

3 AIR QUALITY

3.1 Introduction

3.1.1 This section reviews the existing air quality conditions at the Proposed Development site with respect to air quality standards and objectives, national planning policy guidance and local policies.

3.2 Scope and Methodology

Construction Phase

3.2.1 There are a number of premises in close proximity to the development site which would be sensitive to dust and particulate emissions from construction activities. Consideration has been given to the potential for annoyance and health related impacts to occur at neighbouring properties during construction of the Proposed Development.

3.2.2 An assessment of potential impacts has been carried out in accordance with the Institute of Air Quality Management (IAQM) document 'Guidance on the Assessment of Dust from Demolition and Construction'. The methodology includes a qualitative assessment of the potential sources of dust and the likely impacts that may occur at adjacent premises, providing a risk assessment to identify those receptors that are likely to experience significant impacts. Appropriate mitigation measures have been recommended based on the identified level of risk and significance of impacts occurring.

Operational Phase

3.2.3 The assessment of operational impacts and new exposure has been undertaken using detailed dispersion modelling (ADMS Roads) for road traffic emissions. The assessment has taken account of all relevant national and local policies and relevant DEFRA technical guidance relating to air quality, in particular the Environmental Protection UK (EPUK) & Institute of Air Quality Management (IAQM) guidance publish in May 2015.

3.2.4 The assessment focussed on NO2 and fine particulate matter (PM10 and PM2.5) the main pollutants associated with traffic emissions.

3.2.5 The extent of the assessment of the traffic- related air quality impacts has been determined by the extent of the Transport Assessment as agreed with the relevant bodies. This has covered the local road network and any roads predicted to experience significant changes according to the criteria set out in the EPUK & IAQM guidance.

3.3 Predicted Impacts

Construction Phase

3.3.1 Due to the close proximity of a number of existing residential properties, the risk of dust impacts was assessed as 'Medium' for human health, 'High' for dust soiling and 'High' for ecological impacts, prior to mitigation.

3.3.2 Detailed information regarding construction traffic is not currently available, however the increase in flow will be temporary and is unlikely to be significant compared with the existing baseline traffic.

Operational Phase

3.3.3 Traffic associated with the development is predicted to have a 'negligible' effect on pollutant concentrations at the identified sensitive human and habitat receptors.

3.4 Mitigation

Construction Phase

3.4.1 A number of mitigation measures have been recommended to control emissions of dust from the site during the construction phase, including covering stockpiles and dampening of exposed soil. The significance of the potential dust impacts following appropriate best practice mitigation measures is considered to be 'negligible'.

Operational Phase

3.4.2 Pollutant concentrations are predicted to be well below the air quality standards at worst case sensitive receptor locations with the Development in place, therefore operational phase mitigation measures are not considered necessary.

4 ARCHAEOLOGY AND BUILT HERITAGE

4.1 Introduction

4.1.1 The archaeology and built heritage chapter has assessed the likely significant effects arising from the Proposed Development of land south and east of Adastral Park, on all heritage receptors within a 1km radius of the site , including Scheduled Monuments, Listed Buildings and locally listed buildings.

4.2 Scope and Methodology

4.2.1 The chapter has assessed the Proposed Development against the existing baseline conditions.

4.2.2 The development site is experienced within a mixed urban and rural context, with some modern residential development close to the east of the site. To the north east is the BT research facility at Adastral Park, comprising buildings of varying scale, with the seven storey Pegasus Tower and associated office block in close proximity to the site boundary at the southern extent.

4.2.3 The general character of the surrounding land is predominantly open, with field boundaries often delineated by trees. Bounding the site to the west is the A12, a busy thoroughfare which provides links to nearby Ipswich. There are a number of Bronze Age barrows within the wider landscape, many of which are situated within areas of modern development.

4.2.4 The historic nature of the site and surrounding landscape and its location within the curtilage of the historic Martlesham Heath Airfield means that there are both designated and non-designated receptors, including prehistoric barrows and Second World War fortifications, within the site boundary.

4.2.5 Previous archaeological evaluation across the majority of the site has identified an area in the north of the site with positive archaeological results. This area has been subject to an on-going archaeological watching brief associated with Walringfield Quarry. An Early Bronze Age pit containing a collared urn, an undated enclosure, a small cluster of prehistoric pits and a possible medieval building have been recorded. Approximately half this area has not been archaeologically monitored. A watching brief in the south of the site recorded little archaeology due to high levels of truncation. The non-designated WWII structures in this area have been subject to building recording.

4.2.6 There are two small areas within Waldringfield Quarry which do not appear to have been quarried or archaeologically evaluated. Based on the negative results for archaeological investigations adjacent to these areas, the potential for significant remains is considered low.

4.2.7 The south-eastern part of the site is a quarry, with the most recent phase dating to a 2011 consent for the eastern part of the site (LPA Ref: C10/1441). The rest of the site is scrubland with woodland in the north-west (Spratt's Plantation).

4.2.8 The existing large scale development at Adastral Park, quarry and A12 are identified as negative features within the setting of the heritage receptors.

4.2.9 Predicted Impacts

4.2.10 In devising the Masterplan for the site, consultation on the setting of heritage assets has been undertaken with Suffolk Coastal District Council, Waldringfield Parish Council and Historic England. Feedback from these consultations has been incorporated into the proposals, in order to produce a masterplan which will create an improved setting for the heritage receptors, facilitate their public appreciation, and, where appropriate, enable their continued use through adaptation.

4.2.11 The setting of heritage receptors outside the site in the wider landscape will not experience meaningful change as a result of the Proposed Development. This is explored in greater detail in the chapter.

4.3 Mitigation

4.3.1 A programme of archaeological works (watching brief) will be undertaken on the areas of the site that have not already been subject to such works during quarrying activities. The detail of the programme will be agreed with Suffolk County Council.

4.3.2 The Scheduled Bowl Barrow and Pillbox 450m North West of Sheep Drift Farm and two non-designated Second World War fortifications are to be retained within an area of open space to the west of the site. This will provide the opportunity for their appreciation and enhance their setting.

4.3.3 The proposals also take the opportunity to better reveal the significance and enable public appreciation of the Scheduled Monuments. This will be achieved through the clearing of overgrown vegetation, provision of public access to the Monuments and interpretation boards, and landscaping which will improve the legibility of the relationship between and group value of the non-designated Second World War fortifications within the Application Site.

4.3.4 The proposals seek to secure long term sustainable uses for heritage receptors within the site , including the retention of the non-designated eight sided brick structure as a landscape feature, and the designation of the Pill Box covered by the Scheduling of the barrow 450m north west of Sheep Drift Farm as a bat roost. Additionally, the trees growing on the Scheduled bowl barrows within Spratt's Plantation will be felled to avoid potential damage to the monuments if they are blown over in high winds.

4.3.5 The conversion of the scheduled pill box and felling of trees on the scheduled monuments in Spratt's plantation will require Scheduled Monument Consent, which will be sought in a separate, subsequent application.

4.3.6 Through this retention and new use, the proposals seek to preserve the heritage value of the receptors within the site.

4.3.7 Overall, this chapter concludes that the Proposed Development substantially enhances the setting of the designated and non-designated heritage receptors within the Application Site, by replacing the quarry and screening the assets from the A12 and partially from the unattractive development at Adastral Park. Revealing the heritage

assets to the public will enhance the appreciation of their significance, by clearing them of vegetation and providing interpretation.

4.3.8 Using the terminology of the NPPF, the Proposed Development would serve to better enhance and reveal the significance of the affected heritage receptors. Taking the above into account, and considering the proposals against the current baseline situation, we conclude a long term beneficial effect arising from the Proposed Development. We set out the summary of effects on all identified heritage receptors in the chapter as a whole.

4.3.9 We therefore consider that the proposals meet the statutory provisions of Section 16(2) and 66(1) of the Planning (Listed Buildings and Conservation Areas) Act 1990, and complies with the requirements of paragraphs 132, 134, 135, 137 and 139 of the NPPF as well as Policy SP15 (Landscape and Townscape) of the Suffolk Coastal District Local Plan Core Strategy and Development Management Policies (2013).

5 ECOLOGY

5.1 Introduction

5.1.1 This section reviews the existing ecology at the Proposed Development site with respect to ecological standards and objectives, national planning policy guidance (National Planning Policy Framework, DFLG, 2012) and local policies; the site Allocations and Area Specific Development Policy Document (Suffolk Coastal District Council, 2017a), Felixstowe Peninsula Area Action Plan Development Plan Document (Suffolk Coastal District Council, 2017b) and the Suffolk Coastal Local Plan: remaining 'Saved Policies' (Suffolk Coastal District Council, 2017c).

5.2 Scope and Methodology

5.2.1 A suite of ecological surveys have been undertaken to allow the identification and evaluation of the ecological features of the site and its surroundings. Likely impacts upon ecology and biodiversity that may arise from the Proposed Development have then been predicted. This assessment has included a desk study, an extended Phase 1 habitat survey and species specific Phase 2 studies undertaken over 2016 - 2017.

5.2.2 The methods undertaken for all ecological surveys followed best practice guidance wherever available and professional judgement has been applied where no published guidance exists.

5.3 Predicted Impacts

5.3.1 The ecological surveys of the site identified that the majority of the site is of low conservation value, particularly the areas of working quarry and large expanses of arable fields. However the matrix of woodland, rough grasslands, scrub and discrete patches of sparsely vegetated bare ground provide relatively higher ecological value. Important ecological features for which potential adverse impacts (such as habitat loss, killing/injury and increased disturbance) from the Proposed Development are likely were identified and include; bats, birds, badgers, reptiles, invertebrates and hedgehogs, along with number of Biodiversity Action Plan (BAP) habitats; plantation and broadleaved woodland, lake and an area of Open Habitat Mosaic on Previously Developed Land.

5.3.2 In addition, Sites designated for their importance for nature conservation are present within the wider landscape with the Proposed Development potentially impacting upon; the Deben Estuary Special Protection Area (SPA)/Ramsar, Sandlings SPA/Local Nature Reserve (LNR), Stour and Orwell SPA/Ramsar, Newbourn Springs Site of Special Scientific Interest (SSSI) and Martlesham Soakaway Acid Grassland County Wildlife Site (CWS).

5.4 Mitigation

5.4.1 The ecological assessments undertaken to date have helped guide the master planning process for the Proposed Development, which has largely avoided areas of relatively

high quality habitat and allowed for the retention, protection and enhancement of many of the existing features of ecological value within the scheme.

5.4.2 Mitigation, compensation and enhancement measures will be undertaken on-site throughout the construction and operational phases to avoid, mitigate and compensate for predicted impacts. The most notable of which is the creation of 25.1ha of green space through the retention, creation and enhancement of habitats of value to biodiversity (such as heathland, woodland, wildflower meadows and aquatic habitats) which will provide a wide expanse of high quality natural/semi-natural green space suitable for people and wildlife. This will ensure adequate habitat retention/provision and maintenance of connectivity throughout the Proposed Development.

5.4.3 The Proposals will provide an overall positive effect on biodiversity that will improve the conservation status of the majority of ecological features assessed, in accordance with national and local planning policy as well as relevant wildlife legislation.

6 FLOOD RISK AND DRAINAGE

6.1 Introduction

6.1.1 This section reviews the existing flood risk and drainage conditions at the Proposed Development site with respect to standards and objectives, national planning policy guidance and local policies.

6.2 Scope and Methodology

6.2.1 The FRA calculates the green field run off rates post development and shows the proposed sustainable drainage system to significantly reduce these rates. This reduction is a significant betterment. The FRA also assessed the baseline condition of the site and quantified all flood risk mechanisms, which returned with a 'low' probability.

6.2.2 In summary, no significant adverse environmental effects will result. The introduction of Sustainable Urban Drainage measures will take into account the risk of flooding from accelerated runoff and increased hard paved areas. The completed IoH assessment has identified that the greenfield runoff rates will be significantly reduced post development, thus resulting in a significant benefit.

6.3 Predicted Impacts

Impact During Construction Phase: short to medium term

6.3.1 Potential construction phase environmental effects have been identified relating to hydrology and hydrogeology. These mechanisms are as follows:

6.3.2 Direct and indirect contamination of surface water due to mobilisation of soils, existing contamination and spillage of oils and the like from construction plant.

6.3.3 Direct and indirect flooding and changes to baseline drainage hydrology due to disturbance of the ground during construction works.

Impact During Operation Phase: long term

6.3.4 As a result of the Proposed Development, potential operational environmental effects are identified relating to water. The mechanisms are as follows:

- Direct and indirect flooding of surrounding watercourses, the wider catchment area, adjacent land and property due to increases in surface water runoff from positively drained hard areas;
- Direct flooding of the Proposed Development due to inadequate flooding resilience and management of residual flood risk;
- Direct contamination or deterioration of surface water quality due to leakages of fuel oils, general spillages and other contaminants from within the development and the associated collection of surface water drainage from hardstanding areas; and
- Direct and indirect contamination of surface water, soil and potential groundwater contamination due to surcharging of the foul water network or the discharge of untreated foul flows.

6.4 Mitigation

6.4.1 Hydrological effects in terms of flooding and the like arise from changes in the catchment drainage characteristics. Urbanisation of a catchment can increase peak storm water discharge from an area due to the accelerated run-off and reduced times of concentration associated with hard paved areas, with resulting increase in flood risk.

6.4.2 To mitigate against the potential impact of the Proposed Development on the baseline hydrological characteristics, it is important that the site drainage provision is designed to reflect the pre-development conditions as closely as possible. Both the maximum rate of run-off and the total direct discharge to adjacent watercourses needs to be controlled if the potential impact of the site is to be minimised. This is addressed within the FRA.

6.4.3 The Proposed Development has been designed to avoid significant hydrological effects resulting from changes in the catchment drainage characteristics and provides for site run off controlled to the baseline rate assessed using the IoH124 methodology.

6.4.4 By introducing Sustainable Urban Drainage measures, the design takes account of the potential accelerated run-off and reduced times of concentration associated with hard paved areas to avoid increasing peak storm water discharge and consequential flood risk.

6.4.5 The FRA outlines a proposed storm water management system providing a SuDS management train, incorporating source control and infiltration systems. The network will convey and attenuate storm water discharges from the Proposed Development to the points of discharge within the site.

6.4.6 The SuDS scheme will incorporate permeable paving (where applicable) along with attenuation features. This will be in the form of basins and swales placed throughout the development. These form part of the development's Green Infrastructure framework providing both a drainage and ecological function.

6.4.7 The outline SuDS scheme has had regard to sustainable methods that are readily accepted for adoption by the relevant authorities in discharging their maintenance responsibilities. The SuDS system will be maintained by way of an appropriate management scheme operated by the Local Authority or private management company. The below ground drainage system will be adopted and maintained by the drainage authority, Anglian Water. Maintenance will ensure that the storm water management system remains functional for the lifetime of the Proposed Development and protect the catchment from increased flood risk.

6.4.8 The environmental effect is assessed as a significant positive effect in the long term.

7 GROUND CONDITIONS

7.1 Introduction

7.1.1 This section reviews the existing ground conditions at the Proposed Development site with respect to standards and objectives, national planning policy guidance and local policies.

7.2 Scope and Methodology

7.2.1 Methods of assessment have been employed that are consistent with current guidance and recommendations in the form of statutory documents and recognised publications to ensure that the findings represent a robust approach to the assessment.

7.2.2 For the purposes of the Phase 1 Geoenvironmental Desk Study assessment the study area will be taken as the site boundary including a 1,000m buffer.

7.3 Predicted Impacts

7.3.1 The potential Ground Conditions environmental effects of the development proposals relate to both the operation and construction phases of the development. The mechanisms are as follows:

Impact During Construction Phase: short to medium term

7.3.2 Direct contamination of the soil and potential groundwater contamination due to earthwork operations and potential spillage of fuel oils and site stored materials during construction activities.

Impact During Operation Phase: long term

- Existing Contamination: Direct or indirect contamination of Flora, Fauna, Controlled Waters and Building Fabric due to the mobilisation of baseline contaminants during earthwork operations; and
- Development Contamination: Direct and indirect contamination of the soil and potential groundwater contamination due to leakages of fuel oils, general operational spillages and other contaminants from within the Project site and the associated collection of surface water drainage from hardstanding areas.

Design

7.3.3 To minimise the potential environmental effects of the Project on the Ground Conditions and surrounding area, the following specific measures are being incorporated into the design.

- An efficient system for the collection of storm and foul water from the site and conveyance to an appropriate receptor; and
- Measures to remove background contaminants from surface water drainage prior to discharge and to contain any accidental liquid spillages at the site.

7.3.4 The Project has been designed to avoid significant adverse effects resulting during operational phase and construction works.

7.4 Mitigation

7.4.1 To appraise the baseline conditions and suitability of a site for development it is common to outline a preliminary conceptual site model of possible environmental contaminative risks. Assessments are based on evidence identified during the baseline search and the planned development proposals.

7.4.2 The Geo-Environmental Phase 1 Desk Study Appraisal identifies no significant contaminative considerations relating to the Project and the preliminary conceptual model identifies the contaminative risk for the Project to be medium to low.

7.4.3 It may be concluded that the preliminary Conceptual Model assessment identifies no prohibitive constraint on development of the site for a primarily residential end usage.

7.4.4 In mitigation of any residual risk relating to specific background contamination or unidentified former contaminative uses are present, a detailed site investigation will be completed prior to development to include specific soil, gas and ground water contamination testing and identify any potential threat. Should contaminants be identified, the application of a risk based assessment, based on potential harm, will be completed and proposals developed to adequately protect the ground and water quality environment, and occupiers of the site.

7.4.5 The Conceptual Model will be updated with site specific information as this becomes available and mitigation measures implemented as are necessary to reflect the site specific requirements. No conditions can be foreseen where measures cannot be implemented to fully mitigate against identified contaminative risks.

7.4.6 As a result of the planned implementation design and mitigation proposals, no environmental effect is anticipated.

8 LANDSCAPE AND VISUAL IMPACT

8.1 Introduction

8.1.1 This section reviews the existing landscape and visual conditions at the Proposed Development site with respect to standards and objectives, national planning policy guidance and local policies.

8.2 Scope and Methodology

8.2.1 The approach taken for assessing the potential landscape and visual impacts of the Proposed Development may be summarised as follows:

8.2.2 This assessment has been prepared taking into consideration pre application advice, Consultation responses, as well as feedback from public consultation that is of particular relevance to landscape and visual matters.

This report has been prepared following the consideration of all known opportunities and constraints to identify the key landscape and visual issues of the site for development. The assessment has reviewed the provisions of National Policy, as well as relevant adopted Polices within the Suffolk Coastal District Local Plan 'Core Strategy and Development Management Policies' DPD and adopted Supplementary Planning Guidance (SPG) and Supplementary Planning Documents (SPD). These include the AONB Management Plan and Suffolk Landscape Character Assessment.

8.2.3 The methods undertaken for the assessment follows best practice guidance and professional judgement has been applied where no published guidance exists. The assessment has been prepared by a Chartered Member of the Landscape Institute (CMLI). This report was prepared between November 2016 – March 2017.

8.3 Predicted Impacts

8.3.1 The site has a restricted Zone of Visual Influence. It lies in an area which is enclosed and screened from the surrounding landscape by existing built development to north, east and west, existing mature vegetation, landform screen the Proposed Development from views from the wider landscape to the east, south and west.

8.3.2 Overall it is considered that the combination of on-site and off-site landscape features and surrounding landform results in the site being heavily contained from the surrounding landscape, both physically and visually. This limits the number of people who may see the development and the extent of impacts on their visual amenity.

8.3.3 The proposals have been assessed as having a localised adverse effect upon both the landscape character and visual receptors. The users of the public rights of way within the site and its relationship with the existing settlement edge will experience a limited loss of the valuable landscape and views over the site. Further localised minor adverse visual effects have been identified for residents adjacent to the site and users of road network as they pass the site.

8.4 Mitigation

8.4.1 Should no mitigation measures be incorporated into the proposals, the Proposed Development could potentially result in increased adverse visual effects upon existing residential properties within Martlesham Heath, users of Adastral Park, the Moon and Sixpence Holiday Park, Seven Acre Business Park and Brightwell Barns, with the users of the public rights of way both within the site and the wider landscape and the users of Waldringfield Golf Course.

8.4.2 The landscape proposals include the retention of existing landscape features, where possible the design of the scheme has sought to retain and integrate habitats of nature conservation value, such as the large central waterbody with associated mature vegetation and the restored grassland areas, and mature woodland and trees into the proposed green infrastructure. The retained habitats will be managed sympathetically and supplemented by the creation of new habitats that will provide a contribution to the biodiversity of the local area and regional and national targets. Broad-leaved woodland planting, species-rich hedgerows, heathland, species-rich grassland and wet grassland will be created.

8.4.3 Further enhancements within the site include tree and hedgerow planting and wild flower meadows which will enhance the setting of the development and increase the biodiversity within the local area, with note to the south eastern corner of the Proposed Development that will be set back from the site boundary beyond an area of open space to include landscape structural planting, this will have been implemented as part of phase 1 of the development and upon completion have matured, resulting in views of the development being heavily filtered from the outset and reflecting the views of existing development in the wider landscape. Whilst the immediate effects on the local character are considered to be Moderate Adverse within 15 years growth of new landscape mitigation planting the overall effects would reduce to a Minor/Moderate effect on the local area.

8.4.4 The proposals set the existing rights of way within a substantial area of GI and improve the landscape interface. This is a localised impact that is contained from the wider landscape.

8.4.5 Design mitigation has informed the appearance of the buildings with careful consideration being given to the layout and scale to help break up the overall massing of the development and respond to the surrounding receptors within the local environment and aims to assist the Proposed Development to recess and integrate into the surrounding landscape.

8.4.6 It is considered that the Proposed Development of up to 2,000 dwellings, an employment area, primary local centre, secondary centre, a school, green infrastructure (including Suitable Accessible Natural Green Space (SANGS), outdoor play areas, sports ground and allotments/community orchards), public footpaths and cycleways, vehicle accesses and associated infrastructure would respond to the landscape and visual context, providing a host of benefits associated with the provision of a substantial area of open space and robust GI, including landscape and recreational benefits in line with the aspirations of Suffolk Coastal District Local Plan: Core Strategy & Development Management Policies DPD, July 2013..

8.4.7 This assessment demonstrates that the development proposals responds to the local landscape character and visual amenity by identifying and seeking suitable mitigation to protect key views and landscape features as an integral part of the scheme.

8.4.8 Overall the Proposed Development would lead to some adverse visual effects at the outset but it is judged that the Proposed Development is of a scale and nature which can be successfully accommodated within the local landscape without any unacceptable landscape or visual effects in the longer term. In conclusion there would be no overriding adverse effects that should preclude the proposed development on landscape and visual grounds. It is considered that a high quality scheme can be delivered on the site which is in keeping with best practice and current government guidance and which would make a positive contribution to the local landscape.

9 NOISE

9.1 Introduction

9.1.1 This section reviews the existing noise at the Proposed Development site with respect to standards and objectives, national planning policy guidance and local policies.

9.2 Scope and Methodology

9.2.1 A wider study to assess the impact within the local road network is based on the Calculation of Road Traffic Noise (CRTN) procedures and has been based on the study area adopted within the Transport Assessment which identifies the roads experiencing the highest increase in flows.

9.2.2 An assessment against BS8233 has been provided in order to confirm the internal and external noise environment.

9.3 Predicted Impacts

9.3.1 The assessment followed the appropriate guidance which included:

- NPPF / PPG24: Planning and Noise;
- British Standard 8233:1999; Sound Insulation and Noise Reduction for Buildings;
- Calculation of Road Traffic Noise;
- Building Bulleting 93: Acoustic Design of Schools; and
- British Standard 5228: 'Code of Practice for Noise and Vibration Control on Construction and Open Sites'.

9.3.2 During the construction stage, it is envisaged that limited demolition, earthworks, installation of necessary services and building construction would create the main noise impacts upon existing residential properties in the environs of the site.

9.4 Mitigation

Direct and indirect noise and vibration from construction

9.4.1 To minimise the impact on receptors during the construction process, the following generic noise and vibration mitigation measures need to be implemented as appropriate for all works and would be incorporated into the future Construction Environmental Management Plan (CEMP):

9.4.2 Construction activities should be confined to times of the day when they are least likely to be disturbing;

9.4.3 Careful selection of plant, construction methods and programming. Only plant conforming with relevant national or international standards, directives and recommendations on noise and vibration emissions should be used;

9.4.4 Construction plant should be located, as far as is reasonably practicable, away from adjacent occupied buildings or as close as possible to noise barriers or site hoardings where these are located between the plant and the buildings;

9.4.5 Static and semi-static plant/equipment (e.g. compressors and generators) should be fitted with suitable enclosures where practicable;

9.4.6 Personnel will be instructed on best practice to reduce noise and vibration as part of their induction training and as required prior to specific work activities;

9.4.7 When plant is not being used, it should be shut down and not left to idle;

9.4.8 Methods of work and vehicular routes will be selected with regard to minimising noise and vibration impact;

9.4.9 Given the phasing of construction, certain areas of the Proposed Development will be occupied while construction is still underway in adjacent areas. Where possible, the occupancy of completed phases of construction should be planned in such a way that there is a buffer between occupied areas and areas where construction is being carried out.

9.4.10 Given the nature of the construction activities expected on site, the impact could be significant without mitigation. However the construction noise and vibration impacts can be mitigated effectively through the CEMP.

Direct façade noise levels on the proposed dwellings

9.4.11 Passive ventilation systems and double glazing for only those residential properties falling within NEC C and fronting onto the highways boarding the site .

9.4.12 Internal layout of properties to consider the location of lounge and bedroom areas for those properties fronting onto the highways boarding the site.

9.4.13 Site layout to consider the orientation of residential buildings to reduce sight lines onto the highways boarding the site.

9.4.14 Overall it is considered that the Proposed Development is acceptable with regards to noise impacts.

10 SOCIO-ECONOMICS

10.1 Introduction

10.1.1 This section reviews the existing socio-economic conditions at the Proposed Development site with respect to standards and objectives, national planning policy guidance and local policies.

10.2 Scope and Methodology

10.2.1 A desk based assessment of the economic and social effects of the Proposed Development was completed, with a study area of 5km radius around the site but also considering the wider Suffolk Coastal District Council (SCDC) area and county where needed. The assessment focused on land use, population, local businesses and jobs, education and skills, health and wellbeing, housing supply and prices, and crime and safety.

10.3 Predicted Impacts and Mitigation

Housing

10.3.1 There is an identified need to build more new homes, including affordable housing, and district and regional targets have been set. The completed development would make a significant positive contribution to meeting these targets. The amount of affordable housing to be included in the development is still being discussed with the local authority but is likely to provide a minor to moderate positive effect. The increase in housing may reduce house prices in the short to medium term. This would be a negative effect in relation to the equity of current homes, but would be a positive effect for those people looking to buy a home. In the long term the effect on house prices is considered to be neutral.

Education

10.3.2 There are a range of playgroups and pre-school clubs, nine primary schools and two secondary schools within the local study area (though other secondary schools were considered in the assessment). There are some spaces available at primary level but, with the exception of Ipswich Academy, all secondary schools have a shortfall of places by 2020 and this situation is likely to get worse in the longer term. Suffolk County Council (the Local Education Authority, LEA) has provided information on the likely number of school places needed due to families moving into the development. This has been used to develop proposals for a new 'all through' school on-site, to be constructed in the first phase of the development. This would include for early years, primary and secondary provision with sixth form provision off site. Discussions are ongoing between the LEA and the developer on the appropriate school provision to be included in the development but an agreement would be reached to make sure there would be a neutral effect on schools.

Jobs and Economy

10.3.3 Adastral Park and Innovation Martlesham are located next to the site and both are regionally important employers. There are also a number of smaller companies located close to the site, including the Moon and Sixpence holiday park and units in Seven Acres Business Park to the east and Brightwell Barns to the south west. Construction works would create new temporary jobs which would also have indirect positive effects if local suppliers are used, and workers spend in the local economy e.g. on food and accommodation. The new school, shops and offices would provide new permanent jobs, a minor positive effect. The influx of new skills and expertise to the area with the increase in population would be a minor to moderate positive effect, contributing to wider economic growth. The increase in local population would also contribute to an increase in need for local services (indirectly creating jobs) and an increased spend in the district economy, a minor to moderate positive effect. Amenity and nuisance effects on local residents and existing local businesses have been considered in the cumulative assessment.

Heath and Wellbeing

10.3.4 Footpaths across the site would be kept (though would require temporary closure and diversion during the construction works, a minor negative effect) and new footpaths created to increase connectivity between the site and other local areas. Users of the national and regional cycle trails that route close to the site would be likely to experience some minor nuisance effects during phases of the construction works. Significant new accessible green spaces, play areas, community and sports facilities to be created as part of the development would complement existing local facilities and provide a minor positive effect. A community engagement plan would be developed and implemented to make sure local organisations were involved in development of final plans for new community facilities on site. Effects on the River Deben from recreational use are addressed in the ecology assessment.

10.3.5 Provision would also be made for new healthcare facilities as part of the development and the Applicant's preference is to locate this in the main new local centre on-site. However, discussions are ongoing with the NHS and the Clinical Commissioning Group to decide what is most appropriate. Overall there would be a neutral effect on healthcare.

Crime and safety

10.3.6 The crime and design officer at the local council would be consulted and the detailed design developed in accordance with Secured by Design principles. Provision of additional sport and community facilities in the development would assist in the reduction of anti-social behaviour. Overall no significant effects are predicted in relation to crime and safety.

11 TRANSPORT

11.1 Introduction

11.1.1 This section reviews the existing transport conditions at the Proposed Development site with respect to standards and objectives, national planning policy guidance and local policies.

11.2 Scope and Methodology

11.2.1 The methodology follows current best practice by assessing the impacts on the hierarchy of transport modes: pedestrians; cyclists; public transport users; and vehicle drivers and passengers.

11.2.2 The approach adopted for the traffic and transport assessment has been based on the Institute of Environmental Assessment (now IEMA) Environmental Assessment of Road Traffic (1993) (IEMA Guidance), which recommends screening criteria of:

- Roads where traffic flow would increase by more than 30% as a consequence of a Proposed Development; or
- Roads where traffic flows would increase by 10% and pass close to or through sensitive areas.

11.2.3 For the purposes of this assessment, the majority of the routes in the vicinity of the site are considered to be sensitive as there are residential properties fronting onto the carriageways and there is also the potential for high volumes of pedestrian and cycle movements within the urban area.

11.3 Predicted Impacts (before mitigation)

During construction

11.3.1 It is anticipated that the construction activities will be undertaken over the next circa 5 years and due to the complexity and length of the construction programme it is not possible to accurately predict volumes of traffic that will be generated over the course of a normal working day. However a qualitative assessment can be carried out as described below which presents a worst case.

11.3.2 A routing strategy is suggested which would mean that only roads best suited for construction traffic would be affected.

11.3.3 Considered that the effect of construction traffic on the local highway network will be negligible as the HGV movements will be scheduled to avoid the peak times of travel demand and the traffic generated by the tradesman will not be discernible from general traffic.

11.3.4 Furthermore, the effect from the construction traffic will be minimised as construction trips will not be routed along local roads and routes that are not designed to cater for the same.

During Operation

Severance

11.3.5 The IEMA Guidance highlights that receptors are likely to experience significant effects in terms of severance when traffic flows change by 30% or more. It can be seen from the analysis that there is no such location where such an increase is predicted, under the IEMA criteria.

11.3.6 The percentage increase reported along the identified road reflects the relatively low traffic levels. Even with the inclusion of the development traffic, the traffic flows at these locations are considered to be negligible.

Driver delay

11.3.7 Delays to non-development traffic can occur on the network due to additional traffic generated by a development. The IEMA Guidance notes that these additional delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close, to capacity.

11.3.8 The levels of traffic levels within the vicinity of the site , once the development traffic is included are within the theoretical highway capacity. However, a review of the junctions within the road network close to the site has been reviewed. The results predict a minor increase in delays.

11.3.9 Therefore effect on driver delay could be minor adverse.

Pedestrian delay

11.3.10 In accordance with the IEMA Guidance, pedestrian delay is likely to occur when traffic affects the ability of people to cross roads. There are currently low levels of pedestrian activity in the vicinity of the site , although the level of activity is likely to increase following the delivery of the Proposed Development.

11.3.11 The strongest desire line for pedestrians lies between the site and the town centre. This movement is catered for by the existing facilities which will minimise pedestrian delay.

11.3.12 Therefore it is concluded that the impact on pedestrian delay is negligible.

Pedestrian amenity

11.3.13 In accordance with the IEMA Guidance, pedestrian amenity should only be considered significant in locations where the traffic flow is doubled.

11.3.14 There are no locations identified where traffic levels are double and therefore the impact on pedestrian amenity is expected to be negligible.

Fear and intimidation

11.3.15 The primary factor in increasing levels of fear and intimidation for pedestrians and cyclists is high percentage changes in traffic volumes and HGVs. Due to the residential nature of the development there is not predicted to be any significant increase in the volume of HGV traffic on the network and so the magnitude of change is classified as negligible.

11.3.16 There are locations identified where traffic levels do increase beyond the 30% threshold, but this is a result of low levels of existing traffic.

11.3.17 Therefore, the effect of the Proposed Development on fear and intimidation is considered to be negligible.

Accident and safety

11.3.18 In accordance with the IEMA Guidance, an assessment of road safety should be considered if the character of traffic flow alters through increases in volume. The Proposed Development is not predicted to generate significant volumes of HGV traffic and the TA demonstrates that traffic is not likely to increase significantly on any links that are not designed for the predicted levels. Therefore, the Proposed Development is unlikely to produce a change in character of the traffic on the surrounding road network.

11.3.19 Therefore, the effect of the Proposed Development on accidents and safety is considered to be negligible within the wider road network.

11.4 Mitigation

During construction

11.4.1 It is considered that construction traffic will have no greater than a minor adverse impact. However this will be mitigated through the production of a Construction Environmental Management Plan (CEMP). The purpose is to reduce the risk of adverse effects of construction on sensitive environmental resources and to minimise disturbance to local residents.

11.4.2 The objective is to demonstrate that appropriate checking, monitoring and audit processes will be implemented to ensure works are undertaken in an appropriate manner, together with measures to ensure that appropriate corrective actions or mitigation measures are taken.

11.4.3 The CEMP shall include:-

- Details of the approved construction traffic routes;
- The times within which traffic can enter and leave the site ;
- Specified on-site parking for vehicles associated with the construction works and the provision made for access thereto; and
- Details of the expected number of construction vehicles per day.

Operation

Walking and cycling

11.4.4 The on-site network will connect into the external networks. The predominant walking and cycling desire line towards The Local Centres is to be fully incorporated into the links from the development.

Travel Plan

11.4.5 To mitigate the increase in trips, a Travel Plan (TP) has been produced. The TP establishes mode share targets to reduce traffic effect on the road network and encourage a modal shift towards sustainable modes of travel. These targets are based on challenging, but achievable non-car and Single Occupancy Vehicle (SOV) mode share targets. The targets are based upon current practice in the site 's environs and have regard to the location of the site . The targets take account of the local geography and existing transport provision.

11.4.6 Research has shown that TPs need to be managed by a travel plan coordinator, who has a clear brief with dedicated resources to manage the TP to ensure its objectives are met. It is the intention that the Travel Plan Coordinator will be in post for 5 years after 1st occupation of the Proposed Development.

11.4.7 The key to a successful TP is identifying the correct measures that will suit future residents of a development. It is unlikely that there will be sufficient attraction to a single measure; hence a combination of measures is considered the most suitable approach to pursue in this case.

Summary

11.4.8 The assessment has been undertaken in accordance with the IEMA guidelines. A full audit of the highway network surrounding the site has been undertaken as part of the assessment, the purpose of which was to identify locations that should be considered sensitive in accordance with the IEMA guidelines. The assessment of the impact of construction traffic concluded that the minimal increase in traffic during the construction phase would have a negligible impact on the road network. Any potential impact would be mitigated by the introduction of a CEMP. Traffic flow data for both the AM and PM peak hours has been obtained to form the level against which the impact of the development was assessed. A range of interventions have been identified to mitigate the development impact.

11.4.9 A detailed assessment of the potential traffic related environmental effects and their significance has been undertaken. This concluded that there would not be significant environmental effects following mitigation.

12 CUMULATIVE EFFECTS

12.1 Introduction

12.1.1 The cumulative effects chapter of the Environmental statement assesses the potential for significant cumulative effects associated with the proposed scheme.

12.1.2 Cumulative effects can arise from the combined effect on a given receptor or resource of other development projects when considered in combination with proposed scheme. For example, a proposed industrial plant may be predicted to generate low levels of emissions to air, but when such emissions are considered in combination with predicted emissions from a nearby proposed bypass, these may result in air quality standards being exceeded.

12.1.3 Cumulative effects can also arise from the interaction of two or more environmental effects associated with the proposed scheme on a given receptor or resource. For example, a residential receptor may be exposed to air quality degradation and increased noise levels from a project that singly may be deemed acceptable, but in combination may result in an unacceptable level of nuisance.

12.2 Committed developments

12.2.1 Consultation was undertaken with Suffolk Coastal District Council in December 2016 to identify developments with which the proposed development could potentially combine.

12.2.2 SCDC confirmed that the following sites should be included in the cumulative assessment:

- DC/15/4672/OUT - Bell Lane, Kesgrave;
- DC/14/0991/OUT - Land off Woods Lane, Melton;
- DC/15/4788/OUT - Land And Buildings To The East Of Bridge Farm, Top Street, Martlesham;
- DC/15/1128/OUT - Land At Candlet Road, Felixstowe;
- DC/16/1919/FUL - Land At High Road, Trimley St Martin;
- C/10/1906 - Land South Of Main Road, Martlesham;
- C/12/1930 - Western Part Of Land At Trinity Park And Land At White House Farm, Felixstowe Road, Purdis Farm;
- Melton Hill – Former SCDC Council Offices;
- Northern Quadrant – Adastral Park; and
- Sizewell C.

12.3 Mitigation

12.3.1 The declared residual effects for the proposed scheme in Sections 3 to 11 are those that are predicted to remain after taking account of environmental mitigation measures.

12.3.2 The majority of significant cumulative effects are predicted only to occur should implementation of the proposed scheme coincide with other committed developments (e.g. construction phase overlap and consequential demands on the local labour supply).

12.3.3 Mitigation for other development effects falls outside the scope of this EIA. However, it is recognised that local authorities responsible for such developments have the ability to influence the timing of developments and secure measures to avoid adverse effects occurring simultaneously.

12.4 Summary of Effects

Development	Distance from Adastral Park (approx. metres)	EIA Topic								
		Air Quality	Archaeology and Cultural Heritage	Ecology	Flood Risk & Drainage	Ground Conditions & Contamination	Landscape & Visual	Noise	Socio-economics	Transport & Travel
Site A: Bell Lane, Kesgrave	5600	N	N	N	N	N	N	N	Y	N
Site B: Woods Lane, Melton	8000	N	N	N	N	N	N	N	Y	N
Site C: Top Street, Martlesham	4800	N	N	Y	N	N	N	N	Y	N
Site D: Candlet Road, Felixstowe	13600	N	N	N	N	N	N	N	Y	N
Site E: High Road, Trimley St Martin	11200	N	N	Y	N	N	N	N	N	N
Site F: Main Road, Martlesham	2400	N	N	N	N	N	N	N	Y	N
Site G: White House Farm, Felixstowe Road, Purdis Farm	7250	N	N	N	N	N	N	N	Y	N
Site H: Melton Hill – Former SCDC Council Offices	8000	N	N	N	N	N	N	N	Y	N
Site I: Northern Quadrant	-	N	N	N	N	N	Y	N	Y	N
Site J: Sizewell C	37000	N	N	N	N	N	N	N	Y	N

12.5 Interactive Effects

12.5.1 The matrix below shows where there are likely to be Interactive Effects. The residual environmental effects of the proposed development were collectively examined to determine the potential for them to interact and generate a cumulative effect on identified resources and receptors. These effects are described in the appropriate topic chapters, and summarised in the matrix below.

	Air Quality	Above Ground Heritage	Below Ground Heritage	Ecology	Flood Risk & Drainage	Ground Conditions & Contamination	Noise	Socio-Economics	Landscape & Visual Impact	Transport & Travel Planning
Air Quality		X	✓	✓	X	X	X	✓	X	✓
Above Ground Heritage			X	✓	X	X	X	X	X	X
Below Ground Heritage				✓	X	X	X	X	X	X
Ecology					✓	✓	✓	✓	✓	✓
Flood Risk & Drainage						X	X	X	X	X
Ground Conditions & Contamination							X	X	X	X
Noise								✓	X	✓
Socio-Economics									✓	✓
Landscape & Visual Impact										✓
Transport & Travel Planning										

12.5.2 Overall the ES identified no significant cumulative or interactive effects due to the Proposed Development that are unacceptable following mitigation.

13 SUMMARY OF ENVIRONMENTAL COMMITMENTS

13.1 Introduction

13.1.1 The assessment of the proposed scheme has identified a number of impacts that would arise as a result of progression of the proposed scheme. Mitigation measures have accordingly been identified and developed to counter adverse impacts and reduce the significance of residual effects on the receiving environment.

13.1.2 Environmental mitigation measures identified during the EIA process are reported in Sections 3 to 11 of this Non-technical summary and the Environmental Statement. Subject to the granting of planning consent, these measures will form a schedule of commitments under the terms of any contract(s) for the construction and future maintenance of the proposed scheme.

13.1.3 Environmental commitments are scheduled in Table 13.1 below.

13.1 Summary of Environmental Commitments

Section of the ES	Activity/Potential Impact	Mitigation/Management/Monitoring Action
6. Air Quality	Construction	• The dust emitting activities outlined above can be effectively controlled by appropriate dust control measures and any adverse affects can be greatly reduced or eliminated; • Prior to commencement of demolition/construction activities, it is anticipated that an agreement on the scope of a dust management plan (DMP) for the construction phase will be reached with the local authority to ensure that the potential for adverse environmental effects on local receptors is minimised. The DMP should include inter alia, measures for controlling dust and general pollution from site construction operations, and include details of any monitoring scheme, if appropriate. Controls should be applied throughout the construction period to ensure that emissions are mitigated; • The dust risk categories identified have been used to define appropriate, site-specific mitigation methods. There are no 'negligible' risks assigned to any activities, however a selection of mitigation measures are usually recommended as good practice; • The traffic effects of the Proposed Development during the construction phase will be limited to a relatively short period and will be along traffic routes employed by haulage/construction vehicles and workers. Any effects on air quality will be temporary i.e. during the construction and demolition period only and can be suitably controlled by the employment of mitigation measures appropriate to the development project;

	Operation	• The development is predicted to increase the amount of exposure to poorer air quality without mitigation; • It is therefore recommended that mitigation measures will likely be required to include locating ventilation inlets as high up on each proposed building as possible to avoid air quality issues from road traffic sources; and • Operational mitigation measures could include building design measures such as mechanical ventilation with non-openable windows, consideration of rear ventilation and/or movement of non-habitable rooms closer to the locations of pollution sources.
9. Ecology	Potential to cause the unintentional spread of non-native invasive species during the construction phase.	Removal of non-native invasive species through a spraying and monitoring regime over two years to ensure all non-native invasive species have been eradicated prior to works commencing.
	Potential for direct impacts on breeding habitats associated with mature trees and shrubs	Removal of potential nesting habitat during construction will be carried out outside the bird breeding season where possible. If unavoidable an inspection of the affected area could be carried out by suitably qualified ecologist to reduce the scope for effects with legal implications
	Loss of important habitats and species present at Adastral Park and negative impacts on nearby designated sites.	Creation of 25.1ha of SANGS to provide alternative natural recreational space for new residents along with high quality ecological habitats for birds, notable plants, reptiles, bats, badgers, invertebrates and hedgehogs. An ecological management plan will ensure the long-term perpetuity of these habitats / species.

	Damage to adjacent Martlehsam Soakaway Acid Grassland CWS	Fencing and safe chemical storage to prevent physical damage to adjacent Martlesham Soakaway Acid Grassland CWS CEMP to prevent pollution effects Recreation impacts prevented through fencing and interpretation boards
	Damage / loss of Rare and Notable Plants	Recreate habitat for rare / notable plants within retained / enhanced habitat and translocate individuals within construction footprint.
	Loss of bat roosts	Natural England EPSL obtained and compensatory roosts created, Sensitive lighting scheme to be implemented Installation of bat boxes throughout scheme
	Reduction in bat foraging activity	Creation of new habitats, enhancements of retained habitats, bat friendly planting scheme and an ecological management plan implemented to ensure the long-term perpetuity of the bat assemblage Sensitive lighting scheme employed throughout site, particularly around habitats of importance, i.e. woodland, newly created SANGS greenspaces, lake. Dark corridors to be retained for light sensitive species on site.
	Killing/Injury of Badger, Reptiles, Toads and Hedgehog	Reduced speed levels on roads particularly where crossing with greenspaces. Sensitive vegetation clearance along important areas e.g. north/eastern boundaries, woodlands, grasslands guided through CEMP.
	Loss of bird habitat / disturbance to important breeding, migratory and/or wintering species	Management plan to recreate heathland, enhance woodland and scrub, and sensitively manage grassland Creation of new and replacement habitat and nesting opportunities/features including sand martin bank Creation and maintenance of low impact, disturbance-free zones

	Loss/damage to badger setts, sett building habitat	Natural England licence obtained to close active setts Foraging habitats retained and enhanced around boundaries, woodland and new heathland Fragmentation minimised through reduced speed levels, low lighting levels and retained green corridors
	Loss of important invertebrate assemblage	Ecological management plan to create open grassland habitats with extensive structural and physical variety, with on-going management to maintain early seral habitat conditions
	Killing/injury of reptiles and loss of reptile habitat	Create reptile receptor site. Translocation of individuals from reptile areas to receptor site. Enhancement of SANGS areas for reptiles Ecological management plan for newly created habitats and receptor site
	Fragmentation for Hedgehogs	Sensitive lighting scheme and reduced speed levels across site Connectivity through newly created gardens through cut-outs in fences.

11. Ground conditions and contamination	Contamination: Direct contamination of the soil and potential groundwater contamination due to earthwork operations and potential spillage of fuel oils and site stored materials during construction activities.	Disturbance of the ground during construction operations has the potential to contaminate soil and both ground and surface waters due to discharge of solids into water or by the short term mobilisation of any background contaminants within the soil matrix. The potential environmental effect of suspended solids discharges to watercourses and ground waters will be mitigated by adequate site controls developed by way of a Construction and Environmental Management Plan (CEMP. All contractors working on-site will be required to adopt proposed means of mitigation outlined. Specific matters covered in the CEMP will include: • Prohibition of any temporary construction discharges without approval of the Environment Agency; • Earthworks to be completed in a manner that protects the water quality environment and ecological interest of the area. The nature of the works and the proposed implementation methods will be agreed with the Environment Agency in advance and all works will accord with the recommendations of EA Pollution Prevention Guidance for Works in, Near or Liable to Affect Watercourses; • Discharges of waters resulting from construction activities will generally be directed to foul sewers in the surrounding areas, subject to approval of the drainage authority; • All fuels oils and potentially contaminating substances to be stored in bunded tanks or suitable hard paved and protected areas as are appropriate; • All works will be completed in accordance with the Environment Agency documents, PPG 6 Working at Construction and Demolition Sites and PPG21 Pollution Incident Response Planning together with current best practice measures for the management of construction activities; and • All surplus construction and demolition materials to be removed from site and reused, recycled, or disposed, in respective order of preference. It will be incumbent on the selected contractor to assess working practice related risks and impacts before implementation and control such by employing industry good practice techniques. Furthermore, the contractor will be required to develop emergency spillage, flood, fire and contamination control procedures such that any inadvertent incidents are immediately controlled to minimise the potential impact. As a result of the development proposals and mitigating measures being implemented, no significant adverse environmental effect will result from the Project.

12. Noise	Construction/ Demolition Noise and Vibration	Application of the CEMP
Socio Economics	Demographic Changes	Wherever possible, employees will be sourced locally from within Ealing.
	Construction	Implementation of a CEMP
		Commitment to Construction Training
	Operation	Agreement with LEA on the most appropriate school provision to be included in the Development.
		Agreement with CCG and NHS England on appropriate healthcare to be provided as part of the Development and appropriate timing for construction.
		Development and Implementation of Communication and Engagement Plan for the Development, to ensure continued dialogue with network of relevant local groups.
		Consultation with Crime and Design officer, new facilities and spaces to be built to Secured by Design Standards
		Consideration of design guidelines such as the BRE Home Quality Mark, Well Standard, and Lifetime Homes.
14. Landscape and Visual Impact	*Review Landscape and Visuals document.*	Hoarding around Site.
15. Transport and Travel	Construction traffic	Mitigation measures for the construction stage are set out in detail in the CEMP and CLP and therefore the mitigation of construction impacts are the application of these plans. Specific measures covering construction impact mitigation include: • No parking provision for construction staff to encourage the use of sustainable modes of transport • Commitment of participation in any forums that will be established as part of the Construction Logistics Strategy (CLS) currently developed by TfL for the local area • Co-ordination of timescales with consented scheme developers, where possible, to share facilities and thus reduce vehicle mileage

	Trip generation of operational site	Mitigation Measures for operational development include: • Delivery and Servicing Plan (DSP); • Workplace and residential Travel Plans (TPs); • Provision of enhanced pedestrian and cycle environment, including active frontage to provide natural surveillance, good permeability across the site with high quality pathways to ensure a minimal perception of severance, lighting on-site to create safe environment, attractive public realm; • Installation of wayfinding signs to aid pedestrian movement; • Provision of sufficient cycle parking facilities on-site; and • Limited car parking provision.

14 DRAFT ENVIRONMENTAL MANAGEMENT PLAN

14.1 Introduction

14.1.1 This chapter describes the arrangements for management of the detailed design and construction stage of the project by the Main Works Contractor. These arrangements will ensure that mitigation measures in this ES, legislative and contractual requirements, and environmental best practice are implemented.

14.2 Environmental Management during Construction

14.2.1 One of the key mechanisms for environmental management during the construction stage is the Construction Environmental Management Plan (CEMP) and associated subject plans. These are described in more detail in this section.

14.2.2 The purpose of the CEMP is to:

- provide a mechanism for ensuring that measures to mitigate potentially adverse environmental impacts identified in this ES are implemented;
- ensure that good construction practices are adopted throughout the construction of the proposed development;
- provide a framework for mitigating unexpected impacts during construction;
- provide assurance to third parties that their requirements with respect to environmental performance will be met;
- provide a mechanism for ensuring compliance with environmental legislation and statutory consents; and
- provide a framework for compliance auditing and inspection to enable contractors to be assured that their aims with respect to environmental performance are being met.

14.2.3 The CEMP is a document that continuously evolves throughout the life of the project. It will be developed as further consultations and surveys take place, and detailed design and working method statements are prepared.

14.3 Environmental Management during Operation

14.3.1 The environmental management of the Proposed Development once the Site has been developed and is occupied will be largely dictated by legislation and relevant guidelines at the time of occupation.

14.3.2 Throughout the design of the proposed indicative masterplan, design standards and sustainability requirements have been incorporated, resulting in a proposed development that would meet all current environmental requirements.

14.3.3 Environmental management measures that should be implemented by the end user of the site include:

- a Household Refuse Collection Plan for the Site;
- a Commercial Waste Collection Plan for the retail, restaurant and office units on Site;
- a Travel Management Plan to enhance the sustainability of the Site;
- management of any CHP provision; and
- maintenance of the Sustainable Urban Drainage System (SUDS) developed for the Site.

14.4 Summary of Environmental Management Commitments

14.4.1 It is the intention of Commercial Estates Group to ensure that the findings of this ES are implemented by the eventual purchaser of the Site, in such a way that the impact on the environment of the design, construction and operation of the proposed development is kept to a minimum.

14.4.2 The most effective form of mitigation is to design the project to avoid environmental impacts at source. Many environmental impacts will be avoided by commitment to the use of particular construction techniques and mitigation measures.

14.4.3 The CEMP, which this chapter provides a preliminary framework for, would achieve the following aims:

- identify and implement the mitigation measures identified in the ES;
- the identification of targets and limits to which the construction works would be controlled, so that disruption, nuisance and environmental effects are minimised; and
- a framework for monitoring and auditing works against the targets, so that should these not be met due either to incorrect implementation of mitigation measures or accidents, for example, appropriate corrective action is taken to ensure that the construction works are adjusted to meet the targets.

14.4.4 The aim of the CEMP is to set out a framework for the implementation of identified mitigation measures, together with specific procedures and limitations, which would ensure that such impacts are controlled or eliminated.

14.4.5 The CEMP, when prepared, and plans of the works as appropriate, should be submitted for review prior to commencement of the works.

14.4.6 The CEMP should provide the necessary level of management and control of construction practices. This includes advance notice of operations and duration of work that may cause noise, disruption to access, or other effects.

14.4.7 It is concluded that with the intended measures in place, and from adherence to the CEMP designed for the Site, the proposed development may be constructed without significant long-term adverse effects on the immediate and wider environment.

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