

Scoping Report for  
A C Goatham and Son

# ENVIRONMENTAL IMPACT ASSESSMENT - SCOPING REPORT - LAND AT PUMP FARM & BLOORS FARM, LOWER RAINHAM

15 August 2018

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## Figures

Figure 1      Site Plan and Proposed Scoping Area

This report has been prepared within the quality system operated at Rapleys LLP according to British Standard ISO 9001:2008.

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## 2 INTRODUCTION

### BRIEF

- 2.1 Rapleys LLP has been instructed by A C Goatham and Son to undertake an Environmental Impact Assessment (EIA) Scoping Study for the proposed development of land at Pump Farm and Bloors Farm, Lower Rainham as shown at **Figure 1**. Combined these farms constitute 'the Site'.
- 2.2 A planning application is currently being worked up for a residential development and associated infrastructure for around 1,250 dwellings. Whilst the precise application red line boundary is still to be agreed, **Figure 1** also shows the general scoping area for the Site. For some topics such as transport or landscape/visual impact, depiction of the scoping area on a plan is not practicable as the potential influence of the development extends beyond site boundaries and immediately adjacent land.
- 2.3 The intention is to submit an outline planning application in due course to coincide with the publication of the Regulation 19 consultation on the Medway Local Plan.

### OBJECTIVE

- 2.4 Notwithstanding the proposed size of the scheme (some 1,250 dwellings), and the view of Rapleys that the proposal constitutes EIA development, a separate Screening Request has been sent to Medway Council (MC) in respect of the proposal.
- 2.5 Rapleys, together with the consultant team, have given due consideration to the likely key environmental concerns resulting from the proposed development. This information is presented as a Scoping Report which identifies the aspects of the environment that are likely to be significantly affected as a result of the development. It is a formal request for a Scoping Opinion from MC.
- 2.6 It is intended that MC can subsequently adopt this document as the formal Scoping Opinion, confirming the content of the EIA to accompany the planning application for the Site.

### LEGISLATIVE CONTEXT

- 2.7 The requirement for an EIA is derived from EU Directive No. 2011/92/EU (as amended by 2014/52/EU). This Directive is transposed into UK law through the Town and Country Planning (Environmental Impact Assessment) Regulations 2017. These Regulations require that prior to the grant of planning permission the likely significant effects of a project on the environment should be assessed.
- 2.8 The outcome of this process will be the production of an Environmental Statement (ES) submitted with the planning application. The ES shall consist of the Scoping Study, the EIA, a set of Technical Appendices and a Non-Technical Summary (NTS).
- 2.9 A Scoping Study presents the information required by the Regulations to the LPA in a structured way. The required information is:
- A plan sufficient to identify the land;
  - A brief description of the nature and purpose of the development and its possible effects on the environment, and
  - Such other information or representation the person making the submission may wish to provide.
- 2.10 However, good practice guidance recommends that a comprehensive Scoping Report is submitted.

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- 2.11 This report includes the information required by the Regulations, but also expands in further detail.
- 2.12 The Scoping Report is produced in accordance with the requirements of the EIA Regulations. It is not concerned with matters under other environmental regulatory contexts, albeit there may be some overlap. For example, it is acknowledged that there may be a need for screening under the Habitats Regulations Assessment regime in relation to the nearby Medway Marshes Special Protection Area (SPA) to determine whether an Appropriate Assessment is required. Any need in this context is dealt with separately as another part of the overall planning application process.

### SCOPING METHODOLOGY

- 2.13 This report considers all of the environmental topics contained in Schedule 4 of the Regulations, including:
- Population;
  - Human Health;
  - Flora and Fauna;
  - Soils;
  - Water;
  - Air;
  - Climatic factors;
  - Material Assets;
  - Cultural and Archaeological heritage, and
  - Landscape.
- 2.14 The potential effects of the proposal on these topics will be considered during the construction and operational phases of the development (as appropriate). The Regulations require an assessment only of the likely 'significant effects' on the environment, and therefore a judgement of significance must be applied. Those environmental topics or specific elements of topics which are not considered to have significant environmental effects are proposed to be excluded, i.e., they are scoped out.
- 2.15 In this Scoping Report, the environmental effects are considered on a topic-by-topic basis, and the baseline conditions, the likely receptors (particularly the most sensitive), and any potential environmental effects that would arise from the development, are set out. If potential effects are identified, the assessment sets out the methodology that will be adopted in reviewing those effects.
- 2.16 The size of the site and the nature and scale of the development proposals means that the impacts of the development are not necessarily confined to the site itself - the most obvious example being traffic impact - and there may be a need to look at off-site mitigation measures. Consequently, the Scoping Report and the impact assessments will relate to a slightly larger area than that identified for the planning application, where appropriate.
- 2.17 The Scoping Area in Figure 1 has been identified as the area most likely to be affected by the development. It includes the site itself, adjacent properties and land that might be directly impacted on. A wider scoping area has been used for topics such as transport, which will examine traffic flows along road networks within the surrounding area, although

not specifically identified on a plan. Similarly, the development is also likely to create impacts that cannot be defined within a localised boundary on a map, for example, impacts on the local community and economy, population and journeys to work.

#### STRUCTURE OF THE REPORT

- 2.18 This Report describes the existing site, the proposed development. Work undertaken to date and most critically, summarises the likely significant effects. The Report concludes with a draft structure of the ES.

#### EIA TECHNICAL TEAM

- 2.19 This Report was prepared by Rapleys LLP with technical input provided by the following consultant team:

TOPIC AREA	RESPONSIBILITY
Economy, Population and Society/Socio Economics	Rapleys LLP
Water Resources (including Flood risk and Drainage, Climatic Factors)	PBA
Ground Conditions/ Contamination	PBA
Land Use & Agriculture	Reading Agricultural
Archaeology / Cultural Heritage	SWAT
Infrastructure & Utilities	PBA
Transportation and Travel Plan	DTA
Ecology and Conservation	The Ecology Partnership
Landscape / Visual Amenity	Julien Bore
Noise	PBA
Air Quality	PBA

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### 3 EXISTING SITE CONDITIONS

#### SITE LOCATION

- 3.1 The Site location is identified in **Figure 1**.
- 3.2 The Site, circa 48 ha, is located within Lower Rainham, Kent and is made up of two farms (Pump Farm circa 23ha and Bloors Farm circa 25ha) which are separated by Pump Lane. The Site is entirely in horticultural use, namely fruit orchards.
- 3.3 To the north of Bloors Farm is Lower Rainham Road, an adopted highway (B2004) with frontage development, predominantly residential, along parts of its length. However, as Lower Rainham Road passes Pump Lane, it has a much more open aspect with more intermittent frontage development. It is an adopted highway characterised by speed humps and passing places. The eastern boundary of Bloors Farm is formed by Lower Bloors Lane, again a narrow by adopted highway with little in the way of development along it. The southern boundary of both farms is formed by the railway line which itself is bounded by hedgerows and trees. Beyond the railway to the south is the main built up area of Rainham.
- 3.4 Pump Lane is narrow with passing places and is bordered by high hedgerows and trees for the most part. There are a few dwellings along its length.
- 3.5 There are no public rights of way crossing Pump Farm. A bridleway bisects Bloors Farm from Pump Lane in the west to Lower Bloors Lane in the east. It is contained by high hedges and trees. The northern side of the bridleway is predominantly leylandii.
- 3.6 There are several farm buildings associated with Pump Farm within the Site boundary as well as a temporary caravan area which houses the seasonal fruit pickers.
- 3.7 Immediately adjacent to the main farm access to Pump Farm are a group of dwellings comprising a couple of large detached houses in landscaped grounds, and a more recent cluster of dwellings derived from the conversion of barns at Russett Farm. All of these are outwith the Site boundary.

#### SURROUNDINGS

- 3.8 The Site is situated to the north of the main built -up area of Rainham. To the west is the Lower Twydall Conservation Area consisting of a cluster of buildings fronting Twydall Lane. To the north is the Lower Rainham Conservation Area, again a cluster of building fronting the Lower Rainham Road.
- 3.9 To the north of Lower Rainham Road along the estuary is a narrow area of land designated as a Country Park, and beyond this lies the Medway Estuary Marshes SSSI and RAMSAR.
- 3.10 Land to the west of Pump Farm and further west from Twydall Lane is also used for fruit orchards.

#### PLANNING HISTORY

- 3.11 The Site has no recent planning history beyond anything related to its current use/operation.

#### PLANNING POLICY

##### Adopted Local Plan

- 3.12 The Medway Local Plan was adopted in 2003. Only three of the policies in that plan are 'saved' - Residential development in rural areas, countryside protection (BNE25), Area of Local Landscape Importance (BNE34).

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- 3.13 The adopted Local Plan Proposals Map confirms that the site falls outside the defined settlement limits and therefore comprises part of the 'open countryside'. It is also subject to the Area of Local Landscape Value policy.

**Emerging Local Plan**

- 3.14 A Regulation 18 consultation took place in June 2018 - the Site was not included as an option for development. Representations were submitted to this consultation by Rapleys in June 2018.
- 3.15 It is understood that the Regulation 19 consultation for the Medway Council Local Plan 2012-2035 is scheduled to take place in November 2018.



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## 4 PROPOSED DEVELOPMENT

### DESCRIPTION OF DEVELOPMENT

- 4.1 The proposal is still emerging at this stage, however, in broad terms, it is likely to comprise:
- Upto 1,250 dwellings , including affordable and market in accordance with policy requirements, together with associated open space;
- 4.2 It is proposed that access to the development be taken from Lower Rainham Road.
- 4.3 Given the nature of the proposal's current stage in the design process, densities and dwelling mix cannot be confirmed at this time. However, it is envisaged that a range of densities will be provided across the site.
- 4.4 The proposal will also include extensive green infrastructure in the site's surroundings, providing amenity to future and existing residents, to ensure that the proposal is sensitively designed to integrate with the surrounding rural landscape, and to ensure that any impacts in terms of matters such as ecology and landscape are mitigated.
- 4.5 These measures include:
- Generous areas of new landscaping and planting on the periphery of and throughout the development;
  - Areas of informal open space and ecological conservation, and
  - More formalised areas of local amenity including the introduction of village greens, sports pitches and allotments.
- 4.6 It is anticipated that all of the existing farm buildings associated with the orchard use will be removed/demolished, together with the temporary caravans. The buildings are standard functional agricultural buildings and consequently there is no value or merit in their retention as part of any development scheme.

### ALTERNATIVES

- 4.6 Under Schedule 4 Part 2 of the Regulations, an ES must provide '*an assessment of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects*'.
- 4.7 The consideration of alternatives can be viewed in a number of ways, but in relation to the Site, this is considered in terms of alternative designs/layouts/access strategies and the 'no development' scenario.

### CUMULATIVE IMPACT

- 4.8 The EIA process requires the consideration of cumulative impacts where appropriate.
- 4.9 In this instance, the applicant would consider the cumulative impact of the proposal alongside any other committed housing proposal in the Rainham vicinity at the time of submission which would be agreed with MC.

## 5 POTENTIAL ENVIRONMENTAL EFFECTS

- 5.1 This section of the Scoping Report provides a brief description of the proposed development's possible effects on the environment. Regard has been had to both the construction and operational phases of the development.
- 5.2 The following commentary is not meant to be exhaustive but rather a brief description of the potential sources of environmental impact, in order that the appropriate level of resources can be applied to surveys, predictive assessments and where necessary mitigation of the potential impacts.
- 5.3 The list of potential impacts will be progressively reviewed following submission of the Scoping Report to MC, in accordance with the EIA Regulations and as further information emerges from on-going surveys and studies. In this regard, the following section identifies that several topics could be scoped out, pending the undertaking of, and submission to MC of baseline reports (the methodology for which is set out within that topic text).
- 5.4 The purpose of the scoping process is to ensure, by means of proper responses from consultees, that all of the relevant issues are set out and agreed to provide a basis for the EIA process.
- 5.5 Unless specific guidance, best practice or legislation directs otherwise, the significance of direct and indirect impacts will be assessed in the ES according to the general scale set out in below.

**Table 5.1: General Scale for Assessing Significance**

Magnitude of Change	Sensitivity of Receptor/Environment			
	High	Medium	Low	Negligible
High	Major	Moderate to Major	Moderate	Minor
Medium	Moderate to Major	Moderate	Minor to Moderate	No significance
Low	Moderate	Minor to Moderate	Minor	No significance
Negligible	Minor	No significance	No significance	No significance

- 5.6 The nature of a change will establish whether the change is positive or negative. The assessment of the significance of a change will be based primarily on the magnitude of the change and the sensitivity of the affected receptor / environment, and to a lesser extent on the duration of the change and its permanence. Where appropriate, some sections in the ES will also consider the level of certainty - i.e. a broad measure of the confidence that should be placed in the findings.
- 5.7 The general scale of measurement for each factor will be:
- Nature of Change - beneficial, neutral or adverse;
  - Magnitude of Change - high, medium, low or negligible;
  - Sensitivity of Receptor - high, medium, low or negligible;
  - Duration - long, medium or short term;

- Permanence - permanent or temporary;
- Evaluation of Significance - major, moderate, minor or no significance; and
- Level of Certainty - absolute, reasonable or uncertain.

5.8 This chapter of the report reviews the potential environmental topics on a sequential basis and follows an identical format in terms of presenting the information:

- Baseline conditions setting out those conditions with reference to any assessments already undertaken and any likely receptors;
- Potential environmental effects, and
- Assessment methodology to be adopted.

5.9 It should also be noted that in each case, the ES will identify and consider appropriate mitigation measures, resulting residual impacts and cumulative impacts (the latter are to be identified in agreement with MC).

### ECONOMY, POPULATION AND SOCIETY/SOCIO ECONOMICS

5.10 The size of the scheme has the potential to create significant effects on elements of existing social and community infrastructure without any mitigation. Consequently, it is scoped into the ES.

#### Potential Environmental Effects

5.11 Potential environmental effects are considered likely to include:

- Impact on community services and facilities arising from an increased demand from the additional population, including: education; employment; healthcare; community facilities; and open space/green infrastructure (including the Country Park, SSSI /SPA);
- Changes to the mix and balance of housing types and tenure in the area; and
- Impact on the local economy including: the likely effect on local businesses and the effect on employment opportunities during construction and operation of the development.

#### Receptors

5.12 The potential receptors likely to be directly affected by the proposal comprise the local and wider economies, both in financial and social terms, defined by way of ward boundaries.

5.13 The site lies within Rainham North ward and therefore focus will be on this ward in particular. It is also necessary to consider the impact on the adjoining wards, Rainham South and Twydall. These are considered to be the zone of influence in relation to the Site and the surrounding area.

#### Baseline Conditions

5.14 Medway Unitary Authority ("Medway") was formed in 1998 and consists of five main towns (Strood, Rochester, Chatham, Gillingham, and Rainham) and a number of smaller towns and villages, now contained within 22 electoral wards. The built areas of the main towns have expanded over time and in places there is little demarcation between the end of one town and the beginning of another. The distance from the centre of one of these main towns to the next is between one and two miles.

- 5.15 There were approximately 278,542 people resident in Medway in 2016, according to figures produced by the Office for National Statistics (ONS).
- 5.16 Compared to England the population of Medway has a smaller proportion of people over the age of 65 years (Medway 15.5% and England 17.9%). Medway has a larger proportion between the ages of 0 and 14 years than England (19.2% and 18% respectively) and between the ages of 15 and 24 years (10% and 9.5% respectively). The population of Medway is therefore younger than the population of England overall.
- 5.17 The largest ward is Gillingham North, with 19,039 people, and the smallest ward is Cuxton and Halling, with 5,843 people.
- 5.18 There is considerable variation in population density, ranging from 1.8 people per hectare in Peninsula to 85.3 people per hectare in Gillingham South in 2011. The median density is 37 per hectare, and Rainham Central, Watling, and Strood South have approximately this density.
- 5.19 The least densely populated wards are Peninsula, Cuxton and Halling and Strood Rural, and the most densely populated wards are Rochester East, Chatham Central and Gillingham South.
- 5.20 Approximately 2,150 Medway residents die each year (2,144 deaths registered in 2016). The all-age, all-cause mortality rate is statistically significantly higher in Medway than in both England and the South East (2015). The mortality rate among males is significantly higher than females.
- 5.21 Migration to Medway has dropped since peaking around 2011/12. For the first time in six years Medway saw an outward flow in internal migration - that is to other parts of the country - while international migration to Medway remained constant at +1,000 in 2016. Migration flows to Medway originate from the west; just under two thirds of inward flows to Medway are via London, with flows from six South East London authorities representing just under half of all inflows to Medway: Bexley, Greenwich, Lewisham, Bromley, Croydon and Southwark.
- 5.22 The net migration flow to Medway from London has increased in recent years; the 2016 inward flow from the capital of 2,141 is 28% higher than in 2012.
- 5.23 In Medway, the percentage of pupils at the end of Key stage 4 achieving 5 plus A\* to C grades, including English and Maths GCSEs, increased from 57.8% in 2014/15 to 60% in 2015/16. Medway remains above the national average of 53.5%.
- 5.24 The majority of the population (89.6%) in Medway are classified as White, with the next largest ethnic group being Asian or Asian British (5.2%) including Chinese. The proportion of the population that is White is slightly larger than in England and slightly lower than in Kent, although these differences are not significant.

#### Assessment Methodology

- 5.25 A preliminary desk-based study will be carried out to examine the existing socio-economic situation for the ward in which the site is located. Baseline information on the current situation in this ward and the existing economic situation will be obtained from Nomis, in the form of the 2011 Census, (ONS, 2011), being the most up to date information.
- 5.26 It will analyse the potential socio-economic effects of the development. The key socio-economic topics to be reviewed and potential impacts assessed will include:
- Population and demographics;
  - Economy and employment;

- Wealth and deprivation;
- Housing;
- Education;
- Community facilities including open space, and
- Health services.

5.27 The assessment will adopt a series of standard and recognised techniques as appropriate.

#### Potential Mitigation

5.28 It is common practice for mitigation, in this instance, to either be through direct provision of facilities on site, such as open space and primary schools, or, where this is not feasible, through financial contribution via a S106 Agreement or CIL.

5.29 Even after mitigation, there are likely to be some effects, but of reduced magnitude of significance. Notwithstanding, this, Socio Economics is therefore scoped in the ES.

### WATER RESOURCES

5.30 A preliminary baseline study of the water resources and flooding regimes affecting the Pump Farm part of the Site has already been undertaken. The following baseline conditions relating to Pump Farm have been identified. Further baseline assessment will have to be carried out for Bloors Farm. Until such time that information is available, Water Resources is scoped into the ES.

#### Potential Environmental Effects

5.31 The following potential environmental effects will be considered:

- Risk of pollution of surface and/or ground waters during construction;
- Risk of pollution of ground and surface waters from the operational phases;
- Changes in run-off characteristics due to changes in impervious areas on the Site;
- Flood risks to, and generated by, the development; and
- Risk of pollution/flooding/change in run off characteristics to the Estuary SSSI/SPA.

#### Receptors

5.32 The following receptors will be considered in the assessment:

- Groundwater;
- The Medway Marshes SSSI/SPA
- Future occupiers of the proposed development and adjacent landowners.

#### Baseline Conditions

5.33 Flood mapping supplied by the Environment Agency (2015) shows the Site is located within Flood Zone 1, being defined as the lowest risk of flooding from rivers or sea. It is also outside of the tidal and reservoir flooding zones. Rainham Creek and the Medway Estuary Marshes (SSSI/SPA) approximately 300m to the north of the Site are, however, located within Flood Zone 3.

5.34 There are no watercourses or ponds within the Site. However, there are a number of surface water flow paths within and adjacent to the Site running in a north easterly direction towards the Creek.

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- 5.35 Groundwater is estimated to be circa 15m to 20m below ground level.
- 5.36 British Geological Survey (BGS) records indicate the Site is underlain by Thanet Beds (stiff brown sandy clay with gravel) and Seaford Chalk (chalk with flint fragments). The Seaford Chalk is at relatively shallow depths.
- 5.37 EA online mapping indicates that no source protection zones are located in the immediate vicinity of the Site, i.e. within 500m. The Thanet Beds which cover the majority of the Site are classified as a Secondary A aquifer. The Seaford Chalk is a Principal Aquifer. There is a 1500mm precast concrete foul sewer crossing Pump Farm from Lower Twydall Lane to Pump Lane. Further sewers run along the Lower Rainham Road and Pump Lane.
- 5.38 There are no water mains within the Site, although pipes do run along Lower Rainham Road and Lower Twydall Lane.
- 5.39 There are no registered abstractions on Site, albeit that the client has advised that a borehole is located at the rear of the main storage building on site and is used for irrigation purposes. The well has been advanced to circa 50m depth (i.e. within the Seaford Chalk Formation) and a pump has been installed to circa 40m depth. Whilst the abstraction rate is unknown, given that it is unregistered it is assumed that the rate of abstraction is less than 20m<sup>3</sup>/day. A number of other abstractions, principally for irrigation purposes are listed within 500m of the Site.

#### Assessment Methodology

- 5.40 The Flood Risk Assessment (FRA) for the development of the Site will be prepared in accordance with National Planning Policy Framework and its Technical Guidance. The FRA will be proportional to the scale and nature of the proposed development and will aim to demonstrate that it does not increase the risk of flooding elsewhere, particularly with regards to surface water runoff. The intention is to initially examine the flooding potential, outline storage requirements and locations, review existing drainage connections, and identify any offsite improvements that are required in relation to foul discharge.
- 5.41 The preparation of the FRA and outline Drainage strategy report will be undertaken in line with the requirements for an outline planning application. In order to prepare the report the following will be undertaken:
- Liaisons with the EA and MC to agree scope of the FRA;
  - Review the baseline information and the survey data of the final Site masterplan;
  - Review EA flood maps, historical flooding records and site levels in order to confirm the extent of flooding;
  - Consultation with MC in order to obtain all relevant information from the existing local plan, Strategic Flood Risk Assessment (SFRA) and any other relevant sources of flooding;
  - Complete a site visit to assess drainage constraints and flood risk;
  - Consult and liaise with the EA, MC, Southern Water and local groups in order to determine the surface water drainage requirements, discharge rates and storage volumes that are required for attenuation;
  - Review existing drainage and make comments or recommendations including the purchase of sewer record plans;

- Review geological desk study/site investigation and consider groundwater risk assessment in relation to groundwater flooding based upon discharge within the site, outwith the site and the risk to the SSSI/SPA;
- Prepare a preliminary drainage strategy including calculations of greenfield discharge and development surface water attenuation requirement, and
- Make allowance for the effects of climate change.

5.42 The output from the above will be used to produce the FRA & Outline Drainage Strategy Report for inclusion within the ES. Calculations, drawings and illustrations will be included, as required.

#### Potential Mitigation

5.43 Mitigation measures would be proposed to either avoid or reduce the impact of the proposed development. These are as yet undefined. The EA is increasingly requesting that a Water Framework Directive (WFD) assessment is included within planning applications, which may have an impact on main water bodies including groundwater and their ability to reach or maintain good ecological and chemical status. Therefore, a WFD assessment would be carried out, the impact assessment would draw upon information contained within other ES chapters and technical appendices to ensure that potential impacts to water sensitive receptors, including the SSSI/SPA are within acceptable limits.

### GROUND CONDITIONS AND CONTAMINATION

5.44 This chapter of the ES will consider and assess the potential impacts of the existing land quality, ground conditions and the presence of any contamination within the Site upon future site users, surface waters and groundwater and the wider environment. It will also address the potential impacts to the development arising from the prevailing geological conditions.

#### Potential Environmental Effects

5.45 The following potential contamination sources are identified:

- Contamination from agricultural practices such as agrichemicals;
- The nearby landfill site adjacent to the Site and potential for ground gas migration, and
- Contaminants from the construction and demolition of on-site agricultural buildings.

5.46 The following potential environmental effects will be considered:

- Risk to the natural undisturbed geology (soil and rock) and impact on the local geodiversity/ geological setting of the Site;
- Risk to human health of on-site workers (development phase), users and general public in the surrounding area. Risk potentially derived from existing ground contamination, contamination from past land use activities;
- Risk to controlled waters (surface water and local groundwater) resources. Potential risks derived from existing ground contamination or other materials;
- Risk to proposed landscaped areas, the on-site ecosystem and the ecosystem of the surrounding area, notably the SSSI/SPA;



- Risk to proposed development construction including foundations and infrastructure.

### Receptors

- 5.47 The principal potential receptors identified included future site users, neighbouring residents and construction workers, controlled waters, buried services, future buildings and ecological receptors (such as the SSSI/SPA).

### Baseline conditions

- 5.48 A Phase 1 Ground Condition Assessment survey was undertaken in June 2016, although this relates to Pump Farm only. Whilst similar conditions are likely to be found on Bloors Farm, a Phase 1 assessment does need to be undertaken.
- 5.49 The Site generally falls in a south to north direction from a high of approximately 30m AOD to a low of 10 m AOD.
- 5.50 Historical maps of 1869 indicate a number of chalk pits to the south of the site. The largest of these is the Lower Tywdall Chalk Pit immediately to the west of the Pump Farm western boundary. By 1940 this is shown to be disused and overgrown. Records indicate that the Pit was backfilled between 2007 and 2013 with the site restored to rough open ground by March 2013. The Environment Agency website lists the site as active landfill operated by Kent Land Reclamation Ltd accepting inert waste originally under Waste Management Licence number 210049 and more recently EA Permit EAEP/EA/EPR/FP3630LC/V003. The latest available monitoring data indicate that ground gases concentrations on the perimeter are relatively low, with methane concentrations recorded being below 0.4% and carbon dioxide generally between about 2% and 3.5%.
- 5.51 Within the Site (Pump Farm) itself there is a free standing LPG gas tank at the eastern end serving the temporary caravan accommodation. Two chemicals storage sheds, a large water tank and a number of metal barrels labelled as farm oils and fuel, were noted alongside the main storage building. Whilst access to the main store was not possible during the site walkover, the client has advised that a fuel tank is also located within the main farm building; and that the tank is fully bunded and is placed on hardstanding.
- 5.52 Groundwater levels recorded in close proximity to the Lower Tywdall Chalk Pit landfill taken from the 2015 annual monitoring report (GES 2015). During 2015 Groundwater levels ranged between 3.33mAOD and 3.99mAOD in the up-gradient borehole BH1 (to the south of the landfill site) and between 1.99mAOD and 2.14mAOD in the furthest down-gradient borehole BH3a, to the north of the landfill site closest to Lower Rainham Road. Up-gradient levels were on average approximately 1.5 m greater than down-gradient. Groundwater level in the immediately down-gradient boreholes of the landfill, BH2B and BH 6 ranged between 2.49mAOD and 2.80mAOD, and 2.14mAOD and 2.46mAOD respectively.
- 5.53 Radon is a naturally occurring radioactive gas and emanated from certain geological formations to varying degrees, depending on the type, porosity and permeability. The Envirocheck report indicates the site is located in an area where between 1% and 3% of the properties are above the Action Level. According to BRE BR211 (BRE, 2007), dwellings at this location do not require radon protection measures.
- 5.54 Given the underlying geology, there is the potential for natural cavities to occur within the Site. The nearest records of such are within 1000m of the western boundary of the Site. The risk of dissolution features for solution pipes and sinkholes is considered high. These can represent a ground stability hazard, especially if infiltration and drainage patterns are



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introduced by development, i.e., this has the potential to influence the type and location of drainage strategy to be employed through the development of the Site.

#### Assessment Methodology

- 5.55 The potential environmental impacts from the development relating to the geology and ground conditions will be assessed in accordance with the most up-to-date guidelines and methodologies.
- 5.56 Consideration will also be given to potential ground stability and land contamination related impacts. The assessment will be based on the Phase 1 Ground Conditions Assessment Report (extended to cover Bloors Farm), together with the following:
- An intrusive investigation with sample collection and chemical testing of general soil quality and land stability;
  - The safe removal of all materials associated with the farming operation including any potential asbestos containing material, and
  - Ground gas monitoring in the vicinity of the adjacent landfill.

#### Potential Mitigation

- 5.57 It is possible that this process may identify that further baseline characterisation, by means of intrusive ground investigation, is necessary to further refine the significance assessment and confirm any mitigation requirements.
- 5.58 Potential mitigation measures are:
- Removal of any hotspots of contamination should it be encountered in areas of fuel/chemical storage;
  - Confirmation of any gas migration risk from the landfill to inform the need or otherwise for gas protection to buildings.

#### LAND USE AND AGRICULTURE

- 5.59 Agricultural land in England and Wales is graded between 1 and 5, depending on the extent to which physical or chemical characteristics impose long-term limitations on agricultural use. Grade 1 land is excellent quality agricultural land with very minor or no limitations to agricultural use, and Grade 5 is very poor quality land, with severe limitations due to adverse soil, relief, climate or a combination of these. Grade 3 land is subdivided into Subgrade 3a (good quality land) and Subgrade 3b (moderate quality land).
- 5.60 MAFF prepared Provisional Agricultural Land Classification (ALC) maps of the entire country in the late 1960s/early 1970s at a scale of 1:63,360 (1" to 1 mile). This information is now shown on [magic.gov.uk](http://magic.gov.uk) (at a scale of 1:250,000). This ALC information was based on reconnaissance field surveys and was intended to provide general strategic guidance on agricultural land quality; it was not intended for use in evaluating the quality of individual sites. In addition to limitations of scale, this classification was undertaken to a system that has since undergone two fundamental revisions and does not distinguish between the subgrades of Grade 3, which has important policy implications.

#### Potential Environmental Effects

- 5.61 The following potential environmental effects will be considered:
- Permanent change of use of agricultural land;

- Permanent loss of soils from the Site;
- Re-use of soils generated by the development, and
- Farm holding effects, particularly loss of employment and ability to continue the farm business.

### Receptors

5.62 The following receptors will be considered in the assessment:

- Agricultural land, particularly the best and most versatile land defined as Grades 1, 2 and 3a;
- The soils resource, and
- Agricultural holdings, and the existing fruit orchard business.

### Assessment Methodology

5.63 Agricultural Land Classification (ALC) is a standardised method for classifying agricultural land according to its versatility, productivity and workability, based upon inter-related parameters including climate, relief, soil characteristics and drainage. These factors form the basis for classifying agricultural land into one of five Grades. Excellent, very good and good quality land is classified as Grades 1, 2 and Subgrade 3a, respectively; collectively land of these grades is termed Best and Most Versatile agricultural land and is afforded a degree of protection against development within planning policy. Moderate, poor and very poor quality land is designated Subgrade 3b, Grades 4 and Grade 5 respectively, and is restricted to a narrow range of agricultural uses.

5.64 Soil profile characteristics would be investigated across the Site by an experienced soil scientist using a 70 mm diameter hand-held Edelman auger to a maximum depth of 120 cm. The soils would be mapped at a density of one inspection per hectare, which would give sufficient coverage of the Site to enable accurate assessment. Additionally, approximately four trial pits would be dug to complement the assessment.

5.65 The baseline soils data would then be used to assess the ALC grading of the Site and to provide additional comment on the handling of soil resources.

5.66 Impact on farm enterprises will be assessed based on the information obtained from the farmers which will include:

- Location of the land farmed on and off the Site;
- Location and type of agricultural buildings on the farm;
- Tenancy/ownership type;
- Type of agricultural activity;
- Crops grown, and
- Agricultural drainage (presence and type of drainage, maps if available).

5.67 Incremental effect (i.e. effect of more than one development upon a single environmental factor) is not considered relevant to the assessment of soil resources and agriculture, as these are by nature site specific. Furthermore, effects associated with soils and agriculture are not considered relevant to assessing likely combined effect of environmental factors upon single receptors (e.g. combined effect of noise, dust and visual effects on one receptor).

5.68 Cumulative impacts on farm enterprises may be present if other land being part of the business would be subject to development and will be considered as part of the assessment.

5.69 There may be cumulative impacts overall in terms of loss of high grade agricultural when considered in combination with other proposed developments.

#### Mitigation

5.70 In this instance, in terms of the permanent loss of high grade agricultural land and the orchard business associated with it, there is unlikely to be suitable mitigation. Potential mitigation in the form of re-use of soils within the development will be explored further in the assessment.

5.71 For this reason, this topic is scoped in the ES.

### ARCHAEOLOGY AND CULTURAL HERITAGE

5.72 A Desk Based Assessment has recently been undertaken. The known baseline information and methodology for assessment are identified below. Given the high potential for effects on historical assets of prehistoric and Post Medieval periods this topic is scoped into the ES.

#### Potential Environmental Effects

5.73 The following potential environmental effects will be considered:

- Potential for hitherto unknown archaeological deposits to be disturbed during the development, and
- Potential for the setting of designated assets within the study area to be impacted visually by any future development. This would include listed buildings and the Lower Rainham and Twydall Conservation Areas.

#### Receptors

5.74 The key heritage receptors associated within the Site and its immediate surroundings are summarised below:

- Within the Site boundary - potential unidentified buried archaeological remains;
- Beyond the Site boundary - potential unidentified buried archaeological remains;
- Listed Buildings in the vicinity of the Site, and the
- Conservation Areas in the vicinity of the Site.

#### Baseline Conditions

5.75 The known baseline conditions in and around the Site as identified as follows.

5.76 There are no Scheduled Ancient Monuments, Registered or Historic Parks and Gardens, Protected Military Remains or Cropmarks within a 1000m search radius of the centre of the Site.

5.77 There are two conservation areas bordering the Site - Lower Rainham, which is immediately north of Bloors Farm, and Twydall which is to the west of Pump Farm. MC does not appear to have undertaken appraisals for these conservation areas.

5.78 There are some thirteen listed buildings in the search radius of the Site including:

- Pump Farm House, Chapel House on Pump Lane;

- York Farm House, Manor House, Little London Farmhouse, Twydall Barn and Manor Barn on Twydall Lane,
- The Black House; Nos 497, 499 and 501; Bloors Place House, garden walls and outbuildings; The Old House on Lower Rainham Road.

5.79 The listed buildings date from the Medieval and Post-Medieval period.

5.80 Historical records indicate the presence of ‘flint implements’ dating from the pre-historic/palaeolithic period found during the excavation of the Twydall Chalk Pit/landfill in 1989.

5.81 The Site lies within an area characterised as Historic Landscape Character Assessment 17 - Northern Horticultural Belt.

#### Assessment Methodology

5.82 As part of the assessment the following assessment techniques will be undertaken;

- The production of a Desk Based Assessment which will:
  - (i) Provide an historic overview of the Site through research undertaken at Kent County Council archive;
  - (ii) Establish the presence of designated and non-designated heritage assets within the Site and within its vicinity through consultation with Kent County Council’s Historic Environment Record;
- Verification of the presence of any known heritage assets and assess the potential for unknown heritage assets within the Site through a site walkover survey;
- Analysis of the potential impact of the proposed development on known and potential buried archaeological remains through the use of geophysical survey and trial trench evaluation, and
- Analysis of the impact of proposed development on the setting of designations and other relevant heritage assets within and adjacent to the Site.

5.83 Discussions will be held with the County Archaeologist to establish the extent of the survey work required in respect of geophysical survey and trial trenching.

#### Potential Mitigation

5.84 Potential mitigation could include preservation in situ of buried archaeological assets and careful design around surface assets (such as listed buildings and the conservation area) so as to not negatively impact on the setting of such assets.

5.85 The creation of historical trails around the local area and new development may also be considered, bringing the history of the area to life for new residents.

#### TRANSPORT

5.86 The Transportation chapter of the ES will address the potential transportation impacts likely to result from the development of the Site, and will be informed by the Transport Assessment (TA) and Framework Travel Plan (FTP), submitted in support of the application.

#### Potential Environmental Effects

5.87 Potential environmental effects are likely to include:

- Increase in traffic flow along the adjacent roads arising from an increase in vehicular trips;
- Decrease in junction capacity at the identified junctions arising from an increase in vehicular trips;
- Change in pedestrian amenity and safety along the local roads arising as a result of increased pedestrian movement;
- Change in cycle amenity and safety along local roads arising as a result of increased pedestrian movement;
- Increased traffic flows during construction - there will be an increase in traffic flows on local roads during construction, including a temporary increase in HGV movements. Given the nature of the routes, it is considered that this effect has the potential to be major;
- Increased traffic flows post-construction - there will be an increase in traffic flows on the surrounding road network post-construction, an associated potential for increased driver stress, delay and accident rates.

### Receptors

- 5.88 The extent of the local road network to be assessed for the traffic impact analysis will be agreed with the authorities; however, as a baseline, the following are likely to be included-
- Local highway junctions (to be agreed);
  - The bridleway across the Site;
  - The pedestrian amenity and safety, and
  - The cycle amenity and safety.

### Baseline Conditions

- 5.89 Bloors Farm ownership has a frontage of around 110m with Pump Lane at the south western end. There is a further frontage of around 70m to the north.
- 5.90 It also shares a long (500m) boundary on the eastern side with Lower Pump Lane. This is a single track adopted highway which currently serves half a dozen or so houses, an allotment and some leisure areas. It has a speed limit of 30mph. Existing flows on the Pump Lane are very low (circa 200 vph in the peak periods) and there is no record of adverse accidents. It's junction with the B2004 Lower Rainham Road in the north is a simple priority junction with a wide bellmouth.
- 5.91 A bridleway bisects the farm west to east.
- 5.92 The railway bridge at the southern end of Pump Lane is restricted in width (6m with a running carriageway of 5m. The road itself is subject to a TRO restriction the width of through traffic to 6'6", although there is no obvious physical enforcement of this. There is no footway provision through the bridge. The south of Pump Lane forms a priority junction with Beechings Way, a local distributor road providing access to a number of residential streets, ultimately connecting to the A2 Gillingham road.
- 5.93 To the west of Pump Farm, Lower Rainham Road (B2004) is a 40mph, relatively wide, single carriageway road, reducing to 30mph as it enters Lower Rainham. There are few frontage properties along the road at this point. Beyond the Pump Lane junction, the character of Lower Rainham Road changes with variable width, speed cushions, traffic lights and shuttle

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working controlling the flow and speed of traffic. It is characterised by more continuous frontage development.

#### Pedestrians and Cycling

- 5.94 There is existing footway provision along Lower Rainham Road on its northern side which continues west to Gillingham and east to Bloors Wharf Road.
- 5.95 There is no footway along Pump Lane until south of the railway bridge.
- 5.96 A footbridge over the railway exists at Lower Twydall Lane adjacent to the very south western corner of the Site.
- 5.97 National Cycle Route 1 passes alongside the river front and Berengrave Lane to the east of the Site. This would provide longer distance access to the Medway towns of Gillingham and Chatham to the west for example.

#### Bus

- 5.98 To the north of the site bus stops are provided on the B2004 Lower Rainham Road in the vicinity of the Three Mariners public house (east of Pump Lane) and at Mariners Farm (to the west of Pump Lane). These lie around 350m east and 250m west of the proposed site access respectively. These bus stops serve the 131 bus route which travels between the Medway Maritime Hospital and Twydall via Gillingham and Lower Rainham. It is operated by Nu Venture and provides 2 services during the day.
- 5.99 To the south there are bus stops on Truro Way and Beechings Way. These are around 200m south of the Pump Lane site access and serve the 101, 182, 116, 130 and 131 routes. These routes provide services to Gillingham, Maidstone, Chatham and Hempstead Valley amongst others.

#### Rail

- 5.100 The closest railway station to the site is Rainham, located around 1.4 miles to the south east of the site. From this station, it is possible to access London Victoria, London St Pancras, Gillingham, Ramsgate and Dover Priory.

#### Access to facilities

- 5.101 The following facilities are found within 800m of the Site to the south in the Twydall area -
- Primary and Secondary school
  - Foodstore
  - Library
  - Post office
  - Pharmacy
  - Place of worship
  - GP

#### Assessment Methodology

- 5.102 Categories of sensitivity and magnitude of impact will be defined and assessed following the principles set out by the Guidelines for the Environmental Assessment of Road Traffic published by The Institute of Environmental Assessment in 1993 (now the Institute of Environmental Management and Assessment) (the 'IEMA Guidelines').

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- 5.103 The principles held in the Design Manual for Roads and Bridges (Highways Agency et al) (DMRB) Volume 11 - Environmental Assessment, will be followed with Section 2 of Volume 11 setting out the principles of Environmental Impact Assessment, and Section 3 giving specific guidance on environmental impact assessment methods for specific topic areas.
- 5.104 The methodology to be utilised in the assessment of traffic impact will broadly reflect that contained within the Department for Transport's (DfT's and the Departments for Communities and Local Government (DCLG)) "Guidance on Transport Assessment" (March 2007) (GTA).
- 5.105 DfT's Circular 02/2013 The Strategic Road Network and the Delivery of Sustainable Development will be utilised to address the wider traffic impact issues.
- 5.106 The TA will also look at the traffic impacts of the application Site itself, as well the surrounding highway network. The scope of the assessment will be agreed with MC/Kent County Highways/the Highways Agency (if appropriate).
- 5.107 The effect of significance are to be derived from measures of the magnitude (or scale) of the change and the sensitivity (or importance) of the receptors affected. Categories of sensitivity and magnitude will be defined and assessed to determine the significance of the effect following the principles set out by the IEMA Guidelines.
- 5.108 The IEMA Guidelines list the following environmental impacts:
- Air Pollution;
  - Dust and Dirt;
  - Ecological Effects;
  - Heritage and Conservation Areas;
  - Noise;
  - Vibration;
  - Visual Effects;
  - Severance;
  - Driver Delay;
  - Pedestrian Delay;
  - Pedestrian Amenity;
  - Fear and Intimidation;
  - Accidents and Safety;
  - Hazardous Loads.
- 5.109 The first seven of the impacts listed above will be addressed elsewhere within the EIA. The last seven impacts listed above ('Severance to Hazardous Loads') will be dealt with in the transport element of the EIA and will follow the broad principles set out in the IEMA Guidelines.
- 5.110 Traffic surveys were undertaken in 2016. These will be updated where necessary at the identified links and junctions to assess baseline traffic flows on a neutral week day and during the school holiday summer peak season. Fully classified turning counts will be undertaken at each junction for the morning period of 0700-1000 and the evening period of

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1600- 1900. Queue length data will also be recorded. This data will be used to determine the peak hours within the morning and evening periods which will be used in all modelling work.

- 5.111 The TRICs database will be used to generate the estimated increase in vehicular traffic and trips made by all other modes.
- 5.112 Each junction is to be assessed for the base and a future year which is assumed to be 5 years after submission of the planning application. To enable the future assessment to be undertaken the effect of the overall masterplan (development) will be assessed. Traffic distribution will be based on surveyed traffic movements.
- 5.113 Trips will be distributed across the transport network based on the 2011 Travel to Work Census data. Industry standard modelling software will be used to assess the capacity of the identified junctions.
- 5.114 Pedestrian and cycle amenity and safety will be appraised by considering desire lines from the Site to key services and facilities.
- 5.115 Impact of construction traffic will be assessed.

#### Potential Mitigation

- 5.116 Appropriate mitigation will be identified, including any need for a Travel Plan. Such mitigation may include
  - Improvements to key junctions;
  - Sustainable transport measures such as -
    - High Quality bus stops to serve the new development;
    - Vouchers providing free initial travel for each household for the use on the new bus services;
    - Greater frequency bus services; improvements to provide better connectivity to destinations and the railway station;
    - Community transport scheme;
    - Improvements to existing public rights of ways;
    - Provision of widened footways and / or shared cycleways/footways.

#### LANDSCAPE AND VISUAL

- 5.117 Limited baseline work has so far been undertaken. The Local Plan designates the Site within an area of local importance. There is potential for significant effects arising from the development in this context. Consequently, this topic is scoped into the ES. The known conditions are set out below.
- 5.118 The landscape and visual assessment will be prepared based upon 'The Guidelines for Landscape and Visual Impact Assessment, third edition (GLVIA3)', published by the Landscape Institute and Institute of Environmental Management and Assessment in 2013.
- 5.119 This guidance does not provide a prescriptive approach to assessment but identifies principle and good practice. The methodology for this assessment will be based on this approach. The detailed appraisal will enable the potential landscape and visual effects to



be determined, and a landscape design and mitigation strategy to be put forward as part of the outline planning application.

#### Potential Environmental Effects

5.120 Potential environmental effects on the landscape resource and visual amenity are considered likely to include:

- The introduction of built form, roads and infrastructure into a primarily undeveloped landscape;
- A change from rural character to urban character;
- The potential for the loss of trees and hedgerows;
- The potential for impacts on the Area of Local Landscape Importance and setting of the nearby estuary;
- The potential for development to impact on the setting of the conservation area and listed buildings, and
- The potential to impact on a range of visual receptors and views.

#### Receptors

5.121 The sensitivity of the landscape and visual receptors will be assessed in accordance with GLVIA3. Relative sensitivity will reflect the degree to which the resource affected can accommodate change without detrimental effect. With regard to landscape receptors, the GLVIA3 states:

*“Landscape receptors need to be assessed firstly in terms of their sensitivity, combining judgements of their susceptibility to the type or change of development proposed and the value attached to the landscape.”*

5.122 Potential landscape receptors are likely to be:

- The special qualities and setting of the conservation area;
- Site Landscape Character - key characteristics, and
- Site Landscape Character - key features and elements such as the bridleway; tree and hedgerow network and; distinctive topography and landform.

5.123 In the context of visual receptors, the GLVIA3 states that sensitivity will be dependent on:

- *“the value attached to views; and*
- *Susceptibility of visual receptors to change”.*

5.124 Visual receptors are likely to include:

- People/residents within the wider countryside;
- People/residents using the local public rights of way network, and
- People/residents using the local road network.

#### Baseline Conditions

5.125 The Site lies within the Medway Landscape Character Area 21 Lower Rainham Farmland and is described inter alia *‘flat, small to medium scale mixed farmland - orchards, arable, rough grazing; neglected pockets of land and busy road gives transitional urban fringe character to area with gradual trend towards suburbanisation in some localised areas; tranquil in many parts despite enclosure by road and rail; includes small conservation areas/hamlets’.*

5.126 The Site lies within the Gillingham Riverside Area of Local Landscape Importance and is described as *‘rural landscape of orchards and arable fields with country lanes. It forms an important green buffer separating the built-up areas of Twydall and Rainham from areas of*

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*international importance for nature conservation and recreation along the Medway estuary; it enhances the setting of the Medway Towns Northern Relief Road and allows attractive views from the river and railway; provides an attractive setting to the Lower Rainham and Lower Twydall Conservation Areas.'*

- 5.127 The condition and sensitivity to change is moderate with the aim to conserve and create.
- 5.128 To the north of the site is the Medway Landscape Character Area 5 Riverside Marshes with a character more associated with the estuarine landscape of the Medway. The Riverside Country Park lies within this area.

#### Landscape Designations

- 5.129 There are no National Parks, AONB near the Site. There are no Registered Parks and Gardens within the same visual envelope of the Site.

#### Public Rights of Way

- 5.130 There is one public right of way within the Site - a bridleway which extends from Pump Lane in the west, crossing Bloors Farm in an easterly direction to Lower Bloors Lane in the east. The bridleway continues eastwards beyond Lower Bloors Lane. It is bordered by high hedgerows and trees for much of its length. Its northern boundary it is characterised by leylandii trees, whereas its southern boundary is made up of native trees and plants.

#### Assessment Methodology

- 5.131 The landscape character appraisal will consider the effects on both the local resource and the wider context of the Site, i.e. from the physical effects on site based features (including trees and woodland) and characteristics to the potential effects on landscape character.
- 5.132 Similarly, the visual impact assessment will consider the potential visual effects on receptors bordering the Site (rights of way and properties) and within the wider study area.
- 5.133 In respect of the proposed development, the scope of the appraisal will comprehensively address the potential effects of the development during the construction and operation phases.
- 5.134 The landscape and visual assessment will include:
- Landscape character appraisal - addressing the Site, its context and character, with reference to land use, topography, susceptibility to change and landscape value, and
  - Visual amenity assessment - detailing the visual receptors and respective visual effects of the proposed development, representative photo viewpoints, including assessments of the potential construction effects.
- 5.135 A detailed Visual Effects Schedule would be produced, setting out the potential effects on all receptors with views to the scheme. This would consider the visual effects during construction, at completion of the development (in winter) and after 10 years (in summer).
- 5.136 A fully illustrated landscape and visual assessment reporting section would be produced within the ES and would include a series of plans and photo viewpoints, together with supporting technical appendices.
- 5.137 Both a digital and site-based visibility assessment will be undertaken to establish the Visual Envelope of the site. Photo viewpoints, agreed with the Council's landscape officer will illustrate views from all of the key receptors within the Visual Envelope. The likely visual

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impacts of the proposed development will be represented through use of photomontages if required, to be discussed with the Council's landscape officer.

#### Potential Mitigation

- 5.138 The planning, layout and design of the proposed development and landscape framework will take into account the existing landscape and visual receptors and seek to minimise any adverse effects whilst maximising opportunities for landscape and visual improvement.
- 5.139 Likely mitigation measures during the construction period would include attention to the location and design of Site access, temporary site compounds, lighting, signage, etc. Effective project management will be important to mitigate and minimise potential adverse effects during this phase.
- 5.140 The design and implementation of a suitably robust landscape scheme is an integral part of the overall proposal and would minimise any potential adverse effects. This scheme will need to be effectively managed and maintained in a sustainable way during the operational phase.
- 5.141 The landscape proposals would include the following:
- New Structure planting - this would include a mix of new and reinvigorated hedgerows along historic boundaries and shelterbelts to provide strategic woodland cover;
  - Greenspace - areas of formal and informal public open space would be located at focal locations throughout the residential development each connected by pedestrian, cycle and road links. These will form local amenity greenspaces or 'village greens';
  - Play facilities - for children in the form of LEAPs, NEAPs and areas of natural play;
  - Green corridors - to create ecological and pedestrian connectivity between greenspaces and built-up areas across the development. These would utilise existing rights of way.

#### ECOLOGY AND CONSERVATION

- 5.142 Initial baseline work has already been, and continues to be undertaken. The findings of that work are set out below.

#### Potential Environmental Effects

- 5.143 The main potential effects are:

##### Construction phase

- Land-take - temporary and permanent;
- Disturbance (visual, noise);
- Hydrology and pollution (dust generation, pollution of aquatic habitats off site);
- Lighting (construction); and
- Construction site hazards.

##### Operation phase

- Permanent land-take;
- Degradation of habitats;
- Disturbance;

- Air quality, pollution and hydrology; and
- Permanent lighting.

### Receptors

5.144 The key ecological features are:

### Baseline Conditions

5.145 A Preliminary Ecological Appraisal (2017) has been carried out comprising a desk study, site walkover, a Phase I Habitat Survey. Further Phase 2 surveys have also been undertaken (2018) for Birds, Newts and Reptiles, whilst Bat surveys are ongoing.

### Desk Study Results

5.146 Within the 5km study area of the Site boundary is the Medway Estuary and Marshes SPA, RAMSAR and SSSI some 250m to the north. It has been designated for the complex and mix of coastal and intertidal habitats which support assemblages of winter and breeding birds as well as migratory birds and various plant species.

5.147 Of the non-statutory designated sites within 5km, four are considered relevant -

- Riverside Country Park, which at its closest point is 15m from the Site north of Lower Rainham Road;
- Eastcourt Meadows Country Park some 400m to the north-west;
- Berengave Chalk Pit Local Nature Reserve some 500m south-east, and
- An RSPB Reserve, Nor March and Motney Hill within the estuary some 800m north-east.

5.148 A number of Bat species were returned within 3km of the Site, including Common Pipistrelle, Soprano Pipistrelle, Long-eared Bat.

### Phase I Habitat and Phase 2 Survey Results

#### *Orchards and Grassland*

5.149 The main habitats are orchards with narrow grass strips between rows of apple trees and wider grass verges varying in width between 5-10 m around the margins of the Site. The grassed areas are intensively managed and mown. Plant species are present that are tolerant of the high use of herbicides.

#### *Hedgerow and Trees*

5.150 Site boundaries are generally formed by tall species-poor hedgerows dominated by English Elm and Poplar with Ash and elder. Treelines are found within the Site to act as windbreaks/shelter belts with species of Grey Alder and Leyland Cypress.

#### *Bats*

5.151 The treeline and hedgerows are suitable foraging and commuting corridors for bats. Further Phase 2 surveys are recommended, but not yet carried out.

#### *Birds*

5.152 The Site is not suitable to support wetland and wildfowl associated with the Estuaries. Trees and hedgerows are suitable for nesting birds observed including House Sparrow, Robin Great Tit, Blue Tit, Blackbird, Magpie, Jackdaw and Collared Dove.

5.153 The Phase 2 survey was carried out during May/June 2018. The nature of the site and activity within the orchard results in no breeding activity or nests within the centre of the site and along any of the rows of apples. All breeding activity is reduced to the boundary treelines and hedgerows around the edges of the site and along the public footpath.

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- 5.154 The survey recorded a total of 26 bird species, of which 17 species were considered likely to be breeding within the boundary treelines/hedgerows.
- 5.155 None of the breeding species for which either of the SPAs qualifies was recorded during the survey. None of the water bird species that breed at the SSSI was recorded using the habitats of the site. This result is expected as most of the qualifying water bird species do not use orchard habitat and hedges. The presence of a single Black-headed gull on one occasion is not considered to be significant. It is concluded that there is no functional link between the site and either of the SPAs/SSSI in this context.
- 5.156 The species identified on site were largely common passerine species, with a number of farmland specialist species in low numbers including linnet, greenfinch, whitethroat and goldfinch (along with non-breeding kestrel and starling). Feeding activity was noted on the grassland between rows from species such as green woodpecker and blackbird while birds were also seen using the tops of the orchard rows to sing and call from including chaffinch and collard dove. The majority of activity was found along the site boundaries in mature trees and hedgerows, particularly along the edge of existing residential houses and the residential houses where swallows and house sparrows are considered to be breeding.
- 5.157 Eight species of bird were seen feeding or hunting on site but were not considered to be using the site/boundaries to breed due to unsuitable habitats present, or were only seen on a single occasion.
- 5.158 No birds from Annex 1 of the EU Council Directive on the Conservation of Wild Birds or Schedule 1 Part 1 of the Wildlife and Countryside Act were identified using the site, i.e., those of conservation importance.
- 5.159 The loss of the orchard habitat will result in the loss of feeding habitat for a low number of farmland birds and red list species, however the diversity of bird species found on site was not considered to be high and the size of the populations of red list species were also considered to be low. The orchard itself is considered to be of low biodiversity value to farmland birds due to the use of pesticides and heavy management of the apple crop, reducing the invertebrate diversity and quantity of food sources for birds.
- 5.160 House sparrow is the only red list species considered to be breeding within the site. Their territories are restricted to the edges of the existing houses at Russet Farm on the edge of Pump and Bloors Farm. This species is expected to adapt to the additional housing development, utilising the retained trees and open space within the scheme to feed on, and nest within the gardens and new buildings.
- 5.161 Additional farmland red list species: starling and linnet, are not considered likely to be breeding within the orchard habitat (nor is any species) and unlikely to be within the boundary treelines. This is due to the sporadic sightings of the species and the habitats at the edges being more suited to common garden species. Starlings are likely to nest within the housing estates adjacent to the railway line and in the off-site village.

*Great Crested Newt*

- 5.162 There are no on-Site ponds. However, two ponds some 300m north within the Riverside Country Park have been specifically created for newts. On Site, there is limited suitable newt terrestrial habitat, mainly in the north-eastern part of the Site.
- 5.163 EDNA surveys were undertaken in the off-site ponds in June 2018. They returned negative results for newts. Habitats within the Site are considered sub-optimal for newts in their terrestrial phase.

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### *Reptiles*

- 5.164 Phase 2 surveys were conducted in May and June 2018. A peak count of nine slow worms were found on site (good), largely within the western fields along the railway line, and two common lizards (low) were found on site. It is considered unlikely that more reptiles are present on site as there is a high disturbance level from dog walkers and workers on site. The survey targeted specific areas of the site where habitats were considered to be optimal for common reptile species.

### *Badgers*

- 5.165 Several holes consistent for use by Badger were observed in 2017 along some of the hedgerow banks around the Site, although no direct evidence of the species was found.
- 5.166 Phase 2 surveys are recommended, but have not yet been undertaken.

### *Assessment Methodology*

- 5.167 In order to conform to best practice, the evaluation of ecological features and the assessment of impacts on those features have followed guidance given in the Guidelines for Impact Assessment in the UK. Having characterised the impacts, professional judgement has been applied to assess whether impacts are significant or not in line with the EIA Regulations. Significance is determined by changes in the integrity or conservation status of nature conservation features.
- 5.168 The ecological survey work to date has take account of relevant national, regional and local planning policy and wildlife legislation with particular reference to:
- NPPF and the accompanying Government Circular;
  - The Conservation of Habitats and Species Regulations 2010;
  - Wildlife and Countryside Act 1981 (as amended);
  - The Countryside and Rights of Way Act 2000, and
  - Natural Environment and Rural Communities Act 2006 (NERC Act).
- 5.169 The study area has been defined as:
- Statutory sites of international nature conservation importance within 5 km of the Site;
  - Statutory sites of national nature conservation importance within 5 km;
  - Non-statutory designated sites and notable species records within 2 km of the Site;
  - Water bodies within 250 m of the Site (which could support breeding populations of great crested newt, a European Protected Species);
  - Survey area - the Site.
- 5.170 Consultation on the potential ecological impacts of the proposed development and mitigation measures will be sought with the following organisations:
- Natural England;
  - MC;
  - Kent Wildlife Trust (KWT), and
  - Environment Agency.
- 5.171 Protected species surveys have been undertaken for great crested newts, reptiles, breeding birds, wintering birds.

### *Potential Mitigation*

- 5.172 The survey work undertaken so far, would appear to indicate that the development would not cause significant effects to interests of ecological importance either on or off-site.

- 5.173 Effects would be further reduced through the implementation of the following impact avoidance measures:
- Site boundary features such as hedgerow and trees at the periphery of the site are to be protected and enhanced within the development. Species such as hazel, hawthorn, dog wood, elder, oak, holly and dogrose will provide a variety of food sources for invertebrates and birds;
  - Creation of rough marginal grassland sown with a rich wildflower mix along the edges of the woodland and around the proposed development will provide invertebrate sources for a number of bird species, both red list and common species. These grassland strips should be inaccessible to the public to reduce disturbance. An occasional mowing regime outside of nesting bird and flowering season should be the only management undertaken;
  - Due to the low numbers and locations of the reptiles on site, a translocation is not considered to be necessary if the boundary hedgerows and base vegetation is retained. The majority of the vegetation on site between the orchard trees is not considered to be suitable and the reptiles are unlikely to move into the centre of the site and into the development area if this habitat is retained as short suboptimal grassland;
  - The loss of the orchard habitat is considered to be mitigated for by the introduction of residential gardens with hedgerows between plots and new public open space. The increase in open grassland habitat on site from garden lawns and public open space and playing fields will provide suitable feeding opportunities for species such as blackbird and starling and gull species.
- 5.174 Notwithstanding the potential for limited effects to on-site ecological assets, Ecology and Conservation remains scoped into the ES in order to consider the potential combined effects increased human activity arising from the development may have on the nearby SPA.

## NOISE

- 5.175 No baseline study work has been undertaken as yet and consequently it is not possible to determine whether there are likely to be significant effects arising from the development.
- 5.176 In broad terms it is anticipated that noise effects will be less than significant given the two sources of noise - traffic noise on adjacent roads, and rail noise from the adjacent railway. Given the extent to which residential development already exists in close proximity to the railway along its length to the south of the Site, it is not anticipated that the generation of noise from this source is a particular significant issue. In any event, mitigation is readily possible. Similarly, mitigation through the use of a Construction Environmental Management Plan (CEMP) can mitigate against noise during the construction phase of the development.
- 5.177 It is anticipated that ultimately, the need for the inclusion of a Noise chapter within the ES can be scoped out on pending the conclusions of the baseline survey work. In the event that it is scoped out of the ES, the baseline survey report would be submitted as a stand alone report accompanying the planning application. For completeness, however the following methodology will be followed for the baseline survey work.

## Assessment Methodology

- 5.178 To consider the suitability of the prevailing local noise environment for noise sensitive aspects of the proposed development, an assessment in accordance with the requirements of the National Planning Policy Framework (NPPF) will be undertaken. Standards for noise



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levels inside residential premises, in gardens and open spaces generally will be applied, in consultation with the Environmental Health Officer at MC .

- 5.179 For the purpose of the Noise Assessment, there is a requirement to establish background and source noise levels across and within the vicinity of the proposed development Site. Monitoring will be undertaken during weekday daytime and night-time periods, for each receptor location as agreed with MC.
- 5.180 The effects of noise as a result of development generated traffic will be assessed in general accordance with the principles of the Design Manual for Roads and Bridges (DMRB). Roads where traffic flow volumes are likely to change by more than 10% as a result of the scheme will be assessed. Noise levels from road traffic will be calculated using the methodology given in Calculation of Road Traffic Noise memorandum (CRTN) published by the Department of Transport and the Welsh Office in 1988. This prediction method requires a good understanding of the traffic flows, percentage heavy vehicles (HVs) and traffic speeds amongst other factors. As such, information from the Transport Assessment will be used to inform the road traffic noise level predictions. Noise measurements collected during the baseline surveys will be used to calibrate noise models predicting baseline noise from traffic flows - once a good correlation has been achieved, greater confidence in other future modelled scenarios can be accomplished.
- 5.181 Noise levels will be predicted for both 'with' and 'without' development scenarios, to allow determination of the changes in road traffic noise levels as a result of the proposed scheme. Future assessment years will be confirmed with MDC during consultations. The significance of these changes in road traffic noise levels will be assessed against a set of clearly defined significance criteria drawing on the guidance contained within the DMRB, and accounting for the sensitivity of local receptors.
- 5.182 To ensure that the potential environmental effects are considered in full, we propose to carry out the following works:
- Agree the scope of works identified in this proposal with the appropriate Environmental Health Officer at MC;
  - Attended noise monitoring at locations representative of the existing sensitive residential areas during a representative weekday daytime period. It is anticipated that measurements would be undertaken at up to 6 locations;
  - Attended noise monitoring at locations representative of the proposed development Site during a representative weekday daytime and night-time periods. It is anticipated that measurements would be undertaken at up to 6 locations;
  - Assessment of the noise and vibration impacts, from earthworks and construction phases associated with the proposed development, on existing sensitive receptors;
  - Carry out a noise modelling assessment of future operational noise levels affecting the existing sensitive receptors, in accordance with current guidance;
  - Carry out a noise modelling assessment of existing noise levels affecting the proposed development, in accordance with current guidance, and
  - Outline recommendations for noise and vibration mitigation.

#### Receptors

- 5.183 Receptors are likely to include existing residents/business operators, fauna in an around the Site, members of the public using the rights of way.

#### Potential Environmental Effects

- 5.184 The potential effects on Noise and Vibration are likely to include the following:



- Noise and Vibration impacts, from earthworks and construction phases associated with the proposed development, on existing sensitive receptors in the immediate vicinity of the site;
- Noise and vibration impacts from the adjacent railway on proposed sensitive receptors, and
- Noise impacts, from vehicle movements associated with the proposed development once it is operational, on existing and proposed sensitive receptors.

#### Potential Mitigation

- 5.185 Consideration will be given to the noise mitigation measures that will be required to ensure compliance with appropriate internal and external noise level criteria adopted from BS8233:1999, the WHO, and BS4142 as appropriate.
- 5.186 Such mitigation measures may include
- Use of planning conditions requiring submission of a CEMP;
  - Restricted hours of operation and construction;
  - Best Site management practices.

#### AIR QUALITY

- 5.187 No baseline study work has been undertaken as yet and consequently it is not possible to determine whether there are significant effects arising from the development.
- 5.188 In broad terms it is anticipated that air quality effects will be less than significant given the fact that there are no AQMA's within the locality, and the two potential sources of air quality change - arising from increased traffic on adjacent roads as a result of the development and dust produced during the construction phase of the development. In any event, mitigation relative to traffic increase is possible through the use of a Site Travel Plan. Similarly, mitigation through the use of a CEMP can mitigate against dust impacts during the construction phase of the development.
- 5.189 It is anticipated that ultimately, the need for the inclusion of an Air Quality chapter within the ES can be scoped out on pending the conclusions of the baseline survey work. For completeness, however the following methodology will be followed for the baseline survey work.

#### Potential Environmental Effects

- 5.190 The following potential environmental effects are identified as:
- The effects of construction phase dust and particulate matter (PM10) emissions on public amenity and human health, as well as emissions from construction equipment and construction traffic. The main air pollutants of concern related to construction equipment and traffic are nitrogen dioxide (NO2) and fine particulate matter (PM10 and PM2.5);
  - Post-construction phase effects associated with emissions from road traffic. The main air pollutants of concern related to traffic are nitrogen dioxide (NO2) and fine particulate matter (PM10 and PM2.5). This may affect not only existing nearby residents, but also the SPA, and

- Post-construction phase effects associated with emissions from any energy centres associated with the development. The main air pollutants of concern related to combustion are nitrogen dioxide (NO<sub>2</sub>) and fine particulate matter (PM<sub>10</sub>).

### Receptors

5.191 The following potential receptors are:

- Areas within the Site where sensitive land uses (e.g. proposed residential dwellings) are proposed, and
- Existing sensitive receptors which have the potential to experience adverse impacts due to the proposed development, including sensitive locations within close proximity to the Site such as the SPA and flora and fauna in and around the Site.

### Assessment Methodology

5.192 Information on existing air quality in the area proposed for development will be obtained from the UK Air Quality Archive, Defra website, Medway Council Review and Assessment documents, and the Environment Agency.

5.193 A desktop study would be undertaken to identify the location of any receptors that could be affected by the proposed development and an initial review of the existing or baseline air quality in the area.

5.194 Consultation will be undertaken with the Air Quality Officer at MC to determine the detailed scope of the assessment and assist with the identification of sensitive receptors to be considered in the assessment. The need and extent of additional baseline monitoring in order to verify road traffic modelling will be agreed with the Air Quality Officer.

5.195 The assessment will provide an evaluation of the potential changes in air quality arising from the construction of the proposed development. It would identify the potential sources of emissions and consider (through a qualitative assessment using relevant guidance) their potential effect with regard to local air quality. Any potential effects during construction however, are likely to be temporary and short-term and insignificant in air quality terms.

5.196 During the operational phase traffic related effects will be assessed using the ADMS Roads Dispersion Model, based on traffic data provided by the project transport consultant. The assessment will establish the impact of the proposals on local air quality by modelling concentrations of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> both with and without the development at identified receptor locations. Calculations will be undertaken for an agreed baseline year and the proposed year of opening with and without development in place. The results of the dispersion modelling will be verified in accordance with Local Air Quality Management Technical Guidance (2009) (LAQM.TG(09)) using locally monitored nitrogen dioxide diffusion tube data.

5.197 Fundamental to determining the significance of air quality effects is the consideration of the magnitude of any changes in concentrations of the critical pollutants, NO<sub>2</sub> and PM<sub>10</sub>. Changes in pollutant concentrations will be evaluated in terms of their relative effect on prescribed levels of air quality (as detailed within the Environmental Protection UK Significance Criteria) to determine the priority consideration for the development proposals.

### Potential Mitigation

5.198 Potential mitigation measures are identified as:

- Best practice methods;

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- Use of planning conditions to require restricted hours of operation, submission of a CEMP,;
  - Damping down and covering of lorries prior to leaving the Site;
  - Use of wheel washing facilities on site to prevent dust migration;
  - Careful stockpiling of soils;

#### INFRASTRUCTURE AND UTILITIES

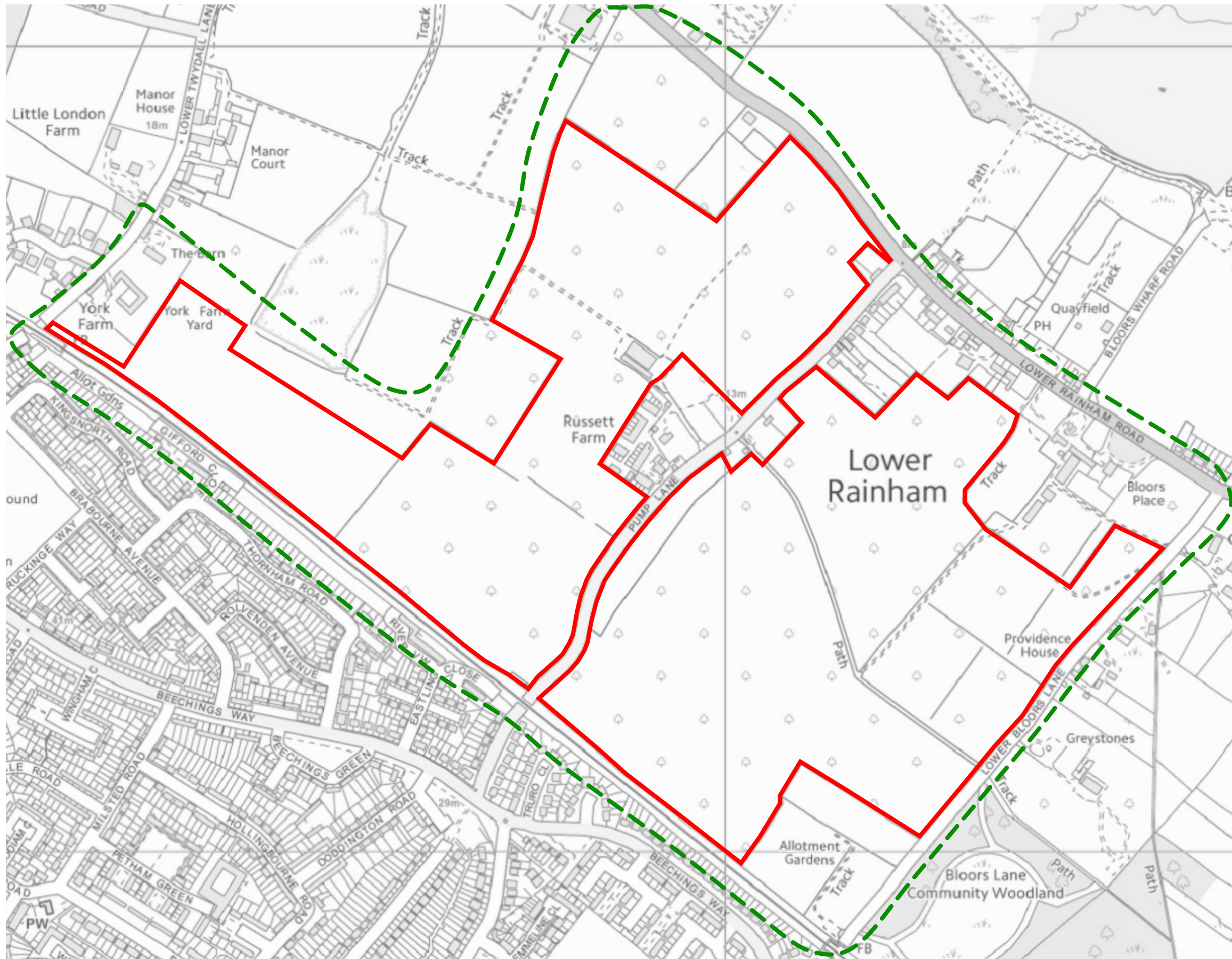
- 5.199 A utilities chapter will not be provided as part of the ES. It is therefore 'scoped out'. However, an assessment will be undertaken to assess the potential impacts of the proposed development upon the existing utility infrastructure within the Site and surrounding area. The findings of this assessment will be provided in a separate report and where necessary any impacts will be assessed under the relevant ES disciplines chapter, such as water resources.

## 6 THE STRUCTURE OF THE ENVIRONMENTAL STATEMENT

6.1 The structure for the ES will adhere to the requirements of the relevant regulations and other good practice guidance. Essentially, as outlined above, the ES will comprise three parts, the main text, the supporting appendices and the non-technical summary. The proposed structure of the ES is provided below.

CHAPTER	TITLE	GENERAL SCOPE
<b>VOLUME 1: PART A - THE SCOPING REPORT</b>		
<b>PART B -THE ENVIRONMENTAL IMPACT ASSESSMENT</b>		
1	Introduction	Outline the proposed development, legislative framework, structure of ES and details of the design team.
2	Methodology	Confirming the scope of the ES and methodology adopted, confirming the terminology for assessment of effects, committed development and assumption and limitations
3	Background Development to	Description of site and surrounding area and evolution of the proposals.
4	Development Description	Summary of proposed land use and form of development, including phasing where appropriate.
5	Alternatives	Summary of the alternatives considered.
6	Planning Policy	Identification of appropriate Planning Policy affecting the site.
7	Economy Population and Society/Socio Economics	Assessment in line with relevant guidance and Regulations.
8	Water Resources	Assessment in line with relevant guidance and Regulations.
9	Ground Conditions and Contamination	Assessment in line with relevant guidance and Regulations.
10	Archaeology and Cultural Heritage	Assessment in line with relevant guidance and Regulations.
11	Transport	Assessment in line with relevant guidance and Regulations.
12	Agriculture and Land Use	Assessment in line with relevant guidance and Regulations.
13	Ecology and Conservation	Assessment in line with relevant guidance and Regulations.
14	Landscape and Visual Amenity	Assessment in line with relevant guidance and Regulations.
15	Noise	To be scoped out pending baseline study work.
16	Air Quality	To be scoped out pending baseline study work.
17	Overview of Residual and Cumulative Effects	Summary of the residual and cumulative effects of the development.
	References, Glossary, Abbreviations	
<b>Volume 2 - TECHNICAL APPENDICES as Necessary</b>		
<b>Volume 3 - NON-TECHNICAL SUMMARY</b>		





- POTENTIAL APPLICATION SITE AREA
- IMMEDIATE SCOPING AREA

**SITE LOCATION PLAN**  
Bloors Farm/Pump Farm  
LOWER RAINHAM



Scale @ A3 : 1:5000  
Plan No. : 18-01307\_ISA01