

Appendix: EIA Methodology

Annex 1: Scoping Opinion Request Report

Annex 2: Scoping Opinion

Annex 3: Climate Change Technical Note

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Annex 2: Scoping Opinion

Annex 3: Climate Change Technical Note



Northfleet Harbourside EIA Scoping Opinion Request Report

Northfleet Central 1 Limited

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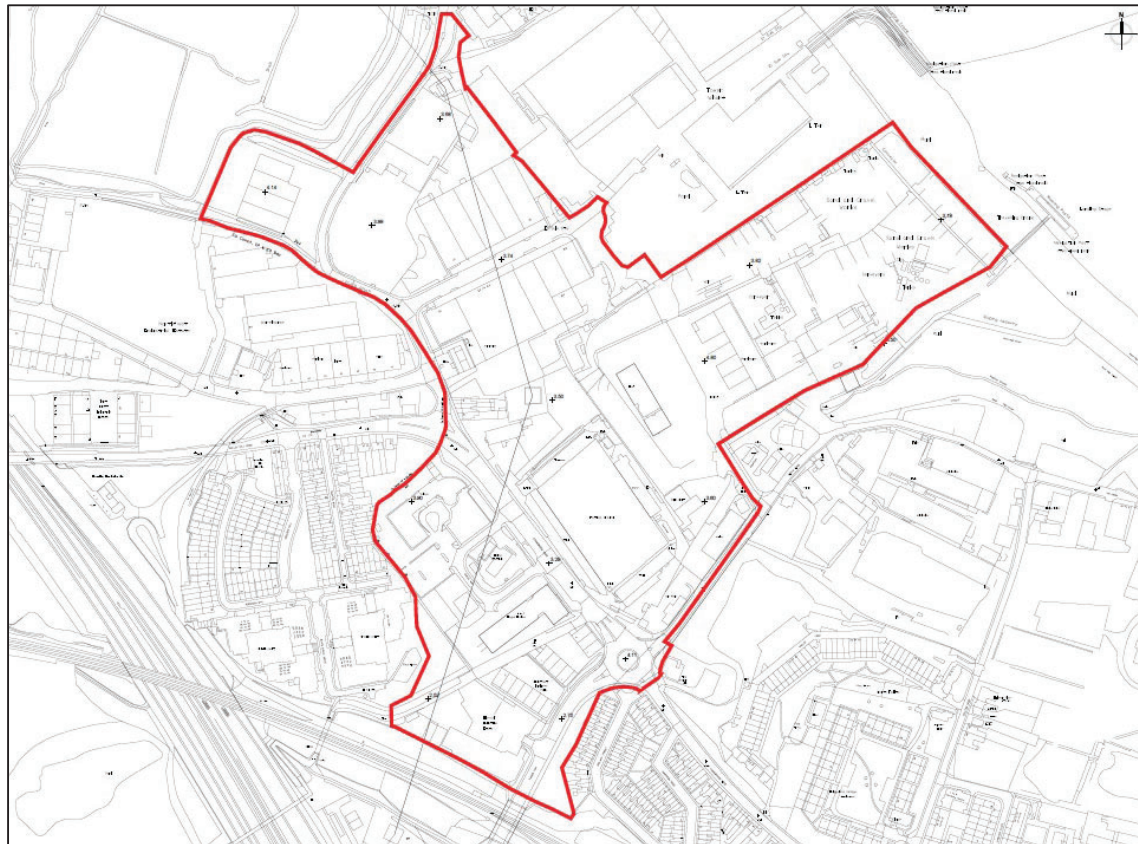
INTRODUCTION

- 1 Northfleet Central 1 Limited (hereinafter referred to as the ‘Applicant’) is seeking outline planning permission for the redevelopment of an area of land (‘the site’), currently comprising predominantly industrial uses (including aggregate works) and Ebbsfleet United Football Club, bounded by the River Thames to the north-east; industrial land to the west, south and north (including the Seacon Terminals); Botany Marshes to the north-west; and residential land to the south-east and west. The site covers a total area of approximately 19 hectares (ha) and falls within the administrative boundary of Gravesham Borough Council (GBC).
- 2 The scheme proposals (hereafter referred to as ‘the Proposed Development’) comprise the demolition of all existing buildings and structures on-site and the phased construction of a mixed-use development comprising residential units, a hotel, a new football stadium with associated business and leisure facilities, a range of commercial, business and services uses including retail and food and beverage uses, community uses and a range of sui generis uses, with associated public realm and hard and soft landscaping, highways works, car parking, access and servicing arrangements, infrastructure and ancillary works. Further details of the Proposed Development are provided in the ‘*Planning Application and Proposed Development*’ section of this Scoping Report.
- 3 The Planning Application will be submitted in outline, reserving all matters for later approval, with the exception of means of access into and out of the site, which is to be fixed and fully detailed as part of the Proposed Development. All remaining matters relating to scale, layout, appearance and landscaping will be reserved and subject to reserved matters applications at a later date.
- 4 **Figure 1** provides an indicative site location plan and **Figure 2** presents an indicative planning application boundary.

Figure 1 Indicative Site Location Plan¹



¹ Note: Indicative site boundary shown

Figure 2 Indicative Red Line Planning Application Boundary

- 5 This Scoping Report has been prepared on the basis that an Environmental Impact Assessment (EIA) will be required for the Proposed Development. This is because the Proposed Development constitutes 'EIA development' given that it exceeds the thresholds set within Schedule 2, 10(b) (Infrastructure Projects – Urban Development Projects) of the Environmental Impact Assessment (EIA) Regulations², hereafter referred to as the 'EIA Regulations', and also taking into account the scale of the redevelopment and the nature of the site and surrounding area, there is the potential for significant environmental effects to arise, as discussed within **Annex A**.

Structure of this Scoping Report

- 6 This Scoping Report is structured as follows and provides:
- A description of the location of the site and the site itself;
 - A description of the site's and surrounding area's environmental context;
 - A description of the Proposed Development;
 - A summary of the cumulative effects and effect interactions;
 - A summary of the environmental topics that are considered to potentially result in significant effects on the environment and those that are considered unlikely to result in significant effects on the environment;
 - A summary of the proposed scope and assessment and methodology that will be adopted to predict the magnitude of potential impacts and the resultant scale, nature, geographic extent and duration

² The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended).

of potential effects, and the effect significance for the topics that are considered to potentially result in significant effects on the environment;

- Supporting evidence / justification for the topics that are considered unlikely to result in significant effects on the environment; and
- The proposed structure of the ES.

- 7 This Scoping Report is supported by the following Annexes:

- Annex A: Scoping and EIA Methodology;
- Annex B: Planning Policy Context;
- Annex C: Preliminary Ecological Appraisal; and
- Annex D: TVIA Supporting Maps.

SITE LOCATION AND DESCRIPTION

- 8 The site is irregular in shape and covers a total area of approximately 19ha, falling within the administrative boundary of GBC. While fully within the GBC boundary, the site immediately adjoins the Ebbsfleet Development Corporation administrative boundary to the east and west and the Dartford Borough Council administrative boundary to the west. The site is centred around National Grid Reference (NGR) TQ 61457 75002.
- 9 The site is currently occupied by Ebbsfleet Football Stadium, industrial land uses including active aggregates/concrete handling and processing sites operated by Aggregate Industries and Brett Aggregates, and smaller industrial units as well as a (Shell) petrol station. The A226 (Stonebridge Road) runs through the site. Open spaces on-site are largely covered by concrete surfacing and areas of hardstanding. There is little to no amenity landscaping on site.
- 10 Adjacent to the northern extent of the site is Seacon Terminals which provides handling and storage of construction project material and forest material (including timber, paper and woodpulp). Further to the north, but outside of the site, lies Swanscombe Peninsula, which is designated as a Site of Special Scientific Interest (SSSI). This site has been designated in recognition of its national importance for plants, geology, birds and invertebrates³.
- 11 The River Thames borders the site to the north-east. Along the eastern boundary of the site lies Robins Creek, which has the potential to support Schedule 1 bird species⁴, as noted in *Annex C: Preliminary Ecological Appraisal*. Approximately 80m to the east of the site is the Scheduled Monument 'Aspdin's Kiln' which is thought to be the oldest Portland Cement Kiln in the world and is a well-preserved example of a dowlroght kiln used in the production of cement⁵.
- 12 Northfleet Train Station and Ebbsfleet International Train station, along with railway infrastructure, are located to the south-east of the site. As noted in **Table 2**, these stations provide Southeastern train services to London and the surrounding area, with Ebbsfleet International providing Eurostar services to Paris and Brussels in 2023.
- 13 Adjacent to the western of land boundary along Taunton Road, Robinson Way and Black Eagle Drive lies residential dwellings. Beyond these residential properties and the railway infrastructure, to the west of the site, lies green space and the village of Swanscombe. There are several local amenities within

³ <https://www.gov.uk/government/news/swanscombe-peninsula-confirmed-as-site-of-special-scientific-interest>

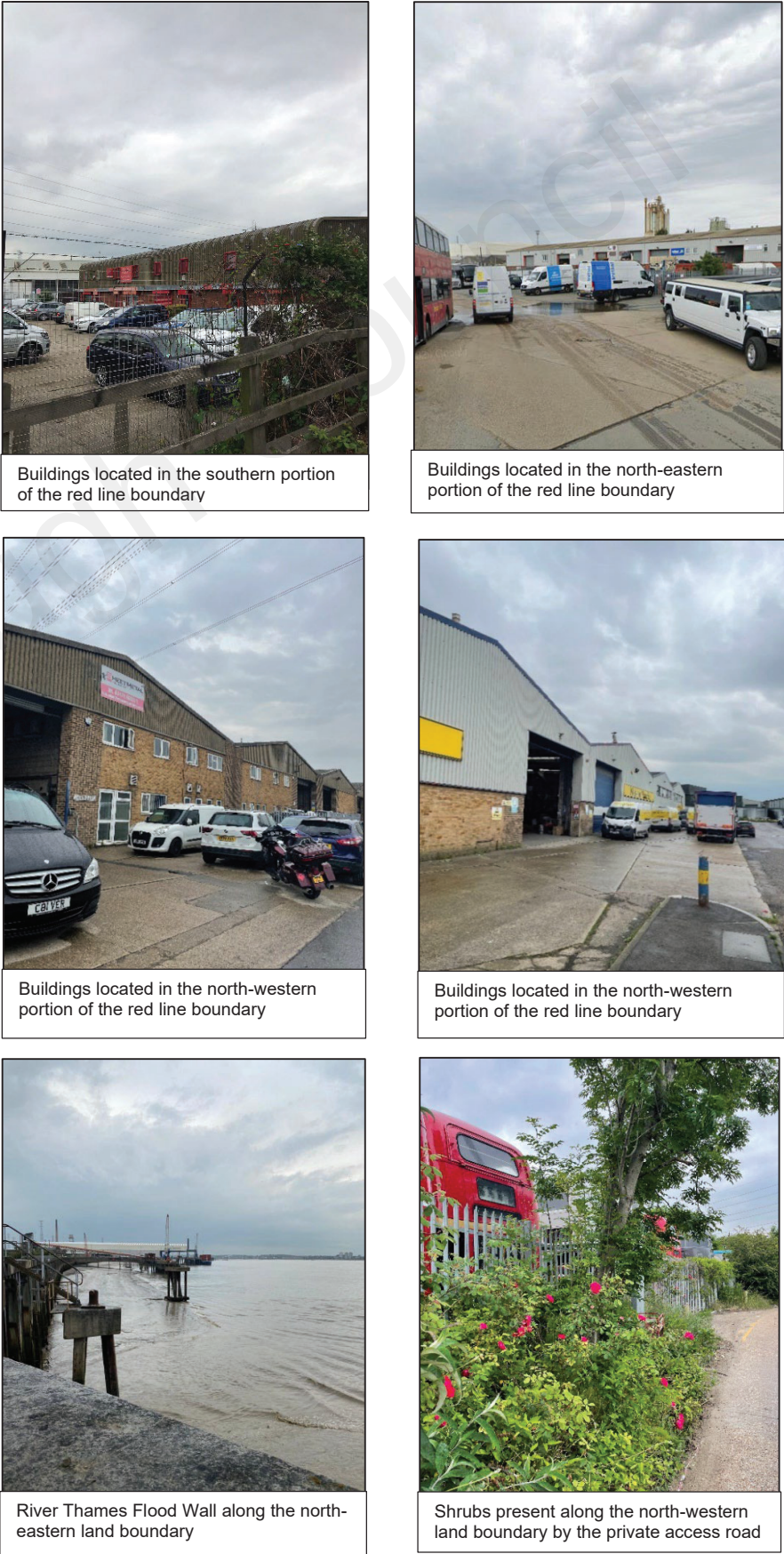
⁴ The Wildlife and Countryside Act 1981 has designated protected bird species under Schedule 1 of the Act. It is an offence to intentionally or recklessly disturb at, on or near an active nest for species listed under Schedule 1.

⁵ <https://historicengland.org.uk/listing/the-list/list-entry/1004227?section=official-list-entry>

- Swanscombe including pharmacies, GP Surgeries, primary and secondary schools, cafes and restaurants, and grocery stores.
- 14 The site is located within the Northfleet Embankment and Swanscombe Peninsula East Opportunity Area⁶. There are clear opportunities in this location to make more efficient use of the land, facilitate river-related activity, accommodate new development and secure environmental improvements as part of the wider regeneration and growth strategy for the area. The site is located within sub areas 1.2 and 1.3. It is anticipated in the 2014 Local Plan Core Strategy that sub area 1.2 will remain in active employment uses and the retention and expansion of industrial and port related employment will be supported. Sub area 1.3 has the potential for residential-led regeneration.
- 15 The site is located within a Mineral Safeguarding Area, and is subject to the GBC urban boundary/village confines and the Sub - Alluvial River Terrace Deposits Mineral safeguard area designation, as identified on the Kent Minerals and Waste Local Plan⁷. Although the site is located within the Northfleet Embankment and Swanscombe Peninsula East Opportunity Area, it is not within a key site and does not meet the allocation test as per the Mineral Safeguarding policy. This matter will be appropriately addressed in consultation with Kent County Council (as the appropriate Mineral Planning Authority) in order to satisfy Policy DM7 of the Kent Minerals and Waste Local Plan.
- 16 **Figure 3** includes some images of the existing site.

⁶ Gravesham Local Plan Core Strategy (2014); page 56; <https://www.gravesham.gov.uk/planning/local-plan>
⁷ Kent County Council, Adopted 2020, Kent Minerals and Waste Local Plan

Figure 3 The Existing Site



ENVIRONMENTAL CONTEXT

- 17 The site is bounded by the River Thames to the north-east; industrial land to the west, south and north (including the Seacon Terminals); Botany Marshes to the north-west; and residential land to the south-east and west. The site covers a total area of approximately 19ha and falls within the administrative boundary of GBC.
- 18 The site and surrounding environmental context is described in **Table 1** below and illustrated in **Figure 4**.

Table 1 Environmental Context

Environmental Topic	Key features, Designations and Considerations
Socio-Economics	- The site is currently occupied by Ebbsfleet Football Stadium, industrial land uses including aggregates handling sites, smaller industrial units as well as a (Shell) petrol station, providing employment. - The site is located within a Mineral Safeguarding Area, and is subject to the GBC urban boundary/village confines and the Sub - Alluvial River Terrace Deposits Mineral safeguard area designation, as identified on the Kent Minerals and Waste Local Plan. - There are several primary and secondary schools within the surrounding area. The closest primary schools are Lawn Community Primary School (approximately 800m southeast) and Manor Community Primary School (approximately 1km southwest). The nearest secondary school is Ebbsfleet Academy (approximately 800m southwest). - The closest medical infrastructure in the area include Swanscombe Health Centre (approximately 850m southwest). Grove House Orthodontics is located within the red line boundary. - Broomfield Park is located to the west of the site (approximately 830m).
Traffic and Transport	- The site is in close proximity to existing transport infrastructure. Northfleet Train Station is located approximately 300m to the south of the site, and provides Thameslink and Southeastern services to London Charing Cross, Luton, Rainham and Gravesend. Ebbsfleet International Train Station is located approximately 500m to the southwest of the site and provides Southeastern services to St Pancras International, Dover Priory, Margate and Faversham. From 2023, Ebbsfleet International will resume Eurostar services to Paris and Brussels. - The A226 (Stonebridge Road) runs through the site boundary and serves Seacon Terminals, located to the north of the land boundary. This road will be a key consideration within the traffic assessment. - There are two bus stops along the A226 (Stonebridge Road) providing services including routes 3 and 34 to Gravesend. - Footways are present along the A226 and B175, with further pedestrian routes available in the form of Public Right of Way's that provide access to the site from the southeast via a footway over the railway line. Further pedestrian routes also provide access to the Swanscombe Marshes to the north of the site. This route travels northwest from Gravesend passing through the site and into the marshes. - Vehicular access to the site can be achieved to the north of the site via Lower Road and to the south of the site via Grove Road. Pedestrian access can be gained from various points along the A226 (Stonebridge Road), Grove Road and Lower Road. - A local cycle route runs along the A226 to the south of the site, which continues southbound where it connects to National Cycle Network (NCN) Route 1, located 1.2km from the site.
Air Quality	- GBC has declared multiple Air Quality Management Areas (AQMA), including the Northfleet Industrial Area AQMA for exceedances of the 24-hour particulate matter (PM₁₀) objective; which the site is located within. The neighbouring Dartford Borough Council (DBC) has also declared multiple AQMA, including the Dartford AQMA No.2 along the A226 corridor for exceedances of the annual mean nitrogen dioxide (NO₂) objective; the site is also partially within this area. - The A226 (Stonebridge Road) runs through the site boundary and serves Seacon Terminals. This road will be a key consideration within the air quality assessment. - The nearest residential receptors are located to the east of the site boundary (approximately 30m) along the A226 and to the west of the site boundary (approximately 40m) along Taunton Road.
Noise and Vibration	The area surrounding the site is predominantly industrial and residential. The likely sources of noise and vibration for the site would be traffic from the A226 (Stonebridge Road) which runs

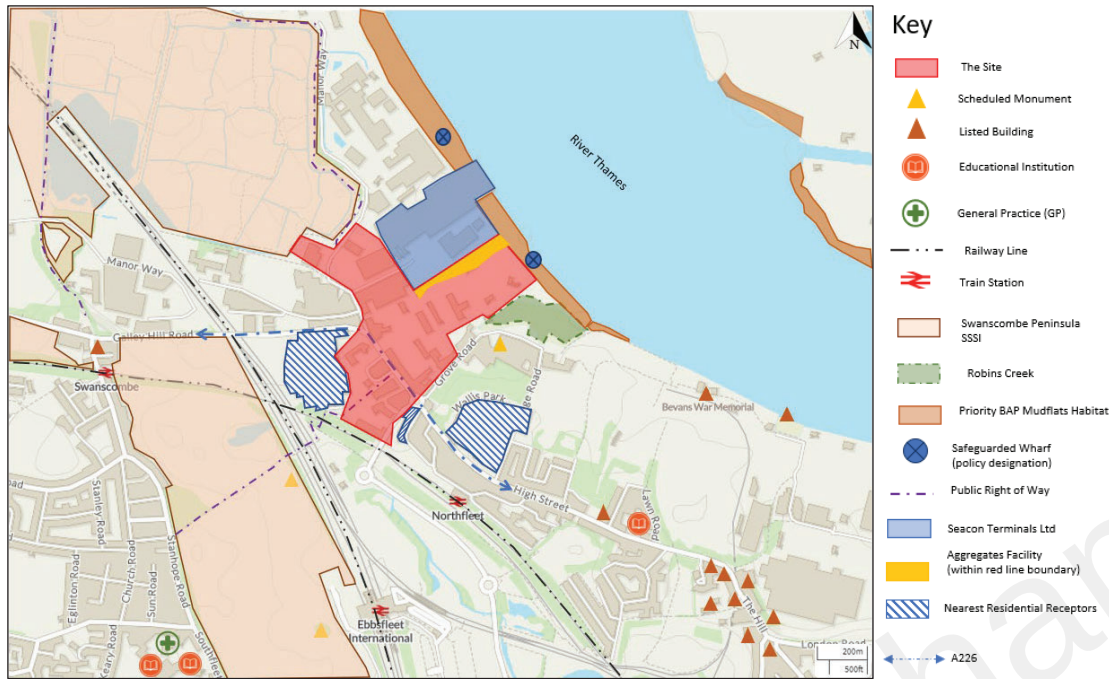
Environmental Topic	Key features, Designations and Considerations
	through the site boundary. Existing transport infrastructure is located to the south of the site and will be a source of noise and vibration. - The site is also located adjacent to Seacon Terminals which is responsible for the moving and handling of construction materials and woodpulp via ferry to the north of the site. - Potential sensitive receptors include residential properties which lie to the west (approximately 40m) along Taunton Road and east (approximately 30m) of the site boundary along the A226. - The railway infrastructure to the south-west of the site and the industrial uses to the north are considered to be a source of noise and vibration when operational.
Archaeology	The site does not contain any designated heritage assets; however, there are several heritage assets surrounding the site, including Aspden's Kiln Scheduled Monument (approximately 140m east).
Built Heritage / Townscape	- The Hill Conservation Area is located approximately 1km south-east, Landsdowne Square Conservation Area 930m east Overcliffe Conservation Area 920m east. - There are six Listed Buildings (all Grade II) within 1km of the site. The closest Listed Building is Bevan's War Memorial in Northfleet Cement Works (Grade II listed) approximately 750m east of the site.
Water Resources	- The River Thames lies directly to the north-east of the site. - The site is predominantly located in Flood Zone 3 which means there is a high probability of flooding and the lands has been assessed as having a less than 1 in 100 (1%) annual probability of river or sea flooding. However, the site benefits from flood defences which protect the site against river flooding. - The majority of the site is located in a very low surface water flood zone risk, which means that each year this area has a chance of flooding of less than 0.1%. A small portion of the site (where the current Ebbsfleet Football Stadium is located) has a low risk of surface water flooding, meaning that each year this area has a chance of flooding of between 0.1% and 1%. Small pockets within the land boundary have a high risk of flooding from surface water. High Risk means that these particular areas have a greater than 3.3% chance of flooding each year.
Ground Conditions	Available geological information indicates the bedrock of the site comprises Lewes Nodular Chalk Formation and Newhaven Chalk Formation (chalk). Superficial deposits of the site comprise of alluvium (clay, silt, sand and peat).
Ecology and Biodiversity	- The site does not contain any RAMSAR Sites, Special Protection Areas (SPA), Special Areas of Conservation (SAC), Site of Special Scientific Interest (SSSI), Important Bird Areas and Local Nature Reserves (LNR). However, the site is located in close proximity to Swanscombe Peninsula SSSI (located approximately 40m east of the northwestern portion of the site). - The SSSI has been designated in recognition of its national importance for plants, geology, birds and invertebrates. - Robins Creek borders the eastern boundary of the site and has the potential to support Schedule 1 birds.

THE PLANNING APPLICATION AND PROPOSED DEVELOPMENT

- 19
- The Applicant intends to submit an outline planning application in 2022 to deliver a comprehensive redevelopment of the site.
- 20
- The anticipated description of development for the outline application is as follows:

“Outline planning application with all matters reserved (apart from access into and out of the site) to allow the demolition of all existing buildings and structures and the phased construction of a mixed use development comprising residential units, a hotel, a new football stadium with associated business and leisure facilities, a range of commercial, business and services uses including retail and food and beverage uses, community uses and a range of sui generis uses, with associated public realm and hard and soft landscaping, highways works, car parking, access and servicing arrangements, infrastructure and ancillary works and associated works”.
- 21
- As above, the application will reserve all matters for later approval, with the exception of means access into and out of the site which is to be fixed and fully detailed as part of the submission. All remaining matters relating to ‘Scale’, ‘Layout’, ‘Appearance’, and ‘Landscaping’ will be reserved and as such will be subject to outline design parameters that will be sought for outline approval, with the detailed design of these ‘matters’ to come forward for approval by GBC later via the submission and determination of Reserved Matters Applications (RMAs). Sufficient information will be presented as part of the Planning Application and ES to enable a satisfactory assessment of potential impacts.
- 22
- The Proposed Development will comprise the delivery of:
 - Site clearance and remediation of circa 19ha acres of brownfield land;
 - Realignment of the A226 Galley Hill Road / Stonebridge Road;
 - The delivery of circa 3.8ha of open space;
 - The provision of a new multi-use stadium with up to 8,000-seater football stadium comprising up to 15,000m² Gross External Area (GEA);
 - Up to 3,500 new dwellings (Use Class C3);
 - Up to 55,00m² (GEA) Use Class E floorspace, including up to 32,000m² (GEA) retail and food and beverage floorspace and up to 18,000m² (GEA) office floorspace;
 - Up to 4,000m² (GEA) community uses;
 - A 200 pax room hotel, comprising up to 20,000m² (GEA) floorspace;
 - Buildings up to 20 storeys in height;
 - Car and cycle parking spaces; and
 - Incidental landscaping and associated works.
- 23
- As a result of the Proposed Development, the existing industrial uses on-site, including the aggregate works, will be removed.
- 24
- The outline planning application will be supported by a Parameters Report (included within the submitted Planning Statement) and Parameter Plans allowing for a degree of flexibility whilst ensuring that the EIA is appropriate and legally robust. Enough information will be presented to allow a sufficient assessment of potential impacts and likely significant effects of the completed and operational development. Any assumptions made will be clearly presented in the narrative.
- 25
- It is anticipated that the submitted Parameter Plans will comprise:
 - Parameter Plans 1 – Setting out details of land use, green infrastructure, pedestrian / cycle access points; and

Figure 4 Environmental Context⁸



⁸ Indicative site boundary shown. Also, note that Biodiversity Action Plan (BAP) Priority Habitats or Species may also be described as Species and Habitats of Principal Importance for Conservation in England, or simply 'priority habitats' and 'priority species' under the UK Post-2010 Biodiversity Framework

- Parameter Plans 2 – Setting out building heights, layout and densities.

26 With regard to the reserved matters:

- For layout and scale, maximum parameters are to be set by the Parameter Plans, within which the reserved matters will be brought forwards; and
- For appearance and landscaping, the Design and Access Statement which will be submitted in support of the planning application will present the Proposed Development design to a level appropriate for the outline stage, although will include an illustrative design which will demonstrate one way in which the Proposed Development could be brought forward within the outline parameters sought for approval.

27 In addition to the Parameter Plans, the application will be supported by a number of Design Codes which are intended to provide controls within which future detailed designs might be brought forward, ensuring that high quality design and architecture is delivered at reserved matters stage whilst providing sufficient flexibility to allow architectural interpretation to take place.

EIA METHODOLOGY

Baseline Conditions

28 In accordance with the EIA Regulations and best practice guidance documents, the EIA will comprise an assessment for each of the relevant technical topics against an appropriate baseline condition of the site and surrounding area, using methods of prediction including established standards and industry guidelines and techniques confirmed as part of the EIA Scoping process. In all cases, the source data and guidance used to establish the baseline conditions and assessment methodology will be clearly set out within the ES.

The Existing Baseline Conditions

- 29** Baseline assessments will utilise any existing and available information, as well as new information either collected through baseline surveys undertaken during the course of the EIA process or additional information provided as part of the EIA Scoping Opinion and consultation process. This information will be used to present within the ES (within the individual technical chapters) an up-to-date description of the existing baseline conditions of the site and surrounding area.
- 30** For most technical disciplines, the baseline represents the existing environmental condition of the site and the surrounding area at the time of the assessment (i.e. in the assessment year of 2022). Certain topics, however, may require the use of annualised data (e.g. air quality or socio-economics (in relation to school enrolments), where a data set is from the preceding year) or model assumptions to define the baseline conditions. In all cases, the source of the baseline data and the justification for its use will be clearly described within the ES.

Evolution of the Baseline / Future Baseline

- 31** As per the requirements of the EIA Regulations, consideration as to how the existing baseline conditions surrounding the site may evolve in the future in the absence of the Proposed Development (i.e. the “Do Nothing Scenario” onsite) will be presented in the ES. The evolution of the baseline conditions surrounding the site will take account of the period of time up to the opening year of the Proposed Development, and where relevant take account of other surrounding development schemes which are consented / under construction. An outline of the approach adopted in the ES will be described within **ES Volume 1, Chapter 1: Introduction**. The likely evolution of the baseline conditions in the absence of the Proposed Development will be quantified where possible, and where it is not possible, a

qualitative review will be presented. As appropriate, the environmental effects of the Proposed Development will be assessed against the ‘evolved’ or ‘future’ baseline.

- 32** When assessing the effects of the operation of the Proposed Development, some technical disciplines will include a projected environmental condition in the future (i.e. the ‘future baseline’, at a projected year of opening of the Proposed Development). However, a different future year can sometimes be more appropriate for / specific to a technical assessment; for example, a first year of occupation on-site or the year of full occupancy and operation. Whether an assessment uses a future baseline or a different future year, will be detailed in the methodology of the relevant technical ES chapter.

Demolition and Construction

- 33** The ES (within a non-technical chapter titled ‘Demolition and Construction’) will provide an outline of the anticipated demolition and construction programme and related activities and aspects (i.e. indicative programme phasing, demolition and enabling works, substructure works, superstructure works etc., demolition waste volumes and construction material quantities, HGV movements and HGV routing). In addition, key environmental controls and management measures relevant to the Proposed Development (including relevant codes of construction practice) will be presented. It is currently envisaged that the Proposed Development will be delivered in phases which are yet to be fully defined, though any assumptions made regarding indicative phasing for the purposes of assessment will be clearly set out and assessed as appropriate within the ES.
- 34** This information will inform the demolition and construction impact assessments. Throughout the demolition and construction impact assessments, the assumption will be made that the standard environmental controls required under legislation and best practice guidance are met as a matter of course.
- 35** The assessment of the potential for likely significant effects arising during the demolition and construction works will be addressed within each of the individual technical assessment chapters of the ES and will be assessed against the existing Baseline Conditions (described earlier). The assessment will take into consideration any other surrounding development schemes which are likely to be under construction at the same time as the Proposed Development. The demolition and construction assessments presented within the technical chapters of the ES will identify the need for any additional or bespoke environmental management or mitigation measures in order to avoid, prevent, reduce or off-set any significant adverse effects identified. In addition, where appropriate the demolition and construction assessments will consider the phasing of works and the subsequent potential for impacts to occur upon introduced receptors to the site - e.g. demolition and construction effects associated with later phases of development upon early occupiers on-site.
- 36** The ES will present demolition and construction related effects both without mitigation measures included (unless embedded mitigation measures have been identified) and with mitigation measures applied. The latter effects constitute the ‘residual effects’ identified as part of the assessment.
- 37** Where required, a description of any proposed monitoring arrangements will also be presented and would define (where appropriate) the procedures regarding the monitoring of the relevant significant adverse effects, the types of parameters to be monitored and the monitoring duration.
- 38** All the measures proposed within the technical chapters will be compiled and presented in a mitigation and monitoring schedule (to be presented as a separate chapter within Volume 1 of the ES).
- 39** It is anticipated that any required demolition and construction related environmental management / mitigation and monitoring measures would be secured and controlled through an appropriate Construction Environmental Management Plan (CEMP) (or equivalent) and it is proposed that the requirement for these documents be secured by means of suitably worded planning conditions to be

attached to the permissions (if granted). Key mitigation and management controls that would later form part of a CEMP will be presented in the ES to help define the policies, procedures and management framework for the implementation of any identified specific environmental management and mitigation controls and monitoring.

Completed and Operational Development

- 40 The ES will present a description of the Proposed Development to provide suitable context to enable the assessment of potential and likely significant environmental effects. Enough information on the Proposed Development, in terms of the key aspects, will be presented to allow an understanding of the development being proposed, in order to enable the assessment of potential and likely significant environmental effects of the completed and operational development. Any assumptions made will be clearly presented in the narrative.
- 41 As appropriate to the topic in question, the technical chapters of the ES will address the phased delivery of the Proposed Development, whereby potential impacts upon operational elements of the early phase(s) of the Proposed Development may be established as part of the demolition and construction assessment, as noted above.
- 42 The ES will present complete and operational related effects both without mitigation measures included (unless embedded mitigation measures have been identified) and with mitigation measures applied. The latter effects constitute the 'residual effects' identified as part of the assessment.

Cumulative Effects and Effect Interactions

- 43 The EIA will identify the potential for (a) Cumulative Effects and (b) Effect Interactions which are described below.

Cumulative Effects

- 44 The EIA Regulations require that, in assessing the effects of a particular development proposal, consideration should also be given to the likely significant effects arising from the "cumulation with other existing and/or approved projects" (Schedule 4, 5(e)).
- 45 Cumulative effects can occur as interactions between the effects associated with several projects in an area (i.e., 'Cumulative Schemes') which may, on an individual basis be insignificant, but together (i.e. cumulatively), result in a significant effect. Cumulative effects arising from the Proposed Development in combination with identified Cumulative Schemes will be considered throughout the ES. The potential for cumulative effects arising during the demolition and construction works and once the Proposed Development is complete and operational will be considered. Each individual technical chapter of the ES will present an assessment of the cumulative effects of the Proposed Development coming forward alongside the Cumulative Schemes.

Cumulative Effects with Other Developments

- 46 As noted above, an assessment to identify cumulative effects arising from the Proposed Development in combination with identified Cumulative Schemes will be undertaken. Given the planning status of a local major infrastructure schemes (at the pre-planning stage, currently undergoing consultation as discussed further below), it is considered appropriate to undertake a two-stage cumulative assessment:
- Tier One: assessing the cumulative effects of the Proposed Development plus 'Tier 1 Cumulative Schemes' (see below); and

- Tier Two: assessing the cumulative effects of the Proposed Development plus 'Tier 1 Cumulative Schemes' plus a 'Tier Two' scheme.

- 47 The cumulative assessment scenarios are discussed in additional detail below.

Tier One Cumulative Schemes

- 48 Generally, the 'Tier One' cumulative schemes that are included within the cumulative effects assessment fall under one (or more) of the following criteria:
- Schemes that will produce an uplift of more than 10,000m² (Gross External Area (GEA) of mixed-use floorspace), or over 150 residential units, whereby they:
 - have full planning permission, a resolution to grant permission; OR
 - have been submitted (but not yet permitted), where considered appropriate.
- 49 These parameters have been set to allow all the schemes coming forward within the area of the site to be subject to an initial screening exercise to determine the schemes that, based on the scale of redevelopment (amount and mix of uses), could potentially have a cumulative effect with the Proposed Development and should be considered further within the cumulative effects assessment of the EIA. By applying these parameters, the cumulative effects assessment of the EIA becomes more focused on relevant schemes (i.e. those with the potential to interact in a cumulative manner).
- 50 Generally, cumulative schemes considered within the cumulative effects assessment are located within 1km of the site. The list of cumulative schemes which have been considered for the Tier One Cumulative Assessment are presented in **Table 2** and **Figure 5**.

Tier Two Cumulative Schemes

- 51 Given the proximity of the proposed London Resort scheme⁹ located to the north-west of the site, a major infrastructure scheme which is currently withdrawn, and the potential for cumulative effects to occur, it is proposed that this scheme is considered as a Tier-Two cumulative scheme (as presented in **Table 2** and illustrated in **Figure 5**). It is understood that a revised planning application will be submitted for this scheme following the submission of the planning application for the Proposed Development.
- 52 Due to the changing nature of the proposals and lack of final scheme information for the proposed London Resort development, which is yet to be re-submitted for planning, a qualitative assessment will be undertaken with regards to this cumulative scheme, taking into consideration its status within the planning system, the information freely available on the scheme and any resulting potential material changes to the effects established as a result of the Proposed Development in combination with the Tier One cumulative schemes set out above.
- 53 The Lower Thames Crossing¹⁰ major infrastructure scheme is located approximately 8km to the south of the site and is currently at consultation stage. It is anticipated a planning application will be submitted towards the end of 2022. Given the distance from the Proposed Development, and the limited information available for this scheme, it is proposed that this major infrastructure scheme is scoped out of the Tier Two cumulative assessment.
- 54 Each technical chapter of the ES will consider the potential for cumulative effects associated with the schemes identified for inclusion within the cumulative effects assessment as relevant. Each technical ES chapter will be clear on the cumulative schemes that have been considered within the cumulative effects assessment.

⁹ <https://londonresort.info/>

¹⁰ National Highways: <https://nationalhighways.co.uk/our-roads/lower-thames-crossing/our-development-consent-order/>

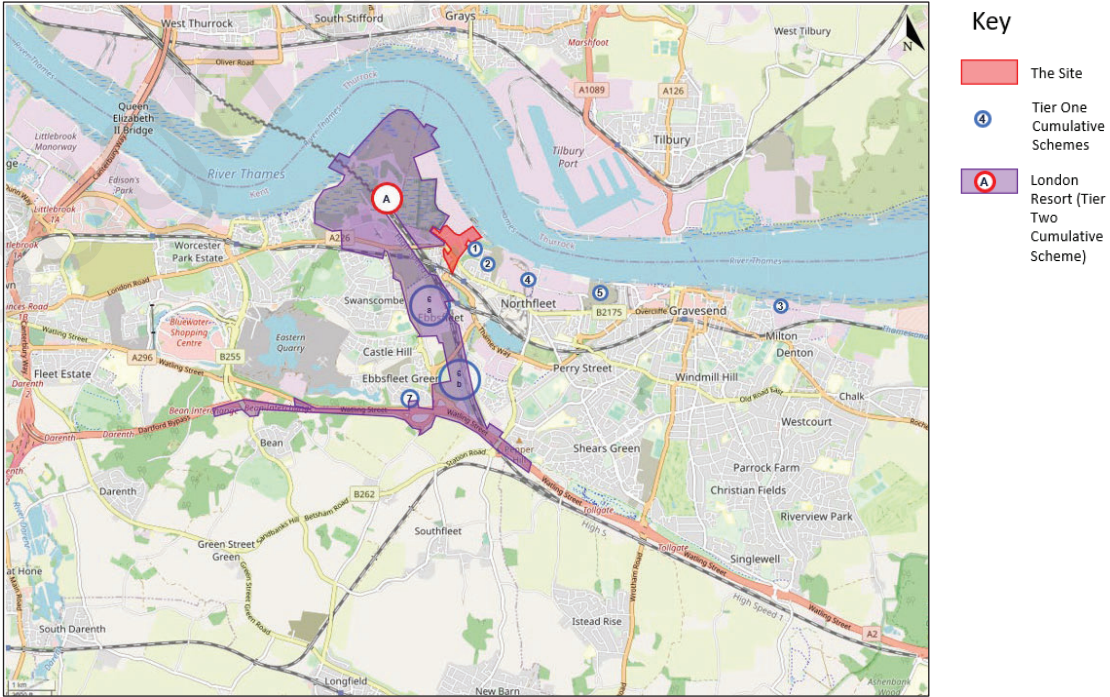
55 Where a site is subject to more than one planning application, it is proposed that the most recent application will be assessed. As part of this EIA scoping process, GBC (and other consultees, as relevant) are invited to comment on the proposed cumulative schemes, so that the list of cumulative schemes can be agreed.

Table 2 Cumulative Schemes

Ref	Name / Address	Description	Planning Application Reference (Planning System Number)	Status
Tier-One Schemes				
1	Land Adj To Northfleet Harbour Grove Road Northfleet Gravesend Kent	Outline planning application (with all matters reserved) for residential-led mixed-use development comprising demolition of existing buildings and structures and provision of residential (Class C3), flexible commercial use (Class E), non-residential institutions (Class F.1), community use (Class F2, E), hard and soft landscaping, public open spaces, car parking, pedestrian and vehicular access and other associated infrastructure works.	EDC/21/0102	Pending Decision
2	Land North Of Hive Lane Northfleet Embankment West The Shore Northfleet Gravesend Kent DA11 9AN	Reserved matters application (access, layout, scale, appearance and landscaping) pursuant to condition 2 of outline planning permission reference no. EDC/16/0004 for land north of Hive Lane (Phase 1B) comprising the erection of 121no. dwellings together with associated infrastructure including details relating to finished floor and site levels, noise attenuation measures, ecological mitigation and enhancement strategy, and schedule of public open spaces (condition 9), renewable energy, water conservation and carbon reduction technologies (Condition 11), design and maintenance of the public realm and other areas with a public amenity function, provision of and timetable for installation of public art and heritage interpretation (condition 15).	EDC/21/0081	Approved 07/01/22
3	Albion Waterside Canal Basin, Gravesend, Kent, DA12 2RN	Hybrid planning application comprising: Part A - Full planning application for demolition of existing buildings and structures, construction of a mixed use development comprising C3 and C2 Residential Uses and commercial floorspace (Use Class E), a new river wall, works to Swing Bridge, highway junction improvements at Milton Road and Ordnance Road, associated new public open spaces and public realm improvements, car and cycle parking, landscaping, infrastructure and earthworks and ancillary works; and Part B - Outline planning application with all matters reserved (apart from access) for demolition of all existing buildings and structures and the construction of a mixed use development comprising C3 Uses and commercial floorspace (Use Class E) with associated vehicular access, car parking, landscaping, associated infrastructure and earthworks and ancillary works. (The proposed development would consist of up to 1,500 homes and up to 4,500m ² (GIA) of commercial floorspace). DEPARTURE: Application does not fully accord with the provisions of the Development Plan (Core Strategy Policy CS04)	20210270	Pending Decision (Recommendation to Grant)
4	Land At Former Northfleet Cement Works The Shore Northfleet Gravesend Kent DA11 9AN	Outline application for a mixed development and comprising: up to 532 Homes, related car parking and landscaping (C3); up to 46,000m ² Employment Floorspace, related car parking, servicing and landscaping (B1/B2/B8); Mixed Use Neighbourhood Centre comprising mix of: up to 850m ² retail/cafe/takeaway floor space (A1/A2/A3/A5); residential uses (C3); community centre (D1) and related car parking and landscaping; Riverside Food and Drink Uses comprising up to 500m ² of pub or food and drink uses (A3/A4); Public Open Space including riverside promenade, public park with equipped play areas and playing field with shared public/school use, multi-use games area and wildlife corridors; Fastrack Link to provide a segregated link across the site along with Fastrack stops; Street and Footpath Network to provide access to development and maintain and enhance existing public rights of way, including a bridge link between Hive Lane and Factory Road; Access Improvement to Grove Road/The Creek and The Shore/Crete Hall Road and associated highway improvements; Supporting Services and Infrastructure including new utilities, enhanced flood defences and providing for access to	EDC/16/0004	Approved June 2018

Ref	Name / Address	Description	Planning Application Reference (Planning System Number)	Status
		cliffs and tunnels; Ground re-grading to create efficient development and open space platforms and to raise land to address flood risk ; and Other Minor Works and development ancillary to the main proposals including the demolition of existing buildings and the retention of tunnels and facing walls adjacent to Lawn Road.		
5	Northfleet Embankment East Crete Hall Road Northfleet Gravesend Kent	Hybrid planning application (part full and part outline) comprising: (1) full planning application for the erection of 598 residential dwellings including affordable housing; retail floorspace (Use Classes A1, A2 and/or A3); amendments to existing highway accesses and realignment of Crete Hall Road; demolition of rear of WT Henley Building; provision of open spaces, equipped areas of play and landscaping; and associated internal accesses/roads, parking, infrastructure, attenuation features and earthworks; and (2) outline planning application (with all matters except access reserved) for a two form entry primary school and for the refurbishment, change of use (for Use Classes A1/A2/A3/B1(a)/C3/D1) and demolition of the boundary wall and rear portion of the WT Henley Building.	EDC/17/0038	Approved March 2019
6a	Land West Of Springhead Road (Phase 2B) Springhead Road Northfleet Gravesend Kent	Application for the approval of reserved matters pursuant to outline planning permission reference number 20150155 being the development of land at Ebbsfleet for mixed use up to 789,550m ² gross floorspace comprising employment, residential, hotel and leisure uses, supporting retail and community facilities and provision of car parking, open space, roads and infrastructure; relating to erection of 126 residential dwellings in Phase 2B of Springhead Quarter including access, appearance, landscaping, layout and scale, and amendment to Phase 1B in respect of rear gardens and rear boundary treatment.	EDC/17/0049	Approved August 2017
6b	Land West Of Springhead Road (Springhead Park Phase 3) Springhead Road Northfleet Gravesend Kent	Application for the approval of Reserved Matters pursuant to outline planning permission reference number 20150155 relating to the erection of 172 residential dwellings in Phase 3 of Springhead Quarter including access, appearance, landscaping, layout and scale, along with associated changes to existing ground levels, the provision of car parking, servicing, utilities, and open space (including allotments, play space and extension of Linear Park).	EDC/18/0009	Approved June 2018
7	Former Northfleet West Sub Station Southfleet Road Swanscombe Kent	Submission of Reserved Matters of siting, design, external appearance and landscaping pursuant to Conditions 2, 19, 20, 26, 36 and 43 of the outline planning permission EDC/16/0045 for Phase 2C development of 126 residential units (C3) and including details of streets, buildings, structures, materials, open space, landscaping, car parking, noise and drainage.	EDC/18/0170	Approved August 2021
		Submission of Reserved Matters of siting, design, external appearance and landscaping, pursuant to Conditions 2, 19, 26, 36 and 43 of outline planning permission EDC/16/0045 for Phase 4 development of 133 residential units including details of streets, buildings and structures, materials, open space, car parking, noise and drainage.	EDC/19/0125	Approved March 2020
Tier-Two Scheme				
A	Swanscombe Peninsula and land adjacent to Ebbsfleet Station (the 'London Resort' scheme)	Global entertainment resort with a Leisure Core (comprising a range of events spaces, themed rides and attractions, entertainment venues split over two gates), public areas outside the two gates (offering a range of retail, commercial, dining and entertainment facilities), hotels, 'Conference' Centre, Coliseum, back of house areas, related housing, access road from the A2(T) (including junction works), people mover, river transport infrastructure at both Swanscombe Peninsula and Port of Tilbury, car parking, energy centre, waste water treatment works, land remediation and terrain modelling, flood defence and drainage works, habitat creation and all associated works. Referred to as: The London Resort scheme.	BC080001	Withdrawn 28/03/2022

Figure 5 Developments to be Considered within Cumulative Effects Assessment¹¹



¹¹ Indicative Land Boundaries shown.

- 56 It is acknowledged that there may be development schemes that are at the pre-application stage or have been recently submitted for planning but not yet determined by GBC, that may be significant enough to warrant a cumulative effects assessment. The requirement to include any specific schemes should be identified by GBC through the EIA Scoping Opinion. Should such development schemes be identified by GBC, requiring a cumulative effects assessment, it should be acknowledged by GBC that the ES will address these as far as is reasonably practicable, and that the assessments will be based on the information available on these schemes that is within the public domain.

Effect Interactions

- 57 Effect interactions occur as interactions between effects associated with just one project, i.e. the combination of individual effects arising as a result of the Proposed Development, for example effects in relation to noise, airborne dust or traffic on a single receptor.
- 58 Effect Interactions from the Proposed Development itself on particular receptors at the site and within the surrounds will be considered during the demolition and construction works and also once the Proposed Development is completed and operational. Dependent on the relevant sensitive receptors, the assessment will focus either on key individual receptors or on groups considered to be most sensitive to potential effect interactions. The potential interaction of residual effects that are of minor, moderate or major scale, will be considered within this assessment. Residual effects which are negligible, will be excluded from this assessment as by virtue of their definition, they are considered to be imperceptible.
- 59 There is no established methodology for assessing the impact of cumulative effects on a particular receptor. The interaction of a combination of individual effects would be determined to be either 'not significant' or 'significant', a scale of the combined effects (minor, moderate or major) would not be applied. If one of the individual effects is significant the combination of effects would be regarded as 'significant'. If none of the individual effects are significant the interaction of effects would be regarded as 'not significant'.
- 60 Consideration of effect interactions will be presented within the ES in a separate chapter (i.e. Effect Interactions (ES Volume 1)).

ENVIRONMENTAL TOPICS

- 61 The following table sets out the proposed scope of the EIA. Further detail on each topic is provided below.

Table 3 Environmental Topics: EIA Scope

Topic	'Scoped Into' the EIA ✓ 'Scoped Out' of the EIA ✗		Additional Assessments to Accompany the Planning Application
	Demolition and Construction	Completed Operational Development	
Socio Economics	✓	✓	Retail Impact Assessment
Health ¹²	✗	✗	Health Impact Assessment
Traffic and Transport	✓	✓	Transport Assessment
Air Quality	✓	✓	
Climate Change and Greenhouse Gas Assessment	✓	✓	
Noise and Vibration	✓	✓	
Geo-environmental (Ground Conditions, Land Contamination, Soils)	✓	✓	Phase 1 Desk Study
Daylight, Sunlight and Overshadowing	✓	✓	
Solar Glare	✗	✓	
Light Pollution	✗	✓	
Wind Microclimate	✓	✓	
Townscape, Visual and Built Heritage	✓	✓	
Archaeology (Buried Heritage)	✓	✗	Archaeological Desk Based Assessment
Ecology and Biodiversity	✓	✓	Bird Survey Report
Project Vulnerability to Major Accidents and Disasters	✗	✗	
Waste and Materials	✗	✗	Outline Waste Management Strategy
Water Resources, Flood Risk and Drainage	✗	✗	Flood Risk Assessment and Drainage Strategy

¹² Whilst this topic is scoped into the EIA, it will not form a technical ES Chapter, as discussed within the Socio-Economics section below.

SCOPED IN TOPICS

Socio-Economics

- 62 It is considered that there is the potential for likely significant effects relating to Socio-Economics and so this topic shall be scoped into the EIA. The Socio-Economics assessment will be undertaken by Montagu Evans.
- 63 The ES will:
1. Define the socio-economic baseline conditions;
 2. Identify relevant socio-economic receptors;
 3. Assess:
 - a. the potential for socio-economic effects throughout the demolition and construction works and as a result of the completed development;
 - b. the likely significant socio-economic effects;
 - c. any required mitigation to address any likely significant adverse socio-economic effects; and
 - d. the potential for cumulative socio-economic effects.

Baseline Conditions

- 64 A detailed assessment of the baseline conditions will be considered as part of the socio-economic assessment. This will include a review of the existing uses on-site, and local demographic, social and economic characteristics of the area surrounding the site, focusing on data surrounding local resident population, social infrastructure, employment and economic statistics.
- 65 Baseline conditions will be assessed at several geographic levels dependent upon the potential effect being considered (based upon relevant guidance and best practise), including the site level (where data is available at this spatial level), the local area (Northfleet North Ward), the district (Gravesham), the County (Kent) and regional area (South East).
- 66 The baseline review will consider available information relating to the site from the current owners and from publicly available data base records for the study area. This includes the following sources:
- Office for National Statistics (ONS) and NOMIS;
 - Indices of Multiple Deprivation (2019);
 - Gravesham District Council (GDC), Kent County Council (KCC) and UK Government data.
- 67 The most recent published sources will be used in doing so – data sources published in 2022 will be used where possible, but where this is not available the next best alternative (i.e. the most up to date) will be used.
- 68 A qualitative review of the evolved baseline (i.e. how the baseline may evolve in the absence of the Proposed Development) will be also undertaken based on a review of current site conditions and cumulative schemes in the area.

Receptors

- 69 Receptors are likely to include, but may not be limited to:
- Existing businesses on-site;
 - The local economy and labour market i.e. local businesses and economically active residents;
 - Existing social infrastructure (such as schools, open spaces and primary healthcare);
 - The stock of housing available locally and housing need; and

- Ebbsfleet United Football Club (EUFC) and its supporters.

- 70 It is not possible to ascribe specific 'values' or a quantifiable scale of 'sensitivity' to all socio-economic receptors due to their diversity in nature and scale. The assessment will therefore focus on the qualitative "sensitivity" of each receptor, and on their ability to respond to change created by the Proposed Development.

Assessment of Effects

- 71 Based on the sensitive receptors and impacts outlined above, the Proposed Development is expected to generate a range of socio-economic effects once operational. The assessment will consider the potential for the following likely significant effects:
- Loss of existing uses on-site (including loss of on-site employment);
 - Construction employment (direct, indirect and informal);
 - Creation of permanent employment opportunities once operational (direct, indirect and informal)
 - Provision of new homes, plus the impact of this on local housing need;
 - Provision of new retail and leisure floorspace;
 - Increase in demand for local social infrastructure such as schools, open spaces and primary healthcare facilities; and
 - Impacts on crime and anti-social behaviour on the site and in the local area.
- 72 The following effects presented in **Table 4** are considered unlikely to be significant.

Table 4 Socio-Economic Topics to be Scoped Out of EIA

Effect	Receptor	Justification for Insignificant Effects and for Scoping Out of the EIA
Construction		
Construction Worker Expenditure	Local businesses	It is acknowledged that there is the potential for the construction workers to spend money in the local area for the duration of the demolition and construction works, resulting in a beneficial effect upon local businesses. However, in the context of the area and the local provision of retail and leisure facilities, it is unlikely that this spending would have a significant effect upon local businesses. An element of construction worker expenditure will be captured through analysis of induced employment effects.
Construction Worker Health	GP and A&E provision	The construction workers will be temporary and are not expected to have a significant effect on health provision of either GPs or the local A&E service. Prior to the start of work on site, the Applicant will be required to discharge planning conditions relating to construction and logistics management. The information set out for approval in respect of these aspects will demonstrate how the contractors will follow best practice, thus minimising the risk of accidents, and in turn any such minor impacts upon local healthcare facilities.
Stadium Availability for EUFC	EUFC and Supporters	It is expected that EUFC will temporarily ground-share with another nearby club whilst demolition and construction works are underway, meaning that the club will continue to function during construction. Proximity to Northfleet will be a key consideration in the selection of a suitable alternative ground, and the club will aim to minimise the distance fans need to travel to attend 'home' fixtures during this time (indeed, the Club will be financially incentivised to do so in order to maintain gate receipts as far as possible). As such, no significant effects are anticipated. In the unlikely event that the Club fails to secure an alternative ground within Kent, South Essex or South East London, this could represent a significant effect, and would need to be assessed.
Completed Development		
Operational Worker Expenditure	Local businesses	It is expected that the majority of worker expenditure would be undertaken nearer to the place of home rather than work. Given the location of the site, it is not considered likely that workers would travel off-site to get lunch, for example, with the Proposed Development likely to include facilities on-site for this purpose. As such, any expenditure within these uses would be captured by the Proposed Development, with the employment opportunities likely to come from these uses captured.
Operational Worker Health	GP and A&E Provision	Similar to the above, it is expected that workers will make use of health service provision in the areas closest to their place of residence, rather than their place of work. Operational jobs are expected to be in lower risk sectors from a health and safety perspective than current jobs on site (i.e. loss of industrial / manufacturing floorspace and gain of retail / commercial / leisure floorspace), with a consequently lower risk of serious injury at work requiring emergency treatment.

Methodology

- 73** The socio-economic assessment will, wherever possible, be appraised against relevant national standards such as those provided by Homes England (which replaced the Homes and Community Agency (HCA) in January 2018). Where no standards exist, professional experience and judgement will be applied and justified.
- The assessment of socio-economic impacts will utilise a number of methodologies, data sources and assumptions. These are set out below:
 - The number of job years generated during the construction phase would be derived from the estimated construction costs (supplied confidentially to Montagu Evans by the Applicant) and ONS data on the relationship between construction costs and employment;
 - The number of jobs that could be generated by the commercial/business floorspace will be calculated by applying the standard job density ratios based on the HCA Employment Density Guide 3rd Edition (2015)¹³. The HCA Additionality Guide (2014) will also be used to establish net employment from the Proposed Development accounting for wider additionality factors such as leakage, displacement and economic multipliers. This also allows for the estimation of indirect and informal employment facilitated through the Proposed Development;
 - The size and composition of the future resident population will be calculated using data on local household composition from the 2011 Census¹⁴. Pupil Yields from proposed new housing will follow KCC guidance;
 - The impact on housing delivery will be measured against the adopted housing target for the Borough, taking into account the results of the 2021 Housing Delivery Test and the evidence base for the emerging new local plan;
 - The sufficiency of proposed Play Space and access to green space, sport and recreation will be measured against Policy CS13 of the adopted Gravesham Core Strategy and the council's supporting evidence base (including the Gravesham BC Open Space Standards paper). Benchmarks applicable to this site will be confirmed with GBC prior to commencement of the assessment;
 - Retail expenditure per household will be estimated using proprietary data made available to Montagu Evans by retail data firm Aspinall & Aspinall, and applied to the (size-adjusted) future household count to provide an estimate of future retail spending by new residents;
 - Capacity of existing local schools will be based on official data published by DfE, with future place planning data from KCC taken into account. Existing GP Capacity will be derived from NHS Digital data, with the Royal College of GPs benchmark of 1,800 registered patients per FTE GP used to determine whether individual practices are over or under subscribed.
- 74** Following this assessment, any required mitigation or monitoring shall be identified.
- 75** The assessment shall conclude with a summary of the likely significant socio-economic effects.
- 76** A separate Retail Impact Assessment is being prepared outside the scope of the ES. However, the key findings of this assessment, such as anticipated trade draw and potential impact on other local retail centres, will be factored into this assessment. A summary will be appended to the ES.

¹³ HCA, 2015, *Employment Densities Guide 3rd Edition 2015*.

¹⁴ initial data from the 2021 Census is due for publication in Summer 2022, and will be used instead of 2011 if data is made available in time

Health

- 77** While health is scoped into the EIA, a technical ES chapter will not be prepared. A separate Health Impact Assessment will be prepared, following the NHS London Healthy Urban Development Unit (HUDU) rapid assessment toolkit. The HIA will be appended to the ES.

Cumulative Effects

- 78** A list of cumulative schemes has been provided within the *Cumulative Effects with Other Developments* section of this report. It is expected that all of these schemes will be of relevance to the assessment of Socio-Economic effects as all include either residential development, employment/leisure development, or both, and are therefore likely to produce Socio-Economic effects of a similar nature to those listed above (refer to *Assessment of Effects* section). There is therefore potential for the cumulative impact of these effects to affect the assessment of significance. Likely cumulative effects include:
- Cumulative population growth and the impact on access to community / social infrastructure;
 - Cumulative loss of existing employment uses;
 - Cumulative gain of new housing;
 - Cumulative gain of new employment floorspace and jobs; and
 - Cumulative gain of new retail and leisure facilities and impact on attractiveness to visitors.

Traffic and Transport

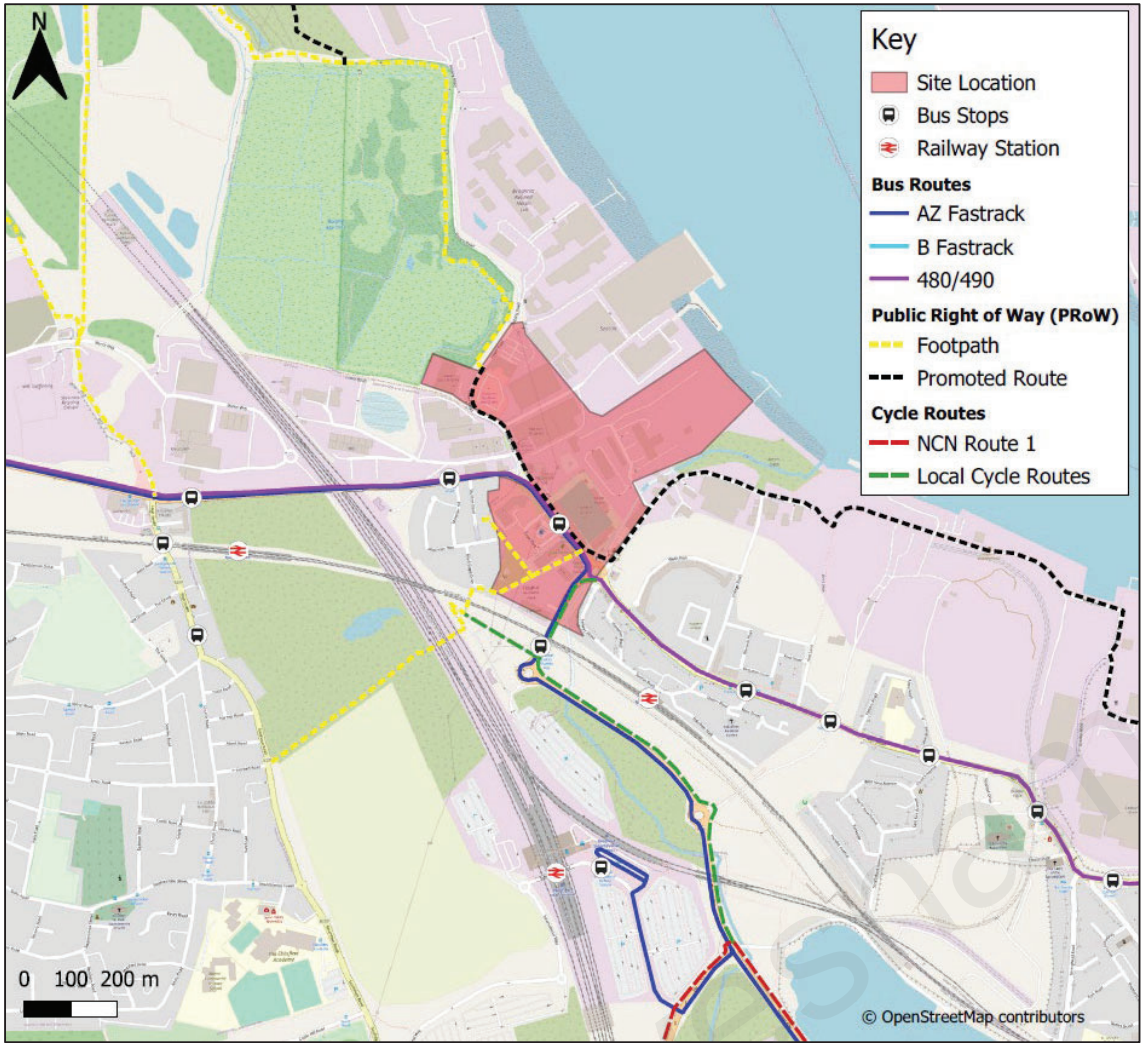
- 79** It is anticipated that there is potential for significant effects arising from the Proposed Development with respect to Transport and Access, and therefore this topic shall be scoped into the EIA. The ES chapter will be supported by a Transport Assessment, prepared by Vectos. Given the scale of the Proposed Development it will be key to first establish a baseline for assessment against which any environmental impacts can be assessed. In the first instance a review of contemporary traffic data will be completed to identify any areas where additional data is required. Should this be the case then traffic surveys will be undertaken at suitable locations on the surrounding highway network as agreed with both Kent County Council (KCC) and National Highways (NH) as required.
- 80** Consideration will also be given to the respective Local Plan documents and emerging developments within the vicinity of the site to allow an accurate assessment of all environmental impacts, both discrete and cumulative to be assessed.
- 81** The ES will:
1. Define the traffic and transport baseline conditions;
 2. Identify relevant traffic and transport receptors;
 3. Assess:
 - a. the potential for traffic and transport effects throughout the demolition and construction works and as a result of the completed development;
 - b. the likely significant traffic and transport effects;
 - c. any required mitigation to address any likely significant adverse traffic and transport effects; and
 - d. the potential for cumulative traffic and transport effects.

Baseline Conditions

- 82** The site is located within Northfleet, 7.7km to the east of Dartford and 6.4km from Junction 1A of the M25. The site covers an area comprising Ebbsfleet United football ground, along with areas of industrial and warehousing use. The A226 (Stonebridge Road) passes through the centre of the site.

- 83 The site is well connected to the local transport network and is in close proximity to sustainable transport infrastructure including bus stops and railway stations. It is also connected to the surrounding areas of Northfleet and Ebbsfleet through active travel modes via both local and national cycle routes along with a variety of footways and public rights of way.
- 84 The location of the site in relation to key local transport infrastructure has been illustrated within **Figure 6**.

Figure 6 Site Location¹⁵



Local Road Network

- 85 The A226 runs through the site comprising a two-way single carriageway road that is subject to a 30mph speed limit. There is a ghost island right turn bay adjacent to the football ground, along with bus stops, pedestrian footways and street lighting.
- 86 To the west of the site the A226 runs east to west for approximately 3km where it forms the A206 / A226 / B255 roundabout junction. The A226 continues westbound from the roundabout towards Dartford.
- 87 The A206 is a dual carriageway that is subject to a 40mph speed limit. The A206 travels north from the A226 roundabout junction for approximately 350m before it reaches the A206 / Station Road / Station

¹⁵ Indicative site boundary shown in figures.

Approach roundabout. The A206 continues westbound for approximately 3km where it forms a section of Junction 1A of the M25.

- 88 The M25 is part of the strategic road network and provides an orbital route around London. The M25 also provides access to a number of key national routes including the M1 and M40.
- 89 To the south of the site, the A226 provides a connection to the A2206 via Thames Way. The A2206 comprises a single carriageway road and provides a strategic link to the A2 corridor further south. The A2 provides a strategic link through Kent to both the east and west extending east to Dover and west beyond Kent into London.

Walking and Cycling Access and Connections

- 90 The site is well connected in terms of pedestrian and cycling accessibility with a number of footway and cycleway connections in the local area.
- 91 Footways are present along both sides of the A226 with street lighting provided along its length. The footways are well surfaced, with dropped kerbs and tactile paving. These footways continue along the B175 (Stonebridge Road) and the A226 to the north with footway connections also provided from the site to Ebbsfleet International station.
- 92 Further pedestrian routes are also available in the form of Public Right of Way's (PRoW). There is a PRoW that provides access to the site from the southeast via a footway over the railway line towards Swanscombe.
- 93 Further pedestrian routes also provide access to the Swanscombe Marshes to the north of the site. This route travels northwest from Gravesend passing through the site and into the marshes. These routes are illustrated in **Figure 7**.
- 94 With regard to cycling, there is a local cycle route along the A226 to the south of the site. This route continues southbound where it forms the A226 / A2260 junction and connects to National Cycle Network (NCN) Route 1, approximately 1.2km from the site.
- 95 NCN Route 1 provides a long-distance cycle route that runs from Kent, connecting central London and Essex. In proximity to the site, the route provides access to Gravesend to the east and Dartford to the west. **Figure 8** highlights these key cycle routes.

Figure 7 Walking Routes Within 2km

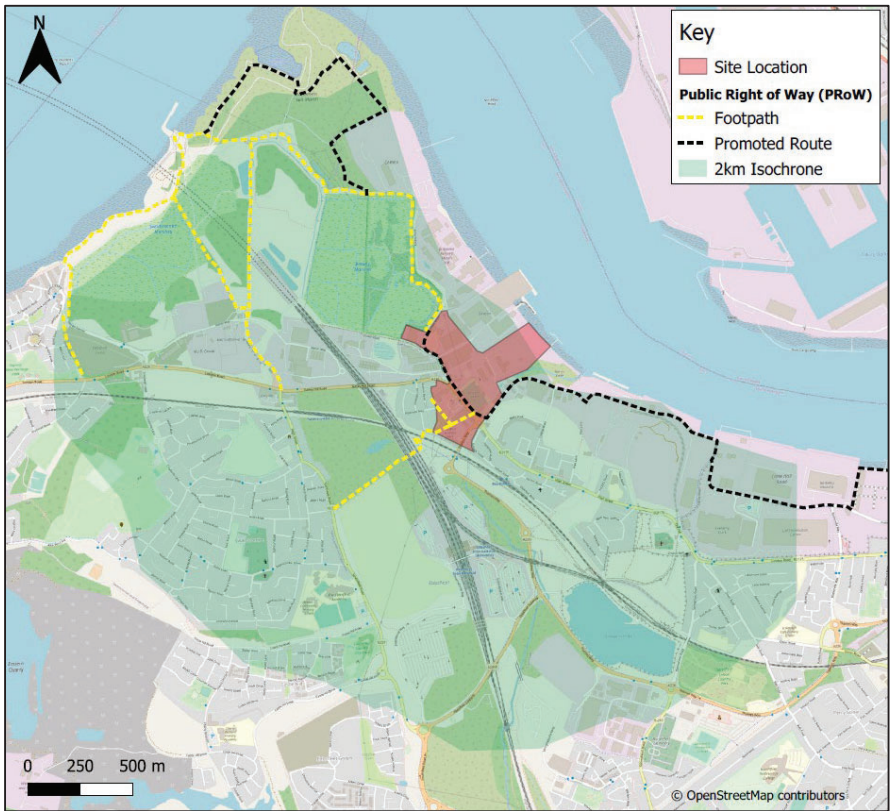
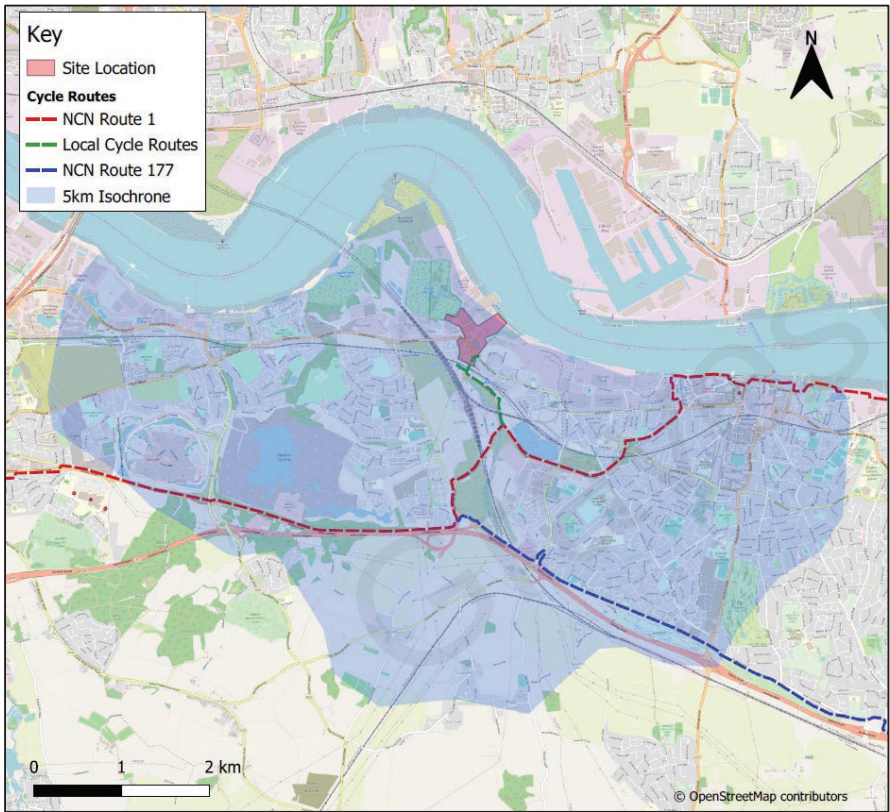


Figure 8 Cycle Routes Within 5km



Public Transport

- 96 The site is well located on the route of a number of public transport corridors and has access to regular bus and rail services within a few minutes' walk of any area within the proposed red line boundary.
- 97 There are many bus stops that are accessible within the site, including stops along the A226.
- 98 The closest railway station to the site is Northfleet Rail Station which is located approximately 450m to the southeast of the site. This station is also served by the 480 and 490 bus services which are accessible from the Hive bus stops situated approximately 240m from Northfleet Station on the B2175 High Street.
- 99 Ebbsfleet International Station is also located in close proximity to the site, approximately 800m to the south of Ebbsfleet United Football Club. Ebbsfleet International Station has provision for approximately 3,000 car parking spaces and approximately 100 cycle parking spaces.

Traffic Surveys

- 100 Through initial consultation with KCC, it is understood that there is little existing traffic data for the area surrounding the site. It is therefore proposed that traffic surveys are commissioned to provide a baseline against which the forecast impacts of the Proposed Development can be assessed, the junctions proposed to be considered within the assessment have been set out below.
- 101 Given the recent impacts of the Covid-19 pandemic, consideration will need to be given to how traffic patterns have changes over the past two years and to what extent this baseline is considered representative. This process will involve a review of traffic trends over the past two years based upon empirical data gathered by the Department for Transport (DFT).
- 102 This collection of baseline traffic data will be subject to further discussion with the highway authorities responsible for managing the local and strategic networks in the vicinity of the site (KCC and NH).

Approach

- 103 The scope of the Transport and Access assessment will cover all phases of development including the demolition (short-term), enabling works and construction activity (medium-term) and completed development (long-term) effects and cumulative effects.
- 104 For each element the assessment will cover the peak of each phase of works, for example, peak demolition or construction phases with regard to vehicle and people movements, a hybrid where construction and occupation occurs in tandem, and a fully occupied and operational development for the completed effects and cumulative effects.
- 105 The identification of sensitive receptors has been based on the Environmental Management and Assessment (IEMA) Guidelines for the Environmental Assessment of Road Traffic¹⁶.The following topics will be assessed for the demolition, construction and completed phases of development:
- Severance;
 - Driver Delay;
 - Pedestrian Delay;
 - Pedestrian Amenity;
 - Hazardous Loads;
 - Dust and Dirt;

¹⁶ Guidelines for the Environmental Assessment of Road Traffic (Institute of Environmental Assessment, 1993)

- Fear and Intimidation; and,
- Accidents and safety.

106 Table 5 summarises the anticipated transport and access effects associated with each phase of the Proposed Development identified for inclusion in the assessment. Currently, the phases of the Proposed Development are unknown and so a detailed assessment cannot be provided. The full details of phasing will be assessed within the Traffic and Transport ES chapter. Due to the potential effects resulting from each phase of development it is not proposed that any Traffic and Transport effects are scoped out of the assessment.

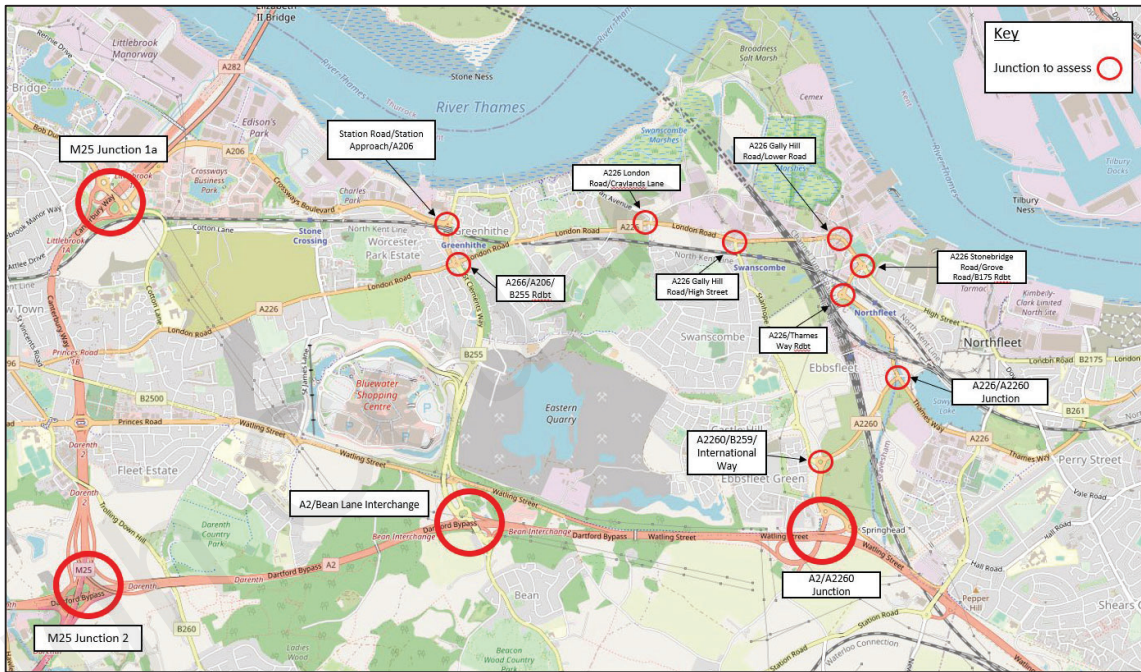
Table 5 Transport and Access Effects

Receptors	Potential Effects	Scoped In
Existing residents	Vibration impacts on existing properties due to demolition and construction HGVs; severance effects on existing communities; risks from hazardous loads; dust and dirt impacts.	✓
Existing residents	Effects on existing communities from increases in traffic volumes.	✓
Existing business employees	Vibration impacts on existing properties due to demolition and construction HGVs; severance effects on existing communities; risks from hazardous loads; dust and dirt impacts.	✓
Highway Network	Net change in traffic patterns during all phases of development; daily link flows; traffic speed; effect on personal injury accidents, driver delay.	✓
Pedestrians and Cyclists	Net change in traffic during all phases of development and resulting effects on severance, delay, fear and intimidation and amenity for pedestrians and cyclists. Effect on personal injury accidents.	✓

107 The scope of the highway capacity assessments for the Proposed Development will be agreed with KCC and a more defined study area and scope will be presented within the Transport Assessment. However, it is likely that the study area for the proposals will include an assessment of the following junctions and links (**Figure 9**):

- A226 Stonebridge Road;
- A226 London Road;
- A226 Galley Hill Road / Lower Road;
- A226 Stonebridge Road / Grove Road / B175 Roundabout;
- A226 / Thames Way Roundabout;
- A226 Thames Way;
- A226/A2260 Junction;
- A2260 Ebbsfleet Gateway;
- M25 Junction 1a;
- A2260/B259/International Way;
- A226 Galley Hill Road / High Street;
- A226 London Road / Craylands Lane;
- A266 / A206 / B255 Roundabout;
- Station Road/Station Approach/A206;
- A255;
- A2/A2260 Junction;
- A2 / Bean Lane Interchange;
- M25 Junction 2;

Figure 9 Proposed Junctions and Links to be Assessed



108 The assessment of these links and junctions will utilise Average Annual Weekly Traffic (AADT) flows to reflect the forecast operational demands and traffic behaviour. The level of traffic occurring in the network and actual peak hours will be presented within the analysis.

Assessment

109 The traffic and transport impacts of the Proposed Development will be assessed in line with the IEMA¹⁷ Guidelines and informed by scoping discussions with KCC and NH.

110 The scope of the transport and access assessment will include consideration of:

- Identification of the sensitivity of each receptor;
- Assessment Year and Time;
- Temporal Scope;
- Magnitude of Change, and;
- Receptor sensitivity and magnitude of change will together determinate the scale and significance of an effect.

Potential Sensitive Receptors

111 Sensitive receptors have been identified which are relevant to transport and will be based on the principles set out within **Table 6**. The sensitivity of affected receptors will be considered on a scale of high, medium, low or very low. The sensitivity of a road can be defined by the vulnerability of the user groups who may use it, e.g. elderly people, or children.

112 A sensitive area may be where pedestrian activity may be high, for example in the vicinity of a school or where there is already an accident issue. It also takes account of the existing nature of the road e.g.

¹⁷Guidelines for Environmental Impact Assessment (Institute of Environmental Management and Assessment (IEMA)) - Institute of Environmental Management and Assessment, (2004) and Guidelines for the Environmental Assessment of Road Traffic (Institute of Environmental Assessment (now IEMA)) (the 'IEMA Guidelines'). (1993)

an existing 'A' road is likely to have a lower sensitivity than a minor residential road as it is already used by a larger volume of traffic; therefore a small increase in vehicle flow would have a smaller change in the nature of the road.

Table 6 Sensitivity of Receptors

Receptor Type	Receptor Sensitivity
Receptors of greatest sensitivity to traffic flow: schools, colleges, playgrounds, accident clusters, retirement homes, roads without footways that are used by pedestrians	High
Traffic flow sensitive receptors: congested junctions, doctors' surgeries, hospital, shopping areas with roadside frontage, roads with narrow footways, recreation facilities	Medium
Receptors with some sensitivity to traffic flow: place of worship, public open space, tourist attractions and residential areas with adequate footway provision	Low
Receptors with low sensitivity to traffic flows and those sufficiently distance from affected roads and junctions: links where no pedestrian activity occurs and where there is no provision for pedestrians. For example, strategic roads such as motorways and trunk roads or rural roads where there are no pedestrian-generating land uses within the vicinity	Very Low
Receptors of greatest sensitivity to traffic flow: schools, colleges, playgrounds, accident clusters, retirement homes, roads without footways that are used by pedestrians	High

113 A review of each highway link within the proximity of each receptor in relation to the key factors which affect the sensitivity of that link will be undertaken.

114 It is anticipated that sensitive receptors will be located on the following links:

- A226 Stonebridge Road;
 - Shopping areas (convenience store);
 - Residential areas with narrow footways;
 - Recreational facilities (gymnasium);
- A226 London Road;
 - Accident Clusters;
 - Doctor's Surgery (Greenhithe Surgery);
 - Residential areas with narrow footways;
 - Recreational facilities (Greenhithe Library).

Assessment Scenarios

115 The ES chapter will assess various scenarios which will include the phased demolition and construction of the Proposed Development, the opening year and future baseline (cumulative scenarios). The scenarios are subject to technical discussions with GBC, KCC and NH.

Baseline and Future Baseline Scenarios

- 116** The baseline scenarios provide an understanding of how the highway network operates at present. Considerations including committed developments (which may include Cumulative Schemes) in the area are included into this scenario. Information regarding committed developments will be acquired from GBC and KCC.
- 117** The future baseline scenarios will be calculated by applying the relevant Trip End Model Presentation Programme (TEMPro) growth factor. TEMPRO is the industry standard tool for estimating traffic growth in forecast assessment years, which is required when assessing the traffic impact of a development on the local highway network.
- 118** The growth factor will be applied to the baseline scenario and / or through the application of specific development information gathered from approved planning applications. The baseline scenario will

include committed developments and developments with submitted planning applications. The exact approach to this scenario, and the developments included will be determined through discussion with GBC, KCC and NH as required.

Core Assessment Scenarios

119 The core assessment scenarios provide an understanding of the performance of the highway network with the known committed developments and infrastructure improvements (i.e. those with planning permission) included. The committed developments will be informed by the relevant local authorities and may either be applied by individual methods or through the application of growth factors pending further discussion with KCC and NH. This is the assessment that any planning application should be assessed against to determine the required infrastructure.

Cumulative Assessment Scenarios

120 The cumulative assessment scenarios are designed to assess the local highway network in a future year including committed developments (i.e. those with planning permission) and cumulative developments (i.e. where a planning application has been submitted but is yet to be consented). The London Resort Scheme (currently withdrawn) will also be considered qualitatively, given the close proximity to the Proposed Development. The approach to these will be subject to discussions with KCC but may be either through individual calculations or through the application of growth factors or a combination of both. The purpose of this is to allow the Highway Authority to plan future improvements to transport networks including the walking, cycling, public transport and highway networks.

Assessment Time Periods

121 The Transport ES chapter will assess the following time periods for each of the above scenarios:

- AM Peak Hour;
- PM Peak Hour; and
- 24 Hour AADT.

Temporal Scope and Magnitude of Change

122 The assessment will identify whether the resultant effects of the Proposed Development will be permanent or temporary in nature and categorised as follows:

- **Permanent** – these are effects that will remain even when the Proposed Development is complete, although these effects may be caused by environmental changes that are permanent or temporary.
- **Temporary** – these are effects that are related to environmental changes associated with an activity and that will cease when that activity finishes (construction activity). Temporary effects can be further categorised by the time period of which they will last; short-term (0-2 year impact), medium-term (3-5 year impact) and long-term (5-10 year impact).

123 The Institute of Environmental Management and Assessment ("the IEMA"), has published Guidance Notes No:1 Guidelines for the Environmental Assessment of Road Traffic (1993) commonly referred to as the IEMA guidelines. The guidelines provide a thorough approach to the assessment of environmental effects of traffic associated with proposed major developments.

124 Under the IEMA guidelines, it is recommended that the impacts of major developments are considered under each category:

- Severance;

- Driver Delay;
- Pedestrian Delay;
- Pedestrian Amenity;
- Fear and Intimidation; and
- Accidents and Safety.

Air Quality

- 125 It is considered that there is the potential for likely significant effects relating to air quality and so this topic will be ‘scoped into’ the ES. The air quality assessment will be undertaken by Air Quality Consultants Ltd (AQC).
- 126 The air quality ES chapter will:
1. Define the air quality baseline conditions;
 2. Identify relevant air quality receptors;
 3. Assess:
 - e. the potential for air quality impacts throughout the demolition and construction works, and as a result of the completed Proposed Development;
 - f. the likely significant air quality effects;
 - g. any required mitigation required to:
 - address any likely significant adverse air quality effects; and
 - minimise and reduce any other adverse air quality effects.
 - h. the potential for cumulative air quality effects with other agreed upon schemes in the surrounding area.

Baseline Conditions

- 127 GBC has declared multiple Air Quality Management Areas (AQMAs), including the Northfleet Industrial Area AQMA for exceedances of the 24-hour particulate matter (PM₁₀) objective; the Proposed Development is located within this area. The neighbouring Dartford Borough Council (DBC) has also declared multiple AQMAs, including the Dartford AQMA No.2 along the A226 corridor for exceedances of the annual mean nitrogen dioxide (NO₂) objective; the Proposed Development is also partially within this area.
- 128 GBC operates two automatic (NO₂ and PM₁₀) monitoring stations within the Borough, of which one (ZG3) is located approximately 750m south-east of the Proposed Development. GBC also operates a number of NO₂ monitoring sites closer to the Proposed Development using diffusion tubes, including seven monitoring sites within 2km. Additionally, DBC operates a number of NO₂ diffusion tube monitoring sites, including four close to the Proposed Development.
- 129 The latest monitoring data are shown in **Table 7** and the monitoring locations are displayed in **Figure 10**, along with the nearby AQMAs.

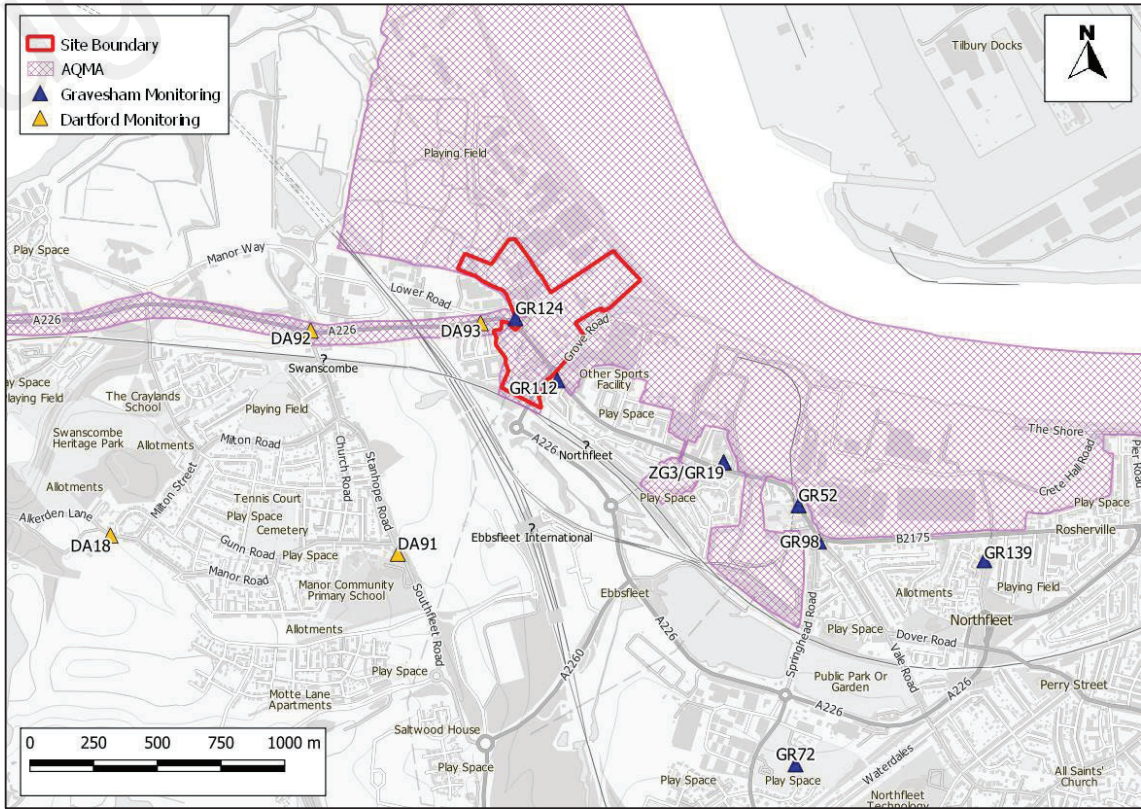
Table 7 Summary of Measured Annual Mean NO2 Concentrations (µg/m3) (2016-2020)^a

Site ID	Site Type	Location	2016	2017	2018	2019	2020 ^b
GBC Monitoring Results ¹⁸							
ZG3	Industrial Background	Lawn Primary School	23.4	24.1	23.9	23.5	24.5
GR19	Industrial Background	Lawn Primary School (co-located with ZG3)	23.2	23.2	23.3	23.2	20.6

¹⁸ Gravesham Borough Council (2021) Air Quality Annual Status Report 2020

Site ID	Site Type	Location	2016	2017	2018	2019	2020 ^b
GR52	Roadside	32 The Hill	29.3	32.9	34.7	36.4	32.6
GR72	Background	Northfleet Cemetery	22.3	24.1	25.2	23.9	24.4
GR98	Roadside	The Leather Bottle PH	31.3	32.7	32.0	33.5	33.2
GR112	Roadside	50 Stonebridge	31.5	33.2	34.3	34.8	35.7
GR124	Roadside	Stonebridge Road	30.2	31.1	32.7	30.4	31.0
GR139	Roadside	Rosherville Way	-	-	37.6	30.5	34.0
DBC Monitoring Results ¹⁹							
DA18	Urban Background	Alkerdane Lane	26.1	25.3	25.8	26.3	-
DA91	Roadside	13 Southfleet Road	33.6	33.6	33.4	32.6	-
DA92	Roadside	Pilgrims Road/London Road	44.3	41.6	42.5	35.2	-
DA93	Roadside	Snowden Hill/London Road	42.9	40.3	41.0	38.2	-
Objective			40				

Figure 10 Indicative Site Boundary, Nearby Monitoring Locations and AQMAs²⁰



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¹⁹ Dartford Borough Council (2020) Air Quality Annual Status Report 2020

^a Exceedances of the objective are shown in **bold**.

^b Data not available for 2020.

²⁰ Indicative site boundary shown.

- 130** As shown in **Table 8**, two nearby monitoring sites have recorded exceedances of the annual mean NO₂ objective since 2016 and continued to do so in 2019. Concentrations have, however, remained well below 60 µg/m³ at all sites, indicating exceedances of the 1-hour mean objective are unlikely. There was no clear overall trend in concentrations between 2016 and 2019.
- 131** While 2020 results have been presented for completeness, they will not be relied upon in any way as they are not representative of 'typical' air quality conditions due to the impact of the COVID-19 pandemic on traffic volumes and thus pollutant concentrations. Data for 2021 has not yet been published, therefore concentrations measured in 2019 will be used within the air quality ES chapter.
- 132** GBC also measures PM₁₀ concentrations at all automatic monitoring stations within its administrative boundary, including the ZG3 automatic monitor. The latest PM₁₀ monitoring data are shown in **Table 8**.

Table 8 Summary of Measured Annual Mean NO₂ Concentrations (µg/m³) (2016-2020)

Site ID	Site Type	Location	2016	2017	2018	2019	2020
Annual Mean PM ₁₀ Concentrations (µg/m³)							
ZG3	Industrial Background	Lawn Primary School	19.7	18.0	19.4	21.9	22.3
Objective			40				
No. of Daily Exceedances of 50 µg/m³							
ZG3	Industrial Background	Lawn Primary School	7	2	4	3	10
Objective			35				

- 133** As shown in **Table 8**, no exceedances of the annual mean or daily mean PM₁₀ objectives were recorded between 2016 and 2019.
- 134** Future baseline concentrations of NO₂, PM₁₀ and PM_{2.5} (in the anticipated opening year of the Proposed Development) in the study area will be predicted using the dispersion model ADMS-Roads, at selected receptor locations. Air quality is generally expected to improve with time, due (for example) to more stringent emissions standards for motor vehicles; thus, the likely evolution of the baseline conditions will be considered. The air quality assessment will use the predicted future air quality conditions as a baseline from which to determine the significance of the effects of the completed and operational Proposed Development. The methodology is described below.

Sensitive Receptors

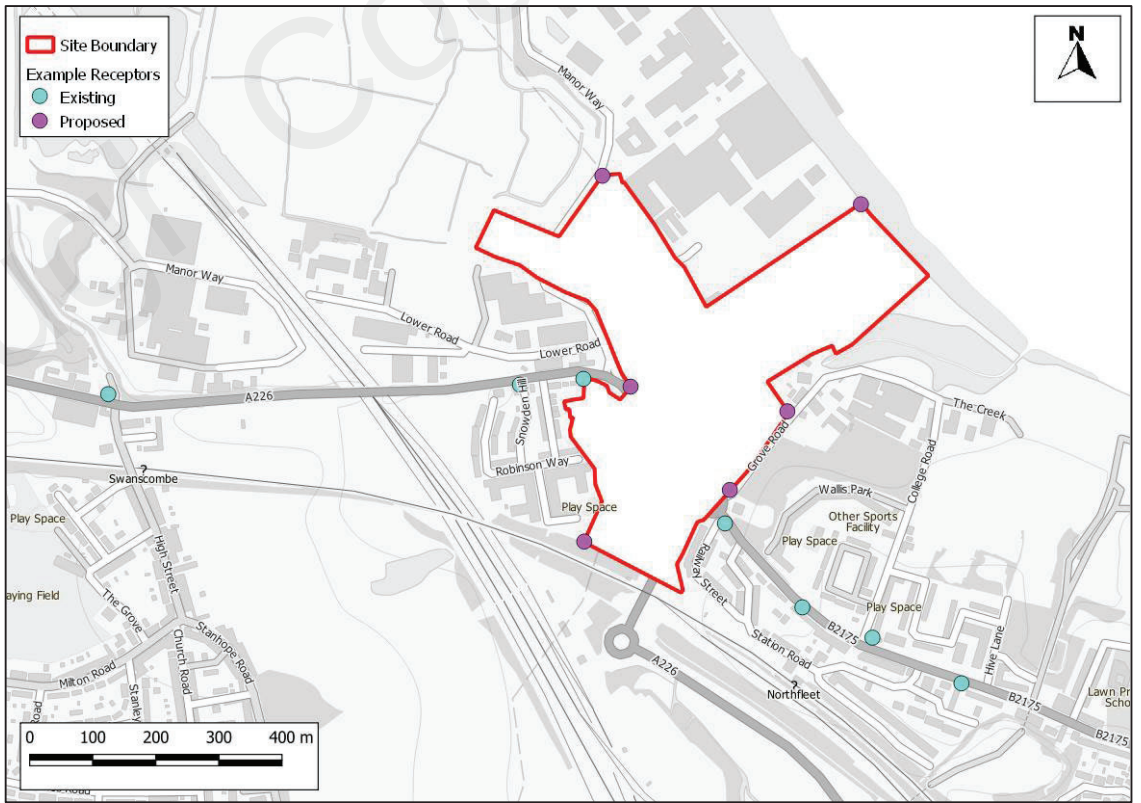
- 135** For the on-site demolition and construction activities, the assessment will consider the potential for impacts within 350m of the site boundary, and within 50m of the routes to be used by construction vehicles up to 500m from the site exit(s). For the demolition/construction dust assessment, relevant receptors (including introduced sensitive receptors, taking account of the phasing of the Proposed Development) in the area will be considered. Relevant receptors in the area include residential dwellings and educational facilities (high sensitivity receptors) as well as offices and shops (medium sensitivity receptors). Receptors will be identified based upon the distance bandings set out in guidance from the Institute of Air Quality Management (IAQM)²¹.
- 136** For the assessment of operational effects, suitable existing and introduced receptor locations will be identified based on detailed maps, satellite imagery, and plans of the Proposed Development. Receptors will be identified to represent a range of exposure, focusing on worst-case locations where the air quality objectives apply. Future receptor locations within the Proposed Development will also be

²¹ IAQM (2016) Guidance on the Assessment of Dust from Demolition and Construction v1.1

considered. The objectives apply at locations where members of the public are likely to be regularly present and are likely to be exposed over the averaging period of the objective (i.e., locations with relevant exposure). Consideration will be given to those locations with relevant exposure to the annual mean objectives (i.e., residential areas) and the 1-hour mean nitrogen dioxide objective (i.e., retail areas and public realm spaces). The air quality objectives do not apply at places of work (e.g. offices).

- 137** All receptors where the air quality objectives apply will be considered to be 'high' sensitivity receptors. **Figure 11** identifies the likely proposed receptors within the Proposed Development, as well as potential existing sensitive receptors. These are indicative locations only, selected for the purposes of understanding the potential worst-case effects, and final receptor locations will be determined when undertaking the assessment, based on available traffic data and plans of the Proposed Development.

Figure 11 Potential Receptor Locations²²



Assessment of Effects

- 138** Potential air quality effects that will be considered in relation to construction and operation of the Proposed Development include:
- Impacts of dust soiling and PM10 emissions during the demolition and construction of the Proposed Development on existing and introduced sensitive receptors in the local area (taking account of the phasing of the Proposed Development);
 - Impacts of NO₂, PM10 and PM2.5 emissions from vehicles associated with the demolition and construction of the Proposed Development on existing sensitive receptors in the local area;
 - Impacts of NO₂, PM10 and PM2.5 emissions from road traffic and energy plant (if proposed) generated by the Proposed Development once operational on existing sensitive receptors in the local area; and

²² Indicative site boundary

- The potential for the Proposed Development and cumulative schemes to cumulatively impact air quality at sensitive receptors during the demolition, construction and operation of the Proposed Development.

Demolition and Construction

- 139** The potential impacts from dust generated during the demolition and construction of the Proposed Development will be considered using the approach presented in the IAQM guidance for assessing impacts from construction activities²¹. Appropriate mitigation measures will be recommended based on the outcome of the dust risk assessment. The IAQM guidance is clear that, with appropriate mitigation in place, the residual effects will normally be 'not significant'.
- 140** Emissions from construction plant (Non-Road Mobile Machinery (NRMM)) will not be explicitly modelled, as relevant guidance from the IAQM states that "*experience from assessing the exhaust emissions from on-site plant (also known as non-road mobile machinery or NRMM) [...] suggests that they are unlikely to make a significant impact on local air quality and in the vast majority of cases they will not need to be quantitatively assessed*". Significant effects as a result of NRMM emissions can thus be discounted. However, suitable mitigation measures for site plant will be presented as part of the mitigation measures based on advice presented in the IAQM guidance document.
- 141** The number of demolition and construction vehicles (including Heavy Duty Vehicles (HDVs)) that will travel on the local road network during the demolition and construction of the Proposed Development will be considered in the context of the screening criteria provided in guidance from Environmental Protection UK (EPUK) and the IAQM²³. If the increase in HDV movements exceeds the screening criteria, then emissions from traffic generated during the demolition and construction works will be assessed quantitatively using the ADMS Road dispersion model. The IAQM screening criteria of an increase of 100 Light Duty Vehicles (LDVs) / 25 HDVs Annual Average Daily Traffic (AADT) on roads within the AQMA will be used to define the study area.
- 142** If dispersion modelling of construction traffic is required, the scenarios that will be considered as part of the assessment will include:
- Current baseline scenario (2019 – as most recent data);
 - Peak Construction Year without the Proposed Development, but including traffic generated by relevant cumulative schemes; and
 - Peak Construction Year with the Proposed Development, including traffic generated by relevant cumulative schemes and the construction of the Proposed Development itself.

Completed Development

- 143** The number of vehicle movements generated as a result of the operation of the Proposed Development will be considered in the context of the screening criteria (25 HDVs or 100 LDVs) provided in guidance from EPUK and the IAQM²³. If the Proposed Development is predicted to lead to an increase in vehicle movements (which will be understood once the traffic data has been generated by the project transport consultants) that exceeds the screening criteria, then emissions from traffic generated during the operational stage will be assessed quantitatively using the ADMS-Roads dispersion model. The model requires a variety of inputs, including road traffic data (flows, speeds and vehicle fleet composition) and meteorological data.
- 144** The energy strategy is not currently defined; however, should the Proposed Development include any centralised energy plant (e.g., CHP / large gas-fired boilers), and/or any emergency generators, the impacts of these plant will be assessed. Initially, the impacts will be assessed qualitatively based on the

²³ Moorcroft and Barrowcliffe et al (2017) Land-Use Planning & Development Control: Planning For Air Quality v1.2

proposed size, location and emissions performance and the proposed testing schedule. Where it is not possible to discount potentially significant contributions to short-term NO₂ concentrations based on the schedule, the contribution of the plant will be determined using the ADMS-5 dispersion model and added to baseline concentrations (including road traffic contributions) to determine total concentrations.

- 145** The ADMS-roads model will be used to predict concentrations of NO₂, PM₁₀ and PM_{2.5} for the following three scenarios:
- Baseline year (2019);
 - Opening year (earliest year of possible occupation/operation) without the Proposed Development, but including traffic generated by relevant cumulative schemes; and
 - Opening year (earliest year of possible occupation/operation) with the Proposed Development, including traffic generated by relevant cumulative schemes and the completed Proposed Development itself.
- 146** An important element of the modelling study will be to verify the ADMS-Roads model output against measured results. This will be undertaken by identifying suitable roadside air quality monitoring locations against which the model performance can be compared, in line with the methodology set out in Defra's TG (16)²⁴ guidance document.
- 147** Meteorological data will be taken from London City Airport, which is the nearest and most representative meteorological site to the Proposed Development which was operational in 2019. The year of meteorological data will be selected to match the baseline assessment year and the latest available monitoring data (2019).
- 148** Traffic data for the assessment will be provided by the appointed Transport Consultant and may, where necessary, be supplemented with data from the Department for Transport (DfT).
- 149** Background pollutant concentrations will be determined using data derived from the background maps published by Defra²⁴.
- 150** The overall effect will be evaluated using criteria recommended by EPUK/IAQM²³ and will be determined based on predicted impacts at receptors and professional judgement. Where required, mitigation measures will be proposed to ensure that residual effects are not significant.

Site Suitability

- 151** The acceptability of air quality conditions experienced by future occupants of the Proposed Development will be assessed in accordance with the methodology and criteria set out above for the assessment of the impacts of the Completed Development on existing air quality (constituting an assessment of site suitability). If conditions are found to exceed the statutory air quality objectives, mitigation measures will be recommended, as relevant, to ensure future occupants are exposed to acceptable air quality.

Cumulative Assessment

- 152** The cumulative demolition/construction dust effects of the Proposed Development and cumulative schemes 3, 5, and 6 as noted in the **Table 2** (within *Cumulative Effects with Other Developments* section of this Scoping Report) (due to their proximity to the Proposed Development) will be considered based on the IAQM Guidance for assessing impacts from construction activities²¹.
- 153** Cumulative operational effects include those associated with road traffic emissions and combustion plant. If the Proposed Development leads to a net decrease in traffic, or an increase in traffic below the

²⁴ Defra (2021) Local Air Quality Management (LAQM) Support Website

screening criteria, then cumulative road traffic impacts will be considered qualitatively. Otherwise, the inclusion of traffic generated by the cumulative schemes in the 'Opening year with the Proposed Development' scenario will ensure that cumulative effects are quantified. With regards to combustion plant sources, a review of nearby cumulative schemes will be undertaken to determine the cumulative impacts of any combustion plant sources.

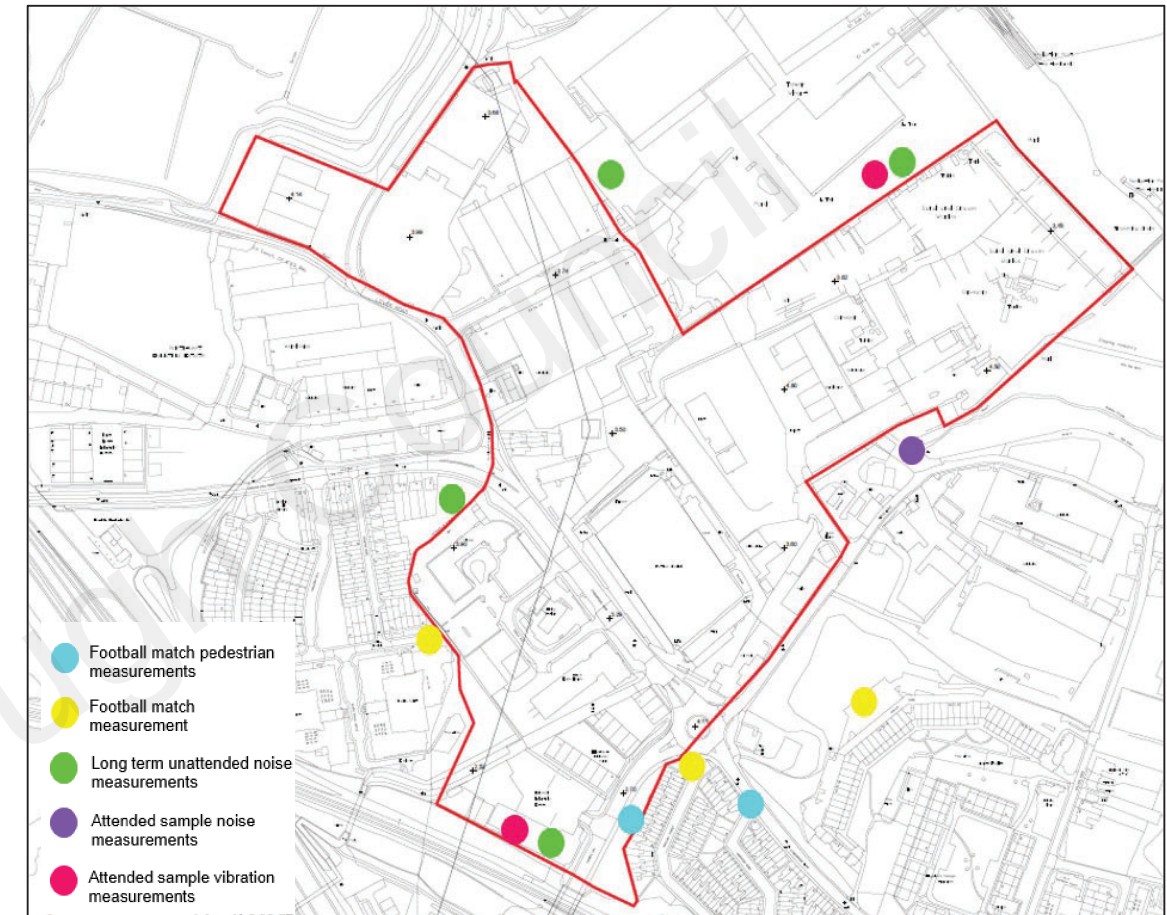
Noise and Vibration

- 154** The noise and vibration assessment will consider the potential noise and vibration impacts and associated likely effects of the Proposed Development on nearby existing sensitive receptors during demolition and construction works and once the Proposed Development is completed and operational. Key acoustic issues for the design of the Proposed Development will also be considered for the application. An assessment of the suitability of the site for its proposed use from a noise and vibration perspective will also be undertaken.
- 155** This noise and vibration assessment will be undertaken by Sandy Brown.

Baseline Conditions

- 156** Baseline conditions are to be established for the site and surrounds for periods when Ebbsfleet United Football Club are hosting home matches and when the ground is not in use.
- 157** Accordingly, baseline noise measurements during a home football match were completed along pedestrian routes (before and after the match) and at the nearest residential receptors (during the match) on Sunday 15 May 2022. The measurements were taken during Ebbsfleet United's last home match of the season and were likely to have a higher attendance than typical conditions. An additional survey is to be completed during July 2022 (at the same positions), to evaluate the noise emissions associated with a lower attended fixture, to establish the range in existing operational noise levels.
- 158** A series of long-term baseline noise surveys are to be completed on the site to establish the conditions during periods when no football is taking place. The site is predominately located adjacent to existing industrial and residential use. The survey positions will be chosen to evaluate the noise emissions from the nearby roads, and industrial sources (Tower Wharf and Tilbury Docks).
- 159** The long-term noise survey will consist of up to four positions, with each position to remain in place for 7 days. The length and number of positions is usually reasonable for establishing the existing baseline noise conditions from consistent sources. Nevertheless, planning permissions and other publicly available information on the operation of nearby industrial uses will be reviewed, so that peak operational noise emissions from these uses can be established.
- 160** Vibration measurements will be completed adjacent to Tower Wharf and to the south-east of the site, the closest position to the trainlines (HS1 and South Eastern Mainline).
- 161** The baseline noise data shall be analysed to determine the representative background noise levels in each of the day and night periods at each position where the monitoring was undertaken, in accordance with guidance in BS 4142:2014.
- 162** The noise and vibration positions are illustrated in **Figure 12**.

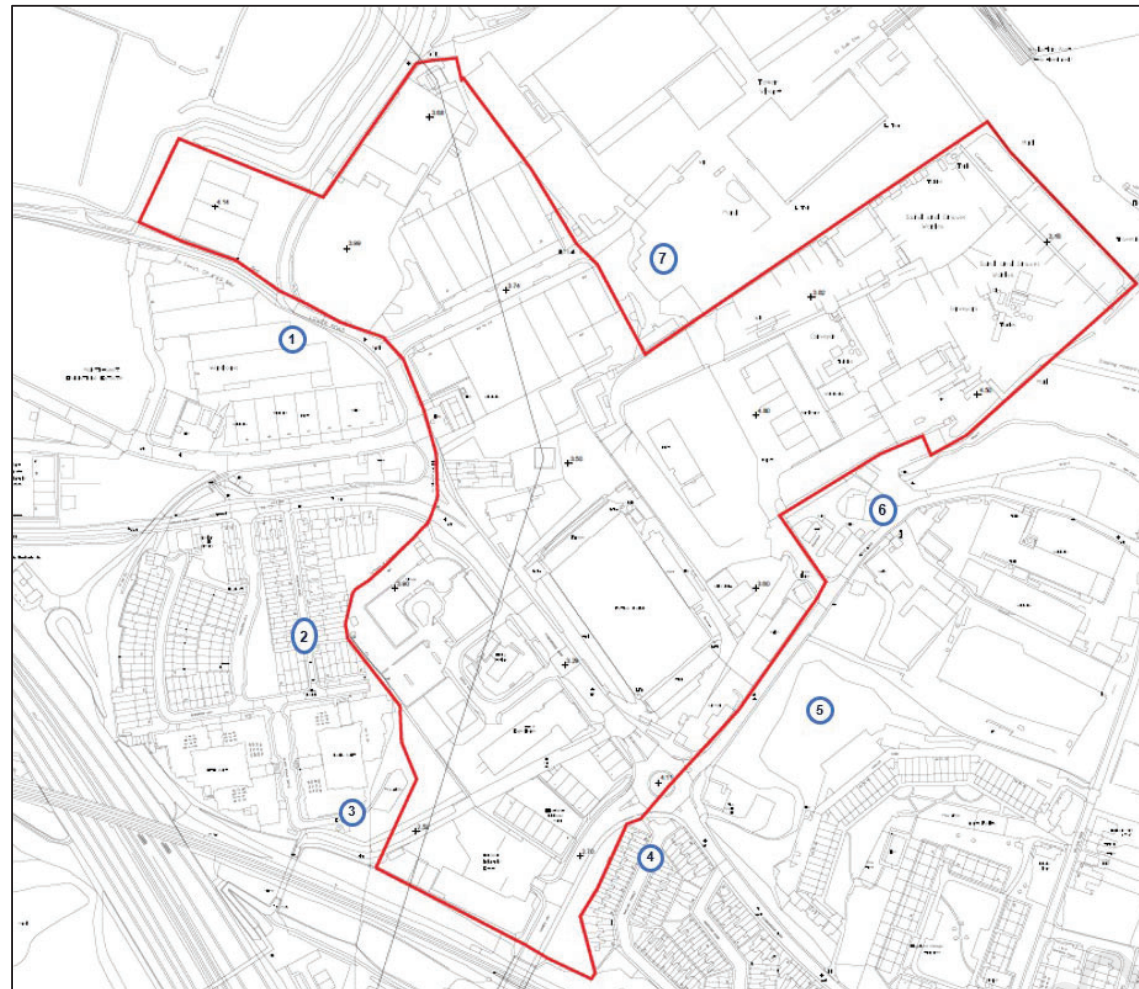
Figure 12 Noise and Vibration Monitoring Positions²⁵



Sensitive Receptors

- 163** The assessment (demolition, construction and completed development) will consider the following surrounding receptors:
- 1** Industrial facilities on Lower Road (industrial);
 - 2** Residences on Taunton Road and Robinson Way (residential);
 - 3** Residences on Black Eagle Drive (residential);
 - 4** Residences on Railway Street (residential);
 - 5** Residence at Wallis Park (residential);
 - 6** Industrial facilities on Grove Road (industrial) and;
 - 7** Tower Wharf (industrial).
- 164** The location of the receptors are illustrated in **Figure 13**, as per the reference number listed above.

²⁵ Indicative site boundary shown in figures.

Figure 13 Nearest Receptors

165 The introduced residential receptors will be considered as part of the site suitability assessment.

166 The potentially sensitive noise and vibration receptors on and surrounding the site are to have their sensitivity categorised in accordance with EIA terminology (**Table 9**).

Table 9 Sensitivity of Receptor

Sensitivity of Receptor	Description
High	Residential, hotels and hostels
Medium	Health care (e.g. doctor's surgery, dentist etc) and educational buildings (including day care centre)
Low	Commercial offices, industrial and retail buildings

Assessment of Effects

167 The scope of the noise and vibration assessment will identify:

- The potentially sensitive noise and vibration receptors on and surrounding the site; and
- Whether the overall effect of the noise and vibration exposure generated by the Proposed Development is, or would be, above or below the significant observed adverse effect level (SOAEL) and the lowest observed adverse effect level (LOAEL). The scale of effects will refer to guidance within the Noise Policy Statement for England (NPSE) and GBC's Local Plan.

Demolition and Construction

168 The demolition and construction noise and vibration assessment will identify:

- Temporary noise and vibration nuisance due to the enabling, demolition and construction works period including earthworks, substructure works and superstructure works – associated with daytime and (if required) night time works;
- Temporary noise nuisance to existing surrounding sensitive receptors from road vehicle movements generated during the enabling, demolition and construction works, associated with daytime and (if required) night time works; and
- Once further details into the construction works and programme are known the assessment will consider either peak construction (in terms of activities and vehicle movements) or adopt a timeslice approach to the assessment of effects across the phases.

Completed Development

169 The completed development noise and vibration assessment will identify:

- Noise emissions from Ebbsfleet United's proposed new stadium and its increased capacity;
- Noise emissions along pedestrian routes associated with Ebbsfleet United, based on an increased capacity and potential additional uses;
- Traffic related noise effects once the Proposed Development is operational – associated with road traffic movements on existing roads. The assessments will be completed in line with CRTN and DMRB, with significance assessed using and IOA/IEMA guidance;
- Noise generated from building services plant associated with retail and commercial buildings. The assessments will follow the approach in BS 4142:2014+A1:2019; and
- Depending on the location of any 'cumulative schemes' relative to the Proposed Development site, consideration will be given to the potential for any cumulative noise impacts / effects.

Site Suitability

170 Site Suitability assessments considering noise and vibration will be completed to evaluate whether acoustic specific design measures are required to achieve appropriate conditions for the proposed residential uses. When considering site suitability, the surrounding industrial uses (including Seacon terminals) will be taken into consideration.

Cumulative Effects

171 Cumulative effects will be evaluated during the demolition, enabling and construction works and the operational phases of the Proposed Development;

172 A two-tiered cumulative assessment will be completed, and will comprise of the following:

- Tier One: Consideration of the Proposed Development coming forward alongside other developments which have full planning permission / resolution to grant permission, or schemes which have been submitted (but not yet permitted);
- Tier Two: Consideration of the Proposed Development with the 'Tier One' cumulative schemes and the 'Tier Two' scheme.

173 In general, cumulative demolition, enabling and construction effects will not be considered for schemes/plots that are more than 200m from the receptors affected by the Proposed Development.

174 Operational cumulative effects will be limited to considering traffic and building services plant noise emissions only. The assessment of cumulative plant noise emissions will be limited shared receptors that are no more than 200m from each scheme.

Daylight, Sunlight, Overshadowing, Solar Glare and Light Pollution

175 It is considered that there is the potential for likely significant effects relating to daylight, sunlight, overshadowing, solar glare and light pollution and so these topics shall be 'scoped into' the EIA.

176 Given the outline nature of the Proposed Development it is not possible to quantitatively assess solar glare and light spill, as the façade details and location of commercial lighting are required to undertake these assessments, which are not known at this stage. However, a high-level qualitative review of potential solar glare and light spill implications of future design will be undertaken. These assessments will be considered further at Reserved Matters as necessary.

177 Internal daylight and sunlight amenity within the site is a design issue and is therefore also scoped out of the EIA. This matter will be considered in a standalone document accompanying the application. Detailed internal daylight and sunlight assessment of residential blocks will be undertaken at Reserved Matters stage (RMA).

178 The assessments will be undertaken by GIA.

Baseline Conditions

179 The site lies within Northfleet, Gravesham, UK and currently comprises a football stadium, industrial land uses including an aggregates site and smaller industrial units and hardstanding.

180 BRE Guidelines²⁶ state that residential buildings are recognised as having a reasonable expectation to daylight and sunlight, given their permanent occupancy. As such, the baseline considers the existing daylight and sunlight conditions at neighbouring residential properties situated adjacent to the site, with the potential to be affected by the Proposed Development.

181 The baseline scenario of the surrounding area has been established following a review of the land uses in proximity of the site, with reference to information available via the Valuation Office Agency ('VOA') website (i.e. council tax records) and Google Maps to identify potentially sensitive properties.

182 As per BRE Guidelines, if the angle to the horizontal subtended by a new development, at the level of the centre of the lowest window of a neighbouring property is less than 25°, then it is unlikely to be affected by the Proposed Development. Therefore, this rule in combination with professional judgement has been used to identify which properties require assessment.

183 Public and private outdoor amenity with the potential to be overshadowed by the Proposed Development are considered sensitive to overshadowing and are also therefore considered in the baseline condition.

Sensitive Receptors

Daylight and Sunlight Receptors

184 Properties along the following streets are considered sensitive to daylight and sunlight impacts from the Proposed Development and will therefore be assessed. At this stage, the addresses are indicative

²⁶ Building Research Establishment (BRE) Guidelines: Site Layout Planning for Daylight and Sunlight 2022, A Guide to Good Practice, Third Edition 2022.

however the full addresses will be detailed in the ES chapter once the baseline research has been completed:

- Railway Street;
- Robinson Way;
- Taunton Road;
- Snowdon Hill; and
- Galley Hill Road.

Figure 14 Daylight and Sunlight Receptors²⁷



²⁷ Indicative site boundary shown in figures.

Overshadowing Receptors

- 185 Public and private amenity areas located west and south of the Proposed Development are sensitive to overshadowing impacts from the Proposed Development, as shown in **Figure 15**. As such, the following amenity areas will be assessed:
- Communal amenity area and playground on Ebbsfleet Business Park
 - Rear gardens associated with properties along Taunton Road, Robinson Way, and Galey Hill Road;
 - Botany Marshes;
 - The River Thames; and
 - Robins Creek.

Figure 15 Overshadowing Receptors



Solar Glare Receptors

- 186 Solar glare is generally only a potential significant problem to motorists or train drivers approaching traffic lights or signals surrounding the site where there are large areas of reflective glass, particularly sloping glass, which could reflect sunlight and cause solar dazzle.
- 187 A review of potentially sensitive road and railway viewpoints will be undertaken, where instances of glare could occur. These will be identified on a plan in the ES chapter to help inform future design of glazing or reflective façade materials. As noted earlier, technical solar glare assessments will be undertaken upon any sensitive viewpoints surrounding the site at RMA stage should any significant effects be considered likely.

Light Pollution Receptors

- 188 Considering of light pollution is required when a new development comprises highly glazed areas of commercial use where extensive artificial lighting may be used or directional outdoor lighting such as from a stadium.
- 189 A review of potential sources of light spill in relation to sensitive residential receptors will be undertaken and presented in the ES chapter. This will help inform future detailed design at RMA stage, where the future lighting scheme of the retail and stadium uses proposed will be designed in accordance with ILP Guidance (2021). Typically, effects occur when receptors are located within approximately 20m from the source of artificial lighting.
- 190 It is intended that any external lighting with regards to the detailed elements of the Proposed Development will be suitably designed and specified, taking on board the ILP recommendations and the Building Research Establishment's (BRE) Obtrusive Light from Proposed Developments DG:529, so that any potential light spillage will be minimised as to avoid significant environmental effects.

Potential Effects

- 191 The potential daylight, sunlight, overshadowing effects associated with the Proposed Development are considered to be as follows (and as relevant to the scope of the assessment in terms of receptors identified above):
- Changes to the daylight and sunlight amenity within the residential accommodation which has a reasonable expectation to natural light because of the demolition and construction works;
 - Changes to overshadowing of amenity areas because of the demolition and construction works;
 - Changes to the daylight and sunlight amenity to surrounding residential accommodation which has a reasonable expectation to natural light as a result of the Proposed Development once complete and operational; and
 - Changes to overshadowing of amenity areas as a result of the Proposed Development once complete and operational.

Scope of Assessment

- 192 The assessments will be carried out in accordance with BRE Guidelines²⁸. The analysis will be undertaken from a 3D computer model constructed using specialist software.

²⁸ Building Research Establishment (BRE) Guidelines: Site Layout Planning for Daylight and Sunlight 2022, A Guide to Good Practice, Third Edition 2022.

Demolition and Construction

- 193** Owing to the evolving and changing nature of demolition and construction activities, the assessment of potential effects during demolition and construction of the Proposed Development on daylight, sunlight and overshadowing to surrounding properties will not be modelled. Instead, a qualitative assessment will be undertaken using professional judgement, with the worst-case scenario in terms of the effects quantitatively modelled and analysed through the assessment of the completed Proposed Development (see below for further details).

Completed Development

- 194** In line with BRE Guidelines, both the Vertical Sky Component (VSC) and No Sky Line (NSL) assessments will be undertaken for the Proposed Development, for all residential receptors identified above.
- 195** The sunlight amenity to the surrounding receptors will be considered by reference to the Annual Probable Sunlight Hours (APSH) method for all receptors sensitive to sunlight impacts identified above. With shadows being cast in a northerly direction in the northern hemisphere, this assessment will consider those windows serving living areas which face the site and are located within 90 degrees of due south.
- 196** The nature (beneficial or adverse), scale (negligible, minor, moderate or major) and ultimately the significance of daylight and sunlight amenity effects will be determined using professional judgement and by reference to Appendix H of the BRE Guidelines.

Overshadowing

- 197** With regards to the relevant existing surrounding outdoor amenity areas and the baseline level of overshadowing, the transient overshadowing (TOS) will be used.
- 198** The overshadowing analysis on the surrounding areas of amenity space will be undertaken by reference to the TOS method of assessment.
- 199** For the TOS assessment, the path of shadow will be mapped for the Proposed Development on the following dates as suggested by the BRE Guidelines:
- 21st March (Spring Equinox);
 - 21st June (Summer Solstice); and
 - 21st December (Winter Solstice).
- 200** The nature (beneficial or adverse), scale (negligible, minor, moderate or major) and ultimately the significance of overshadowing effects will be determined using professional judgement.
- 201** Depending on the outcome of this analysis the Sun Hours on Ground (SHOG) assessment may be required for any amenity areas that appear to be significantly impacted by the Proposed Development. The SHOG assessment considers the proportion of a designated amenity space which receives 2 hours of direct sunlight on 21st March.

Cumulative Effects

- 202** Should there be any surrounding cumulative schemes (Tier One) with the potential to generate cumulative effects at the receptors identified above, these would be assessed in conjunction with the Proposed Development in a cumulative scenario. A qualitative high-level assessment of the Proposed Development coming forward alongside the Tier One schemes, and London Resort Scheme will be undertaken in the ES Chapter (Tier Two).

- 203** From review of the surrounding Tier Two cumulative schemes, there is potential for cumulative effects arising from one cumulative development: *Land At Former Northfleet Cement Works Outline Scheme (EDC/16/0004) (Pending Decision)*, located south-east of the site (reference 5 in **Table 2**). This is dependent on placement of massing of the final Proposed Development and further review of this cumulative scheme, which will therefore be considered in the ES chapter.

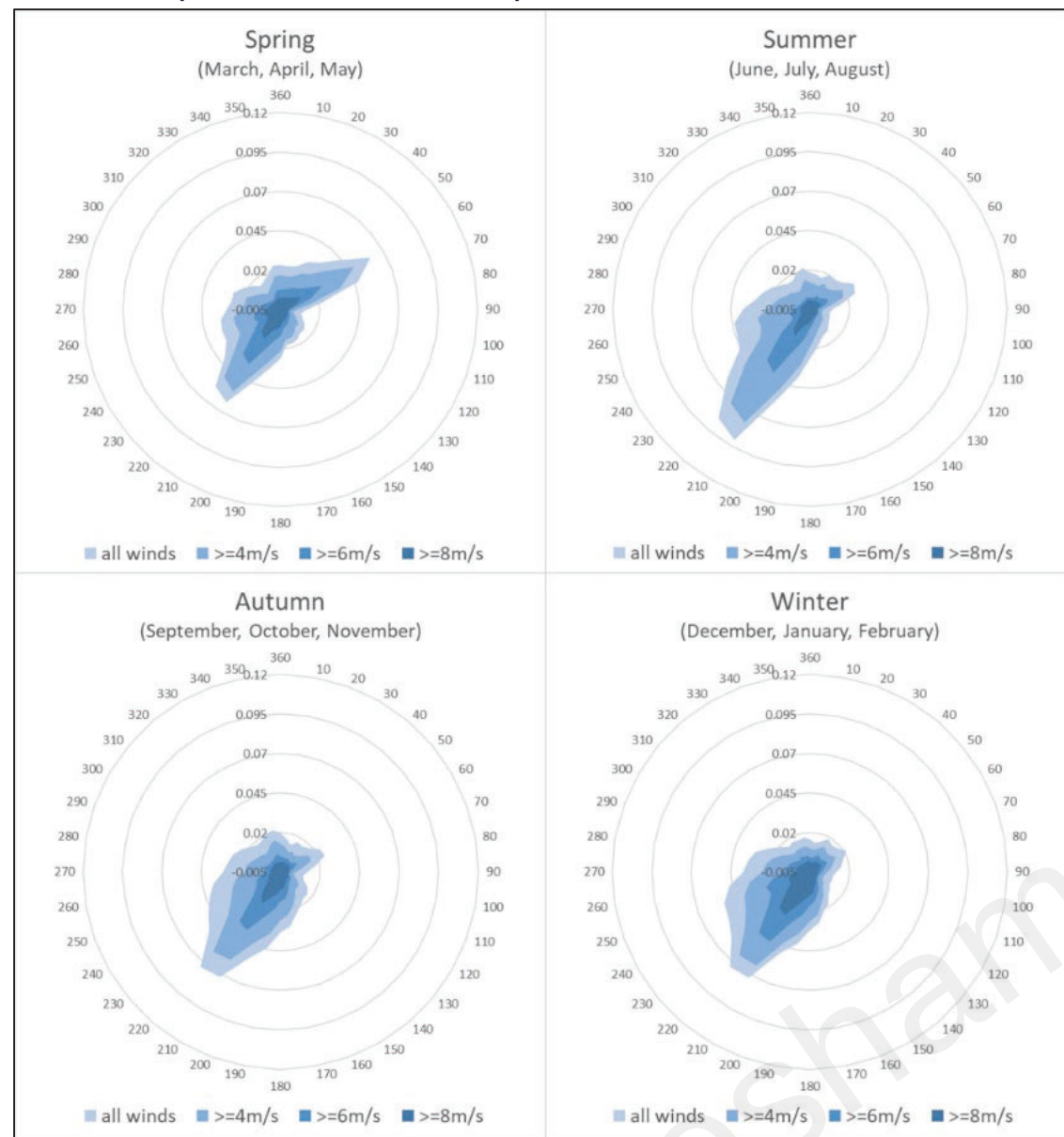
Wind Microclimate

- 204** It is considered that there is the potential for likely significant effects relating to the wind microclimate, and so this topic will be 'scoped into' the EIA. The assessment will be undertaken by GIA.
- 205** The ES will:
1. Define the baseline wind conditions;
 2. Identify relevant receptors;
 3. Assess:
 - a. the potential for wind microclimate effects as a result of the completed and operational Proposed Development.
 - b. the likely significance of any wind microclimate effects.
 - c. any required mitigation to:
 - avoid significant adverse wind microclimate effects; and
 - minimise and reduce any other adverse wind microclimate effects.
 - d. the potential for cumulative wind microclimate effects.

Baseline Conditions

- 206** Winds for the Kent area are predominantly from the south-west, with a secondary peak from the north-east during spring. Winds are typically stronger in the winter season, and lighter throughout the summer. Wind roses per season are shown in **Figure 16**, from data attained from Biggin Hill airport (25km from the site) over a period of 30 years. These wind roses provide the frequency of occurrence and magnitude of winds from all directions within the 30-year period.

Figure 16 Wind Roses for Biggin Hill Airport (Radial Axis Indicates the Percentage of Time per Season the Stated Wind Speed Threshold is Exceeded)



207 To understand and quantify the baseline conditions at the site, a full-scale digital model will be constructed reflecting the existing built form of the site and the surrounding area (minimum 400m radius from the centre of the site). This full-scale digital model will be tested in high resolution Computational Fluid Dynamics (CFD) to allow the baseline wind microclimate conditions to be quantified.

208 The baseline results from CFD will be combined with long-term meteorological climate data, corrected to understand the baseline conditions specific to the site, having regard to its location within Kent. Testing in CFD will be conducted in the absence of any existing hard or soft landscaping, in order to provide a conservative result.

Sensitive Receptors

209 The main interactions of wind with a building occurs relatively close to the building, particularly when there are neighbouring buildings and streets along which the wind can be channelled. This means that

the focus of the assessment is within the site boundary and the immediate surrounding streets and public realm. The key receptors within and around the site are noted below.

210 The study area comprises the site and its immediate surroundings within a minimum 400m radius from the centre of the site.

211 Key receptors within and around the site are anticipated to include:

- Pedestrian footpaths or 'thoroughfares';
- Entrance locations for buildings (on and off-site);
- Amenity areas (i.e. open space), both on and off-site;
- The external pedestrian areas of the football stadium;
- The football pitch;
- On site accessible podium/terrace levels and balconies;
- Bus stops;
- Junctions (pedestrians); and
- Pedestrian Crossings.

Potential Effects

212 Undesirable wind speeds can make spaces uncomfortable or unsafe for pedestrian use. The introduction of the Proposed Development's massing on-site will, therefore, have the potential to influence the baseline wind conditions on and surrounding the Proposed Development.

213 The potential wind microclimate effects associated with the Proposed Development are considered to be:

- Undesirable wind speeds in accessible ground and elevated levels of the Proposed Development, surrounding buildings, pedestrian thoroughfares, pedestrian junctions, bus stops and nearby areas of public realm during the demolition and construction phase; and
- Undesirable wind speeds at accessible ground and elevated levels of the Proposed Development, including entrances, balconies and accessible podium/terrace levels, thoroughfares and amenity spaces, surrounding buildings (including entrances), pedestrian junctions, bus stops and nearby areas of the public realm during the operational phase.

Scope of Assessment

214 The assessment of the wind microclimate will be based on the results from a series of tests on full-scale digital models using CFD to provide a detailed assessment. The wind microclimate will be benchmarked against the Lawson Comfort Criteria, in order to assess the pedestrian comfort for users of the Proposed Development.

215 During design development, CFD testing of the developing massing will be carried out for selected wind angles of concern to examine the anticipated flows and to assist in refining the design.

216 Given the size and geometry of the Proposed Development, in addition to the site's location in relation to surrounding buildings and nearby areas of public realm, it is important to avoid undesirable wind speeds being generated at ground and accessible elevated levels.

217 The wind microclimate assessment will therefore quantify the potential changes to the local wind environment (both on-site and within the surrounding area) in terms of pedestrian amenity and public open space and quantify these in relation to their 'usability' for a range of pedestrian and amenity

activities (i.e. thoroughfares, entrances, sitting, etc), as defined by the well-known and established Lawson Comfort Criteria.

- 218** Comfort thresholds are shown in **Table 10** below. If the measured wind conditions exceed the threshold wind speed for more than 5% of the time (whether that is seasonally or annually), then they are unacceptable for the stated pedestrian activity and the expectation is that there may be complaints of nuisance or people will not use the area for its intended purpose.

Table 10 Lawson (CoL Variant) Comfort Criteria Thresholds

Key	Comfort Category	Threshold	Description
●	Frequent Sitting	2.5 m/s	Acceptable for frequent outdoor sitting use, e.g. restaurants, cafe
●	Occasional Sitting	4 m/s	Acceptable for occasional outdoor seating, e.g. general public outdoor spaces, balconies and terraces intended for occasional use etc.
●	Standing	6 m/s	Acceptable for entrances, bus stops, covered walkways or passageways beneath buildings.
●	Walking	8 m/s	Acceptable for external pavements, walkways.
●	Uncomfortable	>8 m/s	Not comfortable for regular pedestrian access.

- 219** As a mixed-use scheme, the target wind environment on-site would usually include the following activities:

- Occasional sitting (or calmer) for amenity spaces (in the summer months) - A mixture of occasional sitting and standing may be tolerable where no seating provisions are specifically provided, and in private spaces;
- Standing conditions outside building entrances, and pick-up/drop-off points etc (throughout the year); and
- Walking on thoroughfares and access routes (throughout the year).

- 220** If strong winds are measured then these will also be reported. The activities described above are those used by the Lawson Comfort Criteria. The “uncomfortable” category is often associated with occasional strong winds (in excess of 15m/s) and should be mitigated unless they occur on less frequently used routes (e.g. back-of-house service areas) or in areas inaccessible to the general public.

- 221** Strong winds are reported for exceedances of 15m/s (to account for less able-bodied people or vulnerable users such as cyclists) for more an 0.022% of the year (or above approximately 1.9 hours/year).

Demolition and Construction

- 222** As demolition and construction works progress, the conditions on and around the Proposed Development site would be expected to gradually transition between those of the baseline and the final completed Proposed Development. A qualitative approach will be taken to the assessment of the demolition and construction works, with limited or no access of the majority of the Proposed Development site and in the immediate vicinity available to pedestrians.

Operational

- 223** To understand the future wind conditions at the site, CFD testing will be carried out to establish wind conditions once the Proposed Development is completed and operational.

- 224** Five configurations will be tested as set out below:

- Configuration 1:** Existing Site (baseline scenario) with the existing surrounding buildings.
- Configuration 2:** Intermediate phases with existing surrounding buildings (this will depend on the phasing strategy which is yet to be determined);
- Configuration 3:** Proposed Development with the existing surrounding buildings;
- Configuration 4:** Proposed Development with the Tier One cumulative surrounding buildings; and
- Configuration 5:** Proposed Development with the Tier One and Tier Two cumulative surrounding buildings (qualitative).

- 225** 3D models of the Proposed Development, existing surroundings and nearby cumulative schemes, as appropriate, will be created and tested in high resolution CFD, to allow the future wind microclimate conditions to be quantified. The model will cover a minimum radius of 400m. Mean wind speeds and turbulence levels (to allow the calculation of gust speeds) will be measured at 1.5m above ground level and any raised areas which are accessible to pedestrians, for all wind directions.

- 226** Based on the results of the CFD testing assessed against the Comfort Thresholds discussed above, the suitability of the conditions and the likely effect at particular locations, both on-site and off-site, will be determined.

- 227** The adopted scale for the significance criteria is a logical comparison of the measured wind environment with the desired wind environment. An adverse effect implies that a location has a wind environment that is unsuitable for its intended use and mitigation should therefore be considered. A beneficial effect indicates that a location has a wind environment that is considered suitable (or better) for its intended use and, therefore, mitigation is not required.

- 228** The minor, moderate and major categories indicate the scale of severity with regards to the difference between the desired microclimate and the actual microclimate. As an example, if the desired wind conditions at a particular location are required to be suitable for standing, but the predicted wind conditions are suitable for walking, the difference between the desired and predicted wind condition is one category windier than desired. In this case, the scale and nature of the effect would be identified as minor adverse.

- 229** Adverse effects that are minor, moderate and major in scale are considered a ‘significant’ effect in EIA terms, which is material to the planning decision process as it implies that a location, or area, has a wind microclimate that is unsuitable for the desired use of that area. Beneficial effects (at all scales) are considered ‘not significant’.

- 230** Wind effects due to development are usually ‘felt’ within the Proposed Development site boundary or the immediate surrounding streets and are due to the building massing and orientation. Consequently, all reported effects are considered to be direct, local and long-term unless there is a change in the massing or climate.

- 231** The potential for strong winds to occur will also be addressed for all the scenarios examined. Strong winds are considered to be significant as soon as the threshold is exceeded, regardless of the magnitude of exceedance.

- 232** The suitability of the conditions both within the Proposed Development site and surrounding the Proposed Development site, both in terms of comfort and strong winds, will be presented and discussed within the ES, and a supporting technical appendix.

Cumulative Effects

- 233** As noted in the *Cumulative Effects with Other Developments* section of this Scoping Report, a two-tier cumulative assessment will be undertaken for this site. Tier One is a quantitative assessment which will consider the Proposed Development coming forward alongside other developments in the area that have either submitted a planning application or that have a resolution to grant / full planning consent. Tier two will provide an assessment of the Proposed Development with the Tier One schemes and an additional qualitative assessment of the London Resort.
- 234** The cumulative assessment will include cumulative schemes within a 400m radius of the centre of the site (Tier 1 schemes 1 and 2 within **Table 2** and the London Resort (Tier 2) scheme). A list of cumulative schemes to be considered is included within this Scoping Report (refer to *Cumulative Effects with other Developments* section above).

Climate Change and Greenhouse Gas Assessment

- 235** The 2017 EIA Regulations introduced the requirement for the consideration of climate as part of the EIA process. The EIA Regulations seek to account for climate by requiring a description of 'the impact of the project on climate' and 'the vulnerability of the project to climate change' (Schedule 4, paragraph 5(f)).
- 236** Based on the requirement of the EIA Regulations to address climate change and relevant guidance suggesting that any greenhouse gas (GHG) emissions or reductions from a project may be considered as significant, this topic is 'scoped into' the EIA.
- 237** The Climate Change and Greenhouse Gas Emissions ES chapter will comprise two parts:
- Part one of the ES chapter will comprise the GHG Assessment; and
 - Part two will comprise Climate Change Resilience.

The Proposed Development's Potential Impact on Climate

- 238** The approach to assessing the potential impact of the Proposed Development on the climate will be undertaken in accordance with the Institute of Environmental Management and Assessment (IEMA) guidance '*Assessing Greenhouse Gas Emissions and Evaluating Their Significance*'²⁹. This guidance sets out a 'good practice' approach to achieving a proportionate assessment of a development's potential impact on climate and communicating the results in terms of a notional percentage contribution relative to a carbon budget, together with appropriate mitigation.
- 239** The guidance presents a series of principles developed by IEMA, which highlight that all GHG emissions contribute to climate change, and that the combined effect of all emissions draws us closer to the scientifically defined environmental limit for climate change. The IEMA guidance assigns significance criteria to the impact of a development's lifecycle GHG emissions, relative to its alignment with the UK Government decarbonisation targets to achieve Net Zero Carbon by 2050, and limit global temperature increase to 1.5°C above pre-industrial levels. For a development to comply with the 1.5°C trajectory of decarbonisation, mitigation is encouraged early and throughout the design process, in line with IEMA's acknowledgement that the ability to effect change to achieve GHG emissions reduction for a project reduces over time.

²⁹ IEMA (2022) *Assessing Greenhouse Gas Emissions and Evaluating Their Significance*, 2nd Edition, Available: <https://www.iema.net>.

- 240** Consistent with the guidance, the approach taken in the EIA will be to quantify the net lifecycle GHG emissions³⁰ from the Proposed Development and compare against an existing carbon budget that complies with the UK's Net Zero compatible trajectory. This allows the significance of the Proposed Development's impact on climate change to be quantitatively assessed.
- 241** The ES will present the carbon mitigation being proposed, which will follow the principles of the carbon management hierarchy (i.e., avoid, reduce, off-set), in order to reduce, as far as reasonably practicable, the anticipated GHG emissions over the Proposed Development's lifecycle.
- 242** The assessment of GHG emissions (essentially a carbon footprint or 'inventory' of the Proposed Development's lifecycle) and an outline of the carbon mitigation measures proposed will be presented within Part one of the Climate Change and Greenhouse Gas Emissions ES chapter (Volume 1).

The Potential Impact of Climate Change on the Proposed Development

- 243** The approach to assessing the potential impact of climate change on the Proposed Development will be undertaken in accordance with IEMA's guidance '*Climate Change Resilience and Adaption*'³¹ which presents a framework for the consideration of climate change resilience and adaption in the EIA process. It recognises a need for a proportionate approach to the assessment, due to the uncertainties associated with predicting how the environment will respond to climate change.
- 244** The guidance advises on, amongst other things, defining the future climate scenario, the integration of climate change adaption into the design, and the process for EIA. The guidance also provides advice on the execution of the impact assessment across the technical topics, including the identification of the climate related parameters which are likely to influence the project in question, and the anticipated changes to those parameters under a future climate scenario.
- 245** Consistent with the guidance, the ES will describe a future climate scenario which will be developed using future climate projections published by the Met Office (through the UK Climate Projections (UKCP18) website³²). The results include projections for variables including annual mean temperatures, and annual changes in summer and winter precipitation.
- 246** To describe the predicted future climate, it is proposed that a medium emissions scenario (Relative Concentration Pathway (RCP) 8.5) for 2080 will be utilised as the future baseline. RCP8.5 has been used as it represents a conservative high emissions scenario. The year 2080 is the timeframe considered most relevant to the Proposed Development. The projected change to the range of climatic conditions will adopt the 50% probability level, which is a central estimate adopted given the level of uncertainty associated with the modelled scenarios. A Climate Change Technical Note setting out the emissions scenario used and probability levels shall be provided as an annex to the ES chapter.
- 247** The future climate change scenario will be considered within the ES for each of the technical topics being presented, and the level of assessment and methodology will be proportional to the available evidence base. The aim of the assessment will be to consider whether the effect on receptors (under the baseline condition, without climate change) are likely to be different under an alternative future climate regime; in particular, to identify whether the potential impacts of the Proposed Development will be worse or better under the future baseline, and therefore if these changes alter the significance of effects identified for the Proposed Development under the baseline condition (without climate change). A key aspect of the assessment (within each of the technical topics presented) will be to identify the likely effect of those receptors considered more vulnerable to changes in climate, having taken into

³⁰ The net GHG emissions contribution is the difference between the existing GHG emissions within the Proposed Development boundary (prior to the Proposed Development commencing) and the predicted Proposed Development emissions.

³¹ IEMA (2020) *Climate Change Resilience and Adaption*, Available: <https://www.iema.net>.

³² <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/download-data>

account the resilience and adaptive measures (being either design or management) which are proposed for the scheme in order to mitigate the risk presented by climate change.

- 248** Due to the level of uncertainty in both the future climate projections and how the future climate conditions may affect sensitive receptors, the assessment will be qualitative, based on professional judgement, unless where there is published, accepted quantifiable methods available (i.e. in relation to the assessment of flood risk).
- 249** The ES chapter will present the review of the future climate change scenario in terms of how the effects on receptors (under the current condition, without climate change) are likely to be different under an alternative future climate regime. In addition, the adaption and resilience measures proposed as part of the description of the Proposed Development shall be identified.

Archaeology

- 250** This section of the Scoping Report identifies potential impacts within regard to below ground archaeology that may occur during the demolition/construction and operation of the Proposed Development. Above ground heritage assets will be assessed separately in **ES Volume 2: Townscape and Visual Impact Assessment** of the ES. The effects to be considered within the Archaeology ES chapter are concerned with the effects of the Proposed Development upon heritage significance and the ability to appreciate and experience the significance of a below ground heritage asset. The ES chapter will be supported by a technical appendix; an Archaeological Desk-Based Assessment (DBA).
- 251** The assessment will be undertaken in accordance with the requirements of the National Planning Policy Framework (NPPF, 2021) – specifically Section 16 ‘Conserving and Enhancing the Historic Environment’ and to standards specified by the Chartered Institute for Archaeologists and Historic England.

Baseline Conditions

- 252** The following section provides a summary of the methodology to be used for the baseline assessment which will inform the ES chapter, including methods and data sources that will be consulted. The DBA will make a consideration of below ground archaeological remains only and will not assess above ground-built heritage or indirect effects to built heritage assets (effects to significance through change within setting). Following the preparation of the DBA, the ES chapter will be produced outlining the baseline position and predicting the likely effects on heritage assets, based upon the final design proposals. Potential significant effects would be described in terms of their deviation from the archaeological baseline presented in the DBA.
- 253** The following sections present the sources and guidance to be used for the DBA, which will be carried through to the ES chapter.

Study Area

- 254** A 1km study area buffered from the site boundary of the Proposed Development will be adopted for buried archaeological assets. Baseline conditions will be established through desk-based review of publicly accessible sources of primary and synthesised information pertaining to the archaeological resource. The study area has been determined through professional judgement and is considered sufficient to provide a context for the discussion and interpretation of the known and potential archaeological resource.

Sources

- 255** In order to determine the full archaeological potential of the site, a broad range of standard documentary and cartographic sources, including results from any archaeological investigations in the site and the study area around it will be examined in order to determine the likely nature, extent, preservation and significance of any known or possible buried heritage assets that may be present within or adjacent to the site.
- 256** The following publicly accessible sources of primary and synthesised information will be used to inform the desk-based assessment and will be revisited to ensure that up to date information is used to inform the ES:
- The National Heritage List for England (NHLE), which is the only official and up to date database of all nationally designated heritage assets;
 - The Kent Historic Environment Record (KHER), comprising a database of recorded archaeological sites, find spots, and archaeological events within the county;
 - Local, regional and national research frameworks;
 - National heritage datasets including Archaeological Data Service (ADS), Heritage Gateway, OASIS, PastScape and the National Record of the Historic Environment Excavation Index;
 - Historic manuscripts, surveyed maps, and Ordnance Survey maps available at the Kent History and Library Centre;
 - LiDAR Imagery and Aerial Photographs; and
 - Relevant primary and secondary sources including published and unpublished archaeological reports relating to excavations and observations in the vicinity of the site.
- 257** In addition, a site visit will be undertaken which aims to assess the general character, condition and setting of the site and to identify any prior impacts not evident from secondary sources. As well as the identification of any previously unidentified features of archaeological or historic interest.

Relevant Guidance

- 258** In addition to the relevant National and Local Planning Policy a number of guidance documents will be used for the Archaeology chapter of the ES:
- Standards and Guidance for Historic Environment Desk-Based Assessment (Chartered Institute for Archaeologists (CIfA) 2020)³³;
 - Principles of Cultural Heritage Impact Assessment in the UK (IEMA, IHBC & CIfA 2021)³⁴;
 - Statements of Heritage Significance: Analysing Significance in Heritage Assets, Historic Environment Good Practice Advice in Planning Note 12 (Historic England 2019)³⁵;
 - Managing significance in Decision-Taking in the Historic Environment, Historic Environment Good Practice Advice in Planning: 2 (Historic England 2015)³⁶;

³³ CIfA 2020, *Standards and guidance for historic environment desk-based assessment*. Available at: <http://www.archaeologists.net/codes/ifa>

³⁴ IEMA, IHBC & CIfA 2021, *Principles of Cultural Heritage Impact Assessment in the UK*. Available at: https://www.archaeologists.net/sites/default/files/j30361_iema_principlesofchia_v8.pdf

³⁵ Historic England 2019, *Statements of Heritage Significance: Analysing Significance in Heritage Assets, Historic Environment Good Practice Advice in Planning Note 12*. Available at: <https://historicengland.org.uk/images-books/publications/statements-heritage-significance-advice-note-12/heag279-statements-heritage-significance/>

³⁶ Historic England, 2015. *Managing Significance in Decision-Taking in the Historic Environment, Historic Environment Good Practice Advice in Planning: 2*. Available at: <https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/gpa2/>

- The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (amended 2018, 2019, 2020)³⁷;
- South East Research Framework (SERF-Kent County Council 2019)³⁸;
- Scheduled Monuments & nationally important but non-scheduled monuments (Department for Culture Media & Sport (DCMS) 2013)³⁹;
- Specification for a Standard Desk-Based Assessment and Walkover Survey, Manual of Specifications Part B (Kent County Council)⁴⁰; and
- Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (Historic England 2008)⁴¹.

Designated Archaeological Assets

- 259** There are no designated archaeological assets within the site. However, there are a small number of designated archaeological assets within the study area.
- 260** 80m to the south of the site boundary is the Scheduled Monument 'Aspdin's Kiln' (1004227) which is thought to be the oldest Portland Cement Kiln in the world and is a well-preserved example of a downdrought kiln used in the production of cement. As this asset survives above ground, this is considered as a built heritage asset within **ES Volume 2: Townscape, Visual and Built Heritage Impact Assessment** and will not form part of the assessment of archaeology within the Archaeology Chapter of the ES.
- 261** Located 270m and 580m to the south-east of the site are Sites A and B of the Palaeolithic Sites near Bakers Hole Scheduled Monument. The scheduled areas are known to contain a suite of lower and middle palaeolithic deposits which infilled the Ebbsfleet Valley and comprise a mixture of fluvial, colluvial and solifluction deposits that lay between 5-15m AOD. Site A survives as below ground archaeological deposits however Site B exists as a small island of deposits in an area that has been quarried. Whilst this does exist above ground in the context of the surrounding quarried area, this is still considered as below ground archaeological remains. The Scheduled Monuments are also located within a Site of Special Scientific Interest designation (SSSI), and whilst this is not strictly a heritage designation, the reason for the designation of this part of the SSSI is due to the quaternary geological deposits. The Palaeolithic deposits at Bakers Hole are considered to be of at least national significance.
- 262** Scheduled Monument 'Neolithic Sites at Ebbsfleet' is also comprised of two scheduled areas, one located 1km to the south of the site and the other located 1.4km to the south of the site (as one part of the monument is within 1km it is considered part of the study area). The two scheduled areas represent two areas which have been archaeologically investigated which found remains dating to the Mesolithic and Neolithic periods. The deposits identified at these locations are considered to be more widespread than the scheduling suggests. The remains recorded include a Mesolithic working floor with associated flint artefacts and Neolithic artefact bearing horizons and other occupational evidence within the

³⁷ Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (amended 2018, 2019 and 2020). Available at: <https://www.legislation.gov.uk/ukxi/2017/571/contents/made>

³⁸ Kent County Council, South East Regional Research Framework. Available at: <https://www.kent.gov.uk/leisure-and-community/history-and-heritage/south-east-research-framework>

³⁹ DCMS 2013, Scheduled Monuments & nationally important but non-scheduled monuments. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/249695/SM_policy_statement_10-2013__2_.pdf

⁴⁰ Kent County Council (undated), Specification for a Standard Desk-Based Assessment and Walkover Survey, Manual of Specifications Part B

⁴¹ Historic England, 2008, Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment. Available at: <https://historicengland.org.uk/images-books/publications/conservation-principles-sustainable-management-historic-environment/conservationprinciplespoliciesandguidanceapril08web/>

Holocene alluvium with an assemblage of Ebbsfleet Ware pottery discovered at one of the Sites. Later investigations also revealed horizontal waterlogged timbers of Neolithic date.

Non-designated Archaeological Remains

- 263** A large number of geoarchaeological investigations have been undertaken within the vicinity of the site particularly in relation to the High Speed 1 (HS1) route. It should also be noted that a Roman Kiln was recently found on the development to the west of the Proposed Development. Within the central and southern part of the Swanscombe peninsula sequence of Pleistocene gravels belonging to the Shepperton Gravel Member was overlain by Holocene deposits. The Holocene deposits comprise alluvial sediments forming part of the Thames floodplain sequence of deposits encountered widely across the Lower Thames Estuary. The Thames floodplain deposits comprise a range of sediments that have variously accumulated over the last approximately 11,500 years under the influence of rising post-glacial sea-levels. Geoarchaeological work to the south along the line of HS1 identified a variable sequence of peats and alluvium, with between one to three peats recorded along the route, including a thick peat consistently present in boreholes across the peninsula. Peat deposits along the line of HS1 produced radiocarbon dates from the late Mesolithic date to Bronze Age.
- 264** Investigations on Broadness Marsh at the tip of the Swanscombe peninsula identified a sequence of alluvial silty clays interbedded with three peat layers overlying Pleistocene sands and gravels at -9.5m OD. The peats dated from the late Mesolithic to Late Bronze Age; the second peat layer was recoded up to 2m thick, with thinner basal and upper peats.
- 265** Palaeolithic finds have been recorded within the immediate vicinity of the site including a large palaeolithic blade from Botany Bay pit recorded at the eastern boundary of the site and another two palaeolithic blades recorded at the Northfleet Cement Works to the south. A large number of finds have been recorded in the wider area most of which were discovered during extensive quarrying in the 19th and 20th centuries. No other prehistoric finds are recorded within or immediately adjacent to the Site although prehistoric flints are recorded close to Ebbsfleet Station and Bronze Age finds are recorded on the eastern side of the HS2 line as being from the Ebbsfleet Valley. Adjacent to the course of the river Ebbsfleet to the south of the study area two areas are scheduled for prehistoric remains including a Mesolithic 'working floor' and waterlogged remains dating to the Neolithic period.
- 266** Bronze Age evidence within the surrounding area includes a wooden trackway across the marshland on the Swanscombe peninsula, as well as a hoard which was dredged from the Thames off of the peninsula. The practice of depositing metal objects within rivers or water environments began in the Bronze Age and is thought to have been done for religious or ritual reasons. A Bronze Age wooden fish trap was also found close to Ebbsfleet Station. Other Bronze Age evidence close to Ebbsfleet Station comprised a buried surface consisting of a layer of cobbles on top of a later of wood and peat.
- 267** The focus of activity during the Iron Age and early Roman period further south of the site close to the modern A2 road at Springhead, at what was the head of the Ebbsfleet at the time. The area had a ritual focus in the Iron Age with a number of ritual pits and a processional way and terrace. The presence of the Spring at Springhead is thought to have been the origin of the ritual activity in this area. The ritual focus continued into the Roman period with a town and sanctuary complex consisting of a number of temples constructed, as well as the roman road (A2) and a number of cemeteries. Away from this focus of activity at the A2/Springhead, a Roman Villa was constructed at Northfleet to the east of the modern Ebbsfleet Station. This was preceded by a timber building, with the masonry building constructed around AD120. Evidence for activities such as brewing, quarrying and limeburning were present as well as a bath house and a quay for river access. The villa continued in use until 380AD when it is thought to have been abandoned.

- 268** During the investigations for HS1 close to Ebbsfleet Station a total of nine sunken featured buildings were discovered of Anglo-Saxon date as well as an Anglo-Saxon watermill. Substantial timber remains of a mid-Saxon tidal mill were discovered as well as associated features including a spillway, revetments and sluice gates all dating to the end of the 7th century. The mill was sat upon a sand bank at the edge of the Ebbsfleet, with a mill pond to the south fed by the Ebbsfleet; the mill was accessed by a causeway. Anglo-Saxon cemeteries were found further south at Springhead.
- 269** A settlement is recorded in the Domesday Book of 1086 at Northfleet. The name Northfleet refers to the north creek/inlet and is recorded as *North Fleot* in Old English, *Flyote* in 975, *Norflvet* in 1086, *Nortfliete* in 1176 *Northflet* in 1201 and Northfleet from 1610. Comparative to earlier periods there is little archaeological evidence dating to the medieval and post-medieval period which may reflect the relative isolation of Northfleet at this time.
- 270** Plans for a naval dockyard called Northfleet Dock were laid on the Swanscombe Peninsula in 1811 although these plans were never realised. The plans included two wet docks, a ropery, storage buildings, a gun wharf, eight ship building slips 12 dry docks and a victualing yard. The area proposed for the dockyard included the Site. By the end of 1815 the plans had been abandoned with available funds spent on improving the existing dockyards in Kent.
- 271** Since the late 19th century Northfleet, Swanscombe and the Ebbsfleet Valley have had an industrial focus as it was located at an ideal spot, where extractable chalk was close to the navigable Thames estuary. As a result, one of Britain's largest chalk extraction and cement making centres formed at Swanscombe and Northfleet and grew exponentially between 1895 and 1970. In 1796 James Parker's cement works at Northfleet patented 'Roman Cement' which was a water-resistant product but slightly weaker than later cement products. In 1811 James Frost produced his cement 'Portland Cement' using similar ingredients to the Roman cement at his works in Swanscombe. In 1824 Joseph Aspdin, who had works at Northfleet patented 'Portland Cement'. By the 1840s a rivalry had developed between the Swanscombe and Northfleet works as both were producing Portland Cement. In the 1850s the Sturge family are known to have set up a cement works at Northfleet adjacent to Aspdin's Works. The Sturges took on partners Bevan and Knight and became known as Knight, Bevan and Sturge. By the 1870s Bevan had sole control of the company. At the turn of the 20th century 27 cement manufacturers merged to form the Associated Portland Cement Manufacturers Ltd (ACPM). This also coincided with the introduction of the rotary kiln (rather than the bottle or beehive kilns) which sped up production. By this time all the available space along the riverfront was taken up by the cement industry. Historic mapping shows the Portland Cement Works to have extended within the Site.

Sensitive Receptors

- 272** The potential receptors have been identified as follows:

- Potential Geoarchaeological deposits;
- Potential Palaeolithic deposits;
- Remains associated with the Portland Cement Works; and
- As yet any unknown archaeological remains.

Potential Effects

- 273** An assessment of potential effects of the Proposed Development with respect to Archaeology will be undertaken and presented in the Archaeology ES chapter. Effects to the archaeological resource can be direct or indirect as explained below.

Direct Effects

- 274** Direct Effects on heritage assets arise from physical damage or disturbance which gives rise to a loss of heritage significance. These could range in significance from nationally significant to locally significant.

Indirect Effects

- 275** Indirect Effects are those which result in potential change to heritage significance but do not give rise to physical damage or disturbance to an asset. In this context, these effects will generally arise through change to the setting of an asset.

Demolition and Construction

- 276** For the demolition/construction phase, direct effects to archaeological remains/deposits could arise through physical impacts such as ground disturbance for preliminary site set up works including the construction of working areas and compounds, construction of foundations for new buildings (including piling), new roads and infrastructure, enabling works, hard and soft landscaping and any other ground works including temporary works. In addition, potential direct effects could arise through changes to water levels within the site which has the potential to affect waterlogged remains with Palaeoenvironmental potential. Changes to the water levels have the potential to result in the drying out of waterlogged remains leading to a degradation of these deposits and a loss of archaeological significance. There are no basements associated with the Proposed Development, so no deep excavations are anticipated.

- 277** There are not expected to be any indirect effects to buried archaeological remains during the construction phase as a result of the Proposed Development.

Completed Development

- 278** An assessment of operational phase effects will be scoped out on the basis that once the Proposed Development has been completed, no further ground disturbance would occur and consequently there would be no additional impacts or resulting effects upon buried heritage assets.

- 279** There are not expected to be any indirect effects to buried archaeological remains as a result of the Proposed Development during the operational phases.

- 280** Table 11 below presents the proposed scope of the assessment.

Table 11 Proposed Scope of Assessment

Element	Phase	Scoped In	Scoped Out	Justification
Demolition/construction effects (buried heritage assets)	Demolition and construction	✓		There is the potential for significant effects on buried heritage assets during demolition/construction works.
Operational effects (buried heritage assets)	Operation		✓	There are not expected to be any operational effects upon buried archaeological remains, as construction activities will have been undertaken and suitable assessment and mitigation measures put in place.
Cumulative effects (buried heritage assets)	Construction and Operation	✓		Cumulative effects are in-combination effects which occur on a discrete and significant shared heritage asset/resource. Due to the nature of the potential archaeological deposits within the site (Palaeolithic and Palaeoenvironmental deposits) which can cover a large area, a cumulative assessment will be included within the ES chapter, as developments in the surrounding area have the potential to affect the same/similar deposits to the Proposed Development.

Assessment Methodology and Significance Criteria

281 The ES chapter will set out the planning framework in respect of buried heritage assets (archaeological remains) along with the methodology for assessing the environmental effects predicted during the demolition/construction phase. It will provide a summary overview of the baseline conditions.

282 The assessment of potential effects on buried heritage assets in the ES will include:

- Identifying known and potential buried heritage assets that may be affected by the Proposed Development;
- Evaluating the significance of buried heritage assets, based on existing designations and professional judgement. This will consider factors which may have affected asset survival;
- Predicting the magnitude of change (impact) upon the known or potential heritage significance of buried heritage assets during the demolition/construction phase and the likely resulting significance of environmental effect;
- Consideration of any additional mitigation measures (over and above those already embedded within the Proposed Development design) that may be required to avoid, prevent, reduce or, if possible, offset any likely significant adverse effects; and
- Quantifying any residual effects (those that might remain after mitigation).

Proposed Significance Criteria

283 The importance of heritage assets is analogous to sensitivity and is considered in relation to statutory designations and the priorities and recommendations set out in national research agenda. Historic England's guidance on Managing Significance in Decision Taking in the Historic Environment (Historic England 2015), and the interests defined in NPPG which make up the significance of a heritage asset (NPPF 2021 Glossary; significance for heritage policy; archaeological interest, historic interest and NPPG 2019; architectural and artistic interest), along with professional judgement, will be used to determine the importance/sensitivity of the resource. This will involve an assessment of the specific heritage values of each heritage asset to be affected by the development. In addition to the above the following table will be used as a guide to determine importance/sensitivity for buried archaeological remains.

Table 12 Examples of Heritage Significance of Designated and Non-Designated Buried Heritage Assets

Buried heritage asset description	Significance
World heritage sites which are internationally important Scheduled monuments of acknowledged international importance Undesignated heritage assets of high national importance	Very High
Scheduled Monuments and undesignated assets of schedulable quality and importance Archaeological assets that can contribute significantly to acknowledged national research objectives Known submerged prehistoric sites and landscapes with the confirmed presence of largely in situ artefactual material. Palaeographic features with demonstrable potential to include artefactual and/or palaeoenvironmental material, possibly as part of a prehistoric site or landscape.	High
Designated or undesignated archaeological assets that contribute to regional research objectives Prehistoric deposits with moderate potential to contribute to an understanding of the Palaeoenvironment Local Authority designated sites. Previously unknown and undesignated sites that would justify Local Authority designation (i.e., sites of regional importance). Sites with specific and substantial importance to the local community.	Medium
Archaeological assets of limited value, but with potential to contribute to local research objectives	Low

Buried heritage asset description	Significance
Assets with little or no surviving archaeological interest Sites or features that are so badly damaged that too little now remains to justify their inclusion in a higher grade.	Negligible
The importance of the archaeological resource cannot be ascertained due to limited existing information; therefore, the value of the resource is classified as ranging from High to Low importance/sensitivity.	Unknown

Assessment of Magnitude of Impact

284 The assessment of magnitude of impact is the identification of the degree of the effect of the scheme upon the significance of the historic environment resource. The impact can be beneficial or adverse and the magnitude is ranked without regard to the importance/sensitivity of the asset. **Table 13** below provides a guide for assessing the magnitude of impact in respect of the historic environment resource.

Table 13 Assessment Criteria for Determining the Magnitude of Impact

Magnitude		Criteria
Very High/High	Adverse	Major physical damage to or significant alteration to a site or feature
	Beneficial	Large scale of major improvement of a heritage asset, extensive restoration or enhancement, major improvement in attribute quality
Medium	Adverse	Damage or alteration to a site or feature. Encroachment on an area considered to have high archaeological potential
	Beneficial	Benefit to, or addition of, key characteristics, features or elements or improvements of a heritage asset
Low	Adverse	Minor damage or alteration to a site or other feature. Encroachment on an area where it is considered that low archaeological potential exists.
	Beneficial	Minor benefit to features or elements, some beneficial impact on heritage asset or a reduction in the risk of negative impact occurring
Negligible	Adverse	Very minor changes to archaeological remains
	Beneficial	Very minor benefit
No change		No change would be perceptible either positive or negative

Determination of Significance of Effects

285 The assessment of the significance of an effect on a heritage asset is largely a product of the heritage significance of an asset and the magnitude of the impact that might give rise to harm (or perhaps beneficial change), qualified by the application of professional judgement. An assessment of effects on a heritage asset involves an understanding of the heritage significance of the asset. The effect being assessed is whether the asset loses (or gains) significance as a result of development. Planning policy recommends that the level of detail should be proportionate to the heritage significance of the assets and no more than is sufficient to understand the potential impact of the proposal.

286 The significance of effects of the demolition/construction of the Proposed Development will be assessed and residual effects will be assessed taking into account mitigation measures where proposed.

Cumulative Effects

- 287** The ES chapter will include an assessment of cumulative effects of the Proposed Development upon the archaeological resource in conjunction with other surrounding developments. A list of cumulative developments has been prepared which will be considered in relation to the Proposed Development and the following schemes will be included within the cumulative assessment which lie within 500m of the site;
- The London Resort (BC080001) which will be assessed qualitatively, as noted in the *Cumulative Effects with Other Developments* section of this Scoping Report;
 - Land Adjacent to Northfleet Harbour Grove Road, Northfleet (EDC/21/0102); and
 - Land North of Hive Lane, Northfleet Embankment West (EDC/21/0081).
- 288** Cumulative effects of the Proposed Development together with other schemes will be undertaken using the methodology outlined above for both direct and indirect effects.

Ecology and Biodiversity

Introduction

- 289** An ecological impact assessment will be undertaken, to determine the potential effects of the Proposed Development on ecological features and an ES chapter prepared to present the findings of this assessment. The ecology assessment will be completed by Schofield Lothian.
- 290** It is considered that significant effects to on site ecology and biodiversity are unlikely, however indirect adverse impacts on surrounding designated sites due to the Proposed Development are likely and as such this topic is 'scoped in' to the EIA. This assessment will be undertaken by Schofield Lothian.
- 291** A Preliminary Ecological Appraisal (PEA) was undertaken in May 2022 by Schofield Lothian and is included in **Annex C: Preliminary Ecological Appraisal**. This comprised a desk study, and an extended Phase 1 Habitat Survey which included a protected species assessment and ecological evaluation of the existing habitats within the red line boundary.
- 292** The identification and evaluation of Important Ecological Features (IEFs) for the purposes of Ecological Impact Assessment (EclA), and the assessment of significant adverse or beneficial effects on IEFs, will be undertaken with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) 'Guidelines for Ecological Impact Assessment in the UK and Ireland, September 2018 (Version 1.1, updated September 2019).

Data Sources

- 293** The data searches were conducted with the Zone of Influence (ZoI) in mind. The ZoI is the area over which the ecological features identified may be subject to significant effects because of the Proposed Development. These will vary between ecological receptors.
- 294** A data search was requested from Kent & Medway Biological Records Centre, to obtain information on non-statutory designated sites and protected species within 2km of the site.
- 295** A desk-based search was undertaken using Multi-Agency Geographic Information for the Countryside (MAGIC), to obtain information international statutory sites within 5km and national statutory sites within 2km of the site.

- 296** Impact Risk Zones (IRZs) were located and assessed using MAGIC maps⁴². IRZs are a tool developed by Natural England to help assess the potential risks to Nationally or Internationally Designated Sites of Nature Conservation Importance posed by development proposals.

- 297** The PEA took account of the following best practice:

- Guidelines for Preliminary Ecological Appraisal. CIEEM 2017¹;
- Guidelines for Ecological Report Writing. CIEEM 2017²;
- Guidelines for Accessing and Using Biodiversity Data in the UK. CIEEM 2016³;
- Combined Ecological Impact Assessment Guidelines. CIEEM 2018⁴; and
- Joint Nature Conservation Committee Handbook for Phase 1 habitat survey. A technique for Environmental Audit. 2010⁵.

Baseline Conditions

- 298** The site is considered to have low ecological value due to the habitats identified on-site. Habitats on site with negligible ecological value include buildings, hardstanding and small isolated stands of ephemeral vegetation. Habitats on site with low ecological value include, amenity grassland, introduced shrub and scattered trees, species-poor hedgerow with trees, standing water and sea wall.
- 299** A desk-based search shows that there are five sites with National statutory designation within the 5km of the site:
- Swanscombe Peninsula Site of Special Scientific Interest (SSSI) located adjacent to the north-west of the site. This was granted SSSI status in November 2021;
 - Swanscombe Skull Site National Nature Reserve (NNR and SSSI) located 1.3km to the south-west of the site;
 - Swanscombe Marine Conservation Zone (MCZ) located 1.2km to the north-west of the site;
 - West Thurrock Lagoon and Marshes SSSI located 2.4km to the north-west of the site; and
 - Lion Pit SSSI located 2.8km north-west of the site.
- 300** The Proposed Development is located within the Impact Risk Zone for Swanscombe Peninsula and West Thurrock Lagoon and Marshes.
- 301** The nearest Internationally statutory designated site to the Proposed Development is Thames Estuary & Marshes Ramsar and Special Protection Area (SPA), is located 5.7km to the east of the site.
- 302** A desk-based search based on Kent & Medway Biological Records Centre shows that there are three local wildlife sites and one Site of Importance for Natural Conservation (SINC) within the ZoL:
- GR19 Botany Marshes (adjacent to the north-west of the site – forms part of the Swanscombe Peninsula SSSI) – habitats include, significant areas of wet grassland, reedbed and, notable areas of salt marsh, exposed mud and sheltered riparian habitats;
 - GR05 Ebbsfleet Marshes (50m south of the site) - Habitats include grassland, marsh, scrub, the River Ebbsfleet and a large, flooded quarry to the north-east known as 'blue lake'. This Local Wildlife Site (LWS) was first notified in 1985, but since then the construction of the Channel Tunnel Rail Link, Ebbsfleet International Rail Station and its associated parking has caused severe fragmentation of the LWS;
 - DA13 Alkerden Lane Pit (1.5km west of the site) - Habitats include grassland, scrub, woodland and an inland cliff. The site was mainly designated for supporting nationally and county scarce plant species including narrow-leaved everlasting pea *Lathyrus sylvestris*, a relict population of

⁴² DEFRA, MAGIC Maps: <https://magic.defra.gov.uk/magicmap.aspx>

yellow vetchling *Lathyrus aphaca* and the county's largest population of green-flowered helleborine *Epipactis phyllanthos*. An area of former landfill on the site is also known to support a rare assemblage of invertebrates including at least one UK Biodiversity Action Plan (BAP) species⁴³; and

- M031 River Thames (which borders the site to the north-east) - The River Thames and the tidal sections of creeks and rivers which flow into it comprise a number of valuable habitats not found elsewhere in London.

Key Findings

- 303** During the extended Phase 1 habitat survey, the potential of the site to support or impact designated sites, invertebrates, birds (nesting, overwintering and foraging), bats, other mammals and invasive species was reviewed. An assessment was also made to understand whether the site could support features associated with Swanscombe Peninsula SSSI and potentially impact them.
- 304** The trees and buildings on-site did not support any potential roosting features for bats; therefore, trees and buildings on-site are defined as having negligible potential to support roosting bats in accordance with the Bat Conservation Trust criteria⁷.
- 305** No further bat surveys are recommended due to the lack of bat roosting features present on site. The habitats are not considered suitable for key foraging or commuting routes for bats given the lack of vegetation and amount of lighting present.
- 306** The site offers potential to support Schedule 1 bird species in habitats, as well as immediately adjacent to the site along Robin's Creek and within the mudflats of the River Thames.
- 307** Suitable habitat was observed during the extended Phase 1 habitat survey for black redstart (*Phoenicurus ochruros*) to nest on site and suitable nesting habitat. Habitat surrounding the site was deemed suitable for little ringed plover (*Charadrius dubius*), Cetti's warbler (*Cettia cetti*) and Mmarsh harrier (*Circus aeruginosus*).
- 308** During the extended Phase 1 Habitat Survey a range of waterbirds were seen foraging on the mudflats next to the site including shelduck (*Tadorna tadorna*) along with herring gull (*Larus argentatus*), black headed gull (*Chroicocephalus ridibundus*), shoveler (*Anas clypeata*) with young, and mallard (*Anas platyrhynchos*). The gravel beach area is suitable for nesting little ringed plover (a Schedule 1 species).
- 309** A variety of birds were observed on and around the site, suggesting possible nests. Removal of trees and the shrub vegetation in the nesting bird season could impact active nests and cause a legal offence. Loss of the trees and shrubbery would have the potential to result in the loss of nesting bird habitat.
- 310** In regards, to invasive species, Japanese knotweed (*Fallopia japonica*) was found on site.
- 311** The mudflats could support macroinvertebrates that would provide feed for important bird species associated with Swanscombe Peninsula SSSI.
- 312** Table 14 below details findings on ecological note below.

Table 14 Ecological Findings on Site

Feature	Likelihood of Occurrence	Rationale
Designated Sites – Statutory and Non-Statutory		
Designated sites	Present (adjacent to the Proposed Development site)	Further screening is needed to assess the impact on the SSSI of Swanscombe Marsh. This includes further assessment of the intertidal mudflats which may be of importance as foraging habitat for the birds of the SSSI.

⁴³ Also described as Species and Habitats of Principal Importance for Conservation in England, or 'priority habitats' and 'priority species' under the UK Post-2010 Biodiversity Framework.

Feature	Likelihood of Occurrence	Rationale
BAP Priority Habitats		
Mudflats	Present (adjacent)	Mudflats present adjacent to the north-east boundary of the site. Potential indirect impacts.
Birds		
Nesting Birds	High	A wide range of passerine bird species were recorded in the desk study. The habitats could support local assemblages of birds which might use the buildings and vegetation to nest within.
Schedule 1 Birds	High	Suitable habitat for black redstart to nest on site and suitable nesting habitat surrounding the site for little ringed plover, Cetti's warbler and marsh harrier.
Invasive Species		
Japanese Knotweed	High	A significant area of Japanese knotweed (<i>Fallopia japonica</i>) is present on the south area of the site.

Potential Important Ecological Features

- 313** Important ecological features (IEFs) that will be considered in the ecological assessment include, but are not limited to, the following:
- Swanscombe Marsh SSSI (incorporating Botany Marshes LWS) - National;
 - Ebbsfleet Marshes LWS - Local;
 - River Thames SINC - Metropolitan;
 - Nesting bird habitat - Local;
 - Schedule 1 birds (including little ringed plover and black redstart) - National.
 - Aquatic invertebrates within the mudflat habitat – County
- 314** The remaining non-statutory designations are not considered to be affected by the Proposed Development and have been scoped out of the EclA as an IEF owing to their spatial separation and/or lack of ecological connections with the Proposed Development.
- #### Further Surveys
- 315** In relation to the SSSI designation, the assessment will consider carefully the direct effects of disturbance to breeding and non-breeding birds within the designated site, as well as the indirect effects of modification of functionally-linked land that birds use within the site that is outside the SSSI site. The ES will include a detailed assessment of the potential indirect impacts on the SSSI.
- 316** Schedule 1 birds were observed on site, therefore further breeding bird surveys are needed to determine if there are any Schedule 1 birds nesting in this area. Wintering bird surveys will also be undertaken.
- 317** Bird surveys undertaken in both summer and winter periods will capture which Schedule 1 birds are using the site and adjacent habitats, including black redstarts which were recorded within 1km of the site.
- 318** The BAP Priority mudflat habitats have the potential to support aquatic invertebrates. Information gathered from the bird surveys should provide detail on the quality and quantity of aquatic invertebrates and their importance as a food resource for birds. Further information gathered as part of nearby planning applications will be reviewed to understand aquatic invertebrates present in the mudflats.

319 In line with industry guidance and optimal best practice surveying periods, three surveys will be undertaken in summer 2022 and three further surveys will be undertaken in winter 2022, the winter surveys can be undertaken post submission and results provided during the determination period.

320 Recent protected species surveys have been undertaken as part of the London Resort application, the survey data gathered will be disseminated and reviewed to provide further detail on the potential impacts the Proposed Development will have on IEFs associated with Swanscombe Peninsula SSSI.

Determining Significance

321 In accordance with the CIEEM guidelines, a significant effect, in ecological terms, is defined as 'an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features''

322 The term 'integrity' is used in accordance with the definition adopted for designated sites, as the "...coherence of ecological structure and function...that enables it to sustain the habitat, complex of habitats and/or levels of populations of species for which it was classified". For non-designated sites/species this can be amended to "the coherence of ecological structure and function, that enables it [in this case, the area being considered, e.g., region] to maintain the levels of populations of species in its/their pre-development condition". Maintaining integrity therefore refers to the maintenance of the conservation status of a habitat or species population at a specific location or geographical scale.

323 The approach adopted will aim to determine whether an effect is significant or not significant on the basis of a discussion of the variables that characterise it. The significance of an effect is linked to the geographical scale at which the receptor is valued but does not necessarily depend on the value of the receptor or its legal protection.

Preliminary Assessment of Potential Effects

324 The assessment of likely potential effects considers those construction activities related to the Proposed Development, as well as those related to its operation.

325 In the absence of mitigation, the potential effects during the construction phase on the IEFs identified above are described below:

- Killing, injury and disturbance of wild animals;
- Indirect impact to habitats via degradation / damage;
- Increased dust, noise and vibrations;
- Hydrological effects;
- Pollution / contamination incidents;
- Spread of invasive species.

326 In the absence of mitigation, the potential effects during the operational phase on the IEFs identified above are described below:

- Indirect impact to habitats via degradation / damage;
- Hydrological effects;
- Damage or degradation to habitats and disturbance of wildlife through increased recreational pressure and trampling
- Potential positive benefit through provision of habitats with greater biodiversity value than those currently present and via creation of ecological connectivity across the Proposed Development site.

Cumulative Effects

327 The ES chapter will include an assessment of cumulative effects of the Proposed Development upon ecological designations in conjunction with other surrounding developments which have planning permission / resolution to grant or are within the planning system and yet to be determined (Tier One). A Tier-Two cumulative assessment will consider the Proposed Development along with the Tier One schemes identified and Tier-Two schemes.

328 It should be noted that legislation and planning policy require nearby schemes to avoid or mitigate negative impacts and planning policy requires schemes to avoid or mitigate negative impacts which in theory should reduce cumulative impacts to a level that is non-significant.

Mitigation and Enhancement Measures

329 The PEA (**Annex C: Preliminary Ecological Appraisal**) highlights a number of ecological enhancement and mitigation measures which could be implemented within the Proposed Development to limit adverse effects to ecological receptors.

330 A full range of ecological enhancements will be presented in **ES Volume 1, Chapter 4: Proposed Development**.

Compensation for Cumulative Effects on Swanscombe Peninsula SSSI

331 The following measures are proposed to reduce recreational pressure from the Proposed Development in-combination with the London Resort project to a level that is non-significant:

- Pollution measures should be incorporated into a Construction Environmental Management Plan (CEMP).
- Access should be managed appropriately from the Proposed Development into the SSSI, for example protective hoarding could be erected to reduce pedestrian footfall to the north-west of the site;
- Brown and green roofs will be provided in the Proposed Development with a clear aim for wildlife benefit rather than human activities with bug hotels, log piles and refuges incorporated.
- Further woodland belt and hedgerow (native) planting to provide additional screening along the SSSI boundary. Ideally this habitat will be created prior to the construction to add further protection to the SSSI
- SANGs will be incorporated into the design to provide appropriate levels of green space for residents from the Proposed Development to use.
- Contributions to the management of the SSSI (in the form of payments) could be provided if deemed necessary. These payments would support further management and protection of ecological features within the SSSI.

332 Both projects in-combination have the potential to appropriately manage recreational disturbance to a level that is not significant by enhancing and expanding the current ecological features associated with the SSSI and to increase the ecological connectivity from the SSSI to the wider area.

Future Baseline Conditions

333 The CIEEM (2018) guidelines on Ecological Impact Assessment explain that predicting the future baseline of the site should take into account environmental trends such as climate change, particularly in regard to species on the edge of their natural range, where their distribution is changing as a result of changes in climate (i.e. increase in winter and summer mean and mean daily maximum/ minimum temperatures, an increase in winter mean precipitation and a decrease in summer mean precipitation).

334 The EcIA will, therefore, use the latest climate models to consider the potential impacts of climate change on the predicated future baseline.

Ground Conditions and Land Contamination

335 It is considered that there is the potential for likely significant effects relating to ground conditions and land contamination and so this topic shall be 'scoped into' the EIA. The ground conditions assessment will be undertaken by RMA Environmental Ltd.

336 The ES shall:

1. Define the ground conditions baseline conditions;
2. Identify relevant ground conditions receptors;
3. Assess:
 - a. the potential for ground conditions impacts throughout the enabling and construction works
 - b. the potential for ground conditions impacts when the Proposed Development is completed and operational (likely to be limited to above ground assets only) as a result of the completed development and resultant ground conditions effects;
 - c. the likely significant ground conditions effects;
 - d. any required mitigation or monitoring to address any likely significant adverse ground conditions effects.

337 An overview of the baseline environmental conditions has been outlined below, along with the likely significant effects of the Proposed Development with regard to ground conditions. This analysis has been undertaken with reference to the following key policy and guidance documents:

- National Planning Policy Framework (NPPF) (2021)⁴⁴;
- Part 2A Environmental Protection Act (EPA; 1990)⁴⁵;
- Environment Agency Land Contamination Risk Management (LCRM) (EA, 2020)⁴⁶;
- Managing and Reducing Land Contamination: Guiding Principles (GPLC, EA 2016)⁴⁷;
- NHBC Part 4 Foundations – Chapter 4.1 Land Quality: Managing Ground Conditions (NHBC, 2021)⁴⁸; and
- Gravesham Local Plan Core Strategy (2014)⁴⁹; and other relevant planning policy and guidance documents.

Baseline Conditions

Soils and Geology Contamination

338 The site's baseline conditions will be established through a combination of desk study research and investigative work. This is an iterative process and therefore additional consultation with Gravesham District Council and relevant statutory consultee may be required.

339 A Phase 1 Land Contamination Assessment (LCA) will be undertaken for the site and will be submitted as part of the Environmental Statement. The LCA will include a review of a third party environment database search known as Groundsure Enviro Insight Report, and identifies historical and current land uses on site.

⁴⁴ Department for Communities and Local Government. (2021). National Planning Policy Framework

⁴⁵ Department for Environment, Food & Rural Affairs. (2012). Environmental Protection Act 1990: Part 1 A. Contaminated Land Statutory Guidance

⁴⁶ Environment Agency. (2020). Land Contamination Risk Management (LCRM)

⁴⁷ Environment Agency. (2016). Managing and reducing land contamination: guiding principles (GPLC)

⁴⁸ National House-Building Council. (2021). Part 4 Foundations – Chapter 4.1 Land Quality: Managing Ground Conditions.

⁴⁹ Gravesham Borough Council. (2014). Gravesham Local Plan Core Strategy.

340 There are a multitude of historical and current potentially contaminative land uses on site given the industrial nature of the site that dates back to the mid 1800s. Land uses on site have included (but are not limited to) cement works, a windmill, football ground, tramway and railway tracks, ponds, depots, industrial estates, electrical substations and garages. Given the extensive industrial land uses on site, the likelihood of contaminants such as metals, asbestos, Polycyclic Aromatic Hydrocarbons (PAHs) and other hydrocarbons cannot be ruled out. Similarly, there are a number of historic and existing potentially contaminative land uses within a 250m radius of the site including electricity substations, wharfs, historical tanks and depots.

341 There is the potential that asbestos is present within the current buildings on site and/or within the underlying soils given the previous land uses on site. There is no known record of any asbestos surveys that have been undertaken at the site but, given the ages of the buildings, the presence of asbestos cannot be ruled out.

342 According to the British Geological Survey (BGS) online viewer, the majority of the site is underlain by the superficial deposits of Alluvium comprising clay, silt, sand and gravel. The north-western boundary of the site is underlain by the superficial deposits of Head comprising clay, silt, sand and gravel. The site is entirely underlain by the bedrock geology of the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation comprising chalk.

343 From reviewing the BGS 1:50,000 map series England and Wales Sheet 271 for Dartford, the site is located in an area of previously worked ground. The BGS map also shows that the Kempton Park Gravels are located beneath the Alluvium deposits underlying the site.

344 From reviewing BGS mapping, there is an available borehole record located in the centre of the site, (TQ67SW791) which was drilled to a depth of 21.34m. Groundwater was not recorded to be encountered within this borehole which had the following geological sequence:

- Drift (4.28 m thick); and
- Chalk and flints (at least 17.06 m thick).

345 As reported within the Groundsure reports there are two British pit records in the northern extent of the site. These comprise of marine sand and gravel and crushed road. When reviewing the Gravesham Borough Council Mineral Safeguarding Areas map, which forms part of the Kent Minerals and Waste Local Plan, the site is located within the Gravesham Borough Council urban boundary/village confines and the Sub - Alluvial River Terrace Deposits Mineral safeguard area. The Mineral Safeguarding Areas cover the known locations of specific mineral resources that are (or may in future be) of sufficient economic value to warrant protection.

Hydrology and Hydrogeology

346 The River Thames, a 'main river'⁵⁰, is located along the north-eastern boundary of the site.

347 Ebbsfleet, another 'main river', flows in a northerly direction towards the River Thames and is culverted along the eastern boundary of the site.

348 Swanscombe Marshes are located directly north-west of the site and comprise areas of marshland and a number of local land drains.

349 Online EA data sources provide the hydrogeological information as summarised in **Table 15** below.

⁵⁰ Main river is defined by the EA as any watercourse that contributes significantly to the hydrology of a catchment.

Table 15 Aquifer Properties

Aspect	Designation	Description
Groundwater Source Protection Zone (SPZ)	Zone II – Outer Protection Zone	This zone is defined by the 400-day travel time from a point below the water table. Additionally, this zone has a minimum radius of 250 or 500 metres, depending on the size of the abstraction. The travel time is derived from consideration of the minimum time required to provide delay, dilution and attenuation of slowly degrading pollutants.
Superficial Aquifer Designation: Alluvium	Secondary Undifferentiated	These rock types have been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
Superficial Aquifer Designation: Head (north-western extent)	Secondary Undifferentiated	These rock types have been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
Superficial Aquifer Designation: Gravels	Secondary A Aquifer	These are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.
Bedrock Aquifer Designation: Chalk Formation	Principal Aquifer	These are layers of rock or drift deposits that have high intergranular and/or fracture permeability – meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.

Sensitive Receptors

350 Relevant potential receptors to be considered during the demolition and construction and the operational phases include:

- Soils and geology;
 - Surface water (Ebbsfleet and River Thames);
 - Groundwater (likely to be located within the Kempton Park Gravels and Chalk);
 - Construction workers and service maintenance workers;
 - Future site users;
 - Landscaping and planting;
 - Adjacent site users; and
 - Infrastructure such as buried services.

Potential Effects

351 The likely significant environmental effects associated with the Proposed Development in relation to ground conditions are as follows:

- Surface water, groundwater and soil contamination from general construction-related activities;
- Surface water, groundwater and soil contamination from routine operation and accidental spillages;
- Remobilisation of any existing contamination during demolition and construction, such as piling for construction purposes;
- Potential for off-site users inhaling, ingesting or coming into dermal contact with windblown contaminated dust during construction;
- Potential for demolition/ construction workers, services maintenance staff or future site users coming into direct contact with contaminated soils;
- Potential contamination from routine site operations (e.g. drainage) and/ or accidental releases during the Proposed Development's operational life;

- Potential effects of existing ground conditions or any residual contaminants on infrastructure and construction materials for the development;
- Potential ground gas generation and/ or accumulation within lower levels of the development;
- Potential impact on minerals safeguarding beneath the site during the construction and operational phase.

Scope of Assessment

352 The ES chapter will identify and assess the effects of the Proposed Development on ground conditions, during both the demolition and construction works and once complete and operational. The potential effects on each receptor listed above will be assessed in the ES chapter and relevant mitigation measures will be included here necessary.

353 The assessment would cover the following scope:

- Review/confirmation of scope following receipt of the EIA Scoping Opinion;
- Review and update the findings of the Phase 1 Environmental Assessment to include consultation with the Environmental Health Officer (EHO) at Gravesham Borough Council and any additional information determined following the site visit. A review of any other relevant site investigation reports will be undertaken for the site. The Groundsure EnvironInsight report will be reviewed and used to provide an up to date conceptual-site-model and risk assessment within the ES chapter;
- Assessment of impacts in relation to the demolition and construction works, and once the Proposed Development is complete and operational;
- The significance of each potential impact will be assessed using an approach which is broadly based on the established methodology from the Transport Analysis Guidance (TAG) Environmental Impact Appraisal and the sensitivity of each receptor, magnitude of each impact and effect significance (adverse or beneficial) of each impact will determine whether mitigation measures will be required;
- Mitigation measures will be identified (where necessary) to reduce the impact and following this the residual impact can be identified; and
- Preparation of an ES chapter, including cumulative assessment, in relation to the likely environmental effects of the Proposed Development on Ground Conditions.

354 An assessment of the site against the safeguarding policies will be undertaken and form part of the planning statement, as well as a discussion within the ground conditions chapter when considering the impacts of the development on safeguarding the minerals beneath the site.

355 It is noted that the above provides a worst-case scenario, without the implementation of mitigation measures, which will be identified during the assessment process and will be discussed as appropriate within the ES.

Townscape, Visual and Built Heritage

356 The Townscape and Visual Impact Assessment (the 'TVIA') identifies the likely effects of the Proposed Development on townscape receptors and visual receptors. The TVIA will be prepared by Montagu Evans LLP.

357 It is considered that there is the potential for likely significant effects relating to townscape and visual receptors, and so this topic shall be 'scoped into' the EIA.

358 While the industrial legacy of the area is recognised, the site itself does not contain any statutory listed buildings or non-designated heritage receptors, nor is it located within a Conservation Area. Heritage receptors within the study area are Aspdin's kiln, a scheduled monument, two Palaeolithic sites, also

scheduled monuments, to the west and two structures, listed at Grade II, near the river front to the east. They are described below in the *Baseline Conditions* section.

359 For these heritage receptors no significant environmental effect is likely. Therefore, it is proposed that the heritage impact assessment is scoped out of the EIA. A separate standalone heritage impact assessment will be provided for the planning application. The reasoning is set out below in the *Baseline Conditions* section.

360 The TVIA will be presented in Volume 2 of the ES and sufficient signposts will be included within the main text of the ES (Volume 1), to ensure readers will be aware of the location of the TVIA.

361 The ES will:

1. Define the townscape and visual baseline conditions;
2. Identify relevant townscape and visual receptors;
3. Assess:
 - a. The potential for townscape and visual impacts throughout the demolition and construction works and as a result of the completed development and resultant townscape and visual effects;
 - b. The likely significant townscape and visual effects;
 - c. Any required mitigation or monitoring to address any likely significant adverse townscape and visual effects.
 - d. The potential for cumulative townscape and visual effects.

362 The TVIA will be prepared in accordance with current best practice guidance, relevant planning policy and the local plan evidence base. The nature, extent and significance of the effects will be determined in the context of standard guidance and methods of assessment.

363 The key issues to be addressed by the TVIA will be:

- Effects of the Proposed Development on the townscape as a resource in its own right, identified as specific Townscape Character Areas (TCAs); and
- Effects of the Proposed Development on specific views and on the general visual amenity experienced by people (visual receptors) in the surrounding areas, represented though the selected viewpoints⁵¹.

Baseline Conditions

364 Townscape receptors will be identified through site observations, desk-based research and an understanding of the features which define the area, including its heritage receptors. There will be regard to documents published by Gravesham Borough Council ('GBC') which provide description of townscape character, such as conservation area appraisals, listing descriptions and other policy designations.

365 The proposed study area for townscape receptors would take in an area of 1km from the site boundary. This study area has been informed by a review of surrounding building locations and heights, topography, townscape features and an understanding of the scale of the Proposed Development.

366 The visual study area has not been defined in the same way. Viewpoints proposed for assessment have been informed by an analysis of the street structure and townscape character (i.e. where there is likely to be a direct line of sight), open spaces or other public areas.

⁵¹ The views in the assessment are treated as 'receptors' because they are the subject of consideration, although it is acknowledged that people are the 'visual receptors' in the strict sense of the term and that views only exist and matter because of the people who see them. The sensitivity of the view derives from consideration of the value of the view in combination with the range and susceptibility of the viewer/s. The judgements on value, susceptibility to change and overall sensitivity will be set out in the baseline assessment of each view.

367 The study area and method for its identification is considered to be reasonable and proportionate to the scale, nature and context of the Proposed Development. It is considered sufficient to understand the likely significant effects of the Proposed Development.

Sensitive Receptors

Townscape Receptors

368 An assessment has been made of the existing townscape of the site and surrounding area. This has been based on study of the historic development of the site and surrounding area with reference to relevant publications, and study of the present-day condition of the area based on site visits, a review of mapping, aerial photographs, and relevant publications.

369 This analysis has informed the division of the study area into townscape character areas i.e. geographical areas which have readily identifiable characteristics in common. The impact of the Proposed Development on these townscape character areas will then be assessed, informed by conclusions drawn from the views analysis.

370 Particular consideration has been given to the location of established industrial areas that will continue in this use following implementation of any forthcoming consent for the Proposed Development; the location of settled residential areas near the site edge, including those near Robinson Way and Station Road as well as to the southwest at Swanscombe within Dartford Borough Council; the character and appearance of Botany Marshes which forms part of the Swanscombe Peninsula SSSI; the River Thames and the long views that are afforded from areas to the north.

371 The criteria for assessing townscape receptors are based on a number of factors, including the designation of the townscape and individual features within it, as well as qualitative factors which are known to influence the perception of the townscape (e.g. the value of a view or TCA is likely to be higher if it overlooks/ includes important heritage assets).

372 The boundaries of the character areas are identified in **Annex D: TVIA Supporting Maps**.

Visual Receptors

373 The baseline description has identified individuals and/or groups of people within the area who will be affected by changes in the views, or 'visual receptors'. Viewpoints have been identified on the basis of the following methodology, and informed by extensive experience of projects for major development in the wider area around the site.

374 Four principal types of viewing locations have been considered:

- Views that have been identified as significant, by GBC or others, e.g. in relevant planning policy and guidance documents and Conservation Area appraisals;
- Other locations or views of particular sensitivity, including those viewpoints in which the Proposed Development may significantly affect the settings of heritage assets, as relevant;
- Representative townscape locations from which the Proposed Development will be visible; and
- Locations where there is extensive open space between the viewer and the Proposed Development so that the Proposed Development will be prominent rather than obscured by foreground buildings.

375 The visual assessment is based on desk-based analysis of key viewing corridors, views identified in the development plan⁵². The selection of viewpoints and likely visual receptors will also be informed by townscape character and heritage receptors.

376 A draft view locations map is shown in **Annex D: TVIA Supporting Maps**.

Built Heritage Receptors

377 The assessment of Built Heritage Receptors is proposed to be scoped out.

378 Heritage value is used in place of the word 'significance' for heritage receptors so as to avoid confusion with ES terminology.

379 The site does not contain any designated heritage receptors such as listed buildings, Scheduled Monuments or Registered Parks and Gardens. The site does not fall within a CA. There are statutory listed buildings and scheduled monuments within the study area:

- Church of All Saints. Grade II*, approximately 900m to the west of the site;
- The Factory Club, Grade II, approximately 790m to the east of the site;
- Northfleet Lower Lighthouse, Grade II, approximately 1.1km to the east of the site;
- Bevan's War Memorial, Grade II, approximately 890m to the east of the site;
- Aspdin's kiln, Scheduled Monument, approximately 300m to the east of the site; and
- Palaeolithic sites near Baker's Hole, Scheduled Monument, approximately 800 m to the south of the site.

380 Therefore, with the exception of the kiln, all identified heritage receptors are located, at least, 800m from the site. A cluster of Grade II listed buildings can be found in the Hill Conservation Area, located approximately 1.3 km to the east of the site, outside of the study area.

381 Aspdin's kiln is significant as one of the oldest Portland cement kilns in the world. It was constructed around 1846 and was in use until the early 20th century when the cement works closed and fell into ruin. The remains, i.e. Aspdin's kiln, was listed as a scheduled monument in 1965 and subsequently integrated into the industrial complex, composed of several large-scale sheds, clad in corrugated iron, that now occupy the site. The kiln is not visible from the road. The site has now been acquired by Ebbsfleet Garden City as part of the wider masterplan. The draft masterplan shows the kiln in a new townscape setting as a freestanding structure overlooking the main public space at Robins Creek. Bellway Homes is developing a piece of land to the east (noted as cumulative scheme number 2 within **Table 2**) which introduces further housing into the setting of the heritage receptor.

382 There are no non-designated heritage receptors on the site. Non-designated heritage receptors can include locally listed buildings, for example, or buildings or features which are recognised during the development process as having some local heritage value.

383 The Proposed Development will not involve the demolition or alteration of any structures of heritage value. As such, there are no direct effects on built heritage receptors.

384 Indirect effects of the Proposed Development on the heritage value of heritage receptors (designated and non-designated) may arise as a result of the change introduced to their setting by the Proposed Development (i.e. due to visibility of the Proposed Development from the receptor or its setting).

385 As part of the scoping process, the indirect effects on the designated heritage receptors in the study area have been assessed. The Proposed Development is not considered to result in significant effects to these receptors because of the limited change to their heritage value, the nature of the existing and

⁵² Gravesham Local Plan Core Strategy, 2014.

emerging built context, such as the large-scale industrial buildings and the high-speed railway tracks and cuttings.

386 Throughout the 20th century, much of the land along the Ebbsfleet and Robins Creek had been covered by industrial facilities (Portland cement works, lead works and paper works). Over time, large-scale sheds replaced the earlier brick buildings, such as the cement works which incorporated Aspdin's kiln. Eventually many of the industrial sites were cleared and are now being prepared for residential developments. The regeneration of the area, including by the Ebbsfleet Garden City project, is underway and the character of the area is fundamentally changing. Ebbsfleet International Station, serving Eurostar and high-speed services, opened in 2007.

387 Any potential functional relationships between the built heritage receptors and their setting and surrounding area have been eroded and will be further affected by development proposals adjacent to the scheduled monument. It is not likely that the Proposed Development will have significant effects on the receptor.

388 In the context of the existing and planned surrounding built development, it is considered that the Proposed Development will not result in significant environmental effects on the heritage receptors which are located within the 1km radius.

389 Given the nature of the Site, the proposals and intervening distance, built form and context, it is not thought that the Proposed Development will result in significant effects on the setting or significance of surrounding built heritage receptors. It is therefore considered appropriate to scope out this topic from the EIA.

390 The Built Heritage Receptors for the Proposed Development are shown in **Annex D: TVIA Supporting Maps**.

Potential Effects

391 An assessment of demolition and construction and operational effects of the Proposed Development will be prepared. In order to provide an objective assessment, the effects will be presented individually. This will ensure that appropriate prominence is given to both the positive and negative effects which will then enable the decision-maker to consider them in the round.

392 In broad terms, the assessment topics follow the same sequence comprising:

- Identification of receptors;
- Assessment of receptor value and its susceptibility to change which is combined into an overall assessment of sensitivity (to change);
- Identification of the size and scale of the change, its geographic extent and duration through combining these aspects to assess the overall magnitude of change; and
- Combination of the sensitivity to change and magnitude of change to determine the scale and nature of the effect and to determine whether this is significant or not.

393 The TVIA assessment will be conducted in accordance with the principles set out in the following policies and guidance. The methodology for the townscape and visual impact assessment will be based broadly on the principles set out in the third (2013) edition of 'Guidelines for Landscape and Visual Impact Assessment' ('GLVIA 3')⁵³, produced by the Landscape Institute with the Institute of Environmental Management and Assessment.

⁵³ Landscape Institute and Institute of Environmental Management and Assessment, 2013. Guidelines for Landscape and Visual Impact Assessment Third Edition.

394 Also, relevant to the method of assessment will be the section on urban design in the National Planning Policy Framework ('NPPF')⁵⁴ and national Planning Practice Guidance ('PPG')⁵⁵. The Landscape Institute's Technical Information Note 05/2017 '*Townscape Character Assessment*' (April 2018), and Technical Guidance Note 2/19 '*Residential Visual Amenity Assessment*' (LI TGN February 2019) will also be followed.

395 Accurate Visual Representations ('AVRs') will be produced to demonstrate the likely visual impacts. The production of the AVRs will follow TGN 06/19 Visual Representation of Development Proposals Technical Guidance Note (2019) prepared by Landscape Institute⁵⁶. This is a key predictive method used to assess likely effects.

396 Overall, structured, informed and reasoned professional judgement will be used to take account of quantitative and qualitative factors in assessing the likely significant effects of the Proposed Development.

397 The proposed assessment scope of the Townscape and Visual Impact Assessment is summarised in Table 16 below.

Table 16 Summary of Assessment Scope

Receptor	Impact	Potential Effect
Townscape receptors: Townscape Character Areas ('TCAs')	Addition of the Proposed Development. The built form, height and elevational treatment will be considered in relation to TCAs.	Permanent and/or temporary effects on the appearance and character of TCAs.
Visual receptors: local, medium and distant views	Changes to visual amenity as a consequence of the proposed built form, including height, massing, perception of existing features in the view.	Permanent and/or temporary effects on the perception of local, medium and distant views.

Demolition and Construction

398 The demolition and construction effects of the Proposed Development are likely to vary according to their temporary nature and some activities may have more perceptible effects than others. The assessments offered in the TVIA will be based on a worst-case scenario when demolition or construction activities are at their peak.

399 It is likely that the most significant effects associated with the demolition and construction process will be the use of vehicles and machinery. In terms of the construction process, the most significant visual effect will be the presence of tower cranes with bright red navigation lights at night. Their presence is inevitable in connection with construction of the type and scale envisaged. Overall, demolition and construction effects are generally treated as less significant as they are temporary in nature. This approach is consistent with established best practice.

Completed Development

400 The Proposed Development will bring about change in the character, massing and height of the site. It is therefore expected that the Proposed Development will have effects, including likely significant effects, on the surrounding townscape and visual receptors. These effects will be analysed in full in the TVIA.

⁵⁴ Ministry of Housing, Communities and Local Government, 2021. *National Planning Policy Framework*.

⁵⁵ Ministry of Housing, Communities and Local Government, 2019. *Planning practice guidance* available from: <https://www.gov.uk/government/collections/planning-practice-guidance> [accessed 14 June 2022].

⁵⁶ Landscape Institute, 2019. *Technical Guidance Note 06/19 Visual Representation of Development Proposals*.

401 Townscape, visual and built heritage effects will be integral to the design process and will be considered at each stage alongside consultation with GBC and other key stakeholders.

Cumulative Effects

402 The potential cumulative townscape and visual effects of the Proposed Development when considered in combination with other cumulative schemes, will be assessed.

403 Owing to the location of the site in the Northfleet Embankment and Swanscombe Peninsula East Opportunity Area, it is expected that the Proposed Development will be seen in conjunction with other tall buildings. The TVIA will determine the nature of such effects.

404 A list of cumulative schemes will be agreed with GBC. This list is contained within the *Cumulative Effects with Other Developments* section of this Scoping Report. Once the final list has been agreed, the data will be added to a CAD model and a further sequence of the AVRs and wirelines will be produced to show the cumulative effects of these schemes.

405 GLVIA3 sets out two main approaches to inter-project effects between any given proposed development and cumulative schemes (See GLVIA, paragraph 7.18). The first approach is to focus:

- primarily on the additional effects of the main project under consideration... on top of the cumulative baseline.

406 The second approach is to focus:

- on the combined effects of all the past, present and future proposals together with the new project.

407 This assessment takes the first approach, which is to focus on the additional effects of the Proposed Development on top of the cumulative baseline. It is considered that this approach is best suited to an urban environment, in which the cumulative effects between the Proposed Development and other cumulative schemes may be complex (including situations in which the effect of the Proposed Development could be lessened or removed entirely by cumulative schemes) and because, as also acknowledged in the GLVIA3, it may not be considered reasonable to assess the effect of many complex schemes other than the Proposed Development in the manner required by the 'combined effects' approach.

SCOPED OUT TOPICS

Water Resources and Flood Risk

- 408** It is considered that significant effects relating to water resources, flood risk and drainage are unlikely and as such this topic is 'scoped out' of the EIA. The following section provides a summary of the baseline hydrological and flooding conditions of the site and surrounding area and clarifies why no likely significant effects are expected.
- 409** This Water Resources, Flood Risk and Drainage topic sheet has been prepared by RMA Environmental. It has been undertaken with reference to the following key policy and guidance documents:
- National Planning Policy Framework (NPPF) (2021)⁵⁷ and Planning Practice Guidance (PPG) (initially issued March 2014 and updated in 2021)⁵⁸;
 - Gravesham Local Plan Core Strategy Local Plan (Adopted September 2014)⁵⁹;
 - Kent Council Local Flood Risk Management Strategy (June 2013)⁶⁰;
 - Gravesham Water and Flood Risk Background Paper (October 2020)⁶¹; and
 - Other relevant planning policy and guidance documents.
- 410** The review has been undertaken in accordance with best practice guidance on the assessment of development projects with regard to the water environment, including that provided by the Institute of Environmental Management and Assessment (IEMA).
- 411** The impacts associated with water quality on groundwater and surface water has been covered in the Ground Conditions and Land Contamination section of this Scoping Report.

Baseline Conditions

Flood Risk

- 412** The closest 'main river'⁶² is the River Thames which is located along the northern boundary of the site. Ebbsfleet, another 'main river', flows in a northerly direction towards the River Thames, via Robins Creek and is culverted along the eastern boundary of the site.
- 413** Swanscombe Marshes are located directly north-west of the site which comprise an area of marshland and a number of local land drains.
- 414** The Environmental Agency's (EA) Flood Map for Planning⁶³ indicates that the majority of the site lies within Flood Zone 3 (high risk) and is shown to benefit from flood defences. There is a small pocket of land located within Flood Zone 2 (medium risk) located in the northern central section of the site. Detailed tidal and fluvial flood data have been requested from the EA to understand the flood depths for various modelled scenarios with the added effects of climate change. An assessment of the flood data will form the main assessment in the Flood Risk Assessment which is detailed further below.
- 415** The EA's surface water flood risk mapping identifies that the majority of the site has a very low risk from surface water flooding. There is a high flood risk of surface water flooding in the south-eastern corner

⁵⁷ Department for Levelling Up, Housing and Communities. (2021). National Planning Policy Framework.

⁵⁸ Department for Levelling Up, Housing and Communities. (2021). Planning Practice Guidance. Flood Risk and Coastal Change. (Online). Available at: <https://www.gov.uk/guidance/flood-risk-and-coastal-change>.

⁵⁹ Gravesham Borough Council. (2014). Gravesham Borough Council Core Strategy Local Plan.

⁶⁰ Kent County Council. (2013). Local Flood Risk Management Strategy

⁶¹ Gravesham Borough Council. (2020). Gravesham Water And Flood Risk Background paper.

⁶² Main river is defined by the EA as any watercourse that contributes significantly to the hydrology of a catchment.

⁶³ Environment Agency (2021). Flood Map for Planning. (online). Available at: <https://flood-map-for-planning.service.gov.uk/>

of the site (where Ebbsfleet Football Stadium is located) - which is assumed to be associated with ponding on site - as well as in the northern extent of the site.

- 416** A review of Kent County Council's Local Flood Risk Management Strategy⁶⁴ concludes that groundwater flooding in the area is known to occur in areas underlain by major aquifers and is localised with floodplain sands and gravels. According to the British Geological Survey (BGS) online viewer, the majority of the site is underlain by the superficial deposits of Alluvium comprising clay, silt, sand and gravel. The north-west boundary of the site is underlain by the superficial deposits of Head comprising clay, silt, sand and gravel. Given that Kempton Park Gravels are located beneath the Alluvium deposits, it is considered that the site is underlain by major aquifers and therefore it is considered likely that relatively shallow groundwater is located beneath the site. The site is entirely underlain by the bedrock geology to Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation comprising chalk.
- 417** When reviewing online EA data sources it is confirmed that the site is located within a Zone 2 outer protection zone groundwater Source Protection Zone (SPZ). This is classified by the EA and "This zone is defined by the 400-day travel time from a point below the water table. Additionally, this zone has a minimum radius of 250 or 500 metres, depending on the size of the abstraction. The travel time is derived from consideration of the minimum time required to provide delay, dilution and attenuation of slowly degrading pollutants".
- 418** According to Defra's online Magic Map⁶⁵, both the superficial deposits of Alluvium and Head that underlay the site are classified by the EA as Secondary Undifferentiated aquifers. The Kempton Park Gravels are classified as Secondary A Aquifers and the bedrock geology of chalk is classified as Principal Aquifers.
- 419** There are no other significant sources of flooding at the site, i.e. from reservoirs or sewers.

Surface Water Drainage

- 420** A Critical Drainage Area (CDA) is defined as "A discrete geographic area where multiple and interlinked sources of flood risk (surface water, groundwater, sewer, main river and/or tidal) cause flooding during severe weather, affecting people, property or local infrastructure".
- 421** The site is not shown to be located within a critical drainage area.

Water Resources

- 422** A Groundsure Environ Insight and Geo Insight Report for the area identifies that there is one licensed surface water abstraction which is still active and located 55m north-east for mineral washing from the tidal River Thames at Swanscombe. This abstraction has an annual volume of 45,500m³ of surface water with a maximum daily volume of 375m³. There are no other abstractions located within a 250m radius of the site.

Water Supply and Infrastructure

- 423** According to the EA's Water Stressed Areas report (2021)⁶⁶, the site is located in an area which is reported to suffer from 'serious water stress', i.e. the availability of mains drinking water supply is limited. Whilst it is the remit of Affinity Water (and other water companies) to ensure that sufficient water supply

⁶⁴ Kent County Council. Kent Local Flood Risk Management Strategy. 2017.2023

⁶⁵ DEFRA. Magic Map. <https://magic.defra.gov.uk/MagicMap.aspx>

⁶⁶ Environment Agency. (2021). Water Stressed Areas – Final Classification.

is provided for new developments, sustainable design measures would need to be adopted to minimise the water demand of the Proposed Development.

Development Context

- 424** Sustainable Urban Drainage Systems (SuDS) will be incorporated into the design of the Proposed Development to ensure that surface water runoff is controlled and that appropriate water quality treatment is applied to any runoff leaving the site.
- 425** The design of the buildings will incorporate water efficiency measures and water-saving devices to reduce the water demand of the Proposed Development.

Discussion for Scoping Out

- 426** Due to the distance of the site from surface water and groundwater abstractions, it is considered that the Proposed Development would not have an impact on any water supply in relation to the recorded abstractions within the area. It is therefore considered unlikely that any foundation/piling works proposed at the site will cause significant disruption to the groundwater table that could result in water supply to local abstractions being inhibited.
- 427** There is the potential that the Proposed Development would cause an increase in surface water runoff during both the construction and operational phases, due to the increase in impermeable surface areas. However, during the construction phase, the control of surface water runoff will be covered within the Construction Environmental Management Plan (CEMP) that will be submitted as part of the planning application and will specify mitigation measures to ensure that the construction phase of the development will not increase surface water runoff within the site or elsewhere.
- 428** The site is located within Flood Zone 3 (high risk) and is larger than 1 hectare in area and therefore, in accordance with the NPPF, a Flood Risk Assessment will be prepared for the Proposed Development and submitted in support of the planning application which will include the following:
- Consultation with the Lead Local Flood Authority (LLFA) to identify any key issues in relation to flood risk;
 - Preliminary consultation with the EA regarding flood risk information for the site and surrounding area;
 - Acquisition of detailed flood data from the EA to establish the predicted effects of climate change on current flood extents and comparison of this with topographic levels for the site, including an assessment of breach in flood defences;
 - Review of the Council's Strategic Flood Risk Assessment (SFRA) to identify baseline information with regard to potential and actual sources of flood risk;
 - Review of national and local planning policies to ensure that the FRA addresses all relevant policies; and
 - Preparation of a stand-alone FRA report in accordance with the requirements of the NPPF, to include the following:
 - Details of any historical flooding events;
 - Acceptability of the proposed land use in relation to known flood zones;
 - Access and egress arrangements; and
 - Climate change effects.
- 429** For the operational phase of the Proposed Development, a conceptual surface water drainage strategy will be prepared and submitted in support of the planning application. This will ensure that surface water runoff is discharged appropriately and is compliant with target discharge rates. The Department for Environment, Food & Rural Affairs' (Defra) Non-Statutory Technical Standards require that "for

developments which were previously developed, the peak runoff rate from the development to any drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event must be as close as reasonable practical to the greenfield runoff rate from the development for the same rainfall event, but should never exceed the rate of discharge from the development prior to redevelopment for that event."

- 430** The design principles set out in the surface water drainage strategy and its conclusions will be presented in the ES within **ES Volume 1, Chapter 4: The Proposed Development**.
- 431** There is the potential for increased water demand and wastewater flows during both the demolition and construction works and once the Proposed Development is complete and operational. Consultation will be undertaken with Thames Water and, if necessary, infrastructure improvements may be required to supply the Proposed Development. Consultation with Thames Water and details of water efficiency measures to reduce water usage will be summarised within the ES. For the Proposed Development, water demand is considered to have a target consumption of 110 litres per person per day (l/p/d) or less as set out in Building Regulations Part G.
- 432** A foul drainage strategy will be prepared and submitted in support of the planning application. This will include consultation with Thames Water (foul drainage only) at the outset of the project to determine whether there is capacity within the local foul sewerage network to supply the Proposed Development and, if necessary, what infrastructure improvements are required. The design principles set out in the foul drainage strategy and its conclusions will be presented in the ES (in **ES Volume 1, Chapter 4: The Proposed Development**).

Conclusion

- 433** As the planning application will be supported by an FRA, conceptual surface water and foul drainage strategy and a CEMP, it is considered that a Water Resources, Flood Risk and Drainage ES chapter can be **SCOPED OUT** of the EIA as any significant effects are unlikely. An assessment of the risk of contamination of controlled waters (i.e. groundwater and surface water) is discussed in the Ground Conditions and Land Contamination section of this Scoping Report.

Waste and Materials

- 434** It is considered that significant effects relating to waste and materials are unlikely and as such this topic is 'scoped out' of the EIA. Further detail is provided below.
- 435** The Proposed Development's site is located within a designated mineral safeguarding zone. No excavation activities are proposed on the site, that might lead to the extraction of the safeguarded minerals. Therefore, information on the safeguarding of the minerals is not covered within this scoping out text. However, this matter will be appropriately addressed in consultation with Kent County Council (as the appropriate Mineral Planning Authority).
- 436** The sensitive receptor identified by the IEMA guidance⁶⁷ for waste is landfill void capacity, however, additional information on the local and regional (i.e., Kent) infrastructure has also been included to provide a robust comparison.
- 437** Waste arisings or material consumed from the extraction, processing and manufacturing of construction components and products have not been included in this scoping text. Therefore, this scoping text will only focus on providing information on the UK's available demand / consumption of construction materials.

⁶⁷ Institute of Environmental Management and Assessment (IEMA), (2020); IEMA guide to: Materials and Waste in Environmental Impact Assessment, Guidance for a proportionate approach.

Baseline Conditions

- 438** Baseline information on national (UK) demand for material resources has been collected for the key raw materials: aggregates, concrete, asphalt, steel, wood, and glass, as shown in **Table 17**. These key materials are globally traded commodities with no known issues regarding UK supply and stock.

Table 17 National (UK) Demand for Material Resources

Material	UK Demand	Source
Steel	17 Million tonnes	UK Steel Manifesto 2019: Laying the foundations for a vibrant UK steel industry ⁶⁸
Aggregates (of which):	251 million tonnes	MPA: Profile of the UK Mineral Products Industry 2020 Edition ⁶⁹
Crushed Rock	117.3 million tonnes	
Sand and Gravel – land won	48.9 million tonnes	
Sand and Gravel – marine won	13.7 million tonnes	
Recycled and Secondary	71 million tonnes	
Ready-Mixed Concrete	54.2 million tonnes	
Concrete Products	32 million tonnes	Forest Research: Forestry Statistics 2021 ⁷⁰
Asphalt	25.4 million tonnes	
Wood	10.8 million tonnes	
Glass	3.5 million tonnes	British Glass: Glass Sector Net Zero Strategy 2050 ⁷¹

Kent Municipal Solid Waste (MSW) Arisings

- 439** The current Municipal Solid Waste (MSW) arisings have been sourced using the information provided within the Environmental Agency's (EA) Waste Data Interrogator (WDI) 2020. The MSW arisings have been identified within the WDI under the European Waste Code (EWC) Chapter 20 (Municipal Waste). The MSW arisings from Kent are provided in **Table 18**.

Table 18 MSW Arisings in Kent

Borough	Year	Quantity (Tonnage)
Kent	2020	1,484,204.371

Kent Construction Demolition and Waste Arisings

- 440** The current Construction, Demolition & Excavation (CD&E) waste arisings have been sourced using EA WDI 2020. The CD&E waste arisings have been identified within the WDI under the European Waste Code (EWC) Chapter 17 (Construction and Demolition). The CD&E waste arisings recorded with an origin of Kent have been provided in **Table 19**.

Table 19 CD&E Arisings in Kent

Borough	Year	Quantity (Tonnage)
Kent	2020	1,896,964.555

⁶⁸ Ref. 8 Make UK, (2019); UK Steel – A new deal for steel: Laying the foundations for a vibrant UK steel industry

⁶⁹ Mineral Products Association (MPA), (2018); Profile of the UK Mineral Products Industry (2018 Edition).

⁷⁰ Forest Research, (2021); Forestry Statistics.

⁷¹ British Glass, Glass Sector Net Zero Strategy 2050

Current Regional Inert and Non-Hazardous Landfill Void Capacity

- 441** **Table 20** shows the remaining inert and non-hazardous landfill void capacity in the Kent and South London. The most recent data for the inert and non-hazardous regional landfill void capacity (i.e., 2020) has been used as a baseline for this assessment: 15,190,479 m³.

Table 20 Regional Inert and Non-Hazardous Landfill Void Capacity

Type	Year	Landfill Void Capacity (m ³)
Inert	2020	10,068,082
Non- Hazardous	2020	5,112,397
Total		15,190,479

Current National Hazardous Landfill Void Capacity

- 442** The national hazardous landfill void capacity in 2020 is shown in **Table 21**. The most recent data for the hazardous landfill void capacity (i.e., 2020) has been used as a baseline for this assessment: 16,380,811 m³.

Table 21 National (England) Hazardous Landfill Void Capacity

Type	Year	Landfill Void Capacity (m ³)
Hazardous	2020	15,571,171
Hazardous – Restricted	2020	809,640
Total		16,380,811

IEMA Guidance for Assessing Magnitude

Materials

- 443** The methodology for assessing the magnitude of effects from the materials consumed is provided in **Table 22**.

Table 22 Methodology for Assessing Magnitude for Materials

No Change	Negligible	Minor	Moderate	Major
No material is required	No individual material required is equal or greater than 1 % of the volume	One or more material is between 1-5% by volume of the availability	One or more material is between 6-10% by volume of the availability	One or more material is >10% by volume of the availability

Waste

- 444** Method W1 of the IEMA guidance has been used to assess the magnitude of effects from the waste generated. This is provided in **Table 23**.

Table 23 Methodology for Assessing Magnitude for Waste

No Change	Negligible	Minor	Moderate	Major
Zero waste generation and disposal from the development	Waste generated from the development will reduce landfill void capacity baseline by <1%	Waste generated from the development will reduce landfill void capacity baseline by 1-5%	Waste generated from the development will reduce landfill void capacity baseline by 6-5%	Waste generated from the development will reduce landfill void capacity baseline by >10%

Assessment of Effects

Materials

- 445** At this stage, the quantities of materials required for the construction of the Proposed Development is not available. However, considering the extent of the Proposed Development it is envisioned that this will be less than 1% (by volume) of its availability. Therefore, it can be established that effects on the materials demand/availability are considered as negligible (please see **Table 22**).
- 446** Furthermore, the below section outlines the mitigation measures that will be in place, which will further reduce the effects on the materials during the constructional phase.

Mitigation

Construction

- 447** In view of the above, measures will be implemented to reduce the quantity of materials used during the construction of the Proposed Development. The key construction materials will be:
- Recovered from off-site sources (e.g., donor sites) as far as reasonably practicable;
 - Sourced locally as far as reasonably practicable;
 - Sourced in accordance with The Green Guide to Specification⁷² to reduce the environmental impact of the construction of the Proposed Development by an informed and responsible selection of construction materials and components (for example, for the floors, roofs, walls, windows, insulation, and landscaping of the Proposed Development);
 - Sourced via a defined Procurement Strategy, which will select materials with a percentage of recyclable content where feasible;
 - Managed via the implementation of a Construction Environmental Management Plan (CEMP) (or equivalent), which will include measures such as:
 - A 'just-in-time' material delivery system to avoid materials being stockpiled and spoiled during bad weather;
 - Consideration of material quantity requirement to avoid over-ordering and generation of waste materials; and
 - Designated storage area for new building materials, to reduce the risk of damage / spoiling.
- 448** Measures such as the above shall be implemented; therefore, it is considered that significant adverse effects associated with construction of the Proposed Development on materials would be unlikely.
- 449** Based on the above, it is proposed to scope out an assessment of construction effects on materials; however, the ES will set out:
- The approximate type and quantities / volumes of materials that are anticipated to be required for the construction of the Proposed Development;
 - The approximate type and quantities/volume of waste that is anticipated to be generated during the construction activities;
 - Details of the Procurement Strategy (if known);
 - The sustainability credentials of materials (if known); and
 - The commitment to undertaking the measures outlined in the CEMP.

⁷² BRE, (2009); *The Green Guide to Specification, Fourth Edition*.

Waste

Construction

- 450** The quantities of construction waste have been estimated using a bespoke tool, which uses the area of the Proposed Development (m²) (which in this case is approximately 389,850m²) and the data provided in the Benchmarks and Baselines 2009 from the Construction Resources and Waste Platform (CRWP)⁷³. Using this bespoke tool, it is estimated that approximately 71,035 tonnes or 70,316m³ of waste will be generated during the construction activities.

Demolition

- 451** A bespoke tool has been used to estimate the approximate quantities of demolition waste arising from the Proposed Development. This tool uses the dimensions of the existing structures and the benchmark values as provided in the WRAP Design Out Waste Tool. Using this tool, it is estimated that approximately 118,115 tonnes or 102,760m³ of waste will be generated during the demolition of the existing structures. It should be noted that at this stage it assumed that all existing buildings will be demolished. However, if this is not the case, then the estimated quantity of demolition waste will be lower than above mentioned.

Excavation

- 452** No excavation activities are proposed on site, therefore, the waste arising from the excavation activities will be minimal.
- 453** In total, 189,150 tonnes or 174,042 m³ of inert and non-hazardous waste is anticipated to be generated from the construction phase of the Proposed Development, which represents approximately 10% of the total waste arising from Kent (i.e., 1,896,964.555 tonnes). When considering landfill as a sensitive receptor, this quantity of waste would equate to approximately 1% of the regional landfill void capacity (i.e., 15,190,479 m³).
- 454** Considering the above, it can be established that as per the IEMA guidance the magnitude of impacts of CD&E waste arising from the demolition and construction phase of the Proposed Development are minor (please see **Table 23**).
- 455** However, to further reduce the effects of the CD&E activities on the surroundings and the sensitive receptors, the following mitigation measures will be proposed:
- 456** In view of the measures available, a CEMP (or equivalent) will be prepared and implemented throughout the construction and demolition works. The CEMP may be supported by a Site Waste Management Plan (SWMP) which would also be prepared and implemented throughout the construction and demolition works. Together, the measures defined within the CEMP and SWMP will minimise waste arising from construction activities; example management measures include but are not limited to:
- avoiding the stockpiling and potential spoiling of construction materials;
 - preventing the overordering of construction materials by carrying out upfront cost analysis works; and
 - storing the construction materials in an appropriate location that will minimise damage to materials.
- Further to the above, additional mitigation measures that will be implemented include, but are not limited to, the following:

⁷³ Construction Resources and Waste Platform (CRWP), (2009); *Benchmarks and Baselines 2009*

- Off-site manufacturing will be adopted as much as is practicable, which will assist in reducing wastage of materials;
- The setting of waste reduction targets and waste re-use / recycling targets prior to commencing works on-site and monitoring of such targets throughout the duration of the demolition and construction works; and
- The implementation of waste segregation measures, whereby segregating the key / main waste streams, waste for recovery can be identified prior to leaving the site.

457 Based on the above, it is proposed to scope out an assessment of the Proposed Development's construction and demolition effects on the regional landfill capacity.

Operational Development

458 In total, approximately 4,754 tonnes or 1,044 m³ per annum of operational waste is anticipated to be generated from the Proposed Development, which represents approximately 0.3% of the total waste arisings from Kent (i.e., 1,484,204.371 tonnes). When considering landfill as a sensitive receptor, this quantity of waste would equate to approximately 0.02% of the regional and local landfill void capacity (i.e., 5,112,397 tonnes).

459 Considering the above, it can be established that as per the IEMA guidance the magnitude of impacts of waste arising from the operational development are negligible (please see **Table 23**).

460 However, to further reduce the effects of the operational waste on the sensitive receptors, the following mitigation measures will be proposed:

Mitigation

461 The design of the Proposed Development will allow that there is sufficient storage and equipment / provisions (in accordance with the GBC requirements) in place to manage and direct the operational waste, expected to be generated by the Proposed Development, to the relevant storage areas provided. The final design of the Proposed Development will also allow for sufficient space for the collection of waste to be relocated to the relevant active and permitted waste management sites; and

462 An Operational Waste Management Strategy (OWMS) (or equivalent) will be prepared and implemented as part of the Proposed Development, which will include information on the type and quantities / volumes of waste streams anticipated to be generated by the operational Proposed Development, along with how each waste stream will be managed. The Strategy will also provide details on how waste will be reduced, minimised, and recycled, where possible, in line with the Waste Hierarchy and the GBC's requirements.

463 Based on the above, it is proposed to scope out an assessment of the Proposed Development's operational effects on regional landfill capacity.

Project Vulnerability

464 Paragraph 8 of Schedule 4 of the EIA Regulations requires consideration of the potential significant adverse environmental effects derived from the vulnerability of the development to risk of major accidents and/or disasters which are relevant to the project concerned. It is clear that the intention is for the consideration of these risks be focused on those of relevance to the Proposed Development only and should not comprise an exhaustive list of all potential risks to any development project. It is understood this information would in particular be considered to be of key importance for the assessment of major industrial and/or infrastructure schemes which could pose significant risks to society and the environment in the event of a major accident or a natural disaster which would impede its normal function (e.g. nuclear / petrochemical installations, major transport infrastructure such as

tunnels, bridges or airports, etc.). While the Proposed Development does not fall into either of these scheme categories, the project's vulnerability to such events has nevertheless been taken into consideration in order to ascertain the potential risks to future site users and surrounding human and environmental receptors.

465 With reference to Regulation 4(4) and Schedule 4 of the EIA Regulations, consideration has been given as to whether there are likely to be any significant effects on the environment or the project arising from the vulnerability of the Proposed Development to major accidents or disasters. The recently published IEMA guidance (2020) 'Major Accidents and Disasters in EIA: A Primer'⁷⁴ has also been considered.

466 Available guidance (IEMA Quality Mark Article 'Assessing the Risks of Major Accidents and Disasters in EIA' (WSP, 2016)) defines major accidents and disasters as follows:

"man-made and natural events which are considered to be likely and are anticipated to result in substantial harm that the normal functioning of the project is unable to cope with/rectify".

467 For any new development, a project's vulnerability to major accidents and natural disasters should be considered both in terms of the likelihood of the project itself to cause a major man-made accident, and in terms of the project being affected by an external man-made accident or by a natural disaster. In all these cases it is furthermore important to consider whether any aspect of the Proposed Development's design or operation could worsen the effects of any such events on nearby receptors.

468 Specifically, and as noted in the new IEMA guidance, a development should be screened to determine its potential to result in likely significant effects from major accidents and natural disasters. The following questions are posed to help determine a view on this:

"Is the development a source of hazard itself that could result in a major accident and/or disaster occurring?"

Does the development interact with any sources of external hazards that may make it vulnerable to a major accident and/or disaster?"

If an external major accident and/or disaster occurred, would the existence of the development increase the risk of a significant effect to an environmental receptor occurring?"

469 The London Resilience Partnership (LRP) has developed the London Risk Register⁷⁵, which lists a range of natural hazards and man-made accidents/incidents and assesses the risks they pose to the London area based on their potential impact and likelihood. As well as assessing the risk of these events, the London Risk Register also provides an outline of the control measures already in place to avoid, manage and respond to them. These measures range from specific laws and regulations intended to avoid or manage the potential causes of major accidents and natural disasters, to government agency programmes intended to prevent, inspect and monitor these causes, as well as a variety of response plans, certification schemes, forecasting and early warning systems. The effective implementation of these plans, programmes, legislative tools and guidance is considered to reduce the risk of these events to a level which is as low as reasonably possible.

470 Due to the nature and surroundings of the Proposed Development, many of the events listed in the Register (e.g. wildfires, animal diseases, etc.) are not considered relevant or likely to pose a risk to future site users or surrounding receptors. The remaining events in the Register will be managed, or altogether avoided, through the aforementioned established regulatory framework and the control measures implemented at the local and/or national government level, with the support of specialist government agencies.

⁷⁴ <https://www.iema.net/resources/blog/2020/09/23/iema-major-accidents-and-disasters-in-eia-primer>

⁷⁵ London Resilience Partnership, February 2017. London Risk Register. Available: https://www.london.gov.uk/sites/default/files/london_risk_register_6.0.pdf

- 471** In addition to the above-mentioned measures, the planning application process also presents an opportunity for local authorities and government agencies/bodies to comment on the proposals and address any vulnerabilities (e.g. police force commentary on security matters, including Secure by Design accreditation). In some cases, this risk management process will be further supported with project-specific information and assessments which are included as part of the planning application. Most notably, this applies to the Flood Risk Assessment and Drainage Strategy, which will support the planning application, which address the flood and drainage related risks, as listed in the London Risk Register.
- 472** In line with the above, within the context of the events assessed in the London Risk Register, it is considered that the vulnerability of the Proposed Development to major accidents and natural disasters will be adequately managed throughout the lifetime of the project. As such, it is considered that the vulnerability of the Proposed Development to such events, is in itself, unlikely to result in any further significant effects on introduced site users and surrounding environmental and human receptors.
- 473** On this basis, the topic of project vulnerability, major accidents and natural hazards has been SCOPED OUT of this EIA.

PROPOSED STRUCTURE OF THE ES

The proposed scope and structure of the ES is as follows:

- **ES Volume 1: Main ES** – a document which forms the main body of the ES and which comprises of the following non-technical and technical chapters:
 - Chapter 1. Introduction;
 - Chapter 2. EIA Methodology;
 - Chapter 3. Alternatives and Design Evolution;
 - Chapter 4. The Proposed Development;
 - Chapter 5. Demolition and Construction;
 - Chapter 6. Socio-Economics;
 - Chapter 7. Traffic and Transport;
 - Chapter 8. Air Quality;
 - Chapter 9. Noise and Vibration;
 - Chapter 10. Daylight, Sunlight, Overshadowing and Solar Glare;
 - Chapter 11. Wind Microclimate;
 - Chapter 12. Climate Change and Greenhouse Gas Assessment;
 - Chapter 13. Archaeology;
 - Chapter 14. Ecology and Biodiversity;
 - Chapter 15. Ground Conditions and Land Contamination;
 - Chapter 16. Effect Interactions;
 - Chapter 17. Likely Significant Effects and Conclusions;
 - Chapter 18. Environmental Management, Mitigation and Monitoring Schedule; and
 - Glossary and Abbreviations.
- **ES Volume 2: Townscape, Visual and Built Heritage Impact Assessment** -
- **ES Volume 3: Technical Appendices** – comprises background data, technical reports, tables, figures and surveys.
- **ES Non-Technical Summary (NTS)** - this will be a separate document providing a concise description of the Proposed Development, the alternatives considered, any identified mitigation measures and the residual likely significant environmental and socio-economic effects.

FORMAL REQUEST FOR AN EIA SCOPING OPINION

- 474** This Scoping Report requests a Scoping Opinion of the GBC pursuant to Regulation 15 of the EIA Regulations.
- 475** The Scoping Report suggests a comprehensive scope of work based on the previous experience of the assembled team of specialists and knowledge of the site. The GBC and consultees are invited to consider the contents of this Scoping Report and comment accordingly within the five-week period prescribed by the EIA Regulations.

Annex A: Scoping and EIA Methodology

Legislation and the Need for an EIA

- 476** The Proposed Development falls within the description of developments listed within Schedule 2, item 10(b) (Infrastructure Projects – Urban Development Projects) of the Environmental Impact Assessment (EIA) Regulations⁷⁶, hereafter referred to as the ‘EIA Regulations’. Consideration must therefore be given to whether:
- Any part of that development is to be carried out in a sensitive area; or
 - Any applicable threshold or criterion in the corresponding part of column 2 of the Schedule 2 table is respectively exceeded or met in relation to that development.
- 477** The Proposed Development is not located within a ‘sensitive area’⁷⁷ as defined by the EIA Regulations. The Proposed Development will however provide up to approximately 3,500 dwellings and exceed 5ha in overall area of development, and as such exceeds the thresholds set within Schedule 2 with regards to item 10(b) (Infrastructure Projects – Urban Development Projects) of the EIA Regulations in relation to dwellings and overall area⁷⁸.
- 478** Furthermore, taking into account the scale of the redevelopment and the nature of the site and surrounding area, it is considered that there is the potential for significant environmental effects to arise.
- 479** The Proposed Development is therefore considered to constitute ‘EIA development’ under the EIA Regulations, and so an Environmental Statement (ES) will be prepared and submitted to accompany the planning application.

Use of Competent Experts

- 480** Trium Environmental Consulting LLP (Trium) has been commissioned by the Applicant to prepare a Request for an EIA Scoping Opinion for the Proposed Development in line with the requirements of the EIA Regulations and relevant EIA guidance.
- 481** This includes submitting an EIA ‘Scoping Report’ (this Report) to the relevant planning authority, which in this case is the GBC, that sets out the proposed scope of the EIA and the content and approach to preparing the ES that will be submitted as part of the planning application.
- 482** The EIA Regulations require that in order to ensure the completeness and quality of an ES, “(a) the developer must ensure that the environmental statement is prepared by competent experts;” and “(b) the environmental statement must be accompanied by a statement from the developer outlining the relevant expertise or qualifications of such experts.” Trium consider that these requirements are equally important and relevant to the EIA scoping process in addition to the preparation of the ES. As such, in accordance with this requirement, the following statement is provided:

“Trium is an environmental consultancy specialising in urban regeneration and property development projects in the UK. Trium’s Partners and Employees have extensive experience in managing the environmental issues and impacts surrounding large scale, high profile urban regeneration development projects. The Partners and Employees of Trium have, over the course of their careers to date, project directed, managed or contributed to over 500 EIAs within the retail, residential, leisure, commercial, cultural, infrastructure and industrial sectors. Trium’s lead EIA practitioner for the project is a Chartered Environmentalist (IEMA, 2016) and has 18 years EIA experience”.

⁷⁶ The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended).

⁷⁷ <https://www.legislation.gov.uk/uksi/2017/571/regulation/2/made>

⁷⁸ The threshold for dwellings with regards to Schedule 2, item 10(b) (Infrastructure Projects – Urban Development Projects) of the EIA Regulations states “(ii) development includes more than 150 dwellings”, and “(iii) the overall area of the development exceeds 5 hectares”.

- 483** Further information on Trium’s lead EIA practitioner and EIA team (both Trium’s EIA coordination team and the wider EIA technical assessment team), including details on their expertise and qualifications will be appended to the ES.

EIA Purpose and Process

- 484** EIA is a process carried out which examines available environmental information to ensure that the likely significant environmental effects of certain projects are identified and assessed before a decision is taken on whether a project is granted planning permission. This means environmental issues can be identified at an early stage and projects can then be designed to avoid or to minimise significant environmental effects, and appropriate mitigation and monitoring can be put in place.
- 485** Regulation 4 of the EIA Regulations sets out the EIA process. Specifically, Regulation 4(2) states that “the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors:
- (a) Population and human health;
 - (b) Biodiversity;
 - (c) Land, soil, water, air and climate;
 - (d) Material assets, cultural heritage and the landscape; and
 - (e) The interaction between the factors referred to in sub-paragraphs (a) to (d).”
- 486** EIA Scoping forms one of the first stages of the EIA process. Requesting an EIA Scoping Opinion Request from a local planning authority, under Regulation 15 of the EIA Regulations, involves the preparation of a Scoping Report and its submission to the local planning authority as part of a formal request for their opinion on the content or ‘scope’ and approach to the EIA.
- 487** The purpose of scoping is to identify:
- The important environmental issues and topics for consideration in the EIA;
 - The baseline conditions and assessment methodology to be used for the impact assessments;
 - Any receptors that may be affected by the development being proposed;
 - The appropriate temporal and geographic boundaries of the EIA;
 - The environmental information necessary for decision-making; and
 - The significant environmental effects which are likely to result from the Proposed Development both during demolition and construction and once the development is completed and in use.
- 488** The potential for likely significant effects on the aforementioned factors, during both the demolition and construction works associated with the Proposed Development and once the Proposed Development is complete and in use, is considered in respect of the following relevant environmental topics that are addressed within this Scoping Report:
- Air Quality;
 - Archaeology;
 - Climate Change;
 - Daylight, Sunlight, Overshadowing;
 - Ecology and Biodiversity;
 - Geo-Environmental (Ground Condition, Land Contamination and Soils);
 - Health;

- Light Pollution;
- Noise and Vibration;
- Project Vulnerability (Major Accidents and Natural Disasters);
- Socio-Economics;
- Solar Glare;
- Traffic and Transport;
- Townscape, Visual and Built Heritage;
- Waste and Materials;
- Water Resources, Flood Risk and Drainage; and
- Wind Microclimate.

489 This Scoping Report constitutes a request for an EIA Scoping Opinion from the GBC. It is noted that Regulation 18(4) of the EIA Regulations require that the ES must 'be based on' the most recent EIA Scoping Opinion (so far as the Proposed Development remains materially the same).

490 In accordance with the requirements of the Town and Country Planning (Development Management Procedure) Order 2015 (article 18, Schedule 4), this Scoping Report will need to be issued by the GBC to the statutory consultees that are considered to have an interest in the EIA of the Proposed Development and should be consulted as part of the EIA Scoping process. It is expected that the GBC will also issue the Scoping Report to non-statutory and key, local stakeholders and interest groups who are also deemed to have an interest in the EIA of the Proposed Development. Consultation is a key requirement of the EIA process and the views of statutory consultees and other stakeholders help identify specific issues, as well as identifying additional information in their possession, or of which they have knowledge, which may be of assistance in progressing the EIA.

491 The Scoping Report and the GBC's EIA Scoping Opinion will be appended to the ES and the ES will include a summary of any other consultation undertaken as part of the EIA process.

EIA Approach and Methodology

492 In addition to the EIA Regulations, there is also guidance available that has been referenced where appropriate, including but not limited to:

- at a European level, reference has been made to the European Commission's (EC) various EIA guidance documents available here: <http://ec.europa.eu/environment/eia/eia-support.htm>
- at a domestic level, reference has been made to the Ministry of Housing, Communities and Local Government's (MHCLG) overarching PPG;
- In addition, Highway England's Design Manual for Roads and Bridges 'Sustainability and Environment' – LA 104 (Environmental Assessment and Monitoring)⁷⁹ has been referred to as applicable;
 - in relation to publications from professional bodies, reference has been made to IEMA publications as these include best practice/suggested improvements to the EIA process. This includes:
 - IEMA's ES Review Criteria (COM3-6);
 - 'Guidelines for Environmental Impact Assessment' (2004);
 - 'Special Report into the State Environmental Impact Assessment Practice in the UK' (2011);
 - 'Shaping Quality Development' (2015);

⁷⁹ Highways England, 2020. Design Manual for Roads and Bridges 'Sustainability and Environment' – LA104 Environmental assessment and monitoring.

- 'Delivering Quality Development' (2016); and
- 'Delivering Proportionate EIA' (2017).

- whilst primarily written for major infrastructure projects, reference is also made to guidance/advice notes published by the National Infrastructure Planning where appropriate, as these can include relevant/helpful information; and

- applicable case law.

493 The method behind the EIA process generally⁸⁰ takes into account the existing conditions of the area into which the development is being introduced (**the baseline**) and makes reasonable predictions of the likely change (**the impact** – in terms of magnitude) that may occur, during both its demolition and construction and when the development is completed and operating as proposed. The predicted impact is considered in terms of key environmental and social aspects (**receptor / resource**) found within the surrounding area, and based on their sensitivity to change, the resulting change experienced by the receptor / resource (**the effect**) is then determined. Any mitigation measures required in order to reduce or eliminate adverse effects are then considered and assessed, with the resulting residual effect being determined as significant or not. The likely significant effects are then reported (within an **environmental statement**) for consideration by the relevant planning authority when considering whether to grant planning permission for a development.

Alternatives

494 In addition, the EIA Regulations (Schedule 4) require that the ES provides "a description of the reasonable alternatives [...] relevant to the proposed project and its specific characteristics" which have been considered by the Applicant and "an indication of the main reasons for selecting the chosen option, including comparison of environmental effects."

495 The ES will consider the 'Do Nothing' / 'No Development Alternative' which relates to leaving the site in its current state. The environmental pros and cons of the 'Do Nothing' / 'No Development Alternative' shall be identified.

496 The ES will present any 'Alternative Sites' for the Proposed Development that have been considered by the Applicant if any; and will address why the selected site is the most appropriate from an environmental perspective.

497 In addition, the ES will describe the 'Alternative Designs' that have been considered by the Applicant through presenting a summary of the alternative designs considered and the evolution of the Proposed Development, including modifications made during the design process. The summary will refer to any environmental considerations which have influenced the design evolution process. Matters that will be considered in terms of design evolution include quantum of development, land use, layout, building heights and open space design. The preferred design alternative culminating in the scheme sought for approval will be discussed.

Determining Effect Significance – Terminology and Approach

Reference to 'Impact' and 'Effect'

498 The terms 'impact' and 'effect' are distinctly different. Having gained an understanding of the likely impact it is then important to know whether the change in environmental or socio-economic conditions results in a significant environmental effect. The impacts of the Proposed Development may or may not

⁸⁰ There may be exceptions to the general approach described. Where there are exceptions, this will be clearly described within the relevant methodology section, outlining both the departure from the general EIA methodology and the description of the alternative approach. This is discussed further within 'EIA Process and Methodology' section of this Scoping Report.

result in significant effects on the environment, depending on the sensitivity of the resource or receptor and potentially other factors (such as duration). The assessment of the likely significant effects of the development is a requirement identified by Schedule 4 of the EIA Regulations.

Receptor Sensitivity and Magnitude of Impact

499 To achieve a consistent approach across the different technical disciplines addressed within the ES (Volume 1), assessments will broadly define the sensitivity of the receptors that could be affected by the Proposed Development and the magnitude of impact or change from the baseline. Terminology to describe the sensitivity of receptors and magnitude of impact or change from the baseline conditions is broadly as follows:

- High;
- Medium;
- Low;
- Negligible; and
- No Impact (in relation to magnitude of impact or change only).

500 Where there is no impact/change, no assessment will be required due to there being no potential for effects.

501 Each of the technical assessment chapters of the ES (Volume 1) will provide further detail on the definition of each of the above terms specific to the topic in question and will also provide the criteria, including sources and justifications, for quantifying the different levels of receptor sensitivity and 'impact magnitude'. Where possible, this will be based upon quantitative and accepted criteria (for example, national standards for air quality and noise), together with the use of value judgement and expert interpretation.

502 Alternatively, some technical assessment chapters may differ in the terminology adopted to describe the magnitude of impact or change from the baseline conditions. Where this occurs, the alternative terminology adopted will be clearly set out within the individual technical chapters of the ES.

Identification of a Resultant Effect

503 The basis for determining the resultant effect generally takes into account the sensitivity of the receptor and magnitude of impact or change from the baseline conditions. A generic matrix that combines the sensitivity of the receptor and the magnitude of impact to identify the resultant effect is provided within **Table 24**.

504 It should be noted that the specific assessment methodology for each environmental topic may differ from that set out in **Table 24** below. **Table 24** is included only as an example of the general approach followed. The discipline specific methodology followed will be set out in the individual technical chapters of the ES.

Table 24 Resultant Effects

Receptor Sensitivity	Magnitude of Impact		
	High	Medium	Low
High	Major	Major	Moderate
Medium	Major	Moderate	Minor
Low	Moderate	Minor	Negligible

Effect Scale

505 **Table 25** provides the broad definition of the 'scale' of the resultant effect i.e. definitions of Major, Moderate, Minor and Negligible effects. The definitions in **Table 25** maybe adjusted to suit the technical topic in question; where this is the case revised definitions of effect scale will be presented in the technical assessment chapters of the ES (Volume 1).

506 Where there is no impact to a receptor and therefore no effect, this will be stated.

Table 25 Broad Definitions of the Scale of the Resultant Effect

Scale of Effect	Description
Major	These may significantly affect environmental receptors. Potentially associated with sites and features of national importance or could be important considerations at a regional or district scale. Major effects may also relate to resources or features which are unique to a receptor and which, if lost, cannot be replaced or relocated.
Moderate	These effects, if adverse, are likely to be important at a local scale and on their own could have significant effects on environmental receptors.
Minor	These effects may be raised as local issues and may be of relevance in the detailed design of the project but, are unlikely to result in significant effects on environmental receptors.
Negligible	Effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error, these are unlikely to significantly affect environmental receptors, irrespective of other effects.

Effect Nature

507 **Table 26** provides definitions of the 'nature' of the resultant effect, i.e. definitions of Adverse, Beneficial and Neutral. The nature is defined when the effect scale is minor, moderate or major; the nature of effect is not defined for effects that are negligible.

Table 26 Definition of the Nature of the Resultant Effect

Type of Effect	Description
Adverse	Detrimental or negative effects to an environmental / socio-economic resource or receptor. The quality of the environment is diminished or harmed.
Beneficial	Advantageous or positive effect to an environmental / socio-economic resource or receptor. The quality of the environment is enhanced.
Neutral	Neither beneficial or adverse. Where the quality of the environment is preserved or sustained or where there is an equal balance of benefit and harm.

Geographic Extent of Effect

508 The ES will identify the geographic extent of the identified effects. At a spatial level, 'site' or 'local' effects are those affecting the site and neighbouring receptors, while effects upon receptors in GBC beyond the vicinity of the site and its neighbours are considered to be at a 'district / borough' level. Effects

affecting Kent are considered to be at a 'regional' level, whilst those which affect different parts of the country, or England as a whole, are considered being at a 'national' level.

Effect Duration

- 509** For the purposes of the ES, effects that are generated as a result of the demolition and construction works (i.e. those that last for this set period of time) will be classed as 'temporary'; these may be further classified as either 'short term' or 'medium-term' effects depending on the duration of the demolition and construction works that generate the effect in question.
- 510** Effects that result from the completed and operational Proposed Development will be classed as 'permanent' or 'long-term' effects.

Direct, Indirect and Secondary Effects

- 511** The ES will identify whether the effect is 'direct' (i.e. resulting without any intervening factors) or 'indirect' or 'secondary' (i.e. not directly caused or resulting from something else).

Identification of Significant Effects

- 512** Following identification of an effect, the scale of the effect, its nature, geographic extent and duration and whether the effect is direct or indirect using the above summarised terminology, a clear statement will then be made within the ES (Volume 1) as to whether the effect (pre-mitigation) is significant or not significant. Each technical topic addressed within the ES will be clear on which effects are significant and those which are not. This is likely to differ across technical topics.
- 513** Following identification of whether the potential or 'unmitigated' effects are significant or not, the requirement for any mitigation to either eliminate or reduce likely significant adverse effects will be identified.
- 514** Where mitigation measures are identified to either eliminate or reduce likely significant adverse effects, these will be incorporated into the Proposed Development, for example either through the design, or will be translated into demolition and construction commitments; or operational or managerial standards / procedures.
- 515** The ES will then highlight whether the 'residual' effects remain significant following the implementation of suitable mitigation measures and will classify these in accordance with the terminology defined above.
- 516** As a general rule, the following applies:
- 'Moderate' and 'Major' effects are 'significant'; and
 - 'Minor' and 'Negligible' effects are 'not significant'.
- 517** In all cases, the overall approach and specific methods of predicting the likely magnitude of impact and resultant scale, nature, geographic extent, duration etc. and significance of an effect will be set out in each of the EIA technical assessments / ES technical topic chapters. Where used, recognised specific predictive methods will be referenced. Any assumptions or limitations to knowledge will be stated.

Annex B: Planning Policy Context

- 518** The ES (within **ES Volume 1, Chapter 2: EIA Methodology**), will define the relevant national, regional and local policy context. Specifically, the ES will list out the key relevant policy documents but will not discuss the policies within these in any detail.
- 519** Although relevant policies out of the key planning policy documents will, in some instances, inform the scope and the methodology of the technical assessments within the EIA including informing the baseline conditions, the Proposed Development's compliance with and performance against the relevant planning policies will be appraised within the Planning Statement which will be a standalone document that is submitted in support of the planning application. It is not the purpose of the ES to appraise the Proposed Development against relevant national, regional and local planning policy standards / targets.
- 520** Where planning policy informs the scope and the methodology of the technical assessments of the EIA, the policies will be presented in the ES (in the relevant technical topic chapters) and discussed as necessary. Any policy detail required to support the relevant impact assessment scope, methodology or assessment of effects, will either be provided within the technical topic chapter itself or within an appendix to the ES.

National Planning Policy and Guidance

- 521** The EIA will be undertaken having regard to the National Planning Policy Framework (NPPF)⁸¹. The NPPF sets out the Government's economic, environmental and social planning policies for England. The policies contained within the NPPF articulate the Government's vision of sustainable development, which are intended to be interpreted at a local level, to meet the requirements of local aspirations.
- 522** As relevant to the EIA, specifically to the scope, methodology and assessment of effects for the EIA technical topics, the NPPF shall be considered throughout undertaking of the EIA and preparation of the ES.
- 523** The EIA will also refer to, as relevant to the EIA technical topics, the Planning Practice Guidance (PPG), which is an online resource. The PPG aims to make planning guidance more accessible, and to ensure that the guidance is kept up to date.

Local Planning Policy and Guidance

- 524** As relevant to the EIA technical topic scope, methodology or assessment of effects, the ES will have regard to key local planning policy and guidance documents.
- 525** The Gravesham Local Plan Core Strategy⁸², adopted in September 2014, is the local council's adopted Core Strategy. It is accompanied by a Policies Map which shows the areas affected by these policies in the Core Strategy and saved policies from the Local Plan First Review (November 1994).
- 526** The site is located within the Northfleet Embankment and Swanscombe Peninsula East Opportunity Area⁸³. There are clear opportunities in this location to make more efficient use of the land, facilitate river-related activity, accommodate new development and secure environmental improvements as part of the wider regeneration of the area. The site is located within sub areas 1.2 and 1.3. It is anticipated that sub area 1.2 will remain in active employment uses and the retention and expansion of industrial and port related employment will be supported. Sub area 1.3 has the potential for residentially-led regeneration.

⁸¹ Ministry of Housing, Communities and Local Government, 2021, National Planning Policy Framework

⁸² Gravesham Local Plan Core Strategy (2014); <https://www.gravesham.gov.uk/planning/local-plan>

⁸³ Gravesham Local Plan Core Strategy (2014); page 56; <https://www.gravesham.gov.uk/planning/local-plan>

527 The site is also within an area identified for sub-Alluvial River Terrace Deposits and within the Gravesham Borough Council Urban Boundary under the KCC Waste and Minerals Local Plan (2016). The aggregates wharf is also subject to a protective policy under both local and regional planning documents.

Other Guidance

528 In addition to any relevant planning policies that inform the scope, methodology or assessment of effects, as relevant, the technical topic chapters of the ES will present a summary of any pertinent recognised industry guidance documents.

Relevant Planning History

529 The site has been subject to numerous previous planning applications which have been received and/or determined by GBC in the last five years, as detailed within **Table 27**.

Table 27 Site Planning History

Application Reference	Address	Determination Date	Description of Development	Decision
20220475	Telecommunications Mast Stonebridge Road Northfleet Gravesend Kent DA11 9BJ	Pending Consideration	Application for determination pursuant to Part 16 Class A of the Town and Country Planning (General Permitted Development) Order 2015, as amended, as to whether prior approval is required for proposed telecommunications installation for a 20m high slim line phase 8 monopole c/w wraparound cabinet at base, 3no. additional ancillary equipment cabinets and associated ancillary works.	Pending Consideration
20220349	Unit K7 Northfleet Industrial Estate Lower Road Northfleet Gravesend Kent DA11 9BL	Pending Consideration	Change of use from an empty unused warehouse unit into a food manufacturing unit with Internal configurations within the Class E use to the existing premises.	Pending Consideration
20200625	Shuttleworth Road Ltd Unit K7 Northfleet Industrial Estate Lower Road Northfleet Gravesend Kent DA11 9BL	Thu 22 Oct 2020	Application for Lawful Development Certificate in respect of a proposed division of the unit into two units.	Certificate Granted
20201198	Unit 5 Robins Wharf Grove Road Northfleet Gravesend Kent DA11 9AX	Thu 14 Jan 2021	Application for a Lawful Development Certificate in respect of the continued use as B2 motor vehicle repairs workshop.	Certificate Granted
20181265	Keyline Builders Merchants Ltd Robins Wharf Grove Road Northfleet Gravesend Kent DA11 9AX	Wed 06 Mar 2019	Reorganisation of site to include open storage, racking systems, designated parking and loading areas.	Permitted
20210505	Ebbsfleet United Football Club Kuflink Stadium Stonebridge Road Northfleet Gravesend Kent DA11 9GN	Wed 21 Apr 2021	Application for a non-material amendment to planning permission reference number 20170221 to allow wording of conditions 14 and 37 to change from pre-commencement to the following trigger points: Condition 14 to be changed from pre-commencement to no development shall commence other than above slab level demolition; Condition 37 to be changed from pre-commencement to allow the demolition of buildings B13 (Gents	Approval of Non-material amendment

Application Reference	Address	Determination Date	Description of Development	Decision
			toilets) and B14a (Storage room off the turnstiles).	
20200853	Ebbsfleet United Football Club Kuflink Stadium Stonebridge Road Northfleet Gravesend Kent DA11 9GN	Thu 17 Sep 2020	Application for Additional Environmental Approval for planning permission reference number 20170221 for the demolition of the Plough End Stand and ancillary buildings and erection of a replacement Stand (Phase 1B), integrated 55-bedroom hotel together with new access, parking and ancillary facilities.	Application Permitted
20190355	Costa Coffee Unit 3 Eagle House Eagle Way Northfleet Gravesend Kent DA11 9BJ	Thu 04 Jul 2019	Application for the removal of condition 1 attached to planning permission reference number 20150034 for the change of use of existing warehouse to a mixed use A1/A3 coffee shop and an A1 sandwich shop; to allow the continued use as A1/A3.	Application Permitted
20190328	Snap Fitness Ltd Unit 1 Eagle House Eagle Way Northfleet Gravesend Kent DA11 9BJ	Wed 26 Jun 2019	Application for the removal of condition 1 attached to planning permission reference number 20140529 for the change of use of premises from a car showroom to Class D2 24 hour gym incorporating replacement of roller shutters on the side (north-west & south east) elevations with glazed panels and an emergency exit door; to allow the continued use as 24 hour gym.	Application Permitted
20180154	Sian Formwork Adjacent To 67 Stonebridge Road Northfleet Gravesend Kent DA11 9BA	Thu 15 Nov 2018	Retention of 3000mm high perimeter security fencing.	Permitted
20180528	Swale Motors Ltd Stonebridge Road Northfleet Gravesend Kent DA11 9BJ	Thu 05 Jul 2018	Re-provision of parking with associated infrastructure improvements.	Permitted

530 No other planning applications or consents are known for the site.

Annex C: Preliminary Ecological Appraisal

Annex D: TVIA Supporting Maps⁸⁴

⁸⁴ Indicative site boundary shown in figures.

Gravesham Borough Council



Appendix: EIA Methodology

Annex 1: Scoping Opinion Request Report

Annex 2: Scoping Opinion

Annex 3: Climate Change Technical Note

Application: 20220852

Town & Country Planning (Environmental Impact Assessment) Regulations 2017 (As Amended)

SCREENING OPINION REGULATION 15

To: **Polly Mason
Montagu Evans LLP
70 St Mary Axe
London
EC3A 8BE**

The screening opinion relates to land situated at

**Land Surrounding Ebbsfleet United Football Club, Bounded By Lower Road,
Railway Line, Grove Road And The River Thames, Northfleet, Gravesend**

and being **Request for Scoping Opinion pursuant to Regulation 15 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 in respect of a proposed outline planning application with all matters reserved, except for means of access, for a mixed-use redevelopment involving the demolition of existing buildings and structures including site preparation/remediation works, and the development of up to 3,500 residential units (Use Class C3), up to 55,000 sq.m (GEA) of Use Class E including up to 32,000 sq.m (GEA) floorspace for retail, food, and beverages and up to 18,000 sqm (GEA) office floorspace, up to 15,000 sq.m (GEA) floorspace for a new 8,000-seater football stadium with associated business and leisure facilities, up to 20,000 sq.m (GEA) floorspace for a hotel (Use Class C1), up to 4,000 sq.m (GEA) floorspace for community uses (Use Class F), delivery of circa 3.8 hectares of open space and the realignment of the A226 Galley Hill Road / Stonebridge Road. Redevelopment of the site will also include some sui generis uses, with hard/soft landscaping, car and cycle parking, highways works, infrastructure provisions with ancillary works.** Your application dated 11th August 2022 is permitted subject to the following:-

GRAVESHAM BOROUGH COUNCIL MAKES THE FOLLOWING COMMENTS:-

I refer to your submission dated 03.08.2022 submitting a request for an Environmental Impact Assessment (EIA) Scoping Opinion for the proposed development described above. Your request was accompanied by an 'EIA Scoping Opinion Request (July 2022)' document and a site location plan.

Part 4 (15) (2) of the EIA regulations requires that any request for a Scoping Opinion must include;

- (a) *In relation to a subsequent application -*
(i) *a plan sufficient to identify land;*
(ii) *a brief description of the nature and purpose of the development, including its location and technical capacity;*
(iii) *an explanation of the likely significant effects of the development on the environment; and*
(iv) *such other information or representations as the person making the request may wish to provide or make.*

Your documents responds to part 4 (15) (2) of the Regulation and I am satisfied that your request is compliant with the Regulations in this respect.

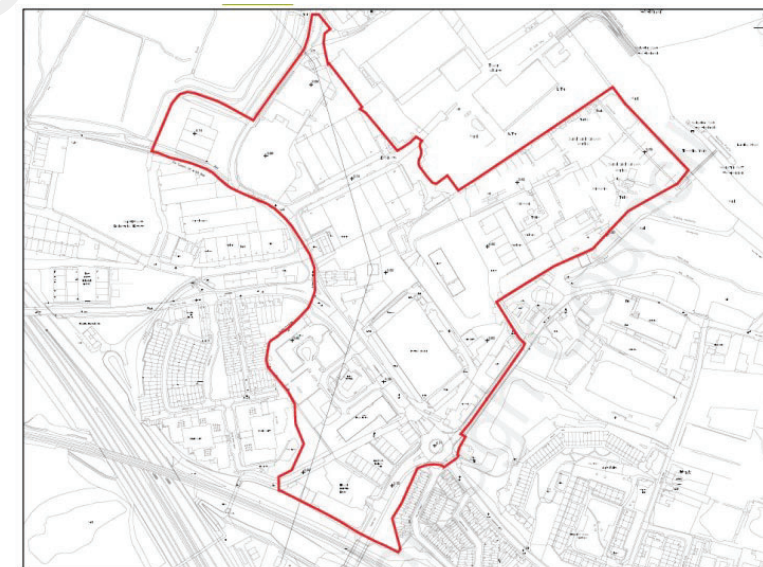
Schedule 4 to the EIA Regulations specifies the information that an Environmental Statement (ES) must provide. The ES must include the information referred to in Schedule 4 and should include such of the information as is reasonably required to assess the environmental effects of the development and to which the applicant can, having regard in particular to current knowledge and methods of assessment, reasonably be required to compile.

In this instance, the level of detail of the proposed development provided is limited to the red line boundary and a description of the main elements. Whilst access is not to be a reserved matter, it is not clearly set out within the report that this will be from the A226. It is assumed for the purposes of this Scoping Opinion that this will be the case. Little detail is also provided of the form the development would take at this stage nor how the multi-use stadium would operate. Whilst it is noted that the applicant intends to provide an indicative phasing plan with the application, no information has been provided as part of this Scoping exercise. Phasing could have implications for environmental impacts that may need to be investigated further at the application stage. This Scoping Opinion is therefore issued on the basis of the information provided in your Scoping Report and the responses received from consultees only and aspects may need to be revisited as the scheme progresses towards submission.

Site Description

The application site is approximately 19 hectares situated within Northfleet and forms part of Northfleet Industrial Area. The site adjoins the Ebbsfleet Development Corporation (EDC) administrative boundary to the east/west and Dartford Borough Council to the west. The Scoping Report states that the development would be centred around the National Grid's asset (NGR) TQ 61457 75002. This is assumed to be the pylon lying adjacent to the Swanscombe End stand at the football ground.

An indicative application red line boundary is provided in the Scoping Report as shown below:



The north-eastern portion of the site fronts the River Thames and lies opposite the Port of Tilbury within the Thurrock Borough Council area. Directly opposite around 930 metres distant is the main lock entrance to the dock complex, through which ships enter the impounded docks at times dependent on the tide. To complete this manoeuvre, ships are turned in the river assisted by tugs.

The eastern boundary of the site at this point does not immediately abut Robins Creek, leaving a narrow margin of land at the edge of the Creek and a nob of land immediately adjoining the tidal flood defences. As this land lies outside the indicative red line boundary, it is unclear what the ownership of this land will be or how it will be maintained in the future. A wharf projects into the river from this area currently used for the importation of aggregates although this is not within the red line boundary either.

This wharf is known as Robins Wharf and together with land included in the red line boundary is a safeguarded wharf in both the adopted Kent Minerals and Waste Local Plan 203-30 Early Partial Review 2020 and the Gravesham Local Plan Core Strategy (2014).

The A226 Stonebridge Road runs through the proposed application site, with the Ebbsfleet United football ground (Kufflink Stadium) and a construction company yard lying to the north-east. Beyond this and extending up to the Robins Wharf aggregates site are industrial premises accessed from Grove Road. To the eastern end of the football ground lies a car wash facility, a tyre sales company and a dental services company.

The Ebbsfleet Stream here runs in culvert between the football ground and these businesses, emerging at the southern end of Robins Creek, an impounded water body due to the building of the flood defences in the 1980s. The culvert continues to the south of the Stonebridge Road roundabout east of the A226 Thames Way and west of the rear of residential properties in Railway Street. The Ebbsfleet Stream drains through this culvert with water entering south of the railway before draining into the Thames via Robins Creek.

The application site extends to the north-west of the football ground into Lower Road at the Galley Hill Road traffic lights. Here it includes the four residential properties immediately abutting the junction and a range of industrial premises extending out towards the Swanscombe Peninsula SSSI. Lower Road serves a number of large commercial properties to the east side of the Peninsula in Gravesham, whose access relies on the Galley Hill junction. Immediately abutting the proposed application site within Dartford Borough are industrial premises set within a former quarry once occupied by paper mills. These also gain access to the A226 via the Galley Hill Road junction.

To the south west of the A226 Stonebridge Road, opposite the football ground, the proposed application site extends as far as the boundary with Dartford Borough and the Ebbsfleet Development Corporation area. This area is occupied by a Shell Petrol Station with small ancillary convenience store; the Ebbsfleet Industrial Estate; the former Renault Priory car dealership, now subdivided and used as a gym/Costa Coffee/small convenience store/industrial type use; and a main Ford car dealership.

Beyond this within Dartford Borough lies a major residential development constructed on the site of the former Korsnas paper sack factory and older residential premises in Taunton Road and on Galley Hill Road.

This area along with the proposed application site is severed from the Ebbsfleet Valley to the south by the North Kent Railway line, with HS1 lying beyond this towards the village of Swanscombe. The A226 passes under the North Kent Line via Thames Way, with Stonebridge Road and Grove Road providing access to the urban area of Northfleet to the east. This area includes the Northfleet Embankment East development site (up to 532 units) being marketed by Bellway as Harbour Village. The Ebbsfleet Development Corporation also has aspirations to bring forward further development on its Grove Road site on land currently occupied by industrial uses adjacent to Robins Creek. The Grove Road site is allocated in the Gravesham Local Plan Core Strategy for approx. 200 residential units.

Transport linkages in this area are good with train stations at Northfleet (North Kent Line) 150 metres from the proposed application site and Ebbsfleet (HS1) 0.5km distant. Regular *Fastrack* bus services pass along the A226 to Ebbsfleet and onwards to Gravesend, with proposals to further improve services eastwards along the riverfront to link major development sites. Conventional bus services also link the site to Gravesend via Northfleet. Given proximity to the major proposed development at Ebbsfleet Central and adjoining existing communities the potential exists to exploit active travel modes such as walking and cycling. Proximity to the river also provides potential for sustainable transport during both the construction and operational phases of any development in this location.

Proposed Development

The EIA scoping opinion relates to the forthcoming outline application with all matters reserved (except for access); for the following;

- mixed-use redevelopment involving the demolition of existing buildings and structures including site preparation/remediation works;
- 3,500 residential units (Use Class C3)
- up to 55,000 sq.m (GEA) of Use Class E including up to 32,000 sq.m (GEA) floorspace for retail, food, and beverages;
- up to 18,000 sqm (GEA) office floorspace;
- up to 15,000 sq.m (GEA) floorspace for a new 8,000-seater football stadium with associated business and leisure facilities;
- up to 20,000 sq.m (GEA) floorspace for a hotel (Use Class C1);
- up to 4,000 sq.m (GEA) floorspace for community uses (Use Class F);
- delivery of circa 3.8 hectares of open space;
- the realignment of the A226 Galley Hill Road / Stonebridge Road;
- some sui generis uses;
- hard/soft landscaping;
- car and cycle parking;
- highways works, infrastructure provisions with ancillary works.

The document maintains the proposed development constitutes 'EIA development' as it exceeds the thresholds set within 'Schedule 2, 10(b) (Infrastructure Projects – Urban Projects)' of the Environment Impact Assessment (EIA) Regulations, taking into account the scale of the redevelopment and the nature/sensitivity of the site and surrounding area, and there is potential for significant environmental effects to arise.

The LPA would agree that the development would fall within parameters of Schedule 2 development and that EIA is required in this instance. It should also be noted that because of proximity to Ramsar/SPA areas east of Gravesend there is potential here for residential development to result in increased visitor numbers and hence bird disturbance to take place on the North Kent Marshes. As a result, in determining any application, the LPA would have to undertake an Appropriate Assessment under the Habitat Regulations. The applicant will also need to take this into account in preparing the submission and should discuss detailed requirements with the LPA and Natural England.

Responses from External Consultees

KCC Archaeology

The site lies within an area of very high, multi-period, archaeological, geoarchaeological and palaeoenvironmental interest, where the Ebbsfleet valley meets the Thames. This is recognised in the Scoping Report so that cultural heritage and archaeology will be scoped in to the EIA process. The importance of geoarchaeology as well as early and later prehistoric archaeology is recognised in the Scoping Report, but this archaeological and palaeoenvironmental interest and potential could be very complex and include archaeological remains of national or international importance. They recommend that the ES includes a detailed impact assessment based on both desk-based assessment and field evaluation. The archaeological desk-based assessment would include a review of all existing borehole data for the site and the immediate surroundings (within a 500m study area from the redline boundary of the site). The field evaluation would comprise purposive boreholes to ground truth and develop a deposit model for the site and this geoarchaeological and palaeoenvironmental evaluation would need to be undertaken by specialists approved by the Local Planning Authority.

The Scoping Report recognises the importance of the post-medieval and modern industrial heritage of the site and I recommend that as well as considering Aspdin's kiln under 'Built Environment', it and the cement industry, also need to be considered as 'archaeology'. The industrial archaeology of the site and area will comprise both above and below-ground heritage assets with archaeological interest. The results of recent and ongoing work to the south and east of Grove Road will be important sources of information, some of which may not yet be on the HER but are available through the EDC planning portal.

The ES should include consideration of potential positive benefits of the scheme to learn more about the heritage of the site and the opportunities to promote and communicate this heritage to residents and visitors.

KCC Lead Local Flood Authority

The LLFA understand from the Water Resources and Flood Risk Chapter (including surface water drainage) that these considerations are taken out of the EIA Scoping Opinion and will instead be covered in a separate report as part of any future planning submission. Overall, they accept this approach.

The LLFA acknowledge statements 409,424 and 428 in regards to adhering to national and local planning guidance, incorporation of SuDS measures into the development and further consultation with the LLFA will be undertaken to discuss flood risk.

In addition to those policies referenced in statement 409, the LLFA would request the following KCC Policies are considered for designing a future surface water drainage scheme:

- Kent County Council's Drainage and Planning Policy Statement (2019);
- Kent Design Guide Making it Happen- Appendix C2 Drainage Systems.

KCC Biodiversity Officer

KCC Biodiversity Officer has commented that the submitted information has detailed that a preliminary ecological report has been carried out on site and as a result the following is proposed to be carried out:

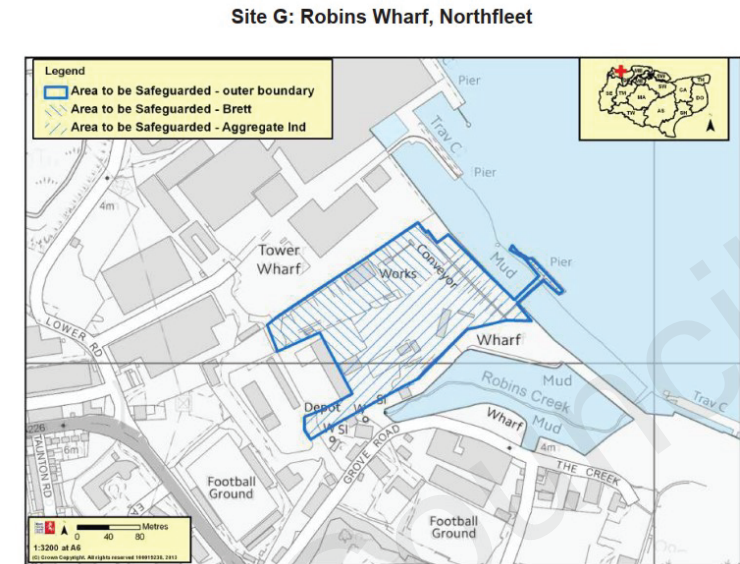
- Assessment of impacts the proposal will have on the adjacent Swanscombe Peninsula SSSI
- Assessment of impacts to the LWS adjacent and within 2km of the site
- Assessment of impacts to the SSSI, SPA, Ramsar and NNR within 10km of the site.
- Assessment of impact
- Breeding bird survey
- Wintering bird survey
- Assessment of the quality of the Mud flats.

The submitted information has confirmed that the assessment will assess impacts from construction and operational phase of the proposed development. Although, in regard to the EIA, no specific comments have been made.

Comments have received in relation to artificial lighting and further enhancements, but these are mostly in relation to the application stage.

KCC Minerals Management

The comments from KCC Minerals Management department are principally concerned with the aspect of the forthcoming Northfleet Harbourside development, as it would directly affect the safeguarded mineral importation facility, known as, Robins Wharf (please see full comments on the Council's website). This area is identified as Site G in the adopted Kent Minerals and Waste Local Plan 2013-30 Early Partial Review 2020 (KMWLP), as extract of the site is listed below;



It has been highlighted by KCC Minerals Management that Policy CSM6: Safeguarded Wharves and Rail Depots is the relevant safeguarding policy of the KMWLP (2020), as Robins Wharf, Northfleet is identified as an operational site. Therefore, the safeguarded site (a mineral importation wharf) is protected from direct loss, or it being made unviable by allowing incompatible development to occur in its proximity (within 250m is the policy's stipulation) that may cause the continued viable operation of the facility adversely affected. This to include its maintenance of adequate accessibility, if the proposal is indeed to the loss of the safeguarded site, then this would have to be successfully argued by invoking an exemption from the presumption to safeguarded by meeting the requirements of Policy DM8: Safeguarding Minerals Management, Transport Production & Waste Management Facilities.

In light of the above, KCC Minerals Management concluded the following;

'It is assumed that the Northfleet Harbourside proposals would directly be in conflict with the presumption to safeguard the mineral importation facility. Therefore, any planning application would have to include an Infrastructure Assessment (IA) to argue, evidentially, why an exemption criterion, (1 to 7 as shown above) can be invoked.'

KCC Waste

In relation to the Waste, KCC maintain that as they are the Waste Disposal Authority, they are effectively required to dispose of kerbside collected waste and also provide a service for householders to dispose of any additional waste brought directly to one of its recycling centres that services Gravesham. At present, KCC maintain they are already at capacity.

KCC have noted that waste / materials have been scoped-out of the EIA as the significant effects relating to waste and materials are considered unlikely, although, they do not agree with this approach. KCC's overall position is waste management and recommends that the matter is addressed within the EIA/ES, alongside the development of a Waste Disposal Strategy. KCC maintain that this Strategy should be developed and mitigation to be agreed with GBC and KCC as Waste Collection Authority and Waste Disposal Authority accordingly.

KCC Traffic and Highways

In relation to the KCC Highways, they make the following comments;

'The County Council, as Local Highway Authority, has been involved in initial meetings with the applicant's transport consultant to scope the requirements of the Transport Assessment to determine the likely trip generation, distribution and potential mitigation of any impacts in accordance with National Planning Policy Framework. The development is of sufficient scale and in a location which provides an opportunity to deliver some significant infrastructure and service

improvements, and the applicant has encouraged to take advantage of the KCC Kent Transport Modelling Service’.

KCC Education

With regards to the socio-economic chapter of the proposed ES, KCC have provided comments from Education. The comments mostly refer to the scale of the development and the impact from the 3,500 units proposed, an extract of their comments are provided below;

‘The current capacity for both primary and secondary provision is at, or near, capacity across much of the Boroughs of Gravesham and Dartford. This is borne out by the latest projections received for primary school provision in both Dartford and Gravesham, and it is clear that a development of this size would result in the need for additional primary school places.’

In light of the above, KCC go on to provide tables to demonstrate the proposed deficit that would result from the proposed development on local schools. Notwithstanding this, the LPA consider these matters are to be dealt with within the parameters of a planning application, although, it would be useful for the applicant to take note of the comments from KCC in relation to Education provisions. Full comments are available to view on the Council's website.

KCC Sport / Recreation

With regards to the socio-economic chapter of the proposed ES, KCC have provided comments from Sport / Recreation. KCC recommend that the applicant ensures opportunities for active travel are integrated into the development to enhance connections between services and communities, and limit car use where possible. The development must also deliver adequate provision for traditional sport as well as informal activity, play and recreation and consider how these spaces are accessed.

Notwithstanding this, the LPA consider these matters are to be dealt with within the parameters of a planning application, although, it would be useful for the applicant to take note of the comments from KCC in relation to Sport provisions. Full comments are available to view on the Council's website.

The Marine Management Organisation (MMO)

The comments from Marine Management Organisation (MMO) are mostly advisory comments (please see full comments on the Council's website).

In relation to the Environmental Impact Assessment the MMO made the following comments;

‘If this consultation request relates to a project capable of falling within either set of EIA regulations, then it is advised that the applicant submit a request directly to the MMO to ensure any requirements under the Marine Works (Environment Impact Assessment) Regulations 2007, as amended, are considered adequately at the following link:

<https://www.gov.uk/guidance/make-a-marine-licence-application>

Port of London Authority (PLA)

The comments from the Port of London Authority are mostly advisory and have particular regard to the loss of Robins Wharf which is operational and, in use by two separate operators. With this regard, the PLA maintain they would, therefore, strongly object to any forthcoming planning application that includes the proposed loss of this safeguarded site, and it is disappointing that this wharf has not been directly referred to in the Scoping Report or any initial justification provided for the proposed loss of this vital facility.

Notwithstanding the above, the PLA also maintain that, it is also important to note that any development located in close proximity to a safeguarded wharf would, in line with the KMWLP and the associated Kent Safeguarding Supplementary Planning Document (SPD) (2021) need to demonstrate that all impacts including noise, dust, light and air emissions, that may arise from the activities taking place at the wharf would not be experienced to an unacceptable level by future

occupants. This is particularly important as these wharves can operate over 24 hours a day in line with tidal movements and would also be in line with paragraph 187 of the National Planning Policy Framework (NPPF) (2021).

In summary the PLA would strongly object to any forthcoming planning application that includes the proposed loss of the safeguarded wharf at Robins Wharf. It is disappointing that there hasn't been any communication or consultation with the operators at Robins Wharf or the PLA prior to the submission of this Scoping Report and it is recommended that the applicant makes contact with all relevant stakeholders as part of this proposed development at the earliest opportunity.

National Highways (NH)

With regards to the proposed development, National Highways will be concerned with the proposals that have the potential to impact on the safe and efficient operation of the SRN, in this case, particularly the A2 and the M25 Junctions 1a, 1b and 2 (please refer to the full response on the Council's website).

National Highways did not explicitly comment on the significance of Traffic/Highways, but did express their concerns as stated above. Therefore, no explicit comment was made in relation to whether an EIA is required, but stated that any Environmental Statement should be consistent with any Transport Assessment submitted.

NH also provided some additional guidance set out below:

TA/EIA General Guidance

Any TA and EIA assessment should be undertaken in accordance with the DfT Circular 02/2013 “The Strategic Road Network and the Delivery of Sustainable Development”.

The TA should include a robust assessment of the vehicular impacts “with” and “without” development for the Opening Year and a Review Period year which will be either the end of the relevant Local Plan or ten years post registration of the planning application, whichever is the greater, to assess the impact of the proposed development.

If it is likely that any SRN mitigation will be required, the EIA must demonstrate how it accords with the Design Manual for Roads and Bridges (DMRB) LA104 Environmental Assessment and Monitoring, and we note that the latter document is referenced in bullet point 3 of paragraph 492, under EIA Approach and Methodology.

It should be noted that on 20 July 2022 we responded to a pre-application Transport Assessment Scoping Note setting out our more detailed and specific requirements. These comments remain applicable.

Construction Impacts

Paragraph 39 of the EIA report outlines that any demolition or construction related impacts will be mitigated and managed through an appropriate Construction Environmental Management Plan. This approach is welcomed, and we request that the document be reviewed and agreed in writing with the Local Highways Authority and us.

Ebbfleet Development Corporation (EDC)

The comments from EDC are mostly in relation to the merits of the forthcoming planning application which could be of use for the applicant. These will be summarised below, however, please refer to the full comments listed on the Council's website. In regards to the forthcoming Environmental Statement, EDC mentions that the cumulative impacts resulting from the development on the local highway network and the subsequent impact that the proposed development, including any necessary mitigation, would have on the viability and deliverability of development sites withing the EDC area.

EDC comment on the following;

'A Key issue for EDC (as landowner and LPA) will be the impact of the proposed development on Thames Way (A226), noting that this road would provide the most direct route between the application site and the strategic road network (A2) but which also runs through the heart of the allocated Ebbsfleet Central site. Whilst land is safeguarded for potential future dualling of Thames Way, it would be necessary to consider effects on the viability of planned development at Ebbsfleet Central and on providing further severance between Northfleet and planned facilities and services within Ebbsfleet more generally'

EDC also mention;

'Scope of the Environmental Statement Due to the low lying nature of the proposed site and its location directly adjacent to the River Thames, as well as its interface with Northfleet Harbour and the culverted River Ebbsfleet, it is reasonable to expect that the scale and nature of development proposed has the potential for significant environmental effects in respect of water resources, flood risk and drainage. While the expectation would be for this topic to be scoped into the Environmental Statement, this is a matter for the Borough Council to determine following input from organisations such as the Environment Agency and the Lead Local Flood Authority'

With regards to climate change, EDC are of the view that climate change, including the impact of the proposed development on climate change, is scoped into the EIA. They also suggest that;

'A key aspect of this will be ensuring optimal environmental performance of all proposed buildings through a combination of factors including building fabric, design/orientation and means of energy generation, and we support this being scoped in'.

EDC are also mindful that the Scoping Report 'refers to the site being located within a Mineral Safeguarding Area but it does not appear to acknowledge that it comprises safeguarded mineral wharf infrastructure, i.e. Robins Wharf, the extent of which is identified as Site K in the Kent Minerals and Waste Local Plan (KMWLP) 2020. The extent of the aggregate facility shown in Figure 4, which does in part fall within the EDC boundary, does not appear to be correct. The Scoping Report refers to the proposed removal of the aggregate works so it is evident that the proposals would be in direct conflict with the presumption to safeguard the mineral importation facility so is an issue to be addressed as part of the application.

Thurrock Council (TBC)

The comments from TBC are summarised below, however, please refer to the full comments listed on the Council's website.

Thurrock context

- there is an Air Quality Management Area (no. 24) also located c.2.1km to the north-east of the application site, at Dock Road / Calcutta Road / St. Chads Road, Tilbury. This AQMA is designated for NO2 from road traffic;
- there are a number of major hazard site with Thurrock, including sites with the Port of Tilbury;
- there is also an 'explosive interest' within with Port which may affect the north-eastern corner of the application site.

Potential for significant impact on receptors within TBC

TBC mention the following:

'Further to the wording of paragraph no. 154 above, it is essential to note that land-uses within the proposed development may themselves be receptors to noise emissions from sources within Tilbury Docks. As noted above, the river frontage of the application site is located opposite the harbour lock entrance and riverside berths at the London Container Terminal. Within the wider Port complex are a number of operational berths, working around the clock, which generate noise as well as noise created from on-board ship generators – which can run continuously. Although a distance of c.700m separates the application site from the Port, the River Thames is clearly an 'open' corridor and may act as a reflector of noise emissions. I would suggest that noise monitoring positions (Figure 12 of the EIA Scoping Opinion Request) should be chosen to monitor noise generated by the Port.' (GBC emphasis added) *'If noise sensitive land-uses are proposed on or close to the river frontage of the application site, then the ES should undertake a robust*

assessment of the impact of noise generated by the Port on those receptors. The Port of Tilbury is a 'statutory' harbour undertaker, benefitting from permitted development rights and has been operational since the 1880's. *Therefore I consider that the 'Agent of Change' principle would apply to place the responsibility of mitigating the impact of any noise nuisance from the Port (as an existing noise generating use) on the proposed new development.'* (GBC emphasis added)

Dartford Council (DBC)

The comments from DBC are summarised below, however, please refer to the full comments listed on the Council's website.

Initial comments

- The red line boundary has been outlined in an arbitrary way, as it follows the Borough boundary line between Dartford and Gravesham and the boundary between Dartford and Gravesham and the boundary between Gravesham and Ebbsfleet Development Corporation (EDC as the Local Planning Authority for this part of Dartford Borough). There appears to be no planning reason for the chosen boundary line and there are concerns that a development brought forward in this way will be unjustifiably constrained or matters outside of the redline will not be mitigated fully;
- The description of the proposed development includes "re-alignment of Galley Hill Road" but the red line excludes this road extending through the junction of Galley Hill Road/Lower Road/Stonebridge Road. The red line should include all those matters listed on the description of development for which planning permission is sought.

Cumulative assessment

DBC note that para. 50 of the Scoping Report considers the cumulative impact of other schemes within 1km of the site and maintain this is inadequate for an EIA. They further assert other impacts, such as traffic and transportation, a much larger area should be considered for cumulative assessment.

DBC are also of the view that cumulative assessments should include committed developments i.e. planning permissions within a defined area and developments as set out in the Local Plan.

Traffic, Transportation and Cumulative Impacts

The transport arising from the development has been raised by DBC as a significant issue, but they also further stress the cumulative impacts of transport with other development should be considered. Overall, DBC are critical of the methodology regarding Cumulative impacts, as suggested above.

With regards to committed developments and traffic/transportation, DBC does not agree this has been sufficiently considered and that Dartford and the EDC should be approached for details of committed development in their respective areas. Otherwise, they maintain that 'failure to consider cumulative impacts from committed development will render the ES incomplete in the assessment of cumulative impacts.

Other Issues

There are more issues suggested by DBC, but in relation to the ES;

'The scheme is likely to result in significant increased traffic levels along London Road and Galley Hill Road. This road has many sections that are adjacent to cliff faces and these are known to be at risk of chalk spalling. The ES should consider the impact of additional traffic on this road and on the stability of the cliff spine that supports the A226.'

Health and Safety Executive (HSE)

The HSE reference the Town and Country Planning (Environment Impact Assessment) Regulations 2017, Regulation 4(4) – which specifically relates to the vulnerability of the proposed development to major accidents. The specific comments of most relevance are;

- Point 2: the development is located within the safeguarding zone of an HSE licensed explosives site Port of Tilbury London Limited, Essex. With regards to this HSE suggest;

Depending on the type of development if planning permission were granted HSE may need to review the license which may impact on the viability of the licensed explosives site. The licence holder should be consulted, then the licence holder explosives site. The licence holder should be consulted, then the licence holder can discuss any potential impact on the license with HSE. For a fee, pre-planning advice can be obtained from the HSE's Explosives Inspectorate explosives.planning@hse.gov.uk

- Point 6: If the buildings up to 20 storeys in height, mentioned in paragraph 22 of the Scoping document, will include dwellings or education accommodation (meaning if they will be a 'relevant building' under 'planning gateway one'), then a fire statement setting out fire safety considerations will be required with the planning application.

Natural England (NE)

Natural England provide standing comments which are generic and advise on the general information on what should be scoped into the EIA. No specific comments have been received on what details should be scoped-in the forthcoming EIA scoping opinion. Please review Annex A of Natural England's response for further advise.

Historic England

HE mention the following;

'The Scoping Report separates archaeology (which is taken to be below-ground assets) and built heritage (which is taken to be above-ground assets).

This separation of 'above' and 'below' ground heritage assets is inappropriate in this case. The scheduled monument of Aspdin's Kiln (1004227), which survives well above ground is part of a much larger 19th century cement works which extended along the south bank of the River Thames. The industrial archaeology of the site and area will comprise both above and below-ground heritage assets with archaeological interest. Historic England consider that the archaeological assessment cannot therefore be limited to below ground remains.'

And that;

'Despite this contradictory information, Historic England understand that it is not proposed to scope in built heritage to the ES and that a TVIA would be produced and appended to the ES. While we acknowledge that the effects in EIA terms on nearby designated built heritage could be low, we do not agree that this means it should be scoped out of the ES as the information available at this stage is not sufficient to make this assessment with any certainty. (Council emphasis)

The 1km study area has been used for both archaeological remains and built heritage. Historic England agree that the 1km study area is likely to be proportionate for the below-ground archaeology topic, however we also think that the 1km study area for built heritage is far too restrictive for a development of this scale.

We suggest this must be significantly enlarged and should include, but not be limited to, the following:

- Tilbury Fort, a scheduled monument and the grade II* listed Riverside Terminal
- designated heritage within the town of Gravesend, including conservation areas like Windmill Hill and listed buildings like the grade II* listed Church of St George

We would expect the assessment to clearly demonstrate that the extent of the proposed study area is of the appropriate size to ensure that all heritage assets likely to be affected by this development have been included and can be properly assessed.'

In addition to the above, HE suggest that a TVIA to supplement the ES, should also include views from more distant designated assets, in addition to the application already intends to assess. HE

are also of the view that the ES should also consider the potential impacts on-designated features of historic, architectural, archaeological or artistic interest as these are also of national importance and make important contributions to character of an area and the sense of place.

Assessment

The Scoping Report provides a basis and framework for assessing the overall environmental effects of the development. This response is structured around the sub-headings presented in the Scoping Report informed by input from statutory and non-statutory consultees. In addition to the summarised comments from the consultees above, the full responses received are appended and should be reviewed alongside this Scoping Opinion.

Demolition and Construction

The Scoping Report maintains that that the ES (within a non-technical chapter titled 'Demolition and Construction') will provide an outline of the anticipated demolition and construction programme and related activities and aspects. These related activities being indicative programme phasing, demolition and enabling works, substructure works, superstructure works etc, demolition waste volumes and construction material quantities, HGV movements and HGV routing.

The LPA welcome the approach taken, particularly at paragraph 36, that the potential significant effects arising during the demolition and construction works will be addressed within each of the individual technical assessment chapters of the ES and will be assessed against the existing baseline conditions. It is intended that the ES will set out the demolition and construction related effects both without mitigation measures included (unless embedded mitigation measures have been identified) and with mitigation measures applied. This approach will allow any 'residual effects' to be identified as part of the assessment.

The assessment will take into consideration any other surrounding developments which are likely to be under construction at the same time as the Proposed Development. These are likely to include the developments at Northfleet Embankment West/Grove Road; any works related to the industrial commercial development (including the Bulk Aggregates Import Terminal) to the east; the Ebbsfleet Central development; the continued build out of Eastern Quarry and other developments in Dartford.

The management and form of environmental impacts that might occur is likely to be affected by the phasing of the development and in particular how and when the site is cleared or remediated; what uses will remain on site at what stages; and what areas become occupied at what stage by potentially sensitive receptors. There is also potential for adjoining occupiers to be adversely affected during the construction and demolition stage and this will also need to be addressed. How such issues will need to be clearly addressed in the ES.

In addition, should the Lower Thames Crossing (LTC) or London Resort be granted Development Consent, it is likely that these would be progressed alongside this and other developments. The implications of this will need to be clearly set out within the ES along with how significant impacts will be avoided, managed or mitigated. Attention is drawn in particular to the fact that the construction of this proposal alongside LTC has the potential to impact adversely on the two main east-west routes through Gravesham and onwards to Dartford and the M25/A282 Dartford Crossing.

In order to reduce impacts during the construction and demolition phase, the applicant is also strongly advised to consider the potential to use water borne transport given the riverside location as a means of reducing HGV movements on the local road network.

Completed and Operational Development

Paragraph 42 of the Scoping Report states that a similar approach will be applied to the assessment of potential impacts as at the demolition and construction stage - i.e. that the ES will set out the completed and operational related effects both without mitigation measures included (unless embedded mitigation measures have been identified) and with mitigation measures applied

so as to allow any 'residual effects' to be identified as part of the assessment. This approach is welcomed..

Scoped Out (topics):

It is noted from the Scoping Report that the following topics are scoped out of the EIA;

- i. Water Resources , Flood Risk / Site Drainage;
- ii. Waste and Materials;
- iii. Project Vulnerability

After due consideration and having regard to responses received from consultees, the LPA has come to the following conclusions as to whether these aspects should be 'scoped in' or 'scoped out':

i. Water Resources, Flood Risk / Site Drainage

Given the scale of the development and as the site lies within Flood Risk Zone 3a (areas benefitting from flood defences) where a significant residual flood risk exists from tidal inundation should an extreme event occur, the LPA is of the view that Water Resources, Flood Risk and Site Drainage **should be scoped into the ES**.

The LPA notes the comments from EDC which maintain '*it is reasonable to expect that the scale and nature of development proposed has the potential for significant environmental effects in respect of water resources, flood risk and drainage*'. The position of the EDC in this respect is understandable given both this site and land to the south form part of the Ebbsfleet Valley where development in either area has the potential to impact on the other.

It is noted para. 426 of the Scoping Report maintains that it is considered unlikely that any foundations/piling works proposed at the site will cause significant disruption to the groundwater table that could result in result in water supply to local abstractions being inhibited. This is primarily because of the distance from surface water and ground water abstraction points.

Reference is made within the Scoping Report to the provision of a Construction Environmental Management Plan (CEMP) which the LPA would expect to see address site drainage and flooding issues as the development is built-out on a phased basis. It is also noted that reference is made within the Scoping Report to the potential for surface water run-off to increase during both the construction and operational phases primarily due to the increase in impermeable surface areas. For the completed development in particular this would be addressed through the proposed surface water drainage strategy.

Both national and local policy require that a site specific flood risk assessment (FRA) should be submitted in support of the proposed application. This will need to have regard to the latest climate change projections available in UKCP and will need to consider whether or not flood risk is increased elsewhere as a result of the development. Due to the location of the site; its potential to increase flood risk on adjacent sites; the fact that how the drainage system in the area currently functions is unclear and lack of detail on what interventions are proposed at this stage, the LPA does not agree that Flood Risk and Site Drainage should be scoped out of the ES.

Any assessment will also need to consider the cumulative impact of the proposal having regard to other schemes and clearly set out what improvements are proposed to the flood defences to protect the site over its lifetime and how those improvements will be phased. Given the residual risk of flooding, it may also be prudent to consider whether the application should be supported by or contain a commitment to a Flood Risk Management Plan and the incorporation of flood resilient design features.

Whilst the Environment Agency has not provided a detailed response to the EIA Scoping Report, the applicant is strongly advised to engage with them using their paid pre-application advice service if necessary. The applicant is also advised to engage with Kent County Council as Lead Local Flood Authority in this respect. Whilst the site is not within the Ebbsfleet Garden City area, the LPA notes that the Development Corporation is looking at this within its own sites and would

encourage the applicant to work with them so that this development can be brought forward using a comparable approach.

In terms of water infrastructure such as supply and foul drainage, the Scoping Report refers to both Affinity and Thames Water. This area is actually served by Southern Water and the applicant is advised to engage with them regarding capacity and how connections are to be provided. For information, in terms of surface water drainage the default position is that this should be dealt with through a Sustainable Urban Drainage System given this can also be linked to water re-use and other benefits in terms of Green and Blue Infrastructure..

The Marine Management Organisation has not commented on this area of this Scoping Report but will be a statutory consultee when the planning application is submitted.

Whilst not directly related to this part of the ES, it is noted that the site will have a river frontage likely to require upgraded defences and with public access. Given the risks to the public that may arise as a result of public access, attention is drawn to the probable need to include riparian lifesaving equipment at the guidance issued by the PLA in this respect - see <http://pla.co.uk/Safety/Water-Safety/Water-Safety>.

In the event of the flood defences being upgraded opportunities to improve the biodiversity of the river frontage should also be explored. In this respect, attention is drawn to the Estuary Edges guidance at <https://www.estuaryedges.co.uk/>

ii. Waste and Materials

The Scoping Report maintains that the quantities of materials for the construction of the Proposed Development are not known, at this stage. For the construction phases, it is proposed that mitigation measures will be implemented, as outlined in para. 447, and deems that significant adverse effects associated with the construction of the Proposed Development on materials would be unlikely. For these reasons, materials has suggested to be scoped out.

It is assumed that the project would be guided by a Construction Waste Management Plan to reduce waste during this phase and, inter alia, the carbon footprint of the project. The applicant is also asked to consider ways and means to reduce embodied carbon within the development where feasible to do so. Whilst the site is not within the Ebbsfleet Garden City area, the LPA notes that the Development Corporation is looking at this within its own sites and would encourage the applicant to work with them so that this development can be brought forward using a comparable approach.

For the operational phases, the comments from KCC, as Waste Disposal Authority, for both kerbside waste and recycling centres that the EIA should have consideration of the capacity of existing disposal facilities and recycling centres. At present, KCC maintain that the recycling centres are already at capacity.

For reasons above, and the scale and nature of residential, mixed use and commercial developments proposed at the site, it is considered these could potentially create significant pressures to existing waste/recycling facilities. Despite the mitigation measures proposed for both materials and waste, the LPA consider that these **should also be scoped into the ES**.

iii. Project Vulnerability

The Scoping Report makes reference to the project vulnerability and it is generally held that due to the nature and the surroundings of the proposed developments, many of the events listed on the London Risk Register (developed by the London Resilience Partnership) are not considered relevant or likely to pose a risk to future site users or surrounding receptors.

It is unclear why the Scoping Report refers to the London Risk Register, given the site is clearly not in London. It is suggested that the ES should instead refer to documents published by the Kent Resilience Forum on its website at <https://www.kentprepared.org.uk/about-us> . For information, the Kent Community Risk Register major coastal and tidal flooding in the very high risk category for natural hazards.

It is noted that the Scoping Report acknowledges the project's vulnerability to major accidents and natural disasters and that this should be considered both in terms of the likelihood of the project itself to cause a major man-made accident and in terms of the project being affected by an external man-made accident or by a natural disaster. It also takes into consideration the impacts of proposed design or operation that could effectively worsen the potential events on nearby receptors.

The Scoping Report concludes that the vulnerability of the Proposed Development to major accidents and natural disasters will be adequately managed throughout the lifetime of the project/ Furthermore, it is held that, in terms of vulnerability of the proposed development to such events, it is itself, unlikely to result in any significant effects on introduced site users and surrounding environmental and human receptors.

However, the comments from HSE and Thurrock Borough Council are of relevance here. HSE maintain that, as the development is located within the safeguarding zone of a HSE licensed explosives site at Port of Tilbury London Ltd, Essex. Furthermore, Thurrock Borough Council reference the proximity of the site to the major hazard site at the Port of Tilbury that could potentially increase the vulnerability of the proposed development.

This aside, the proposed application site lies within EA Flood Zone 3A, where there is a residual risk of tidal flooding during an extreme tide surge event. In addition to introducing a significant new population into this area, the proposal includes the construction of an 8,000 seat capacity multi-use stadium with few details at this stage as to how it would operate and function. In addition, a significant quantum of retail and food and drink type uses are also proposed that would also act as attractors.

Therefore, with regards to the vulnerability of the development, in accordance with Part 5, Regulation 25, of the EIA (2017) regulations, the LPA cannot agree that the projects vulnerability from external man-made accidents/natural disasters can be scoped out. The LPA considers that this **should also be scoped into the ES**.

iv. Health

It is noted that Health will be scoped into the ES but that a technical ES chapter will not be prepared. Instead, a Health Impact Assessment will be submitted. Given the nature of the existing site and surrounding sites and the fact that the development will be phased, the LPA considers that health should not be scoped out of the demolition, construction or operational phases of development. In terms of the operational phases of the development, the proposal will also result in a significant uplift in population and increased demand on medical services. The LPA is not convinced therefore in the absence of a proper consideration of likely impacts (which may actually be beneficial if it results in better service provision for existing deprived communities) that it would be unwise to scope health out of the ES. The LPA therefore concludes that health **should be scoped in** and invites the applicant to engage with it to define what the Health Impact Assessment should cover.

v. Solar Glare and Light Pollution

It is considered that it would be appropriate to cover the light pollution and solar glare in the operational stages of development within the EIA. During the demolition and construction phase, the LPA would expect this to be covered by the CEMP for the site.

The applicant's attention is also drawn to the location of the site on the riverfront, directly opposite the lock entrance to Tilbury Docks where ships are manoeuvred by tug to enter and leave the impounded docks. This is also an area where ships manoeuvre onto wharves to load and discharge cargos during hours of darkness as the tide allows. Any appraisal of the potential for light pollution therefore should have regard to navigational safety on the River Thames and the applicant is advised to engage with the PLA to discuss this aspect.

Scoped In (topics):

In terms of the topics **to be scoped into** the EIA, LPA agrees the broad scoping of these topics. However, the LPA would like to comment on the following;

i. Archaeology / Townscape, Visual and Built Heritage

Notwithstanding the comments from KCC Archaeology, the comments from Historic England highlight that archaeology (usually below ground) and built heritage (usually above ground) assets have been separated into two separate fields, with the latter being scoped out.

Historic England do not find this approach useful, with reference to the scheduled monument of Aspdin's Kiln (1004227) and the nature of industrial archaeology of the site/area as this will comprise both above and below-ground heritage assets with archaeological interest. HE further comment that the 1km study area is too restrictive and should include developments such as the grade II* listed Riverside Terminal, Tilbury Fort, and designated heritage assets within Gravesend, such as the grade II* listed Church of St George.

Some of the buildings are proposed be up to 20 storeys, which would be of significant height compared to surrounding developments and would be visible from a considerable distance. HE therefore consider that the envelope for the visual impact assessment should be increased and the LPA concur with this view.

The applicant is therefore advised to engage with the LPA to agree the area to be covered by the visual impact assessment and a list of those heritage assets/townscape/river views that should be considered. In terms of river views, the applicant is also reminded in policy terms that both marine and terrestrial policies will apply when the application is assessed. The applicant is also advised to agree of list of designated/non-designated/archaeological assets with the LPA, HE and the KCC for inclusion in that chapter of the ES.

ii. Ground Conditions and Land Contamination / Air Quality / Noise and Vibration/Microclimate

The scope of the ES chapter is the approach to identifying and assessing the effects of the proposed development on ground conditions and other areas, during both the demolition and construction works and once the development is operational and complete. As noted above, the LPA has not received detailed comments from the EA nor from our Environmental Health section. This having been said, the LPA welcomes the applicant's commitment to scope these areas into the EIA.

Given the land uses at the site both present and historic, the LPA is of the view that there are contaminative uses associated with the site or adjacent land. Given the location of the site, there may also be the potential for wartime unexploded ordnances to be present. The ES should be supported by relevant surveys addressing these matters, with outline mitigation plans.

In addition, the demolition, construction and operational phases are likely to cause impacts to air quality which may impact upon sensitive receptors, as such the LPA considers that impacts to air quality should be assessed. This should include consideration of key pollutants such as Nitrogen dioxide (NO2), and Particulate Matter (PM10 and PM2.5), as well as the activities of nearby industrial and aggregate users e.g., Britannia Refined Metals.

The applicant is advised to engage directly with the EA and our Environmental Health section on any issues it wishes to raise as work on the ES progresses. The LPA would ask that it be kept informed on any issues that arise and be regularly updated in order that it may assist where possible.

On noise and other impacts, the assessment should be sufficiently detailed for the LPA to understand the implications in terms of 'agent of change' principles and how the introduction of sensitive receptors into the area on a phased basis may affect the ability of existing commercial operators to trade. This should include as assessment of potential impacts on the site from the operation of Tilbury Docks and adjoining wharves and the nearby industrial premises in both Dartford and Gravesham. This assessment would of necessity have to include the impacts of traffic and ship movements associated with those uses.

In terms of microclimate, it is noted that wind effects are being taken into account, given the scale of the proposed buildings the variances in noise at differing levels will need to be considered, and not only at the base of tall buildings. Given that part of the development will be on the riverfront,

the LPA would also ask that consideration be given to the effects of microclimate on the river itself close to the shore, where wind effects may impact on the manoeuvring of small craft - including sailing vessels. Once again, it is advised that the applicant discuss this with the PLA as it has been an issue in relation to the Albion Quayside development in Gravesend - albeit that lies in an area heavily used by such craft.

iii. Traffic and Transport

With regards to traffic generation and impacts to local transport networks, the LPA consulted both KCC Highways and National Highways. KCC note that pre-application discussions have already begun and of the view that the development is of sufficient scale and in a location which provides an opportunity to deliver some significant transport infrastructure and service improvements. National Highways are concerned with the potential impacts on the safe and efficient operation of the Strategic Road Network, particularly the M25 junctions 1a, 1b and 2 and the A2. Dartford Borough Council, as an adjoining LPA, is also concerned at potential impacts on both the local and SRN - please look at their detailed comments when addressing these issues.

In addition to the junctions you are proposing to assess shown at Figure 9 of the Scoping Report, it is also suggested that impacts on the Pepperhill and Tollgate A2 junctions and associated links back to the development site be considered.

Detailed methodology for the transport modelling will need to be agreed with the LPA, NH and KCC Highways, having regard to comments provided by Dartford Borough Council and the Development Corporation. The applicant's should engage with all parties to ensure an appropriate list of developments and other highways interventions are factored into the assessment. This will not necessarily be the same list as used to consider cumulative or in combination impacts given different factors may need to be assessed.

The LPA therefore agrees that given the number of potential residential units proposed, the scale of the mixed-use floorspace and the inclusion of multi-use/football stadium, the impact to traffic and local transport networks is potentially significant and that it should be scoped into the EIA. Similarly, the transport aspect should be scoped in during the demolition and construction phase, including for the reason set out above of possible overlap with works to the A2 in constructing the LTC.

Any Transport Assessment should be based on a realistic worst case scenario in the first instance before moving on to consider possible interventions and the ability to manage traffic growth through public transport and the promotion of active travel. Measures to be taken to reduce private car use and the transition to zero-carbon through encouragement of electric and ULEVs should also be taken into account, with a robust assessment of the likely impacts of the multi-use stadium and how parking demand arising from this will be managed.

iv. Ecology and Biodiversity

The intent to scope ecology and biodiversity into the EIA at both the construction and demolition and operational stages is welcomed and agreed. It is noted that the preliminary assessment has identified the mudflats as a potential ecological resource. The implications of lighting within the development and impact on the foreshore should be considered and attention is drawn to comments above on the Estuary Edges guidance and ability to secure biodiversity improvements. Please note that the LPA does not have in-house experts in this field and will rely on Natural England, KCC Biodiversity and the Kent Wildlife Trust to provide advice, as appropriate.

Cumulative Developments

The Scoping Opinion notes the cumulative effects of the proposed development and the interactions of the development. Schedule 4, 5(e) of the EIA regulations requires that a description of the likely significant effects of the development on the environment resulting from cumulation of effects with existing and/or approved projects, having regard to existing environmental problems.

Ebbfleet (EDC), Dartford (DBC) and Thurrock (TBC), have all commented that either that a number of developments have not been considered within the Scoping Report or that committed

developments have been adequately addressed. Table 2 of the Scoping Report distinguishes between Tier 1 developments being developments over 150 residential and/or 10,000sqm of mixed use floorspace for developments that have been approved and developments that have been submitted. While London Resort forms a Tier 2 development, it is currently a withdrawn Nationally Significant Infrastructure Project (NSIP).

Whilst it is acknowledged that committed developments are not technically a requirement of Schedule 4, 5(e), the scale of the proposed scheme could warrant such developments as relevance under regulation 18(3)(f). For instance, EDC reference a range of developments within their boundary that could be of relevance to the development, but maybe of more relevance, EDC highlight they are expecting a major outline application at Ebbfleet Central East which is c.37 hectares in area and located immediately south of the proposed Northfleet Harbourside application boundary.

Whilst the LTC submission is not yet live, it is likely that the application could be submitted during the course of the determination period of Northfleet Harbourside. This is now anticipated to take place Autumn 2022. The LPA therefore takes the view, that the cumulative effects of this development **should be scoped into the EIA**.

DBC have not provided a list of likely committed developments they would like taken into consideration but do suggest the applicants engage with them directly. Thurrock also mention that they are considering an application for the 'Construction and operation of a cementitious products manufacturing facility' located at berth 40A, Tilbury Freeport (their reference 22/00466/FUL). Therefore, given the sensitive land uses proposed within the proposed development that this should also be factored into the EIA given possible impacts in terms of noise and air quality.

The LPA is of the opinion that the parameters suggested within the Scoping Report for identifying projects which may result in cumulative impacts is too restricted and should be reviewed in consultation with interested parties. On this, it would be logical if there was parity with the approaches used in EIAs for other sites in the immediate vicinity, including the EDC applications for Grove Road and Ebbfleet Central e.g. consideration of proposals as part of the cumulative impact of other schemes within 5km of the site.

It is recommended the following are also included:

- The development will have a multi phase construction programme, and therefore Construction and Operations will overlap, and therefore cumulative effects arising from both construction and operational phases should be included and measured through a series of time slices to ensure worst case scenario is measured.
- Applications that remain extant at point of submission
- Allocations within the adopted Local Plan Core Strategy
- Developments within the Borough

The LPA would therefore welcome discussions with the applicant on how to move this forward.

Summary

The LPA disagree with the EIA Scoping Report and consider that the following aspects should be scoped into the ES:

- i. Water Resources , Flood Risk / Site Drainage;
- ii. Waste and Materials;
- iii. Project Vulnerability

This is for the reasons set out above and for the sake of brevity these are not repeated within the summary.

The LPA has also above provided detailed comments and advice on other aspects of the EIA that the applicant is advised to take into account, including the need to seek separate guidance from

key stakeholders where detailed comments have not been provided to the LPA as a result of consultations.

This opinion is made on the basis of the details which have been supplied so far and other information currently available and does not preclude the LPA from requesting further information when considering any future application and accompanying ES for this development. In reaching this decision the LPA has taken account of the specific characteristics of the particular development, the specific characteristics of the type concerned and the environmental features likely to be affected by the development as required under Regulation 15(6).

Dated: 16 September 2022

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## **Appendix: EIA Methodology**

**Annex 1: Scoping Opinion Request Report**

**Annex 2: Scoping Opinion**

**Annex 3: Climate Change Technical Note**



# Climate Change

## Technical Note

### South East England

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## INTRODUCTION

- 1 This technical note describes a future climate scenario for South East England which has been developed by Trium using the future climate projections data published by the Met Office (UKCP18) in November 2018. UKCP18 projections consider the climate effects arising from a series of 'Representative Concentration Pathways' (RCP) emissions scenarios (described further below).
- 2 The purpose of this technical note is to present projection data for the future climate and to provide guidance to the EIA technical team on how to consider whether the effects of the Proposed Development (defined under the current climate conditions) may alter under the future climate scenario. In the context of the future climate condition, consideration needs to be given to:
  - The change in the magnitude of impact of the Proposed Development;
  - Receptor vulnerability to changes in climate;
  - Vulnerability of the Proposed Development to climate change; and
  - Resilience of the Proposed Development to climate change.

## Climate Projections

- 3 UKCP18 gives probabilistic projections<sup>1</sup> for a number of atmospheric variables, with different temporal and spatial averaging, for several future time periods, under four different future RCP emissions scenarios.
- 4 In general, the longer the lifetime of a development, the greater the uncertainty about the impact of climate change over time. Uncertainty is dealt with by presenting projections which are probabilistic in nature, and which give the probability of different climate outcomes.
- 5 To make use of the probabilistic projections, an emissions scenario and percentile outcome (i.e. the likelihood of the change in climate occurring) needs to be identified.
- 6 The emissions scenario and probabilistic projection are detailed within this document and have been used by all technical disciplines contributing to the Environmental Impact Assessment (EIA), to ensure consistency in approach.

## Emission Scenarios

- 7 The RCP emission scenarios represent four distinct Representative Concentration Pathways (RCP2.6, RCP4.5, RCP6.0 and RCP8.5) available in the UKCP18 climate projections. These are named according to the concentration of greenhouse gas modelled to occur in the atmosphere in 2100. The RCPs have been developed for long-term and near-term climate modelling and provide time-dependant projections of atmospheric greenhouse gas concentrations. These pathways were developed based on a literature review of current climate modelling research and have been chosen to represent the full range of climate outcomes presented within the literature.
- 8 The emission scenarios represent assumptions in terms of climate policy, land use and technological development, with RCP2.6 representing the 'optimum' emission scenario (i.e. measures aimed at achieving the maximum reduction in GHG emissions).
- 9 RCP 8.5 is the most conservative, highest emission, and highest-impact scenario. It assumes that technological development will slow and that there will be little to no decarbonisation of world power from new technology. It also assumes that no further climate mitigation or regulations to reduce climate change or air pollution will be implemented.

<sup>1</sup> Probabilistic projections give a range of possible climate change outcomes and their relative likelihoods i.e. unlikely, likely or very likely ranging across 10th to 90th percentiles.

- 10 More information on the RCPs can be found in the UKCP18 Guidance: Representative Concentration Pathways<sup>2</sup>.

## Adopted Emissions Scenario: RCP8.5

- 11 RCP8.5 has been used in the climate projections presented in this technical note as it represents a suitably conservative emissions scenario with regards to climate policy, land use, and technological development. This is in accordance with the Institute of Environmental Management and Assessment's (IEMA's) Climate Change Resilience and Adaptation guidance<sup>3</sup>, which states that "*Recommended best practice is to use the higher emissions scenario (RCP 8.5 in the latest UKCP18 projections) at the 50<sup>th</sup> percentile, for the 2080s timelines, unless a substantiated case can be made for not doing this (e.g. anticipated lifespan of the project is shorter than 2080s)*".
- 12 The use of RCP8.5 is also in accordance with "*the National Policy Statement on National Networks, which states that developments should use the UKCP09 high emissions scenario at the 50% probability level*"<sup>3</sup>. RCP8.5 is the UKCP18 high emissions scenario and therefore has been identified as the most reasonable conservative emissions scenario for identifying future climate change projections in EIA.
- 13 The IEMA guidance recommends the use of RCP8.5 against a baseline period of 1980-2000 unless strong justification can be provided otherwise.
- 14 In line with the IEMA guidance, the climate projection data provided in this technical note are produced using RCP8.5 against the 1980-2000 baseline at the 50% probability level (or percentile).

<sup>2</sup> UKCP18 Guidance: Representative Concentration Pathways  
<https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-guidance---representative-concentration-pathways.pdf> [accessed 16/02/22]

<sup>3</sup> Institute of Environmental Management and Assessment, (2020); Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation.

## APPROACH TO ASSESSMENT

- 15 These steps provide a guide to assessing climate change within the EIA. More information and guidance can be found in references listed in Appendix A.

### Step 1: Define the Future Climate Condition

- 16 Within the 'Climate Change' section of the technical ES chapter, firstly identify the climate variables that are relevant to the assessment. So, for example, the variables of relevance might be 'rainfall' or 'temperature'.
- 17 The next stage is to determine how these variables change under the future climate scenario based on the information presented in *'The Future Climate Condition in South East England for EIA'*, later in this technical note. This data present the 50<sup>th</sup> percentile for each climate variable projection, which represents the highest likelihood of occurrence. This aligns with the IEMA recommended approach.
- 18 This technical note provides data for 20 year timeslices from 2020 to 2099, to identify trends in projected climate change. The expected lifetime of the developments of this size and scale is typically 60-80 years; the future climate condition should be based on the timeslice that is applicable for the lifetime of the Proposed Development.
- 19 This stage defines the future climate condition that is relevant to your assessment.

### Step 2: Define Receptor Sensitivity to Climate Change

- 20 Receptors that have been identified for inclusion within the technical assessment in the ES need to be considered for their sensitivity to climate change, i.e. how the effects on these receptors as a result of the Proposed Development change due to the projected future climate conditions.
- 21 In ascribing the sensitivity of a receptor in relation to potential climate change effects, the following factors must be considered, as well as the value or importance of the receptor:
- **Susceptibility** of the receptor (e.g. ability to be affected by a change); and
  - **Vulnerability** of the receptor (e.g. potential exposure to a change).
- 22 The susceptibility of the receptor can be determined using the following scale:
- **High susceptibility** - the receptor has no ability to withstand/not be substantially altered by the projected changes to the existing/prevaling climatic factors (e.g. lose much of its original function and form).
  - **Moderate susceptibility** - the receptor has some limited ability to withstand/not be altered by the projected changes to the existing/prevaling climatic conditions (e.g. retain elements of its original function and form).
  - **Low susceptibility** - the receptor has the ability to withstand/not be altered much by the projected changes to the existing/prevaling climatic factors (e.g. retain much of its original function and form).
- 23 The vulnerability of a receptor can be defined using the following scale:
- **High vulnerability** - the receptor is directly dependent on existing/prevaling climatic factors, and reliant on these specific existing climate conditions continuing in the future (e.g. river flows and groundwater level); or only able to tolerate a very limited variation in climate conditions.
  - **Moderate vulnerability** - the receptor is dependent on some climatic factors, but able to tolerate a range of conditions (e.g. a species which has a wide geographic range across the entire UK but is not found in southern Spain).
  - **Low vulnerability** - climatic factors have little influence on the receptor.

- 24 It is the responsibility of the technical specialist for each topic within the ES to reach a reasoned conclusion on sensitivity, based on a combination of the susceptibility and vulnerability of a receptor, in addition to its value/importance.
- 25 As an example, a high-value receptor that has very little resilience to changes in climatic conditions should be considered more likely to have a higher sensitivity than a high-value receptor that is very resilient to changes in climatic conditions.

### Step 3: Identifying and Determining Magnitude of Impact

- 26 The magnitude of the impact is the degree of a change from the relevant baseline conditions. Magnitude is based on a combination of **probability** and **consequence**.
- 27 The **probability** of a climate change related effect occurring has already been determined based on RCP8.5, as set out in **paragraphs 11 to 14**.
- 28 The **consequence** of the impact reflects the geographical extent of the impact or the number of receptors affected (e.g. scale), the complexity of the impact, degree of harm to those affected and duration, frequency and reversibility of the impact.
- 29 A combination of probability and consequence should be used to reach a reasoned conclusion on the magnitude of the impact. It is likely that if the probability and/or consequence of the impact is high then the magnitude of the effect would also be high.
- 30 It is the responsibility of the technical specialist for each topic within the ES to apply professional judgement to assign magnitude to an impact as a result of the projected climate change. This judgement should be clearly outlined and supported by evaluation and evidence.

### Step 4: Significance Assessment

- 31 Once the sensitivity and magnitude have been determined, these should be combined to reach an overall judgement on the significance of the likely environmental effect.
- 32 Again, it is the responsibility of the technical specialist to apply professional judgement on the significance of the effect.

### Step 5: Identify any Mitigation Needed

- 33 If any adverse significant effects are identified (as a result of the impact of climate change), appropriate mitigation will need to be identified.
- 34 When considering the adoption of mitigation, consideration should be given to when the mitigation might be most usefully implemented over the duration of the scheme.
- 35 The key considerations in developing mitigation should include:
- Favouring flexible mitigation options over options which are locked and cannot be modified in future (adaptive management);
  - Allowing for safety margins in developing mitigation designs to ensure resilience of the project or proposed mitigation to climate change; and
  - Identifying who (which party) will be responsible for delivering the mitigation measure (e.g. designer, contractor, developer).
- 36 Mitigation measures should identify appropriate resilience and adaptive management measures.
- 37 Resilience measures include design features (e.g. habitable rooms within residential units located above the flood level which accounts for climate change) and construction materials (e.g. materials resistant to increases in temperature), to provide an appropriate resilience to changes in the existing climatic conditions, as well as occurrences of extreme weather.
- 38 Adaptive management measures account for the anticipated changes in the future climate. Consideration should be given as to whether there are opportunities to introduce mitigation measures later into the project when they are required, instead of including them from the outset when they're not

required. These measures could be secured through a commitment to prepare a management plan / strategy (or equivalent) which would periodically review the need for such measures and their integration into the scheme when required.

- 39 Where mitigation is proposed, the effectiveness of the measures against the predicted future climate conditions should be presented, with reference to the resulting magnitude of impact and the resulting residual effect and its significance (as per the standard ES technical assessments).
- 40 These results should be presented in a statement to clarify whether or not the projected future climate change is anticipated to alter the findings of the assessment as already presented for the Proposed Development under the current climate conditions.

## THE FUTURE CLIMATE CONDITION IN SOUTH EAST ENGLAND FOR EIA

- 41 The future climate projections for South East England, based on RCP8.5, are presented and described below for the climatic variables:
- Temperature;
  - Precipitation; and
  - Wind speed.
- 42 When assessing the effects of climate change in a technical ES chapter, the data presented in the proceeding tables should be used by the technical specialist as the basis for their assessment.

### Temperature

- 43 Table 1 presents the projected air temperature data for South East England up until 2099, in 20 year timeslices, from 2020. In line with the Met Office predictions<sup>4</sup>, the data present future summers to be hotter and winters to be warmer, with the annual temperature steadily increasing.
- 44 Depending on the lifetime of the Proposed Development, different timeslices will need to be considered. When developing adaptive mitigation measures, consideration should be given to the appropriate time to implement these measures based on the temperature increase at each timeslice.
- 45 The data are presented for the Annual Mean, Summer Maximum, and Winter Minimum temperature for each timeslice. It is the responsibility of the technical specialist to select the most relevant and appropriate data for their technical discipline.

**Table 1 Air Temperature Anomaly at 1.5m Above Ground Level (°C) Relative to Baseline**

| Timeslice | Predicted Change from Baseline (°C) |                             |                             |
|-----------|-------------------------------------|-----------------------------|-----------------------------|
|           | Annual Mean                         | Summer Max                  | Winter Min                  |
|           | 50 <sup>th</sup> Percentile         | 50 <sup>th</sup> Percentile | 50 <sup>th</sup> Percentile |
| 2020-2039 | 1.05                                | 1.50                        | 0.91                        |
| 2040-2059 | 1.87                                | 2.77                        | 1.65                        |
| 2060-2079 | 2.96                                | 4.28                        | 2.53                        |
| 2080-2099 | 4.29                                | 6.43                        | 3.60                        |

<sup>4</sup> Met Office Hadley Centre, 2018. 'UKCP18 Factsheet: Temperature'  
<https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-fact-sheet-temperature.pdf>  
 [accessed 09/03/22]

### Precipitation

- 46 Table 2 presents the predicted percentage change in precipitation levels relative to the 1980-2000 baseline. In line with the Met Office predictions<sup>5</sup>, the data present future Summers to be drier and Winters to be wetter. The data also predict that annual precipitation will reduce marginally up to 2099.
- 47 Depending on the lifetime of the Proposed Development, different timeslices will need to be considered. When developing adaptive mitigation measures, consideration should be given to the appropriate time to implement these measures based on the precipitation change at each timeslice.
- 48 The data are presented for the seasonal extremes of Winter and Summer, as well as an Annual projection for each timeslice. It is the responsibility of the technical specialist to select the most relevant and appropriate data for their technical discipline.

**Table 2 Precipitation Rate Anomaly (%) Relative to Baseline**

| Timeslice | Predicted Change from Baseline (%) |                             |                             |
|-----------|------------------------------------|-----------------------------|-----------------------------|
|           | Annual                             | Summer                      | Winter                      |
|           | 50 <sup>th</sup> Percentile        | 50 <sup>th</sup> Percentile | 50 <sup>th</sup> Percentile |
| 2020-2039 | 1.39                               | -9.46                       | 8.20                        |
| 2040-2059 | -0.10                              | -21.50                      | 13.11                       |
| 2060-2079 | -0.04                              | -30.00                      | 20.04                       |
| 2080-2099 | -0.83                              | -41.21                      | 27.00                       |

### Wind Speed

- 49 UKCP18 probabilistic data for wind is not available, nor any RCP8.5 data for wind through alternative projections. For this reason, UKCP09 wind data has been reviewed for the A1B scenario, as it is comparable to RCP8.5. This data indicates that there is currently no clear trend in the speed and frequency of winds that would make a meaningful difference to wind microclimate assessments. The small changes to the average wind speeds and frequency by 2080 remain substantially less than the typical year-to-year variability. It is considered that applying a 'worst-case' factor would introduce an unhelpful and unrealistic level of conservatism into the results, and hence wind speed is not a factor taken into account when considering the future climate condition.
- 50 The long term climate change projections will be kept under review to identify any potential clear trends to projected future changes in wind speed and frequency, that can then be considered within the assessments.

### SUMMARY

- 51 This note provides the future climate condition in South East England for the technical assessment of the Proposed Development, when assessing climate change. It has been developed to ensure consistency across the technical topics covered in the EIA.
- 52 It is the responsibility of the technical specialist for each topic in the Environmental Statement to follow the steps set out in this note when considering climate change in their technical assessment.
- 53 The data provided within this technical note is up to date as of 24 March 2022. It is acknowledged that more information will become available on the UKCP18 interface over time, and revisions of this note shall be provided as appropriate.

<sup>5</sup> Met Office Hadley Centre, 2018. 'UKCP18 Factsheet: Precipitation'  
<https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-factsheet-precipitation.pdf>  
 [accessed 09/03/22]

## Appendix A: Policy and Guidance

### **Policy and Guidance**

- EU Guidance on Integrating Climate Change and Biodiversity into the Environmental Impact Assessment (2013)<sup>6</sup>
- IEMA Environmental Impact Assessment Guide to Climate Change Resilience and Adaptation (2020)<sup>7</sup>
- UK Climate Change Risk Assessment Evidence Report (2017)<sup>8</sup>
- 2017 EIA Regulations (as amended)<sup>9</sup>

<sup>6</sup> European Union, 2013. *Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessments*

<sup>7</sup> Institute of Environmental Management and Assessment, (2020); *Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation*.

<sup>8</sup> HM Government, 2017. *UK Climate Change Risk Assessment 2017*

<sup>9</sup> Her Majesty's Stationery Office (HMSO) 2017. *The Town and Country Planning (Environmental Impact Assessment) (England) Regulations 2017 (amended in 2018 and 2020)*.