

Our ref: T4328



11th February 2020

Susanna Bedford
Principal Planning Officer
Reading Borough Council
Civic Offices
Bridge Street
Reading
RG1 2LU

Dear Susanna,

Request for a Scoping Opinion for the Reading Golf Course Development

We are writing to you pursuant to Regulation 15 of the Town and Country Planning (Environmental Impact Assessment) (England) Regulations 2017 (as amended) in connection with the development at Reading Golf Course.

It is the intention of our client, Fairfax Acquisitions Limited, to develop a scheme for a mixed-use residential led development in Emmer Green, Reading, on the site known as Reading Golf Course.

The Proposed Development falls within description at paragraph 10(b) of Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) (England) 2017 Regulations, given that the Proposed Development is expected to incorporate up to 275 new homes; medical space; associated open space and landscaping; vehicle parking, pedestrian, cycle and vehicular accesses, associated highway works; and associated infrastructure.

Due to the size, location, and nature of the proposals, the Applicant has decided to prepare a voluntary Environmental Impact Assessment (EIA) and submit an Environmental Statement.

This letter formally requests an EIA Scoping Opinion from Reading Borough Council.

Attached to this letter is the EIA Scoping Report which outlines the proposed scope of the EIA, including a description of those topics which are proposed for assessment in the EIA, and those that are deemed likely to be scoped out.

As you are aware, the EIA Regulations allow for the Local Planning Authority to adopt a Scoping Opinion within 5 weeks of receiving the request. Therefore, we would greatly appreciate your reply to our request by 18th March 2020.

Should you have any queries on any aspect of this letter or the EIA Scoping Report, please do not hesitate to contact us. We look forward to receiving confirmation of your receipt of one electronic copy of the report.

Yours sincerely,



James Sanders
Technical Director

cc. Andrew Smith (Fairfax Acquisitions), Jonathan Walton (Pegasus Group) and Mark Skelton (Temple Group)

Encl. Reading Golf Course Scoping Report

Report

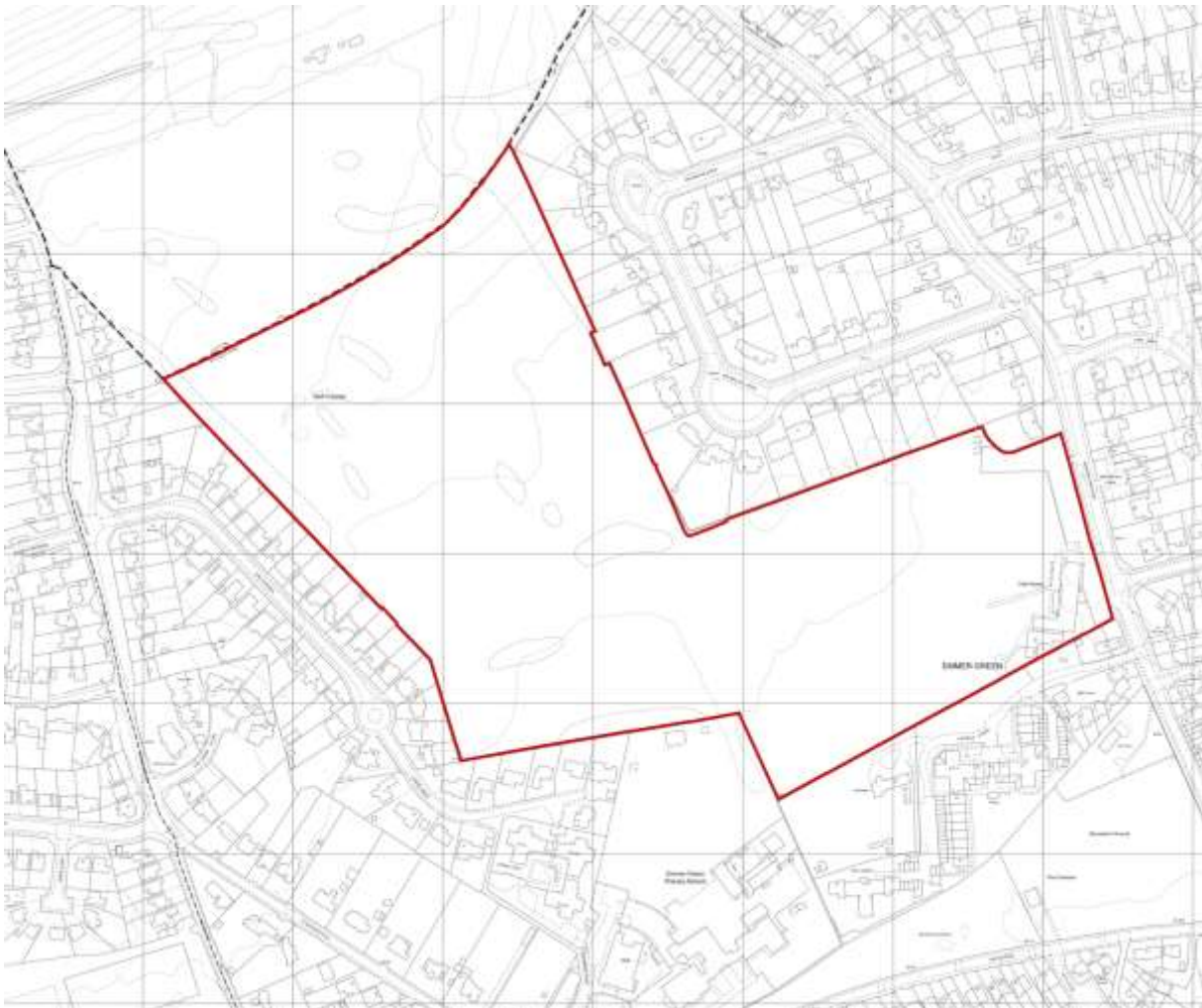
6th February 2020



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Report for – Fairfax Acquisitions Limited
Reading Golf Course, Emmer Green
EIA Scoping Report
Final



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Glossary of Terms

Term	Definition
Above Ordnance Datum (AOD)	Ordnance Datum is the vertical datum used by Ordnance Survey as the basis for deriving altitudes on maps. Topography may be described using the level in comparison or 'above' ordnance datum.
ADMS Dispersion model	Atmospheric Dispersion Modelling System used in the modelling of air quality data
Air pollutants	Amounts of foreign and / or natural substances occurring in the atmosphere that may result in adverse effects on humans, animals, vegetation and / or materials.
Air Quality Management Area (AQMA)	A defined area by virtue of Section 82(3) of the Environment Act 1995, where it appears that the air quality objectives prescribed under the UK Air Quality Strategy will not be achieved. In these areas, a Local Authority must designate Air Quality Management Areas, within which an Action Plan can be proposed to secure improvements in air quality so that prescribed air quality objectives can be achieved.
Air Quality Objectives (AQO)	Criteria for the assessment of local air quality expressed in terms of a concentration threshold to be achieved by a certain date. The thresholds are established at concentrations considered acceptable in the light of what is known about the effects of each pollutant on health or ecosystems.
Air quality sensitive receptors	People, property or designated sites for nature conservation that may be at risk from exposure to air pollutants that could potentially arise as a result of the Proposed Development.
Annual average daily total (AADT) flows	A daily traffic flow (24 hours), expressed as a mean daily flow across all 365 days of the year (AADT) in units of vehicles per hour.
Annual mean concentration	The average (mean) of the hourly pollutant concentrations measured or predicted for a one year period.
ATC	Automatic Traffic Counts
Baseline	Environmental conditions at specific periods of time, present on, or near a site, against which future changes may be measured or predicted.
BGS	British Geological Society
BRE	Building Research Establishment
CIL	Community Infrastructure Levy
CEMP	Construction Environmental Management Plan
COMAH	Control of Major Accident Hazards
Concentration (air quality)	The amount of a (polluting) substance in a volume (of air), typically expressed as a mass of pollutant per unit volume of air (for example, micrograms per cubic metre, µg/m ³) or a volume of gaseous pollutant per unit volume of air (parts per million, ppm).
Committed Schemes	Planning application of development schemes which have been approved by the relevant local authority.
Conservation Area	An area of special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance. Designation by the local authority often includes controls over the demolition of buildings; strengthened controls over minor development; and special provision for the protection of trees.
Construction	Within the ES this phrase refers to all construction works associated with the Proposed Development.
County of Berkshire	County within which the Application Site is situated
County of Oxfordshire	County bordering the northern edge of the Site
CRMP	Construction Resource Management Plan

Term	Definition
Cumulative effects	The summation of effects that result from changes caused by a development in conjunction with other reasonably foreseeable development that is either consented but not yet constructed or is in the process of seeking consent.
DEFRA	Department for Environment, Food and Rural Affairs
Design Manual for Roads and Bridges (DMRB)	A widely used methodology for Environmental Impact Assessment (Volume 11) which was used to assess some impacts of the Proposed Development with appropriate modifications.
Designated Heritage Asset	A World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area designated as such under the relevant legislation.
Desk Based Assessment (DBA)	Research based primarily on database and internet data gathering methods.
DfT	Department for Transport
Direct effect	An effect that is directly attributable to the Proposed Development.
Dust	Fine particles of solid materials in the size fraction 1µm - 75µm in diameter, as defined in BS 6069:1994 capable of being re-suspended in air and settling only slowly under the influence of gravity where it may cause nuisance.
EIA Regulations	The Town and Country Planning (Environmental Impact Assessment) Regulations 2017.
Emission	A material that is expelled or released to the environment. Usually applied to gaseous or odorous discharges to the atmosphere.
Enhancement	Landscape improvement through restoration, reconstruction or creation.
Environment Agency (EA)	The Environment Agency is an executive non-departmental public body, sponsored by the Department for Environment, Food and Rural Affairs which was established in 1996 to protect and improve the environment.
Environmental effect	The consequence of an impact on the environment.
Environmental impact	A physical or measurable change to the environment attributable to the Proposed Development.
Environmental Impact Assessment (EIA)	A systematic means of assessing a development project's likely significant environmental effects undertaken in accordance with EIA Regulations.
EIA Development	A development constitutes 'EIA Development' when it is determined that the Proposed Development requires EIA, or an ES is submitted to accompany the application.
Environmental Statement (ES)	A statement that includes the information that is reasonably required to assess the environmental effects of the development and which the applicant can, having regard to current knowledge and methods of assessment, reasonably be required to compile, but that includes at least the information referred to in the EIA Regulations.
EPUK	Environmental Protection UK
Exceedance	A period of time where the concentrations of a pollutant is greater than, or equal to, the appropriate Air Quality Objective.
Flood Zone	There are four classifications for flood zones as defined in the National Planning Policy Framework (NPPF): • Zone 1: Low probability (less than 1 in 1000 annual probability of river or sea flooding in any year); • Zone 2: Medium probability (between 1 in 100 and 1 in 1000 annual probability of river flooding or between 1 in 200 and 1 in 1000 annual probability of sea flooding in any year); • Zone 3a: High probability (1 in 100 or greater annual probability of river flooding in any year or 1 in 200 or greater annual probability of sea flooding in any given year); and • Zone 3b: High probability (functional flood plain. Essentially the 1 in 20 or greater annual probability of flooding in any given year).
GEA	Gross External Area

Term	Definition
Hectare (ha)	A unit of area (10,000 m ² / 2.471 acres).
Heritage	Historical or cultural associations.
Heritage Asset	A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage assets include designated heritage and assets identified by the local planning authority (including local listing).
Historic England (HE)	A public body which looks after England's historic environments
Historic Environment	All aspects of the environment resulting from the interaction between people and places through time including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora. Those elements of the historic environment that hold significance are called heritage assets.
IAQM	Institute for Air Quality Management
IEMA	Institute of Environmental Management and Assessment
Impact	A physical or measurable change to the environment attributable to the Proposed Development.
Indirect effects	Effects that result indirectly from the proposed project as a consequence of the direct effects, often occurring away from the site, or as a result of a sequence of interrelationships or a complex pathway. They may be separated by distance or time from the source of the effects.
Kilometre (km)	Measurement of distance (1000 metres)
LA	Local (Planning) Authority
Land Use	The primary use of land, including both rural and urban activities.
L10	The noise level just exceeded for 10% of the measurement period
L90	The noise level exceeded for 90% of the measurement period
Leq	'Equivalent Continuous Sound Level': The sound level in decibels equivalent to the total sound energy measured over a stated period of time
Light Duty Vehicle (LDV)	A vehicle type classification, including motorcycles, cars and light goods vehicles that is used by air dispersion models.
Listed Building	A building entered on the a list of buildings of special architectural or historic interest compiled by the Secretary of State for the guidance of local planning authorities in the exercise of their planning functions under the Planning (Listed Buildings and Conservation Areas) Act 1990 and the Town and Country Planning Act 1990. Buildings are graded as follows: • Grade I – Buildings of exceptional interest, • Grade II* - Particularly important buildings of more than special interest; and • Grade II – Buildings of special interest.
Lmax	'Maximum Sound Level' - Maximum Sound Level during a measurement period or a noise event
Local Nature Reserve (LNR)	A statutory designation made under Section 21 of the National Parks and Access to the Countryside Act 1949, and amended by Schedule 11 of the natural Environment and Rural Communities Act 2006, by principal local authorities.
Local Plan	A detailed district or borough-wide land-use plan, prepared and adopted by a district planning authority, which is part of the statutory development plan. Consists of a written statement which sets out the district planning authority's development control policies and proposals for land use and transport over a period of about 10 years and an Ordnance Survey-based proposals map.
Magnitude	A combination of the scale, extent and duration of an effect.
Methodology	The scientific approach and techniques used for the study
Mitigation Measures	Actions proposed to avoid, prevent, reduce and where possible offset significant adverse environmental effects arising from the whole or specific elements of a development.

Term	Definition
NE	Natural England
NGR	National Grid Reference
NHS	National Health Service
Nitrogen Oxides (NO _x)	Nitric oxide (NO) is mainly derived from road transport emissions and other combustion processes such as the electricity supply industry. NO is not considered to be harmful to health. However, once released to the atmosphere, NO is usually very rapidly oxidised to nitrogen dioxide (NO ₂), which is harmful to health. NO ₂ and NO are both oxides of nitrogen and together are referred to as nitrogen oxides.
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
NPPG	National Planning Policy Guidance
Operational	When the Proposed Development is constructed on the Application Site and is in or ready for use
OS	Ordinance Survey
Particulate Matter	Fine particles are composed of a wide range of materials arising from a variety of sources including combustion sources (mainly road traffic), and coarse particles, suspended soils and dust from construction work. Particles are measured in a number of different size fractions according to their mean aero-dynamic diameter. Most monitoring is currently focussed on PM ₁₀ (less than 10 microns in aero-dynamic diameter), but the finer fractions such as PM _{2.5} (less than 2.5 microns in aero-dynamic diameter) is becoming of increasing interest in terms of health effects.
PEA	Preliminary Ecological Assessment
PERS/CERS audit	Pedestrian Environment Review System / Cyclist Environment Review System
Phase 1 Habitat Survey	An ecological survey technique that provides a standardised system to record vegetation and wildlife habitats. It enables a basic assessment of habitat type and its potential importance for nature conservation.
Planning Policy Guidance (PPG)	There are a series of PPGs covering various aspects of the planning system prepared by Central Government and due weight must be given to them when considering individual planning applications as they are material factors in their determination. They are listed on the Department for Communities and Local Government website. These have mainly been superseded by the National Planning Policy Framework (March 2012) and the accompanying Planning Practice Guidance.
PM ₁₀	Particulate matter with a mean aerodynamic diameter of less than 10µm.
Post-medieval	AD 1500 – present.
Pre-Historic	The period of human history preceding written records.
Ramsar	A wetland site designated of international importance under the Ramsar Convention.
Reading Borough Council (RBC)	Determining authority for the planning application
Receptor	A component of the natural, created or built environment such as humans, water, air, a building, or a plant that has the potential to be affected by the Proposed Development.
Registered Historic Parks and Gardens	Parks and Gardens of special historic interest in England. Registered parks and gardens are designated heritage assets and subject to the planning policies within the NPPF.
Residual	When used to describe archaeological artefacts, this means not in-situ, i.e. Found outside the context in which it was originally deposited.
Residual Effects	Those effects of a development that cannot be mitigated following implementation of mitigation proposals.
Scheduled Monument	An ancient monument or archaeological deposits designated by the Secretary of State as a 'Scheduled Ancient Monument' and protected under the Ancient Monuments Act.

Term	Definition
Scoping	An exercise undertaken to determine the topics to be addressed within the Environmental Statement.
Sensitivity	A term applied to specific receptors, combining judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value related to that receptor.
Setting of a heritage asset	The surroundings in which (the asset) is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.
SFRA (or FRA)	Strategic Flood Risk Assessment
Significance (effect)	A measure of the importance or gravity of the environmental effect defined by significance criteria specific to the environmental topic.
(The) Site	The Site for which the planning application is submitted.
Site of Special Scientific Interest (SSSI)	A site statutorily designated under the Wildlife and Countryside Act 1981 (as amended) as being of special nature conservation or geological interest. SSSIs include wildlife habitats, geological features and landforms.
South Oxfordshire District Council (SODC)	Local Authority for the South Oxfordshire District which borders the northern edge of the Application Site
Special Area of Conservation (SAC)	A site designated under the EU's Habitats Directive which is transposed into UK law by the Conservation of Habitats and Species Regulations 2017.
Special Protection Area (SPA)	A designation under the European Union Directive on the Conservation of Wild Birds. Under the Directive, Member States of the European Union (EU) have a duty to safeguard the habitats of migratory birds and certain particularly threatened birds.
SPG	Supplementary Planning Guidance
Study area	Defined area surrounding the proposed development in which archaeological data is collected and analysed in order to set the site into its archaeological and historical context.
Susceptibility	The ability of a defined landscape or visual receptor to accommodate the specific proposed development without undue negative consequences.
Sustainable Drainage System (SuDS)	Sustainable management practices designed to control the rate and quality of surface water runoff into receiving waters, for example the use of swales and wetlands as buffers, as opposed to conventional drainage practices.
Temporary or permanent effects	Environmental effects may be considered as temporary (limited duration and reversible) or permanent (irreversible). Some development may also be reversible.
Transport Assessment (TA)	A quantitative assessment of transport effects of construction and completed development phases of the proposed development.
TWUL	Thames Water Utilities Limited
Type or Nature of Effect	Whether an effect is direct or indirect, temporary or permanent, positive (beneficial), neutral or negative (adverse) or cumulative.
UKPN	United Kingdom Power Network
Visual receptors	Individuals and/or defined groups of people who have the potential to be affected by a proposal.
Visualisation	A computer simulation, photomontage or other technique to illustrate the appearance of a proposed development.
Worst-case situation/scenario	Principle applied where the environmental effects may vary, for example, seasonably to ensure that the most severe potential effect is assessed.
WRAP	Waste and Resources Action Programme
µg/m ³	Micrograms per cubic metre of air: A measure of concentration in terms of mass per unit volume. A concentration of 1 µg/m ³ means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant).

1.0 Introduction

1.1 Background

- 1.1.1 Fairfax Acquisitions Ltd, (“the Applicant”), intends to submit an outline planning application for a residential led mixed-use development (the “Proposed Development”) in Emmer Green, Reading, on an area of land known as Reading Golf Course, (the “Site”). The determining authority for the application is Reading Borough Council (“RBC”).
- 1.1.2 The Site is 12.15 hectares (ha), located at Ordnance Survey (OS) National Grid Reference (NGR) SU715767. The Site boundary is shown in **Figure 1.1**.
- 1.1.3 The Proposed Development will provide for a residential led development comprising of residential (C3 use class) and medical centre (D1 use class), associated open space and landscaping, vehicle parking; pedestrian, cycle and vehicular accesses, associated highway works; and associated infrastructure. The Proposed Development will comprise of up to 275 residential homes (of a range of unit sizes and tenures). In addition, a medical centre of approximately 850 m² is proposed.
- 1.1.4 The Proposed Development falls within the classification of Schedule 2, 10 (b) (Infrastructure Projects – Urban Development Projects) of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (the “EIA Regulations”)¹. Given the scale of the Proposed Development exceeds the thresholds set out in Schedule 2 of the EIA Regulations: 10b Urban Development Projects, and further to pre-application discussions with the Council, it is considered that there is some potential for significant effects to arise, and therefore a decision has been taken to progress the scheme as ‘EIA Development’ under the EIA Regulations. Therefore, an Environmental Statement (“ES”) will be prepared and submitted to accompany the planning application.
- 1.1.5 Temple Group Ltd (“Temple”) have been commissioned by the Applicant to prepare an EIA Scoping Request in line with the requirements of the EIA Regulations, to support this request this EIA Scoping Report has been prepared.

1.2 Purpose of the Scoping Report

- 1.2.1 Scoping is the process of determining the scope and level of detail of information to be provided in the ES. This forms an early stage in the EIA process enabling the activity of reviewing any environmental studies undertaken to date and identifying those environmental aspects that may be significantly affected / impacted by a proposed development.
- 1.2.2 This Scoping Report describes the scope of the technical studies to be undertaken in order to provide a comprehensive assessment of significant effects likely to arise and to determine suitable mitigation measures for the construction and operation phases of the Proposed Development. The Scoping Report will outline the proposed scope of the Reading Golf Course EIA, providing a mechanism for consulting on and agreeing the content and

¹ The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (SI 2017/571).

methodology of the subsequent EIA with RBC officers, statutory consultees and other stakeholders.

1.2.3 In the following sections, this report:

- summarises the characteristics of the Site and the Proposed Development;
- sets out the overall approach to the EIA;
- identifies the environmental topics to be assessed and those that do not need to be assessed because they are unlikely to have significant environmental effects i.e. can be 'scoped out';
- for each topic, outlines the key issues anticipated at this stage; and
- for each topic, outlines the assessment methodology for predicting environmental impacts.

1.2.4 This Scoping Report has been prepared in line with Regulation 15 of the EIA Regulations.

1.3 Structure of the Scoping Report

1.3.1 This Scoping Report is structured as follows:

- Section 1 introduces the requirement for EIA and scoping process;
- Section 2 describes the Site context and key receptors;
- Section 3 describes the Proposed Development;
- Section 4 summarises the consultation strategy;
- Section 5 outlines the overall assessment methodology and approach to the EIA;
- Section 6 presents the key environmental topics to be addressed by the EIA;
- Section 7 summarises the issues scoped out;
- Section 8 provides proposed structure of the ES; and
- Section 9 provides an overall summary and conclusions to the report.

Figure 1.1: Site Boundary



Project: Reading Golf Course Project
Client: Fairfax Acquisitions Ltd

Reading Golf Course - Study Area Map



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Legend
 Site Boundary
 District Councils



1.4 The Need for an EIA

- 1.4.1 EIA is a systematic process during which potential significant environmental effects from a proposed development project are identified and assessed, and the scope for minimising these is presented to the relevant decision maker (in the EU Directives, the 'competent authority') in an ES accompanying a planning application.
- 1.4.2 The aim of the EIA is to provide the competent authority with the information necessary to consider potential significant environmental effects (both negative and positive), to ascertain whether these are acceptable, and, where appropriate, to secure mitigation measures to minimise negative impacts prior to granting relevant consents.
- 1.4.3 The requirement for an EIA is either mandatory or conditional, depending on the classification of the development project and in the latter case. This is based, in turn, on the likelihood of significant effects arising. Under the EIA Regulations, an ES must be submitted with planning applications for "EIA Development". EIA Development may be:
- Schedule 1 Development (development of a description set out at Schedule 1); and
 - Schedule 2 Development likely to have significant effects on the environment by virtue of factors such as its nature, size or location (where Schedule 2 Development is development of a description mentioned in column 1 of Schedule 2 where the relevant thresholds in Column 2 are exceeded (or any part of the development is in a "sensitive area" (e.g. AONBs, National Parks)).
- 1.4.4 Schedule 1 Development always requires EIA. Schedule 2 development requires EIA only if it is likely to have significant effects on the environment.
- 1.4.5 Schedule 3 of the EIA Regulations describes the criteria that must be taken into account in determining whether a development, which falls within the size threshold applicable to Schedule 2 Development, is likely to have significant impacts and hence should be subject to EIA. These include:
- the characteristics of the development;
 - the environmental sensitivity of the location; and
 - the characteristics of the potential impact.
- 1.4.6 Where it is determined that a proposed development requires an EIA or where an ES is submitted, the application is known as an 'EIA Development'.
- 1.4.7 The Proposed Development is not considered to constitute a Schedule 1 Development.
- 1.4.8 The Proposed Development falls within a description of development listed within Schedule 2 of the EIA Regulations: 10b Urban Development Projects. The thresholds for developments under 10b are:
- the development includes more than 1 hectare of urban development which is not dwellinghouse development; or
 - the development includes more than 150 dwellings; or
 - the overall area of the development exceeds 5 ha.

The Proposed Development and Site:

- Includes approximately 850 m² of non-residential floorspace, and therefore the Proposed Development does not exceed the first threshold;
- Includes provision for up to 275 residential dwellings, and therefore the Proposed Development exceeds the second threshold; and
- Includes an overall area of development of approximately 12.15 ha, and therefore the Proposed Development exceeds the third threshold.

1.4.9 The Applicant recognises that the Proposed Development will constitute 'EIA Development' under the EIA Regulations and has committed to undertaking an EIA for the Proposed Development, therefore an ES will be prepared to report the findings of the EIA.

1.5 The Environmental Statement

1.5.1 The EIA Regulations require that an EIA be undertaken for the Proposed Development, and that an ES identifying impacts and associated mitigation measures must be provided for EIA developments to accompany the planning application.

1.5.2 For the purposes of the EIA Regulations, Regulation 18 (3) defines an environmental statement as:

"...a statement which includes at least:

- (a) a description of the proposed development comprising information on the site, design, size and other relevant features of the development;*
- (b) a description of the likely significant effects of the proposed development on the environment;*
- (c) a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;*
- (d) a description of the reasonable alternatives studied by the developer, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment;*
- (e) a non-technical summary of the information referred to in sub-paragraphs (a) to (d); and*
- (f) any additional information specified in Schedule 4 relevant to the specific characteristics of the particular development or type of development and to the environmental features likely to be significantly affected.*

1.5.3 Temple has been commissioned by the Applicant to prepare the EIA in line with the EIA Regulations and the other relevant EIA guidance and to produce the ES which will be submitted with the application.

1.5.4 The Applicant will provide the necessary information to enable preparation of the ES for the EIA. The ES will ensure that sufficient information is provided to enable the Local Planning Authority (RBC) to make a decision about the planning application with due regard to and in the knowledge of any likely significant environmental effects.

- 1.5.5 Once submitted, the competent authority responsible for authorising the relevant development should publicise the availability of the ES (and any related additional information) to potentially interested parties, such as statutory and non-statutory consultees and the public, so as to enable their opinions on the project and ES to be represented to the planning process.

1.6 The EIA Project Team

- 1.6.1 The EIA Regulations 2017, state in Regulation 18(5) *“In order to ensure the completeness and quality of the environmental statement-*
- (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”.*
- 1.6.2 In accordance with Regulation 18(5) (a & b), it is confirmed that this Scoping Report has been prepared, and the EIA will be undertaken and prepared, by competent experts from the below organisations. Their relevant expertise and qualifications will be stated within the Environmental Statement (ES).
- 1.6.3 Temple is one of the UK’s leading independent infrastructure and property consultancies, specialising in environment, planning and sustainability. Temple are a founding member of the Institute of Environmental Management and Assessment (IEMA) EIA Quality Mark and recognised provider of EIA services on some of the UK’s most high-profile development schemes. Temple will be responsible for the coordination and management of the EIA and the preparation of the ES.
- 1.6.4 The EIA project team is comprised of the organisations identified in **Table 1.1**

Table 1.1: The Proposed Project Team

Project Role	Organisation
The Applicant	Fairfax Acquisitions Limited
Architect	Woods Hardwick
Planning Consultant	Pegasus Group
Landscape Architect, Landscape and Visual Consultant	Fabrik UK
EIA Consultant, Noise and Vibration, Socio economics	Temple
Water Resources and Ground Conditions Consultant	Temple (Stantec)
Archaeology and Built Heritage Consultant	Archaeology South East
Ecology	The Ecology Co-op
Arboriculture	Arbortrack
Transport and Air Quality Consultant	Stantec

2.0 Description of Context and Key Receptors

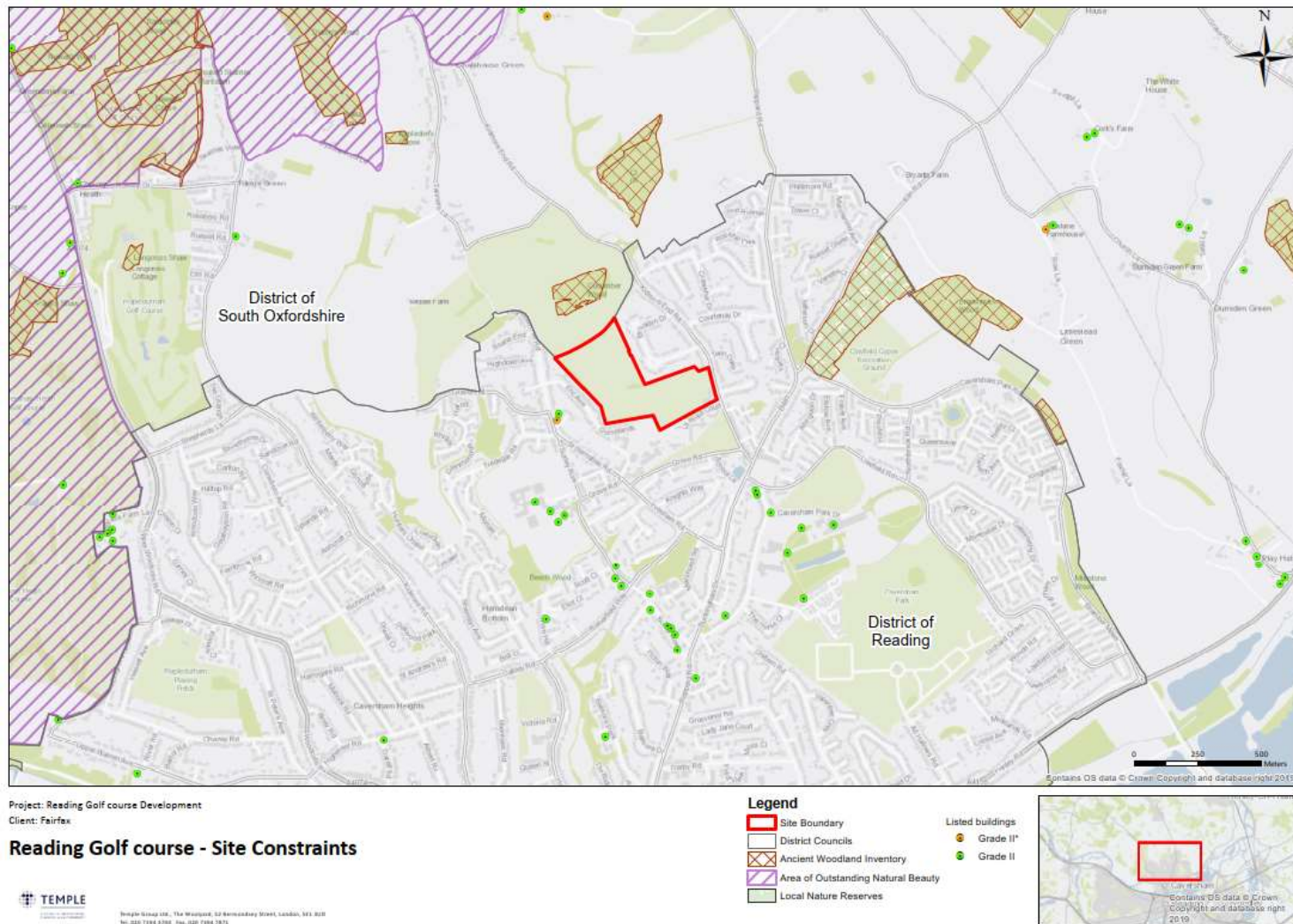
2.1 Site Description

- 2.1.1 The Site is approximately 12.15 ha and is centred at Ordnance Survey (OS) National Grid Reference (NGR) SU715767. The Site is currently an operational golf course which has been in use since the early 1900s. The only permanent building on the Site is the existing clubhouse which is located adjacent to the far eastern boundary of the Site.
- 2.1.2 The Site forms part of the southern section of Reading Golf Course and occupies the area wholly within Reading Borough Council administrative area. It is bound by the wider golf course to the north (within South Oxfordshire District Council administrative area); Kidmore End Road, with dwellings on Chalgrove Way and beyond to the east; Emmer Green Primary School, Emmer Green Play Fields and a retirement home on Lyefield Court to the south; and dwellings along Eric Avenue and Highdown Hill Road to the west. The eastern section of the Site is identified as a proposed residential allocation site in the emerging Local Plan.

2.2 Site Context

- 2.2.1 The location of the Site in its wider geographical context can be seen in **Figure 1.1**. The Site context is shown in **Figure 2.1**.
- 2.2.2 The predominantly residential area of Emmer Green is the northern most suburb of Reading, situated approximately 3 km to the north of the city. Beyond Emmer Green to the north is the Chiltern Hills Area of Outstanding Natural Beauty (AONB), and to the south is the suburb of Caversham.
- 2.2.3 Peppard Road and Emmer Green Road provide access northwards to Sonning Common and Henley on Thames. Peppard Road also extends southwards towards Reading. The 23, 24 and 25 bus routes serve the area surrounding the Site, providing access to Reading, Caversham and the wider Emmer Green area.
- 2.2.4 The main sources of noise incident on the Site, and other receptors nearby, are road traffic from the surrounding road network and occasional overhead aircraft. The Site is not located within an Air Quality Management Area (AQMA). The nearest AQMA to the Site is the Reading AQMA for NO₂, approximately 1.7 km to the south.
- 2.2.5 The Site is within a SSSI Impact Risk Zone - the Site is circled by 7 SSSIs and a SAC, however all of these are at least 5 km away from the Site boundary. Reading Golf Club (east) Local Wildlife Site (LWS) exists 100 m to the north of the Site within the wider landholding of Reading Golf Course. Areas of Ancient Woodland and Replanted Woodland are also present in the landscape to the north (namely Cucumber Wood).
- 2.2.6 There are no designated heritage assets within the Site, although there are two grade listed buildings in close proximity to the south of the Site, approximately 200 m west of the southern area, along Highdown Hill Road. There are 4 further grade II listed buildings within a 1 km radius.
- 2.2.7 There are no scheduled monuments on or near the Site, and there are no known non-designated heritage assets within the Site. The Site is not located in an Archaeological Priority Area, nor near any areas of Archaeological Potential.

Figure 2.1: Site Constraints



- 2.2.8 The Site is classified as urban land and lies in an area of low flood risk, within Flood Zone 1. No water courses are present on or near the Site. However, there are areas susceptible to surface water flooding. In particular, an area of high risk towards the centre of the Site, and a low flood risk flow path running NE/SW through the north of the Site².
- 2.2.9 The key receptors which are considered potentially sensitive to the construction and operation of the Proposed Development are identified and are summarised in **Table 2.2**.

Table 2.2: Potential Key Receptors

Category	Potential Sensitive Receptor / Land Use
Residential	Surrounding residential areas; Users of the Site and the surrounding roads / footpaths / cycleways.
Commercial	Commercial operations associated with the medical centre.
Community	Schools (primary schools within 2km and secondary schools within 4km): For instance, Emmer Green Primary School; The Hill Primary School; Caversham Park Primary School; Highdown School and Sixth Form Centre; Health facilities (GP surgeries and NHS dentists within 1 km road travel distance to the Site); Community and Leisure Facilities within 1km of the Site; and Former users of the Reading Golf Club.
Ecological	Trees located within the Site; Potential bats within the Site; Potential for protected birds within the Site; Potential for invertebrates within the Site; Reading Golf Club LWS; Clayfield Copse Local Nature Reserve; and Tree Preservation Order 4/18 (type A1) for an area of trees within the Site.
Archaeological assets	Potential archaeological remains (buried assets).
Heritage assets	There are no designated or non-designated built (above ground) heritage assets within the site itself; Listed buildings close to the Site: • Old Grove House (II*); and, • Barn to the Northeast of Old Grove House (II).
Landscape and views	Local landscape character; Views towards the Site; and, Designated views and landmarks.
Utilities	Existing and proposed utilities within the Site such as Thames Water infrastructure (sewers, water mains, existing drainage) and electrical utilities.

² Environment Agency Flood Risk Mapping – Extent of flooding from surface water <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map?easting=471916&northing=176772&address=310062734&map=SurfaceWater>

3.0 Policy Context

3.1 Planning Context

- 3.1.1 The EIA will consider legislation and relevant national and local planning policy guidance as summarised below.

3.2 National Planning Policy

- 3.2.1 The ES will have regard to the National Planning Policy Framework (NPPF)³, which 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.
- 3.2.2 The NPPF should be read alongside the National Planning Practice Guidance (NPPG), which aims to make planning guidance more accessible, and to ensure that the guidance is kept up to date.

3.3 Local Planning Policy

- 3.3.1 Key local planning policy documents make up RBC's Development Plan that will be considered throughout preparation of the ES.
- 3.3.2 A new Reading Borough Local Plan⁴ was adopted on 4th November 2019. This document sets out planning policies for development in Reading up to 2036, and is the main consideration in deciding planning applications.
- 3.3.3 The Local Plan (2019) replaces previous development plans – the Core Strategy, Reading Central Area Action Plan and Sites and Detailed Policies Document – which no longer apply.
- 3.3.4 The Local Plan sets out RBC's spatial strategy to 2036, setting out general policies that are applicable to development across the whole of Reading.
- 3.3.5 Area specific sections provide more detailed policies which build on general principles. It sets out how and when development should be implemented across Central Reading, South Reading, West Reading and Tilehurst, Caversham and Emmer Green and East Reading.
- 3.3.6 The new Reading Borough Local Plan umbrellas previous development plans and is the main consideration in the application of the Proposed Development. As such, the ES will have regard to the policies contained within the Local Plan 2036 as relevant.

3.4 Other Policy and Guidance Considerations

- 3.4.1 There are a number of supporting policy and guidance documents that are topic specific and will be considered on a topic by topic basis within the ES.

³ DCLG (March 2012): National Planning and Policy Framework

⁴ Reading Borough Council (2019) Local Plan https://www.reading.gov.uk/media/10410/Reading-Borough-Council-Local-Plan/pdf/Local_Plan_Adopted_November_2019.pdf

3.5 Scheme Description

The Proposed Development will comprise an outline application (with all matters reserved other than access) for a residential led scheme of up to 275 new residential homes (C3) in a mixture of 1, 2, 3 and 4-bed houses and flats; and approximately 850 m² of non-residential floorspace (D1) offered for use as a health centre; with associated landscaping, highways provision and infrastructure provision, across an overall area of 12.15 ha

Construction

- 3.5.1 It is anticipated that the construction of the Proposed Development will take place in one phase over a period of approximately 4 years, subject to reserved matters approvals.
- 3.5.2 At this stage limited detail is available on the proposed construction methodology; however timescales and construction methods are likely to be comparable to those of any similar scale rural-urban fringe development. As such, the stages are likely to include any necessary grading / pouring of foundations, construction of the building structures, external fit-out, internal-fit out and landscaping. The ES will include a chapter describing the proposed construction methodology and construction timescales.
- 3.5.3 A framework Construction Environmental Management Plan (CEMP) setting out construction related mitigation measures will be prepared, including a commitment to the Considerate Contractors Scheme.

Operation

- 3.5.4 Once the Proposed Development is fully operational, a number of the areas will be publicly accessible including the medical centre and open and play spaces within the Proposed Development.

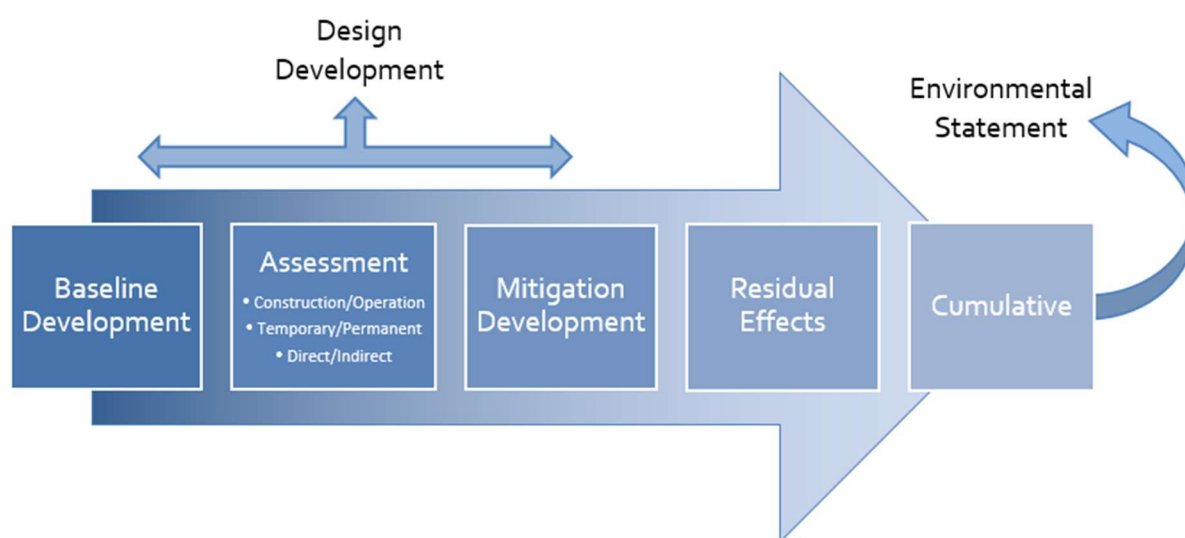
4.0 Consultation and Engagement

- 4.1.1 The process of consultation is important to the development of a comprehensive and balanced masterplan for the scheme and assist in informing the scope of the ES. Views of the interested and affected parties serve to focus the environmental studies and to identify specific issues that require further investigation. Consultation is an ongoing process as part of the design development.
- 4.1.2 Information and views are being sought from a range of statutory and non-statutory bodies through public consultation and the intention is for consultees to be involved in the evolution of the design and assessment of environmental impacts.
- 4.1.3 Key consultees are considered to include, but are not limited to:
- RBC (including departments such as Highways and Environmental Health);
 - Adjacent local authorities such as South Oxfordshire District Council (SODC);
 - Environment Agency (EA);
 - Historic England (HE);
 - Natural England (NE);
 - National Grid (NG) and other Statutory Utility providers (including Thames Water Utilities Limited (TWUL), UK Power Networks (UKPN);
 - Local residents and local community groups (to be agreed with the Planning Authority); and
 - Important neighbouring occupiers comprised of local business and industry.
- 4.1.4 A programme of community consultation will be undertaken by the project team who will continue to engage with third parties and stakeholders throughout the planning process.

5.0 EIA Approach and Methodology

- 5.1.1 The general approach to assessment will establish a baseline for each topic. Receptors and resources will be identified, and their sensitivity classified. The potential impacts of the Proposed Development on these receptors and resources will be assessed, for the construction and operation of the Proposed Development. Subsequent mitigation of impacts will be considered, along with the identification of likely cumulative and residual effects.
- 5.1.2 The process that the EIA will take is shown in **Figure 5.1** below:

Figure 5.1: EIA Assessment Process



5.2 Baseline Development

- 5.2.1 The EIA will primarily describe environmental impacts in terms of the extent of likely change to the baseline environment. The baseline represents the environmental conditions of a site at the time of the assessment.

Spatial Scope

- 5.2.2 The redline boundary of the Proposed Development is shown in **Figure 1.1**. Assessment study areas vary by topic areas, according to the baseline information and the nature of likely impacts. These are outlined within each technical chapter.
- 5.2.3 An illustrative scheme has been developed to demonstrate a more likely scenario in which the Proposed Development could be delivered and is utilised for assessment purposes to present a reasonable worst-case scenario where appropriate.
- 5.2.4 There are a number of technical aspects of the EIA where scale and layout are of particular relevance for the purposes of the assessment of environmental impacts. These are as follows: Air Quality, Noise, Socio Economics, Traffic and Transport, Landscape and Visual Impact, and Built Heritage, when considering these topic areas, the illustrative scheme has been used for the basis of the assessment.

Temporal Scope

- 5.2.5 The ES will assess the environmental impacts of the Proposed Development during both construction and operation. The assessment compares the current and future baseline conditions (as appropriate) to those conditions expected with the construction and operation of the Proposed Development. For the purposes of the assessment it is assumed that construction will begin in the autumn of 2021 (subject to reserved matters approvals and securing planning consent) and will take approximately 4 years, completing in 2025.
- 5.2.6 Whilst construction will not be carried out in phases, it is anticipated residential homes will be brought forward for occupancy as and when they are complete. This means 'operational' residential receptors (the tenants) could be on-site from 2022 when the first houses are expected to be finalised and sold.
- 5.2.7 The assessment considers the totality of the Proposed Development from construction through to operation, using the following assessment scenarios:
- existing baseline;
 - future baseline (without Proposed Development);
 - assessment of peak construction effects; and
 - assessment of operational effects (during construction with concurrent construction and operation, all construction complete, the Proposed Development fully occupied and operational).

5.3 Assessment of Effects and Defining Significance

Prediction of impacts

- 5.3.1 Once impacts have been identified, prediction methods will be used to identify the magnitude and nature of changes to the environment resulting from the project, compared to the situation without the project (i.e. the baseline conditions). The relative significance of these changes will then be defined using thresholds and criteria, as appropriate.
- 5.3.2 There are a number of methods available for predicting the effects of the Proposed Development, some of which are qualitative and quantitative. Quantitative methods predict measurable changes resulting from a development, and hence rely on the ability to measure and/or model baseline conditions accurately, for example the concentration of air pollutants. In comparison, qualitative techniques rely on expert opinion and professional judgement. In these circumstances, a clear distinction will be made between matters of fact and professional judgement.

Evaluation and assessment of significance of impacts

- 5.3.3 The definition of significance thresholds and criteria will take account of the:
- value / sensitivity of the resource (international, national, regional and local level importance);
 - magnitude of the impact (for example the number of receptors);
 - duration of the impact; and

- reversibility of the effect.

5.3.4 Typically, the criteria will be developed from a matrix approach comprising the value / sensitivity of the resource on one axis and the magnitude of the predicted effects on the other. The classification of effects is shown in **Table 5.1**.

Table 5.1: Classification of Effects

	Magnitude of Impact		
Value / Sensitivity	Minor	Moderate	Major
Negligible	Negligible	Negligible	Negligible
Low	Minor-negligible	Minor	Moderate-minor
Medium	Minor	Moderate-minor	Major-moderate
High	Moderate-minor	Major-moderate	Major

5.3.5 The classification of the effect will also consider the following descriptors:

- Adverse, neutral or beneficial;
- Permanent or temporary;
- Duration / frequency or likelihood; or
- Direct or indirect.

5.3.6 The duration of the effect will be assessed to be either temporary or permanent where:

- Temporary (e.g. demolition and construction phase);
- Short term (<5 years);
- Medium term (5 – 10 years);
- Long term (>10 years); or
- Permanent (e.g. once the Proposed Development is completed and operational).

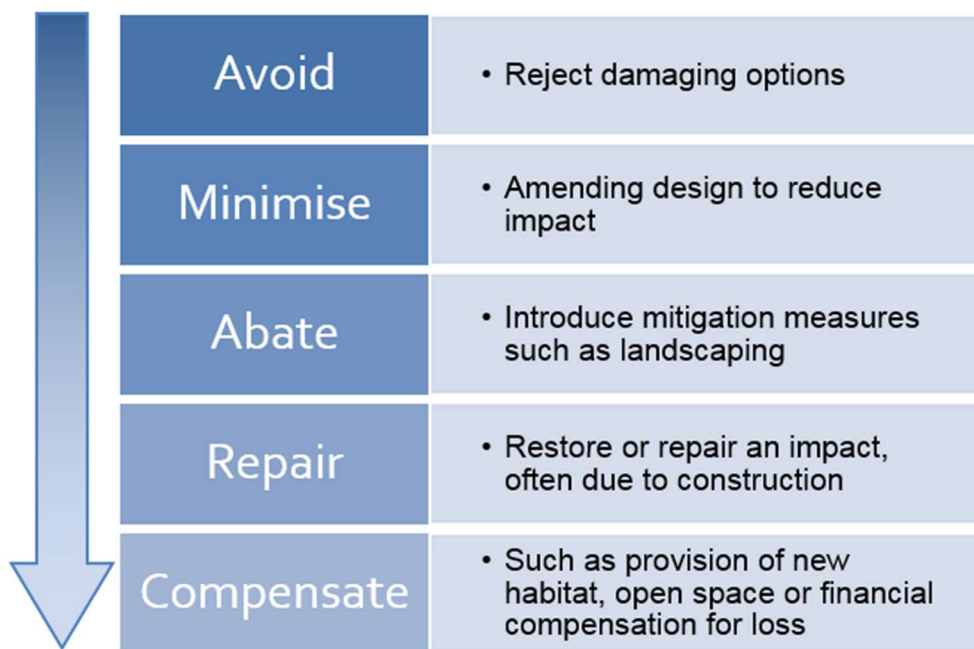
Mitigation Development

5.3.7 During the EIA, there will be an on-going design process, looking at ways to best mitigate any likely environmental effects through amendments to the design of the Proposed Development. This will constitute embedded design mitigation and where this has occurred it will be identified within the relevant topic chapters within the ES.

5.3.8 Further assessment mitigation measures may be introduced where adverse environmental impacts remain following the culmination of the design process and, in these instances, further mitigation will be proposed where feasible within the relevant technical chapters. A practical example of this (for illustrative purposes only) could be that all dwellings are designed to fulfil certain requirements in terms of noise insulation (embedded design mitigation); however, the noise assessment may identify, post outputs from modelling, that a specific dwelling requires enhanced glazing specification (additional assessment mitigation).

- 5.3.9 Proposals for mitigation will follow the following hierarchy set out in **Figure 5.2**. Where beneficial effects and or opportunities for enhancement and betterment are identified, measures to maximise these will also be proposed.
- 5.3.10 Design mitigation will include compliance with legislation, industry good practice, Best Practicable Measure (BPM) and construction environmental management procedures identified in the draft CEMP. Design features that have been adapted to reduce or prevent impacts will be described.

Figure 5.2: Mitigation Hierarchy



Residual Effects

- 5.3.11 The residual effects will be assessed using the same system as described above taking account of any assessment mitigation proposals. Generally, based on the described classification and professional judgement, effects considered to be moderate or major will be deemed significant, and those considered minor, or negligible, will be deemed not significant.
- 5.3.12 Residual effects will be presented within each individual topic chapter and summarised in *Chapter 14 Residual Effects and Conclusions*.

Cumulative Effects

- 5.3.13 The EIA Regulations specify that an ES should include “a description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative...effects.”
- 5.3.14 Cumulative effects are the combined effects of several development schemes (in conjunction with the Proposed Development) which may, on an individual basis be significant but, cumulatively, have a significant effect.

- 5.3.15 Two types of cumulative effects will be considered in the assessment. These include Type 1, intra-project effects (or effect interactions) which are the combined effects of individual topic impacts on a particular sensitive receptor, and Type 2, inter-project effects which are the combined effects of different development projects, alongside the Proposed Development.
- 5.3.16 Type 1 cumulative effects will be addressed in a separate ES chapter. Type 2 cumulative effects will be assessed in each individual topic chapter. Cumulative effects during both the construction and operational phases of the Proposed Development will be assessed.
- 5.3.17 The EIA will consider Type 2 cumulative effects from schemes of an appropriate scale and spatial extent in the context of the development.
- 5.3.18 Applying the EIA thresholds for what is more likely to be considered significant development schemes and therefore give rise to cumulative effects, schemes which are likely to produce an uplift of more than 10,000 m² (GEA) of mixed use floorspace or over 150 residential units have been considered within a 1 km radius of the Site. These schemes include:
- approved but incomplete projects (i.e. unimplemented or under construction);
 - projects for which an application has been made and which are under consideration by the consenting authorities; and
 - for certain topics (e.g. visual impact) it may be appropriate to include developments outside of this area of search, should those projects individual characteristics warrant it (e.g. a particularly tall building). Additional schemes for each topic will be identified within the individual topic chapters.
- 5.3.19 An initial planning search of a 1 km radius surrounding the Site has not identified any 'major development' likely to generate significant inter project effects.
- 5.3.20 RBC officers are invited to identify any additional committed or consented major development officers believe are likely to require consideration within the ES as a result of likely significant inter-project environmental effects.

5.4 Demolition and Construction

- 5.4.1 The ES will include a chapter describing the proposed construction methodology, the likely phasing of the Proposed Development and the proposed construction timescales. A framework CEMP will also be provided to accompany the application, setting out construction related mitigation measures that will be prepared.

5.5 Consideration of Alternatives

- 5.5.1 The ES will include consideration of the main alternatives considered during the design process, such as the location and types of land uses and layouts. The rationale for the selection of the preferred option will also be included within the ES.

6.0 Environmental Topics

6.1 Socio-Economics

Summary of Baseline Conditions

- 6.1.1 The Proposed Development is located within the Peppard ward of Reading Borough Council (RBC). The Site occupies land at Reading Golf Course, off Kidmore End Road in Emmer Green and between residential suburbs in Emmer Green and associated amenities.
- 6.1.2 The Reading Borough Local Plan was adopted in November 2019. The Local Plan for Reading is the document that contains the policies for how Reading will develop up to 2036. The Site is part of an ongoing wider policy consideration that looks to provide residential uses (on part of the Golf Club) dependent on ensuring the future use of the remaining land for golf, in line with the need to protect important sports and leisure facilities set out in Policy RL6 and CA1b (within Reading Borough Council's adopted Local Plan). This site aims to deliver a new medical centre and up to 2750 new dwellings which is approximately 40% of RBC's annual requirement (689 dwellings per annum) and 1.76% of RBC's total housing requirement over the plan period (15,847 dwellings between 2013-2031).
- 6.1.3 There are 20 lower super output area (LSOAs) in the Study Area, with the Site being located amongst the 10% most affluent areas in England. Out of the other 19 LSOAs within the Study Area, two LSOAs are amongst the top 40% most deprived areas in England. The remaining 17 LSOAs are amongst the 50% most affluent areas within England.
- 6.1.4 Furthermore, 10 out of the 20 LSOA within the Study Area (approximately half of the LSOAs) are amongst the 10% most affluent LSOAs in England according to the 2019 Index of Multiple Deprivation (IMD). Finally, the average household size in this Study Area was 2.46 compared to a Borough average of 2.48, according to the 2011 Census.

Housing

- 6.1.5 According to the 2011 Census, the proportion of households with larger bedrooms (4+ bedroom houses) was higher across the Study Area (29%) compared to Reading Borough and the South East (17% and 23%) respectively. In retrospect, the Study Area has a lower proportion of smaller properties (1 and 2 bedrooms) in comparison to RBC and South East region as demonstrated below in **Table 6.1**.

Table 6.1 Households by Bedroom Sizes

Bedroom Sizes	Study Area	RBC	South East	England
No Bedrooms	0%	0%	0%	0%
1 bedroom	7%	16%	12%	12%
2 bedrooms	21%	29%	26%	28%
3 bedrooms	43%	38%	39%	41%
4 bedrooms	22%	12%	17%	14%
5 or more bedrooms	7%	5%	6%	5%

6.1.6 The resident population of the Study Area has the following characteristics (**Table 6.2**)⁵:

- the Study Area (comprising of four wards) has an estimated population of 31,137 which accounts for 19 % of the total population of RBC (163,203), according to ONS 2018 mid-year population estimates;
- approximately, 21 % of the Study Area's population are aged between 45 to 59 years old followed by 21 % aged between 0 to 14 years old. Whereas, 19% of the Study Area's population are 65+ years old;
- the average household size in this Study Area was 2.46 compared to a Borough average of 2.48, according to the 2011 Census.

Table 6.2 Population by Study Area, Reading and South East

Age Group	Study Area No.	Study Area ward %	Reading No.	Reading %	South East No.	South East %
0 - 14	6,442	21%	32,241	20%	1,654,185	14%
15 - 24	2,922	9%	24,131	15%	1,639,974	14%
25 - 29	1,622	5%	13,985	9%	1,598,620	14%
30 - 44	6,145	20%	37,094	23%	1,599,254	14%
45 - 59	6,638	21%	28,965	18%	1,634,603	14%
60 - 64	1,569	5%	6,767	4%	1,685,050	15%
65 +	5,799	19%	20,020	12%	1,709,878	15%
Total Population	31,137		163,203		11,521,564	

Key Issues and Potential Likely Impacts

6.1.7 The key issues and potential likely impacts include:

- temporary job creation during construction of the Proposed Development;
- permanent employment generated during operation of the Proposed Development associated with new healthcare provision set against the loss of jobs from the existing uses (current golf club);
- additional housing provision within the Borough;
- spend of new residents in the local area;
- additional demand for services and facilities generated by the additional population, including childcare, education, healthcare and open and play spaces;
- provision of additional healthcare provision, publicly accessible space, community and recreational facilities; and,
- cumulative impacts from the Proposed Development and other nearby developments.

⁵ Unless otherwise specified, data are derived from the Census (2011).

Assessment Methodology

Determination of the Baseline

- 6.1.8 The baseline for the socio-economic conditions of the local area will be established from a number of sources, including: the 2011 Census, which is the most up to date source of information on social and housing conditions at a local level; annual population surveys for economic data; lists of the community facilities that serve the study area published by RBC by the National Health Service (NHS) and other organisations.
- 6.1.9 Impacts on social and economic determinants and facilities are assessed by various geographical impact areas, depending on the likely geographical extent of an impact. These reference areas will be compared with socio-economic information for the Borough and for South East as a whole.
- 6.1.10 **Table 6.3** below shows the spatial area of impact that will be applied for the baseline and for the assessment.

Table 6.3: Geographical Area of Impact for Different Socio-economic Themes

Theme	Geographical Area of Impact
Local Population and Demographics	Consists of four wards (Peppard; Caversham; Mapledurham; andThames).
Housing	RBC.
Childcare	1 km road travel distance from the Site.
Education	State funded primary schools – 2 km road travel distance from Site. State funded secondary schools – 4 km road travel distance from Site.
Health	GP surgeries and NHS dentists within 1 km to the Site (road travel distance).
Community and leisure facilities	Government funded library, leisure / sports centre, youth and community centres within 1 km of the site (road travel distance).
Open and play space	800 m (local parks and open spaces) and 1.2 km (district parks) road travel distance ⁶ ; Play space requirements based on the RBC Open Space Strategy.
Crime, Fear of Crime and Anti-Social Behaviour	Consists of four wards (Peppard; Caversham; Mapledurham; andThames) and RBC.
Local Economy, Employment and Skills	RBC.
Town and Other Centres	RBC.

Prediction Methodology

- 6.1.11 Assessments will be undertaken in the context of national and local planning and other policy, e.g. RBC housing targets. In addition to the baseline data, the assessment of effects will be underpinned by forecasts / estimates for both the construction and operational phases.

⁶ Reading Borough Council (2018), Reading Open Spaces Strategy Update Note 2018. https://www.reading.gov.uk/media/8643/EV022-Open-Spaces-Strategy-2018-Update-Note/pdf/EV022_Open_Spaces_Strategy_2018_Update_Note.pdf [Accessed 9th January 2020].

- 6.1.12 The sensitivity of receptors (e.g. existing residents) will consider their existing state in relation to the dimension being assessed (are they already disadvantaged); their ability to absorb, avoid, mitigate or take advantage of the effect; and level of policy priority. The magnitude of the impact will depend on factors such as the number of receptors which experience the impact, the duration of the impact and the nature of the detriment or benefit caused. The significance of the effects will be a product of both magnitude and sensitivity.
- 6.1.13 Fundamental to the assessment is an estimate of the likely additional population of the Proposed Development. This estimate will be based on the ONS 2018 Mid-year estimates (for the age ranges) and 2011 Census (for the average household size) and will inform the assessments of additional demand for services.
- 6.1.14 The assessment of net employment effects will employ the approach set out in the Homes and Communities Agency's Additionality Guide in order to eliminate as far as possible additional jobs that would have been created anyway regardless of the Proposed Development. The additionality assessment also takes account of the reference case (the employment on site if the intervention did not go ahead), leakage effects and indirect and induced employment, which contribute to the overall multiplier. The proposed measures for these are outlined in **Table 6.4**.

Table 6.4: Proposed Levels of Leakage, Displacement and Multiplier Effect

	Construction jobs
Leakage	Low
Displacement	Low
Multiplier	Medium – Very Local level

Source: Additionality Guide (2014).

- 6.1.15 The economic and regeneration effects of the Proposed Development will be included within the assessment, for example the stimulation of spending in the local area.
- 6.1.16 The socio-economic assessment will also explore the scope for mitigation and enhancement measures to maximise the potential for adding value to the local economy and community.
- 6.1.17 The residual effects on the Proposed Development during both the construction and operation will be presented within the chapter.

Cumulative Effects

- 6.1.18 Consideration will also be given to the effects of the Proposed Development in combination with other developments and the resulting effects of their interaction with the Proposed Development during both the construction and the operational periods.
- 6.1.19 At the time of writing, there are no identified applications or committed development schemes within the 1 km search radius which could give rise to potential significant effects. Therefore, at this time there are no cumulative developments for assessment (to be confirmed by RBC).

6.2 Traffic & Transport

Summary of Baseline Conditions

Amenities

- 6.2.2 There are a number of local amenities within walking distance of the Site. Emmer Green Local Centre is located within an approximately 5-minute walk from the Site boundary and provides amenities such as a post office, supermarket and pharmacy. Caversham District Centre is located 2.2 km south of the Site, which is up to a 10-minute cycle journey away and provides further variety of local amenities. Reading Town Centre is 4 km from the Site and approximately a 15-minute cycle. Bus service 23 provides direct access from the Site to Reading Station and Reading Town Centre.
- 6.2.3 There are a number of different leisure facilities that service the area surrounding the Site including Highdown Sport and Leisure Centre, Caversham Park Tennis Club, Caversham Lawn Tennis Club, Caversham Football Club and North Reading Badminton Club. Additionally, Emmer Green Allotments are within 400 m of the Site, easily accessed by a circa 4-minute walk or 1-minute cycle.
- 6.2.4 Emmer Green Primary School is the nearest primary school to the Site, accessible within 850m which is between a 5-10 minute walk. Highdown School and Sixth Form Centre is 1.1 km from the Site, within approximately a 13-minute walk or a 4-minute cycle.
- 6.2.5 Emmer Green Surgery and District Nurse's office is within 800m of the Site and provides NHS services.

Walking, Cycling and Transport

- 6.2.6 The Site is located in a residential area with a network of streets with footways and footpaths providing access to local facilities. At present, no public rights of way (PRoWs) run through the Site. However, several footpaths and bridleways can be found in the surrounding area.
- 6.2.7 RBC branded cycle routes R40 and R41 provide a connection to Reading Station and Town Centre. The station is 3.3 km from the Site and can be reached in approximately 15 minutes by bicycle. National Cycle Route 5 passes through the north of the Golf Course and provides a connection towards Oxford.
- 6.2.8 The Site has good public transport accessibility with bus services 23 and 24 routing along Kidmore End Road adjacent to the site and service 25 routing along Peppard Road.
- 6.2.9 Reading Station is located 3.5 km to the south of the Site and provides fast and frequent services into Oxford, Basingstoke, London Paddington and other railway stations in London, and the wider regions.
- 6.2.10 The Elizabeth Line, currently under construction, will provide further connections between Reading and London. Moreover, from 15 December 2019 Transport for London (TfL) will start running the stopping services between Paddington mainline and Reading ahead of the service becoming part of the Elizabeth Line, providing enhanced services from Reading through to Central London. These new services will be accessible via cycling and bus services.
- 6.2.11 **Figure 6.1** shows the existing public transport connections to and from the Site.

Figure 6.1 – Public Transport Connections



- 6.2.12 The Site access leads on to Kidmore End Road which in turn connects to Peppard Road, providing direct access to Emmer Green in the north and Caversham and Reading Town centre in the south.

Key Issues and Potential Likely Impacts

- 6.2.13 The future baseline and development traffic flows (for both the construction and operational phases) are unknown at this stage and will be determined in the TA based on methodology agreed with RBC.

Construction Phase

- 6.2.14 No significant effects are expected during this phase, as the Proposed Development is unlikely to generate significant traffic flows during the construction stage and construction traffic will be managed.

Operational Phase

- 6.2.15 There will likely be some impacts of Proposed Development due to increased traffic flows on local roads. Mitigation measures will be identified as part of the TA and Traffic ES Chapter and will seek to mitigate any environmental impacts that may be identified within the ES.

Assessment Methodology

Construction Traffic

- 6.2.16 Peak construction traffic predicted to be generated by the Proposed Development will be calculated using a 'first-principles' approach. This will be based on the likely worst-case scenario which is expected to be during delivery of a first phase of housing, medical centre and site access.
- 6.2.17 The development construction traffic flows summed to the 2021 baseline traffic flows will be used to determine the environmental impacts of the Proposed Development in terms of transport during the construction phase.

Operational Traffic

- 6.2.18 Peak hour traffic flows expected to be generated by the Proposed Development once fully built and occupied in 2026 will be calculated and reported in the TA and ES Chapter.
- 6.2.19 Consideration will be given to traffic impacts as a result of operation of the development during the construction phase. It is anticipated residents will move into the first completed units in 2022 and will continue to move in as and when units are completed. Construction is anticipated to finish at the end of 2025, with the final units, and therefore the development, fully occupied by summer 2026
- 6.2.20 Daily vehicle trip profiles will be extracted from the TRICS database, for both weekdays and weekends where available, and the calculated peak hour operational traffic flows will be translated to 18-hour AAWT and 24-hour AADT.
- 6.2.21 The development operational traffic flows, together with the 2026 future baseline traffic flows will be used to determine the environmental impacts of the development in terms of transport during the operational phase.

Receptor Sensitivity and Impact Magnitude

- 6.2.22 The Institute of Environmental Management & Assessment's (IEMA) Guidelines identify groups and special interests which should be considered as sensitive receptors. Categories of receptor sensitivity will be defined from the principles set out in the Guidelines for the Environmental Assessment of Road Traffic. These categories will be used to outline in broad terms the sensitivity of receptors to traffic for the categories of impact to be assessed in this chapter, although in detail, each receptor assessed will have a different sensitivity to each specific impact.
- 6.2.23 The following environmental effects will be considered: Severance; Driver Delay; Pedestrian Delay; Pedestrian Amenity and Fear and Intimidation.

Mitigation

- 6.2.24 There will be a variety of inherent mitigation designed into the Proposed Development, which may include new and/or improved walking and cycling connections, public transport connections and highway capacity enhancements.
- 6.2.25 It is envisaged that a Construction Environmental Management Plan (CEMP) will be implemented, and that this will define construction traffic routing, hours of operation and requirements for contractors to co-ordinate activities to ensure the construction activities

with high HGV generation do not occur together. A Framework Travel Plan will also be prepared for the Proposed Development. This is likely to include potential measures to be implemented to reduce car dependency and to encourage travel by sustainable modes.

Cumulative Effects

- 6.2.26 At the time of writing, there are no identified applications or committed development schemes within the 1 km search radius which could give rise to potential significant effects. Therefore, at this time there are no cumulative developments for assessment (to be confirmed by RBC).

6.3 Air Quality

Summary of Baseline Conditions

- 6.3.1 Reading Borough Council (RBC) and South Oxfordshire District Council (SODC) have investigated air quality within their areas as part of their responsibilities under the Local Air Quality Management regime. RBC has declared an Air Quality Management Area (AQMA) encompassing Reading Town Centre and areas along the major radial routes, due to exceedances of the annual mean NO₂ objective. SODC has declared three AQMAs due to exceedances of the annual mean NO₂ objective. The closest AQMA to the Site is the Reading AQMA, approximately 1 km to the west.

Key Issues and Potential Likely Impacts

- 6.3.2 There are two air quality issues that could potentially arise from the Proposed Development: the impact of the development on local air quality and the suitability of the Site for the Proposed Development. The impact of the development may arise from the construction phase as well as road traffic emissions associated with any additional traffic from the Proposed Development. The suitability of the Site for the Proposed Development, and therefore the need for mitigation arises from the impacts of existing emission sources on the Site; in particular, local road traffic emissions.
- 6.3.3 The principal air pollutants of concern with respect to the Proposed Development will be:
- nitrogen dioxide (NO₂);
 - fine airborne particles (PM₁₀ and PM_{2.5}); and
 - dust.
- 6.3.4 The main local sources of these pollutants are likely to be road vehicles (nitrogen dioxide, PM₁₀ and PM_{2.5}); and construction activities (dust and PM₁₀). Professional experience indicates that any impacts associated with other air pollutants will be negligible.

Assessment Methodology

- 6.3.5 Existing local air quality, the likely future air quality in the absence of the Proposed Development, and the likely future air quality if the Proposed Development goes ahead, will all be defined. The assessment of construction impacts will focus on the anticipated duration of works. The assessment of operational impacts will focus on the earliest year that the Proposed Development is likely to be operational to provide a worst-case assessment. The impact of cumulative schemes will be considered in relation to the potential for interacting

construction activities and by the incorporation of traffic data from the schemes in the assessment.

- 6.3.6 Existing local air quality will be defined within the study area drawing upon monitoring carried out by the Local Authority with the information provided within the Council's Air Quality Review and Assessment reports.
- 6.3.7 The study area adopted for the assessment is as follows:
- Construction - the study area (based on IAQM, 2014 guidance) is defined the area up to 350 m from the Site boundary and 50 m from the route used by construction vehicles (up to 500 m from the Site entrance); and
 - Operation - the study area (based on EPUK / IAQM, 2017 guidance) includes the Site, all roads (and adjacent properties) within 250 m of the Site boundary and any other roads (and adjacent properties) predicted to experience an increase (due to the development in isolation) of a change of Light Duty Vehicles (LDVs) flows of more than 100 AADT within or adjacent to an AQMA or more than 500 AADT elsewhere.
- 6.3.8 Air quality will be assessed at a range of worst-case receptors. For construction activities these will be existing properties closest to the Proposed Development and access roads. For traffic-related impacts concentrations will be modelled within the application site to assess the suitability of the Site for residential development, and also at off-site receptors to assess the impacts of additional traffic associated with the Proposed Development. Receptors will be located at the existing and proposed residential properties that are closest to roads, in particular those close to junctions, where traffic emissions are greatest.
- 6.3.9 The potential impacts of dust during construction will be assessed with reference to the Institute of Air Quality Management's Guidance on the Assessment of Dust from Demolition and Construction (2014), which is accepted as industry standard guidance on this subject. There are no statutory objectives for dust; it is therefore common practice to provide a qualitative assessment based on the size of the Site, regional meteorological conditions and experience of the distances over which impacts may occur.
- 6.3.10 The assessment of operational road traffic impacts will be undertaken using the ADMS Roads detailed dispersion model. The modelling exercise will be undertaken for three different scenarios, as follows:
- Baseline year;
 - Opening year without the Proposed Development; and
 - Opening year with the Proposed Development.
- 6.3.11 This modelling will make use of mapped background concentration data provided by Defra and of traffic flow projections. Model outputs will be verified against local air quality monitoring data.
- 6.3.12 Air quality will be assessed in relation to the national air quality objectives, established by the Government to protect human health. Air quality impacts arising from road traffic will be assessed with reference to guidance issued by the IAQM and Environment Protection UK (EPUK) in their document: Land-use Planning & Development Control: Planning for Air Quality (2017).

- 6.3.13 RBC and SODC's Environmental Health officers will be consulted concerning detailed aspects of the proposed methodology.
- 6.3.14 There are limitations that contribute to the uncertainty in predicted concentrations. The model used is dependent upon the traffic data that will be input which will have inherent uncertainties associated with them. There is also uncertainty as the model is required to simplify real-world conditions into a series of algorithms.
- 6.3.15 There has been an acknowledged disparity between national road transport emissions projections and measured annual mean concentrations of nitrogen oxides (NO_x) and NO₂ for many years. Recent monitoring has shown that reductions in concentrations are now being measured in many parts of the country (Air Quality Consultants Ltd., 2019), however, there is still some uncertainty regarding the rate at which emissions will reduce in the future and this will be considered within the assessment.
- 6.3.16 All practical and reasonable measures which can be implemented to mitigate any detrimental impacts associated with construction and operation of the Proposed Development will be considered and highlighted within the Air Quality chapter.

Cumulative Effects

- 6.3.17 The cumulative effects of dust from the Proposed Development and other committed developments under construction during the same period will be assessed.
- 6.3.18 Traffic data used for the detailed assessment will include committed developments in the future baseline do-minimum scenarios.
- 6.3.19 However, at the time of writing, there are no identified applications or committed development schemes within the 1 km search radius which could give rise to potential significant effects. Therefore, at this time there are no cumulative developments for assessment (to be confirmed by RBC).

6.4 Noise and Vibration

Summary of Baseline Conditions

- 6.4.1 The noise environment at the Site is influenced by several sources including:
- road traffic from Kidmore End Road, Grove Road, Buckingham Drive/Peppard Road, Brooklyn Drive, Highdown Hill Road, Eric Avenue and the Reading Golf Course car park.
 - outdoor activities associated with Emmer Green Primary school directly south of the Site; and
 - intermittent aircraft noise.
- 6.4.2 To determine the ambient noise conditions at the Site, a baseline noise survey was undertaken between 12th and 19th February 2019. A combination of long-term unattended and short-term attended noise measurements were carried out at different locations in order to characterise representative daytime and night-time noise levels across the Site.
- 6.4.3 For the baseline noise survey (**Figure 6.2** below), monitors were set up at three unattended locations and two attended noise locations within the Site. During the baseline survey site

visits to install and decommission the unattended monitors, attended noise monitoring was completed simultaneously with the long-term measurements.

Figure 6.2: Baseline Survey Locations



- 6.4.4 The survey measured A-weighted and octave band noise measurements of L_{eq} , L_{max} , L_{10} and L_{90} parameters. The noise monitors measured continuously for a period of at least 6 days, all measurements were carried out in accordance with guidelines in BS 7445:1991 “Description and measurement of environmental noise part 2 – Acquisition of data pertinent to land use and other relevant standards and guidance”⁷.
- 6.4.5 All sound level meters used are of type 1 accuracy, within current manufacturer periods of calibration and were calibrated before and after all survey works. No significant drift occurred. Meteorological conditions were observed to establish the validity of the data.
- 6.4.6 Baseline unattended and attended noise survey results are shown in **Table 6.5** and **Table 6.6** below.

⁷ British Standard 7445-2, (1991), Description and measurement of environmental noise, Part 2: Guide to the acquisition of data pertinent to land use, BSI, London.

Table 6.5. Summary Results of Unattended Noise Survey at Reading Golf Course

Location	L _{Aeq,T} , dB		10 th Highest L _{Amax} , dB	Average Lowest L _{A90} , dB	
	Day	Night	Night 23:00-07:00	Day	Night
	07:00-23:00	23:00-07:00		07:00-23:00	23:00-07:00
MP1	55	48	74	45	45
MP2	48	37	66	36	29
MP3	39	33	49	32	30

Table 6.6. Summary Results of Attended Noise Survey at Reading Golf Course

MP4	Start Time	L _{Aeq} , 15min	L _{AFmax} , 15min	L _{A10} , 15min	L _{A90} , 15min
1	12/02/2019 12:10	52	67	55	47
2	12/02/2019 12:40	55	67	58	50
3	19/02/2019 11:38	42	57	44	34
MP5	Start Time	L _{Aeq} , 15min	L _{AFmax} , 15min	L _{A10} , 15min	L _{A90} , 15min
1	12/02/2019 12:27	45	59	48	38
2	12/02/2019 12:54	45	64	53	38

Key Issues and Potential Likely Impacts

- 6.4.7 There is the potential for significant effects at existing and future sensitive receptors due to the Proposed Development as a result of:
- noise and vibration from construction on surrounding residential and non-residential receptors;
 - increases in off-site road traffic noise from construction traffic impacting on residential and non-residential receptors adjacent to traffic routes;
 - road traffic noise changes once operational on residential and non-residential receptors adjacent to local roads; and
 - operational noise associated with the development, including noise from proposed commercial units (e.g. delivery noise) and from mechanical plant on surrounding residential and non-residential receptors.
- 6.4.8 The Site suitability assessment will also assess the potential adverse effect of the following sources on the proposed noise and vibration sensitive uses (dwellings):
- noise from existing site sources (e.g. road traffic, air traffic);
 - noise from outdoor activities associated with Emmer Green Primary school; and
 - commercial noise associated to the operational phase of the Proposed Development.

Assessment Methodology

- 6.4.9 The residual noise and vibration effects on the Proposed Development during both the construction phase and its operation will be presented within the chapter. The assessment of noise and vibration effects will include the following:

- estimation of noise and vibration generated during each principal phase of the construction works and an assessment of the likely significant effects on surrounding sensitive receptors, using the methods set out in British Standard 5228:2009+A1:2014 parts 18 and 29;
- for the assessment of noise associated with road traffic changes, predictions will be made using the Calculation of Road Traffic Noise¹⁰ (CRTN). The significance criteria in the Design Manual for Roads and Bridges¹¹ (DMRB) will be used to assess the potential effect of the predicted road traffic noise changes in the short term (for construction and operation) and long term (for operation);
- assessment of building services noise will be completed according to BS 4142:2014+A1:2019. "Methods for rating and assessing industrial and commercial sound"¹²; and
- formulation of appropriate mitigation and acoustic controls associated with limiting the noise and vibration levels inside the completed development would be made as necessary, with reference to BS 8233:2014¹³. All relevant technical survey data will be appended to the noise assessment.

6.4.10 At this time RBC does not have any specific technical guidance for noise, however, the following national legislation and policy documents are considered relevant to the assessment:

- National Planning Policy Framework (NPPF) 14;
- Noise Policy Statement for England (NPSE) 15;
- Environmental Protection Act (EPA) 16 [Sections 79 and 80]; and
- Control of Pollution Act (CoPA) 17 [Sections 60 and 61].

⁸ BS 5228-1:2009+A1:2014, (2009), Code of practice for noise and vibration control on construction and open sites. Noise. (+A1:2014)

⁹ BS 5228-1:2009+A1:2014, (2009), Code of practice for noise and vibration control on construction and open sites. Vibration. (+A1:2014)

¹⁰ Department of Transport Welsh Office, HMSO. (1988). Calculation of Road Traffic Noise.

¹¹ Highways Agency. (2008). Design Manual for Roads and Bridges, Volume 11, Environmental Assessment, Section 3, Environmental Assessment Techniques, Part 7 HA 213/08, Noise and Vibration.

¹² British Standard 4142: 2014 Methods for rating and assessing industrial and commercial sound. (+A1:2019)

¹³ British Standard 8233, (2014), Guidance on sound insulation and noise reduction for buildings.

¹⁴ Department for Communities and Local Government. (February 2019). National Planning Policy Framework.

¹⁵ Defra. (2012). Noise Policy Statement for England.

¹⁶ UK Government. (1990). Environmental Protection Act 1990

¹⁷ UK Government. (1974). Control of Pollution Act (CoPA)

- 6.4.11 The noise and vibration assessment will establish requirements for noise and vibration mitigation measures for any identified (predicted) significant effects. These will be fed back into the design.

Cumulative Effects

- 6.4.12 At the time of writing, there are no identified applications or committed development schemes within the 1 km search radius which could give rise to potential significant effects. Therefore, at this time there are no cumulative developments for assessment (to be confirmed by RBC).

6.5 Water Resources and Flood Risk

Summary of Baseline Conditions

- 6.5.1 The EA's Flood Map for Surface Water indicates that a surface water flow pathway runs along the northern part of the Site, which flows from the south west to the north east. Surface water runoff from the Site is likely to drain (at least in part) to this surface water feature.
- 6.5.2 An existing Thames Water foul sewer is also present in the northern part of the Site and this sewer broadly follows the alignment of the surface water flow pathway mentioned above. It is anticipated that this foul sewer will either be incorporated into the Proposed Development or diverted as appropriate.
- 6.5.3 The underlying bedrock geology is classified as a Principal Aquifer where the bedrock is comprised of the Seaford Chalk and a Secondary (A) Aquifer where the bedrock is formed of the Lambeth Group. The Site is located within Source Protection Zone III (Total Catchment). As such, the sensitivity of any groundwater present beneath the Site is likely to be assessed as Low for both the construction and operational phases.
- 6.5.4 The Site is located within Flood Zone 1. There is a very low risk of pluvial flooding across the majority of the Site. An area in the south-eastern corner of the Site is considered to be medium to high risk, however, this area represents only a relatively small percentage of the overall Site area and is likely to be a result of surface water accumulating in a local depression.

Key Issues and Potential Likely Impacts

Construction Phase

- 6.5.5 There may be a potential temporary detrimental impact on the water environment particularly in relation to the release/erosion of sediment and soil, potential contamination from hydrocarbons/other chemical use, and through construction phase surface water runoff. The local water environment may also be affected by the remobilisation of fertilisers, pesticides and herbicides stored within the existing soils during the construction phase.
- 6.5.6 Construction activities may also lead to the disturbance and mobilisation of physical contaminants (i.e. dust, sediments and muds). In particular, during periods of heavy rainfall, vehicle movements may generate increased surface water runoff with high volumes of suspended solids. Compaction and disturbance of soils during construction can lead to increased volumes of surface runoff during heavy rainfall, and normal surface water flow routes may be blocked or diverted by temporary structures or embankments.

6.5.7 The ES Chapter on Water Resources and Flood Risk will confirm that good water management practice implemented through a framework CEMP will be used to minimise these impacts. This is likely to be delivered through a Construction Environmental Management Plan (CEMP), which would be expected to adhere to industry best practice measures. The CEMP should also include a Soil Management Plan to ensure that excavated soil and the temporary storage of spoil is sustainably managed and does not present a pollution or flood risk to the surrounding water environment.

6.5.8 The management of surface water during the construction phase will require the use of temporary site discharge points. These will require the necessary permits to be in place before construction can commence. The ES Chapter on Water Resources and Flood Risk will identify appropriate receptors for construction phase discharges and will confirm which permits will need to be in place.

Operational Phase

6.5.9 During the operational phase, the area of impermeable hardstanding producing surface water runoff will increase significantly as a result of the Proposed Development, and climate change is expected to increase rainfall amounts by up to 40% over its design lifetime. These will together increase the volume and rate of surface runoff generated from the Site, which could increase flood risk in the receiving water environment if not properly managed.

6.5.10 Surface water attenuation measures will be required in order to prevent an increase in flood risk elsewhere. A SuDS Strategy will be prepared to address this issue and to ensure that the SuDS scheme for the Proposed Development delivers multiple water quality, biodiversity, and amenity benefits. The SuDS Strategy will form an appendix to the ES Chapter on Water Resources and Flood Risk.

6.5.1 The Site is covered by many protected and retained trees which offers both opportunity and constraint to the Proposed Development. In terms of opportunities and in accordance with Policy CS1, the presence of numerous trees combined with other measures implemented as part of the SuDS Strategy would bring major benefits to the Site and would also work to deliver green infrastructure including that required under Policies CA1b and EN12. In terms of constraints, the trees are likely to be a controlling influence on the location and type of attenuation feature and therefore, at present the developer is considering several options including:

- Implementation of source control measures such as permeable paving;
- Implementation of site catchment control measures such as longitudinal swales within green corridors;
- Inclusion of regional control structures such as detention/attenuation basins; and
- Use of underground storage beneath parking areas and/or oversized pipes (if required).

6.5.2 Current desk-based research indicates that infiltration drainage may be possible however as this is subject to confirmation, secondary discharge routes to local watercourses and, if required, sewers will also be considered as part of the outline SuDS Strategy.

6.5.3 The SuDS Strategy for the Site will need to be agreed in advance by the Lead Local Flood Authority (LLFA), which is likely to undertake the long-term adoption and maintenance of any proposed SuDS features. The SuDS Strategy will also identify an appropriate receptor

(or receptors) for the operational phase surface water discharges and will confirm which permits will need to be in place.

- 6.5.4 The potential for operational-phase contamination of the surrounding water environment is relatively low, given that the proposed land use will be largely residential. The main operational-phase pollution risks, therefore, are associated with hydrocarbons from fuel/oil leaks from vehicles, and dust and sediment loading of surface water runoff. The detailed design of the proposed SuDS features will ensure that the potential for contamination of the water environment from these sources will be negligible.
- 6.5.5 The Site lies entirely within PPG Flood Zone 1 (Low Probability i.e. the area of lowest flood risk as defined by the Environment Agency). However, due to its size, a Flood Risk Assessment (FRA) will be prepared and will be submitted in support of the planning application. The FRA will form an appendix to the ES Chapter on Water Resources and Flood Risk.
- 6.5.6 Minor localised and isolated occurrences of pluvial flooding are noted to exist on-site but will most likely be removed during the main earthworks. A minor low-risk pluvial flow path is shown to be present flowing from the south-west to the north-east in the northern part of the Site. It is anticipated, however, that the FRA will demonstrate that this flow path does not pose a flood risk to the proposed properties, nor that the Proposed Development will increase flood risk elsewhere.

Assessment Methodology

Baseline

- 6.5.7 The baseline will be determined by describing the environmental conditions of the Site at the time of the assessment and will be informed using environmental information provided by the Environment Agency (EA), the British Geological Survey (BGS) and other published sources, in addition to the Phase 1 Land Contamination Report already prepared for the Site. The baseline assessment will identify all potential water resources and flood risk receptors that could be affected by the Proposed Development.

Prediction Methodology

- 6.5.8 The prediction methodology for assessing the potential impacts to the identified receptors will follow the approach as set out below.
- 6.5.9 The significance of effect will be determined by assessing the value/sensitivity of the resource and the magnitude of impact as shown in **Table 6.7, Table 6.8 and Table 6.9** below.

Table 6.7: Determining Value/Sensitivity of Resource

Value / Sensitivity	Typical Descriptors	Typical Example	
Very High	Attribute has a high quality and rarity on a regional or national scale.	Surface Waters:	EC Designated Salmonid / Cyprinid fishery High Ecological Quality. Site protected under EU or UK wildlife legislation (SAC, SPA, SSSI, Ramsar site).

Value / Sensitivity	Typical Descriptors	Typical Example	
High	Attribute has a high quality and rarity on a local scale.	Groundwater:	Principal aquifer providing a regionally important resource or supporting Site protected under wildlife legislation Source Protection Zone (SPZ) I.
		Flood Risk:	Flood plain or defence protecting more than 100 residential properties from flooding.
		Surface Waters:	Good Ecological Quality Major Cyprinid Fishery Species protected under EU or UK wildlife legislation.
	Attribute has a medium quality and rarity on a local scale.	Groundwater:	Principal aquifer providing locally important resourced or supporting river ecosystem SPZ II.
		Flood Risk:	Flood plain or defence protecting between 1 and 100 residential properties or industrial premises from flooding.
		Surface Waters:	Moderate Ecological Quality.
Medium	Attribute has a low quality and rarity on a local scale.	Groundwater:	Aquifer providing water for agricultural or industrial use with limited connection to surface water SPZ II.
		Flood Risk:	Flood plain or defence protecting 10 or fewer industrial properties from flooding.
		Surface Waters:	Poor or Bad Ecological Quality.
Low	Attribute has a low quality and rarity on a local scale.	Groundwater:	Unproductive strata.
		Flood Risk:	Flood plain with limited constraints and low probability of flooding of residential and industrial properties.
		Surface Waters:	Poor or Bad Ecological Quality.

Table 6.8: Determining Magnitude of Impact

Magnitude of Potential Change		Criteria
High	Adverse	Results in loss of attribute and/or quality and integrity of the attribute
	Beneficial	Results in major improvement of attribute quality.
Medium	Adverse	Results in effect on integrity of attribute, or loss of part of attribute.
	Beneficial	Results in moderate improvement of attribute quality.
Low	Adverse	Results in some measurable change in attribute's quality or vulnerability.
	Beneficial	Results in some beneficial effect on attribute or a reduced risk of negative effect occurring.
Negligible		Results in effect on attribute, but of insufficient magnitude to affect the use or integrity.

Table 6.9: Effect Significance Matrix

Magnitude	Sensitivity or Value				
	Very High	High	Medium	Low	Very Low
Severe	Major	Major	Major	Moderate	Negligible
Major	Major	Major	Moderate	Moderate	Negligible
Moderate	Major	Moderate	Moderate	Minor	Negligible
Minor	Moderate	Moderate	Minor	Negligible	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible	Negligible

- 6.5.10 The environmental impact of the Proposed Development on the identified water resources and flood risk receptors will be assessed using the above methodology, assuming that the embedded mitigation measures associated with the Proposed Development are in place. This approach will be applied to determine the likely impacts of the Proposed Development during its construction and operational phases, taking climate change into account.
- 6.5.11 Additional mitigation measures will be identified where necessary, i.e. in the event that the embedded mitigation measures associated with the Proposed Development do not cover all potential water resources and flood risk impacts.
- 6.5.12 The residual effects of the Proposed Development will be summarised in tabular form, assuming that the embedded (and any required additional) mitigation measures are in place.

Cumulative Effects

- 6.5.13 Cumulative effects are the combined effects of several development schemes (in conjunction with the Proposed Development) which may, on an individual basis be insignificant but, cumulatively, have a significant effect.
- 6.5.14 The ES Chapter on Water Resources and Flood Risk will include a section on cumulative effects that examines the potential in-combination environment effects of the Proposed Development and other similar development schemes in the area.
- 6.5.15 However, at the time of writing, there are no identified applications or committed development schemes within the 1 km search radius which could give rise to potential significant effects. Therefore, at this time there are no cumulative developments for assessment (to be confirmed by RBC).

6.6 Ecology

Summary of Baseline Conditions

- 6.6.1 The Ecology Co-op undertook a Phase 1 Habitat Survey and protected species assessments for bats, reptiles, breeding birds and badgers at the Site across 2019.
- 6.6.2 The surveys have identified that the Site does not presently support reptiles or any active badger setts. Bat activity was relatively poor overall, however passes by the Barbastelle bat and Nathusius pipistrelle were recorded and represent species of greater conservation significance.

- 6.6.3 The breeding bird interest at the Site is relatively poor and of 'local importance' only, though a nesting pair of Red Kites were identified, and this is a Schedule 1 species under the Wildlife and Countryside Act.
- 6.6.4 The dominant habitats present at the Site include amenity grassland that makes up the fairways and mixed parkland/scattered trees. These habitats are valuable at a site level only.

Key Issues and Potential Likely Impacts

- 6.6.5 Construction and operational phase impacts are likely to result in some habitat modifications that may reduce the value of the Site for some bird species and foraging bats (particularly from light pollution). Habitat impacts are significant at a site level only, with the loss of several trees and some scrub habitats. However, there will be retention of the hedgerows and deciduous woodland habitat present.

Assessment Methodology

- 6.6.6 The assessment methodology for all ecological impacts will follow the Guidelines for Ecological Impact Assessment produced by the Chartered Institute for Ecology and Environmental Management (CIEEM) and the determination of the baseline assessment has further incorporated the CIEEM Guidelines for Preliminary Ecological Appraisal.
- 6.6.7 Under these guidelines, biodiversity records for all protected species and designated sites within 2 km of the Site have been obtained from the Thames Valley Environmental Records Centre. All protected species and habitat surveys are however restricted to the Site itself, whilst adhering to all available recent best-practice guidelines.

Cumulative Effects

- 6.6.8 A desktop assessment to gather information of all large developments within 1 km of the Site may be necessary – particularly in assessing impacts upon any nearby Statutory and Non-Statutory sites.
- 6.6.9 At the time of writing, there are no identified applications or committed development schemes within the 1 km search radius which could give rise to potential significant effects. Therefore, at this time there are no cumulative developments for assessment (to be confirmed by RBC).

6.7 Archaeology and Built Heritage

Summary of Baseline Conditions

- 6.7.1 The existing baseline has been determined through the preparation of a desk-based assessment (DBA). This will accompany the ES chapter as a technical appendix.
- 6.7.2 The existing historic landscape character is a modern golf course, originating between 1914 and 1936, flanked by modern suburban development. Prior to that it was agricultural land.
- 6.7.3 The Site does not contain any designated heritage assets of an archaeological or built heritage nature. There are 26 listed buildings within the wider study area, but the Site does not lie within the setting of any due to intervening residential developments screening intervisibility.

- 6.7.4 The Site does not contain any known non-designated heritage assets. However, examination of the local archaeological context indicates a general scatter of prehistoric artefacts in the surrounding area. A Bronze Age barrow cemetery and an Iron Age settlement site are recorded south of the site, with further evidence for Romano-British settlement recorded to the west.

Key Issues and Potential Likely Impacts

- 6.7.5 The Site has a high potential to contain unrecorded buried archaeological deposits of later prehistoric (Bronze Age – Iron Age) and Romano-British date. It also has a moderate potential for deposits of earlier prehistoric (Palaeolithic and Neolithic) date, and a generally low potential for deposits of medieval and post-medieval date (with the exception of late post-medieval field boundaries of relatively low significance). There is likely to be a significant physical impact on buried archaeological deposits from groundworks (e.g. excavations for foundations, service trenches, roads and general landscaping and ground reduction). This impact will occur during the construction phase, but will be mitigated by an appropriate programme of pre- and post-determination fieldwork. There will be no predicted impacts on buried archaeological deposits during the operational phase.
- 6.7.6 No impacts are predicted on the fabric or setting of designated heritage assets (listed buildings) during the construction or operational phases.

Assessment Methodology

- 6.7.7 The baseline has been determined using the appropriate standard methodology for archaeological desk-based assessment, in accordance with published standards and guidance issued by the Chartered Institute for Archaeologists. The DBA analysed existing archaeological and historical data within the Site and a 1 km radial search area around it to identify/predict the likely potential for buried archaeological deposits to survive within the Site, and to determine the likely impact of the Proposed Development on them. It also considered the likely impact on the setting of designated heritage assets (listed buildings) within the study area in accordance with published Historic England guidance.
- 6.7.8 Data sources used comprised the Berkshire and Oxfordshire Historic Environment Records, the National Heritage List for England, historical maps, aerial photographs and secondary sources held by the Berkshire Record Office, Lidar data sourced from the Environment Agency, general online data sources and the results of a site walkover by an experienced professional archaeologist. The DBA was submitted to, and approved by, Berkshire Archaeology (who provide archaeological advice to Reading BC), who requested additional pre-determination fieldwork (geophysical survey) to refine the results of the DBA.

Cumulative Effects

- 6.7.9 At the time of writing, there are no identified applications or committed development schemes within the 1 km search radius which could give rise to potential significant effects. Therefore, at this time there are no cumulative developments for assessment (to be confirmed by RBC).
- 6.7.10 It is anticipated that there will be no cumulative effects in relation to archaeology/heritage.

6.8 Climate Change and Greenhouse Gas Emissions

6.8.1 The EIA Regulations 2017 have introduced the requirement to consider climate as part of the EIA process, and require a consideration of 'the impact of the project on climate' and 'the vulnerability of the project to climate change' (Schedule 4, paragraph 5(f)). This assessment therefore considers climate change impacts from both:

- A project's increase or decrease in greenhouse gas (GHG) (and principally carbon dioxide (CO₂)) emissions (i.e. climate change mitigation); and
- The way in which a changing climate can alter the environmental conditions, leading to potential changes in the assessments of some topics (i.e. climate change resilience/adaptation).

Summary of Baseline Conditions

6.8.2 The Site is currently used as a golf course, with a club house on-site. It is predominantly undeveloped with regards to buildings and infrastructure. As such there are limited CO₂ emissions associated with its use and the operation of the club house.

Key Issues and Potential Likely Impacts

6.8.3 GHG emissions will occur as a result of both the construction and operation of the Proposed Development.

6.8.4 Construction phase GHG emissions are associated with, but not limited to, the following sources:

- Embodied carbon from construction materials such as concrete, steel frames and other building materials;
- Movement of materials to, from and around the site and operation of site compounds;
- Construction traffic;
- Removal of vegetation;
- Worker Transport, and;
- Waste generation and disposal.

6.8.5 The construction period covers two UK carbon budgets (2018-2022 and 2023-2027).

6.8.6 Although the sensitivity of receptors is anticipated to be high, the impact of the GHG emissions from the Proposed Development on the UK's ability to meet its carbon reduction targets will be low. However, the GHG emissions associated with construction are considered to constitute a significant adverse effect on the global climate.

6.8.7 Operational phase GHG emissions are associated with, but not limited to, the following sources:

- Operational energy and fuel use required for the heating of homes and medical centre;
- Maintenance of structures/replacement parts, and;

- Use of vehicles by residents and visitors.

6.8.8 The opening year for the development is predicted to be 2024. This falls within the time frame for the 2023-2027 UK carbon Budget. Whilst the impact of the GHG emissions from the operation of the Proposed Development on the UK's ability to meet its carbon reduction targets will be low, the GHG emissions associated with operation are considered to constitute a significant adverse effect on the global climate.

Assessment Methodology

Climate Change Mitigation

6.8.9 The approach to assessing the potential impact of the Proposed Development on climate will follow the Institute of Environmental Management and Assessment (IEMA) guidance 'Assessing Greenhouse Gas Emissions and Evaluating Their Significance' (2017)^[1]. This guidance describes how a proportionate assessment of a development's potential impact on climate can be achieved and how to communicate the results in terms of a notional percentage contribution relative to a carbon budget, accounting for achievable mitigation.

6.8.10 The IEMA guidance states that it is good practice for greenhouse gas (GHG) emissions to be scoped into all EIA projects, on the basis of principles highlighting that all GHG emissions contribute to climate change, and that the cumulative effect of all GHG emissions moves us towards to the scientifically defined environmental threshold for limiting temperature increases associated with climate change. Climate change can also have a potentially significant effect on many EIA topics. As there are no defined thresholds or significance criteria currently, any GHG emissions or reductions from a project should be considered as significant. The guidance also reinforces a key principle of EIA which is to reduce the impact of a project's emissions through mitigation.

Climate Change Adaptation

6.8.11 The aim of the assessment will be to consider whether the effect on receptors that are sensitive to climate in the existing situation are likely to be different under a future climate which is different to that now. It is important to understand whether the potential impacts of/upon the proposed development could manifest themselves differently (or be better or worse) under a future baseline, if this could change the significance of effects in the future, and if so, how should the scheme futureproof itself or plan for adaptation.

6.8.12 IEMA's guidance 'Climate Change Resilience and Adaption' (2015)^[2] presents a methodology for the consideration of climate change resilience and adaption in the EIA process, which will be followed in the EIA.

6.8.13 The first stage of the assessment is to select a future climate scenario to base the assessment on. This is determined by reviewing the future climate projections published by the Met Office (through the UK Climate Projections (UKPC18) website)^[3], which includes

^[1] IEMA (2017), *Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating Their Significance*

^[2] IEMA (2015), *Guidance 'Climate Change Resilience and Adaption'*

^[3] Met Office (2018), *Download UKCP18 data*, web link: <https://www.metoffice.gov.uk/research/collaboration/ukcp/download-data>

variables such as annual mean temperatures and annual changes in summer and winter precipitation.

- 6.8.14 In the case of the Proposed Development, it is proposed that the 'medium emissions scenario' (A1B) for the 2080s will be utilised as the future baseline, as this gives a more likely set of projections, given known trends and technological developments. The 2080s covers the years 2070 – 2099 and this is the timeframe considered most relevant to the proposed development, due to its anticipated design life. A range of probability levels are available, although this study will use the 50% probability level (i.e. a central estimate with less uncertainty).
- 6.8.15 The assessment of climate change impacts, mitigation and adaptation will also include consideration of borough wide emissions and priorities set out in Reading's climate emergency declaration¹⁸, such as the 'Zero Carbon Standards' within RBC's draft Local Plan and the RBC Carbon Plan.

Cumulative Effects

- 6.8.16 Cumulative effects are the combined effects of several development schemes (in conjunction with the Proposed Amendments) which may, on an individual basis be insignificant but, cumulatively, have a significant effect.
- 6.8.17 The assessment will include a broad estimate of how much GHG could arise from identified third party schemes and identify opportunities for mitigating this (moving towards the UK's carbon budgets). At the time of writing, there are no identified applications or committed development schemes within the 1 km search radius.
- 6.8.18 It is considered that any and all cumulative schemes will be required to take into consideration the effects from increased temperatures and rainfall, and therefore there are not likely to be any significant adverse cumulative effects.

6.9 Landscape and Visual Impact Assessment

Summary of Baseline Conditions

- 6.9.1 Readily influenced by the existing built form on three sides, the Site forms part of the southern section of Reading Golf Course and occupies the area wholly within Reading Borough Council administrative area. It is bound by the wider golf course to the north (within South Oxfordshire District Council administrative area); Kidmore End Road, with dwellings on Chalgrove Way and beyond to the east; Emmer Green Primary School, Emmer Green Play Fields and a retirement home on Lyefield Court to the south; and dwellings along Eric Avenue and Highdown Hill Road to the west. The eastern section of the Site is identified as a proposed residential allocation site in the emerging Local Plan.
- 6.9.2 The Site lies within the defined settlement boundary and comprises a highly managed and designed southern section of the 18-hole Reading Golf Club with a series of treebelts and individual trees which define the fairways.

¹⁸ <https://www.reading.gov.uk/article/12745/Climate-emergency-declaration>

- 6.9.3 The Site lies on a broad ridge line, consistent with the surrounding built form. The landform to the north slopes down to a local dry valley. There are no public footpaths which cross the site, or within the immediate Site context, however, an extensive Public Rights of Way spread across the study area and connects the settlement to the wider landscape beyond.
- 6.9.4 With the exception of the Area Tree Preservation Order covering the entire Site a small linear portion at the northern edge of the Site which is identified as Local Wildlife Site / Local Nature Reserve in the current Local Plan (and which is connected to the wider areas through a network of green links through the residential areas), there are no other landscape related designations that cover the Site. Furthermore, the Site is not designated as public open space, nor is it publicly accessible. Under the Emerging Local Plan Policy EN12 a Green Link is proposed north and south and east to west across the Site.
- 6.9.5 Furthermore, Emerging Local Plan Policy EN13, Major Landscape Features are identified beyond the Site to the north, adjacent to Crawshay Drive. However, this relates to a relatively small area comprising dense woodland. In addition, Clayfield Copse Local Nature Reserve is located to the east; with areas of Ancient Woodland and Replanted Woodland present in the landscape to the north (namely Cucumber Wood) within the wider golf course.
- 6.9.6 There are a number of landscape designations present in the wider study area beyond the Site. The Chilterns Area of Outstanding Natural Beauty (AONB) lies approximately 2km to the north and west; the Historic Park and Garden of Caversham Park lies to the south-east; and Surley Row Conservation Area lies to the south. The Site does not form a role in the setting to these landscape related designations.
- 6.9.7 There are a series of Listed Buildings scattered throughout the townscape of the study area and include Old Grove House (Grade II*) and The Barn (Grade II) at Highdown Hill Road which are the closest to the Site.
- 6.9.8 The Berkshire Landscape Character Assessment (BLCA) defines 55-character areas, however, the Site and the study area to the south sit within the Urban Area of Reading, consequently it was not assessed further.
- 6.9.9 Within the study area, the land use can be broadly split north and south, with that to the north being mixed farmland, and the south being settled in irregular urban grids. The skyline is either formed by built form in the proximity to the settlement edge, or by trees. The golf course forms a manicured landscape on the settlement edge and creates a strong contrast between the rural field patterns beyond to the north and the suburban edge to the south.
- 6.9.10 Buildings in close proximity to the Site are predominantly two to three storey height, with occasional three storey apartment blocks. Land uses are predominantly residential, interspersed with a school, a play area, local shops and facilities and a series of green spaces.
- 6.9.11 The combination of built form, topography and layers of vegetation limit views of the Site to those within the close proximity to the Site. Views predominantly comprise of amenity green set in the surrounding built form context. Open views to the Site are limited to the rear elevations of the residential receptors which bound the Site immediately to the east, south and west, and the transient receptors using Kidmore End Road. Views from further away are truncated by the undulating built form and the layers of vegetation.

Key Issues and Potential Likely Impacts

6.9.12 The most significant landscape and visual effects are predicted to be as follows:

- The land use and character of the Site will change from amenity green to a construction site with an emerging built form. This is predicted to be a major adverse effect.
- Whilst the most significant trees within the Site are proposed to be retained, the removal of a number of existing trees will occur at the construction stage. This is predicted to be a moderate adverse effect on the overall tree stock.
- Effects on the limited number of visual receptors are predicted to be major adverse in close proximity to the Site where the character and amenity of the view would change from that of a Golf Course to that of a construction site and then of built form, set within a retained landscape framework. In particular this would affect those residential receptors surrounding the Site boundaries; Those transient receptors on Kidmore End Road; and the recreational receptors using the retained part of the northern part of the Golf Course.

6.9.13 During the latter phases of construction new tree planting will be implemented. A net gain in tree stock across the Site is proposed at this scoping stage.

6.9.14 At the operational phases, the provision of a series of publicly accessible green space will be provided to serve the Proposed Development and local residents alike and will deliver the proposed 'Green Link' as identified in emerging Local Plan Policy EN12.

Assessment Methodology

6.9.15 The baseline and impact assessment will be prepared in accordance with the LVIA methodology contained in LVIA Key Views and Methodology document and is based on the Guidelines for Landscape and Visual Impact Assessment (GLVIA3) by the Landscape Institute and Institute of Environmental Management and Assessment (2013).

6.9.16 The baseline has been determined through a combination of desk-top work and field survey.

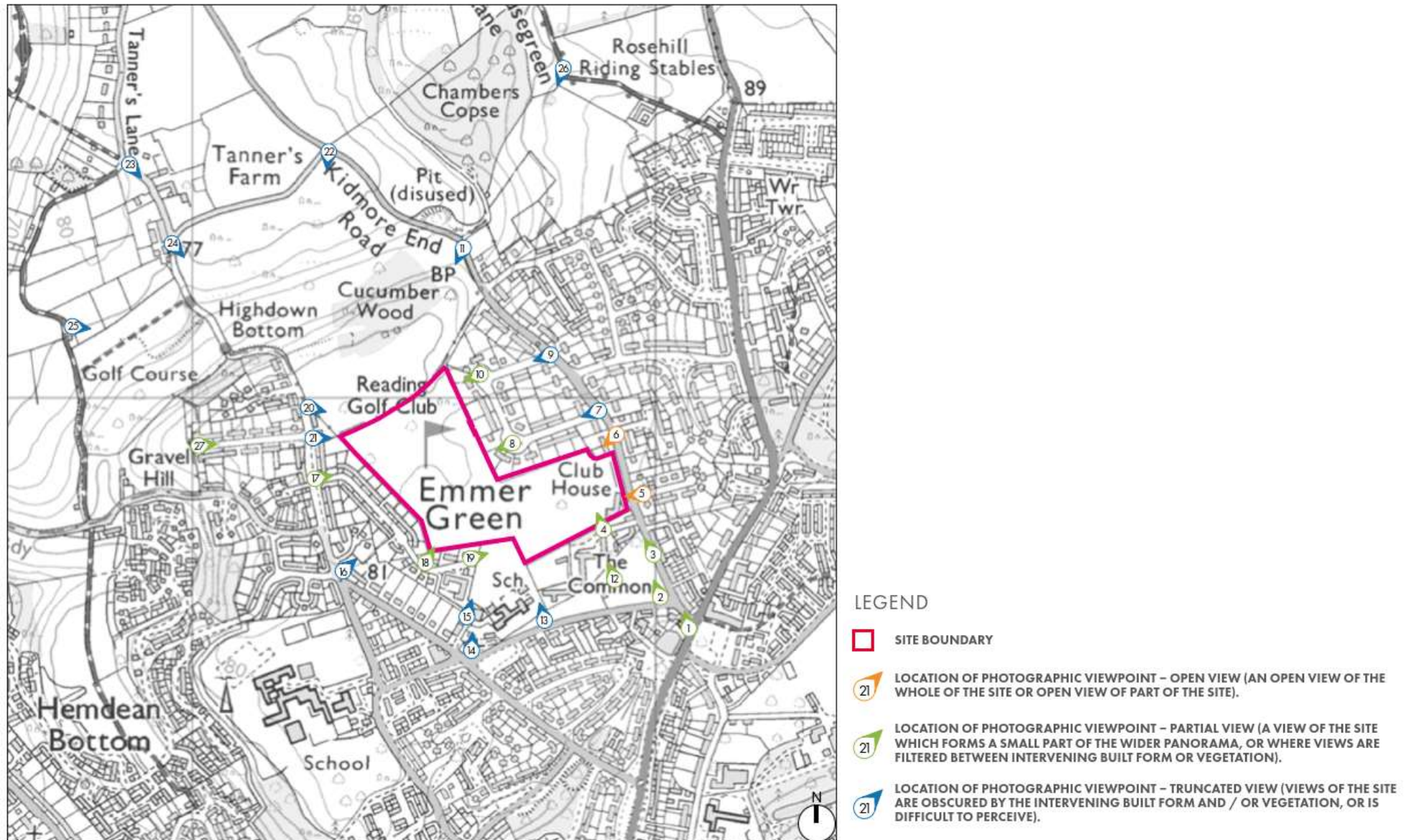
6.9.17 The desktop survey carried out as part of the LVIA included the review of Ordnance Survey maps, interactive maps, aerial photography, published landscape character assessment documents, planning policy and the emerging development proposals. The extent of the baseline and therefore the impact appraisal will therefore be broadly defined by the Zone of Theoretical Visual Influence (ZTVI) as determined by the initial desk study and verified in the field and therefore extends to approximately 1.5 km from the centre of the Site.

6.9.18 The field work was carried out on the 11th February 2019 and 9th December 2019 recorded the existing landscape elements within the Site; the contextual landscape elements; and identified a series of key visual receptors. The visual assessment element includes a photographic survey of the Site taken from a series of representative key views, chosen to represent a range of locations including both public and private views, distances and directions around the Site. The weather conditions and camera lens were also recorded.

Cumulative Effects

- 6.9.19 There are no identified applications or committed developments which could give rise to the potential significant effects, therefore, at this time there are no cumulative developments for assessment within the LVIA (to be confirmed by Reading Borough Council).

Figure 6.3: Visual Assessment View Points



7.0 Non-Significant Issues

7.1 Topic Sections

7.1.1 The following sections of this EIA Scoping Report describe the topics where it is believed there is not the potential for significant environmental effects to arise from impacts associated with the Proposed Development.

7.1.2 The following topics are proposed to be scoped out of the EIA:

- Aviation;
- Daylight, Sunlight and Overshadowing;
- Ground Conditions and Contamination;
- Major Accidents and / or Natural Disasters;
- Population and Human Health;
- Waste and Recycling; and
- Wind Microclimate.

7.2 Aviation

7.2.1 The Site is not located near any airports. The closest airport is London Heathrow Airport, approximately 33 km to the east of the Site. As the Site is located a significant distance away from London Heathrow Airport, and other airports, it can be concluded that there will be no likely adverse impacts on operations at any airports as a result of the Proposed Development, and as such, this will not be considered further within this EIA Scoping Report or within the ES itself.

7.2.2 The Proposed Development is considered unlikely to have any significant effects on aviation and therefore in line with the EIA Regulations it has been scoped out of the ES.

7.3 Daylight, Sunlight and Overshadowing

7.3.1 The Proposed Development will not include tall buildings, structures or massing that could lead to daylight, sunlight or overshadowing (DSO) effects upon residences either within the Proposed Development or in the surrounding areas. The proposed residential homes will be low density and no greater than 3 storeys in height with suitable separation distances between the properties therefore we expect compliance with the 25 degree rule of thumb, therefore it is considered unlikely to have any significant effects on DSO and therefore in line with the EIA Regulations it has been scoped out of the ES.

7.4 Ground Conditions and Contamination

7.4.1 The baseline conditions at the Site have been established through the findings of a Geo-environmental Assessment undertaken by IDOM in November 2019.

- 7.4.2 A review of historical mapping indicates that the Site was developed as a Golf course in the first half of the twentieth century and, prior to this, is presumed to have been farmland. The only structure built at the Site is a club house and accompanying car park located in the south eastern area.
- 7.4.3 The ground conditions encountered at the Site typically comprised Topsoil over River Terrace Gravel deposits of very clayey sand and gravel or very gravelly clay. The underlying bedrock geology comprised strata inferred as the Lambeth in the eastern and southern areas and Seaford Chalk Formation and Newhaven Chalk Formation in the northern area.
- 7.4.4 Groundwater was not struck during drilling, but wet gravel layers were noted at some locations.
- 7.4.5 Solution features within the Chalk Formation have been recorded within the vicinity of the Site, including areas of existing residential development located off-site. The potential presence of solution features at the Site will need to be considered as part of foundation design and it may be necessary to undertake further intrusive investigation in this regard.
- 7.4.6 There was no visual or olfactory evidence of contamination within the soils encountered during the intrusive investigation. Chemical testing of soil samples collected from shallow depths did not indicate the presence of concentrations of chemical species that would present potential harm to identified receptors. The conceptual model presented identified a no or low risk to potential receptors, and the report concluded that no remedial measures are required to support a residential development. However, further investigative work is likely to be required in the area of the club house and car park following their demolition.
- 7.4.7 A single round of ground gas monitoring undertaken did not detect the presence of ground gases at concentrations where precautionary gas protective measures would be required for proposed properties.
- 7.4.8 The Proposed Development will not include any likely sources of contamination to be introduced into the environment and, from the findings of the Geo-environmental Assessment, it is considered that there will be no significant effects with respect to ground conditions and contamination at the Site.
- 7.4.9 Therefore, an EIA with respect to Ground Conditions and Contamination is not required. However, the potential exists for temporary contamination of the water environment during the construction phase of the Proposed Development and these potential impacts (and mitigation measures) will be considered within the Water Resources and Flood Risk EIA Chapter.

7.5 Major Accidents and / or Natural Disasters

- 7.5.1 Under Schedule 3 of the EIA Regulations, the risks of major accidents and natural disasters relevant to the Proposed Development needs to be considered. The Proposed Development would introduce residential properties into an area which currently supports similar land uses.
- 7.5.2 No structural, geomorphological or geochemical features are recorded on or near the Site by BGS mapping. The Site is not in an area that could be affected by coal or metalliferous mining activity and there are no Health and Safety Executive (HSE) Control of Major

Accident Hazards (COMAH) sites in close proximity to the Site. Therefore, the Proposed Development is not likely to produce an elevated risk of accidents or natural disasters.

- 7.5.3 A framework CEMP will be prepared for the construction stage, which will include mitigation measures.
- 7.5.4 The design of the Proposed Development will be in accordance with industry standards including drainage and building regulations to reduce the potential for accidents and natural disasters to impact on the Proposed Development. A Flood Risk Assessment will also be prepared, and this will assess the potential impacts and effects related to flood risk at the Proposed Development.
- 7.5.5 In consideration of the above, there are not likely significant effects from major accidents and natural disasters and therefore this has been scoped out of the ES.

7.6 Population and Human Health

- 7.6.1 Health is influenced by many factors, including age, gender, ethnicity, education, employment, income, social networks, air, water quality, contaminated land and access to social and public health services.
- 7.6.2 The Site is currently an operational golf course. Surrounding the Site are residential properties, schools, and open green space. It is bound by the wider golf course to the north; Kidmore End Road, with dwellings on Chalgrove Way and beyond to the east; Emmer Green Primary School, Emmer Green Play Fields and a retirement home on Lyefield Court to the south; and dwellings along Eric Avenue and Highdown Hill Road to the west. It is not considered that the Proposed Development comprises uses or activities or is located within the vicinity of any activities or uses that would pose a significant risk to human health.
- 7.6.3 It is therefore likely that the human health implications of the Proposed Development would be as a result of issues which are already assessed and presented within the ES. This includes; noise, air quality, water resources, microclimatic effects of wind, contact with contaminated land / material or access to local facilities (e.g. GPs, school availability or open space).
- 7.6.4 There may be significant beneficial health effects resulting from the development of high-quality residential properties and provision of a new medical centre. There will also be beneficial effects on the population due to the increase in employment during the construction and operational phases of the Proposed Development.
- 7.6.5 On this basis it is considered that the likely effects on human health will be adequately assessed within other applicable areas of the ES and therefore it is not deemed necessary to provide a standalone chapter.

7.7 Waste and Recycling

- 7.7.1 The Proposed Development will give rise to a small amount of demolition waste (associated with the demolition of the club house on Site), construction waste (from excavation and wastage of construction materials) and operational waste.
- 7.7.2 In accordance with the principles of the Waste Management Plan for England (2013) and the National Planning Policy for Waste (2014), a principal aim during construction will be to

reduce the amount of waste which is generated and exported from the Site. This will include measures such as 'just in time deliveries', the secure storage of materials and prevention of stockpiling to minimise the potential for waste. This approach complies with managing waste towards the higher end of the Waste Hierarchy, where the intention is first to prevent, reuse, recycle and as a last resort, to dispose of waste off-site as necessary. All relevant construction contractors will be required to investigate opportunities to minimise and reduce waste generation in line with WRAP's 'Halving Waste to Landfill' initiative.

- 7.7.3 The requirement for Site Waste Management Plans was revoked on 1st December 2013, however it is considered best practice to produce a Construction Resource Management Plan (CRMP). The CRMP outlines the ways in which the Waste Hierarchy will be adhered to and waste will be managed during excavation and construction of the Proposed Development in order to avoid environmental impacts. The CRMP will be prepared during the post-planning phase, once the necessary details concerning excavation and construction are known (such as the detailed construction programme, details of appointed contractors and details of proposed construction methods).
- 7.7.4 Chapter 5 of the ES will include details regarding construction waste associated with the Proposed Development.
- 7.7.5 An Operational Waste Management Strategy will be prepared to support the planning application. The Operational Waste Management Strategy will outline the relevant legislation and national (England) and district (RBC) waste policy and guidance and how compliance with these requirements will be achieved for the Proposed Development. Consultation will be held with the RBC during preparation of the Operational Waste Management Strategy.
- 7.7.6 Whilst the Proposed Development will result in an increase in waste arisings when compared to the baseline, in particular through the provision of residential units on the Site, it is considered that RBC will have provisions in place to manage this increase. Due to the residential and commercial land uses proposed, it is not anticipated that the Proposed Development will produce hazardous waste materials (such as chemicals, medical waste, animal by-products etc.). Therefore, it is considered that the Proposed Development will not have a significant environmental effect on the RBC waste management infrastructure.
- 7.7.7 Given the above, as no significant effects relating to waste and recycling are likely as a result of waste arisings from the Proposed Development, waste management is scoped out of the ES.

7.8 Wind Microclimate

- 7.8.1 The Proposed Development will not include tall buildings, structures or massing that could lead to wind microclimate effects upon residences either within the Proposed Development or in the surrounding areas. It is not anticipated the Proposed Development will be impacted by any significant wind microclimate effects.
- 7.8.2 The Proposed Development is considered unlikely to have any significant effects with respect to wind microclimate and therefore in line with the EIA Regulations it has been scoped out of the ES.

8.0 Proposed Structure of the Environmental Statement

8.1 Structure of the Assessment Chapters

8.1.1 The proposed standardised structure for the individual assessment chapters is as follows:

- Scope of Assessment
- Key Legislation, Policy and Guidance Considerations
 - Legislation and Regulations
 - Planning Policy
 - Technical Standards and Guidance
- Assessment Methodology
 - Determination of the Baseline
 - Prediction Methodology
 - Limitations and Assumptions
- Baseline Assessment and Identification of Key Receptors
 - Baseline Assessment
 - Conclusions Regarding Baseline Environmental Quality and Key Receptors
- Identification and Description of Changes Likely to Generate Effects
 - Construction Phase
 - Operational Phase
- Assessment of Likely Significant Effect
 - Embedded Construction Mitigation Measures
 - Anticipated Effects During the Construction Phase
 - Embedded Operational Mitigation Measures
 - Anticipated Effects During the Operational Phase
- Scope for Additional Mitigation Measures
 - Potential Additional Mitigation Measures
 - Likely Effectiveness of Additional Mitigation Measures
- Residual Effects
 - Significant Residual Effects
- Cumulative Effects

- Summary and Conclusion

8.2 Structure of the ES

8.2.1 The ES will comprise the following set of documents:

- ES Volume I: Non-Technical Summary NTS: this document will provide a concise summary of the Proposed Development, alternative designs that were considered, environmental impacts and mitigation measures;
- ES: Volume II: Main Text: this will contain the main body of the EIA with the proposed chapter headings as set out in 8.3.1.
- ES Volume III: Landscape, Visual Impact Assessment (LVIA): the methodology and findings of the LVIA accompanied by a full set of views and verified images;
- ES Volume IV: Technical Appendices: these will provide supplementary details of the environmental studies conducted during the EIA including relevant data tables, figures and photographs; and

8.3 Summary of Proposed EIA / ES Scope

8.3.1 The ES will be summarised in Volume I, Non-Technical Summary (NTS).

8.3.2 As set out in this Scoping Report, the following environmental chapters are proposed for inclusion within Volume II of the ES:

- Chapter 1: Introduction
- Chapter 2: The Site
- Chapter 3: EIA Methodology
- Chapter 4: Alternatives Considered and Design Evolution
- Chapter 5: The Proposed Development and Construction Overview
- Chapter 6: Socio Economics
- Chapter 7: Traffic and Transport
- Chapter 8: Air Quality
- Chapter 9: Noise and Vibration
- Chapter 10: Water Resources and Flood Risk
- Chapter 11: Ecology
- Chapter 12: Archaeology and Built Heritage
- Chapter 13: Climate Change and Greenhouse Gas Emissions
- Chapter 13: Effect Interactions
- Chapter 14: Residual Effects and Conclusions

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- 8.3.3 A Landscape and Visual Impact Assessment will comprise Volume III of the ES.
- 8.3.4 Volume IV of the ES will comprise of appendices to Volumes I, II and III of the ES.
- 8.3.5 There will also be the following related stand-alone documents submitted as part of the planning application:
- Desk Based Archaeological Assessment (Heritage Statement);
 - Preliminary Ecological Assessment (PEA);
 - Phase 1 Contamination Report;
 - Arboriculture Assessment;
 - Outline Drainage Strategy;
 - Flood Risk Assessment;
 - Energy Strategy;
 - Sustainability Assessment;
 - Environmental Landscape Strategy; and
 - Framework CEMP.
- 8.3.6 This Report requests a Scoping Opinion from RBC pursuant to Regulation 15 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017.
- 8.3.7 RBC and consultees are invited to consider the contents of this Report and comment accordingly within the five-week period prescribed by the EIA Regulations.

Appendix A Phase 1 Contamination Risk Assessment