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READING STATION SHOPPING PARK EIA SCOPING OPINION REQUEST REPORT

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1. INTRODUCTION

1.1 Background

Ramboll UK Ltd. ('Ramboll') has been commissioned by Aviva Investors Ltd (hereinafter referred to as the 'Applicant') to prepare an Environmental Impact Assessment (EIA) Scoping Opinion Request Report (hereafter referred to as the 'EIA Scoping Report') for the proposed development of the Reading Shopping Park site (hereafter referred to as the 'application site').

As shown in Figure 1.1, the application site is located in the Reading city centre, to the north of Reading Railway Station and to the south of Vastern Road (A329), within the administrative boundary of the Reading Borough Council (RBC).

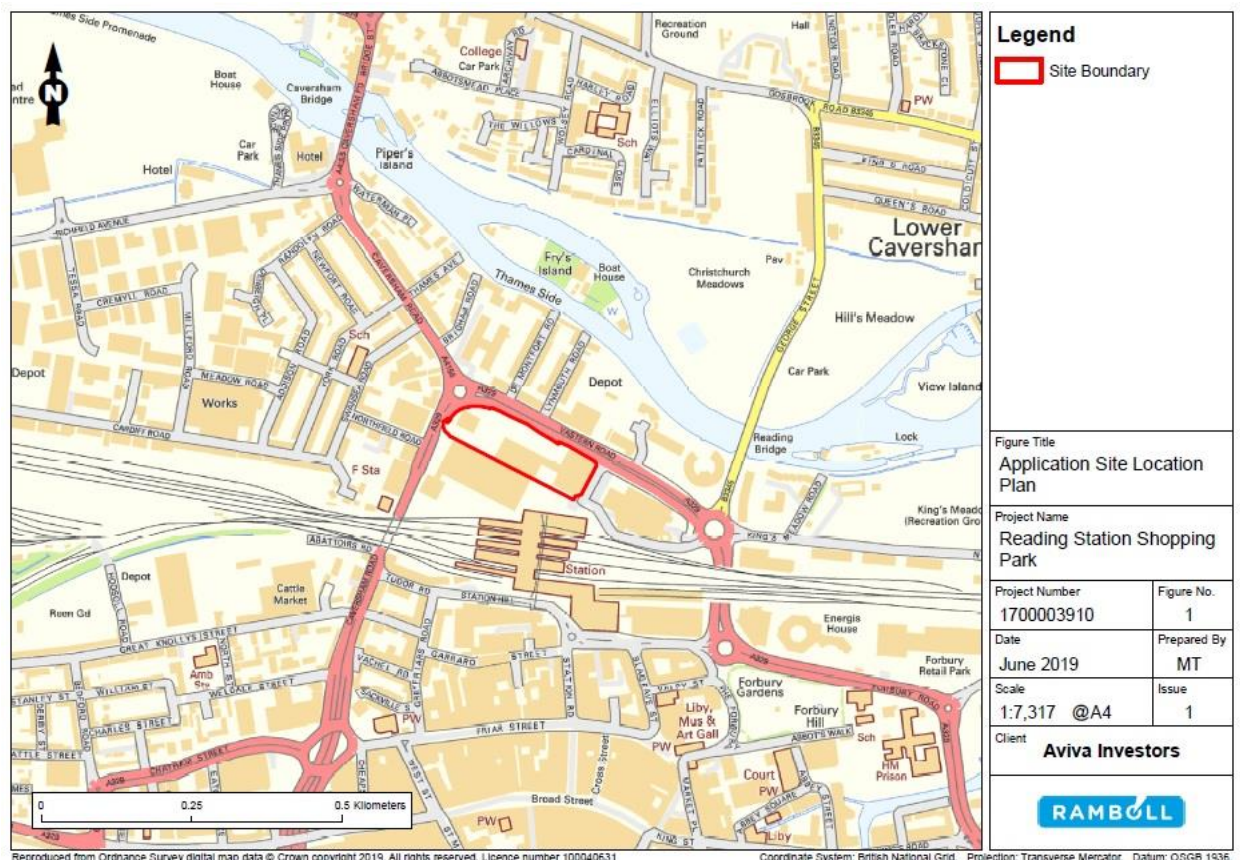


Figure 1.1: Application Site Location

The Applicant intends to submit an application for outline planning permission for the demolition of the existing buildings and the construction of a mixed-use development comprising residential and commercial uses together with associated parking, access arrangements, and landscaping (hereafter referred to as the 'proposed development').

Further explanation of the application site and the proposed development is given in Sections 3 and 4 of this EIA Scoping Report.

It should be noted that the development proposals are still evolving and will be subject to extensive pre-application consultations, but any further revisions are not anticipated to exceed the parameters described in this EIA Scoping Report.

Due to the scale and nature of the proposed development, outlined in Section 4 of this EIA Scoping Report, it is considered that the proposals fall within Schedule 2 (10(b)) of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (hereinafter referred to as the 'EIA Regulations') and that an EIA is required.

The findings of the EIA will be reported in an Environmental Statement (ES), which will accompany the application for outline planning permission for the proposed development. The EIA process is described in Section 5 of this EIA Scoping Report.

1.2 Purpose of EIA Scoping Report

Regulation 15 of the EIA Regulations allows for the Applicant to ask the local planning authority to state in writing their opinion as to the scope of the EIA. This report constitutes a formal request for an EIA Scoping Opinion from the RBC.

The purpose of this EIA Scoping Report is to agree with the RBC the proposed scope of the EIA and the approach to be adopted for the technical assessments to be scoped within the EIA, as well as to facilitate wider consultation with statutory consultees and key stakeholders who may have an interest in the likely significant environmental effects of the proposed development.

This report:

- outlines the planning context in Section 2;
- describes the key characteristics and the surrounding context of the application site in Section 3, providing a plan sufficient to identify the land;
- briefly describes the emerging proposed development for the application site including its anticipated technical capacity in Section 4;
- summarises the key considerations of the EIA process in Section 5 and the approach that will be adopted for the EIA of the proposed development;
- summarises the technical topics considered in scoping the EIA in Section 6;
- identifies the likely significant environmental effects anticipated for the proposed development at this stage in Section 7 and Section 8;
- explains in Section 7 and Section 8, the proposed scope and assessment methodologies that will be adopted to predict the magnitude of potential impacts and the scale of likely effects, and to assess the significance of the residual effects within the EIA; and
- outlines the environmental topic areas in Section 9 that are considered unlikely to result in significant environmental effects and are therefore proposed to be scoped out of the EIA.

This EIA Scoping Report has been developed in accordance to the provisions of Regulation 15 of the EIA Regulations, as well as best practice methods.

During the EIA Scoping process, it is anticipated that the RBC will provide an agreed framework within which the EIA will be undertaken. When adopting a formal EIA Scoping Opinion, the RBC will take into account the views of statutory consultees and other interested parties.

1.3 Consultation Strategy

The process of consultation is a key requirement of EIA and the views of statutory consultees and stakeholders serve to help identify specific issues, as well as highlighting the existence of any information in their possession, or of which they have knowledge, which may be of assistance in progressing the EIA. The key consultees that should be provided the opportunity to contribute to the formal EIA Scoping process include, but are not limited to, those set out in Table 1.1.

Table 1.1: Consultees	
Statutory Consultees	Non-Statutory Consultees
Reading Borough Council (RBC)	Thames Water Utilities Limited (TWUL)
Environment Agency (EA)	Neighbourhood/residents associations
Natural England (NE)	Thames Valley Police
Network Rail (NR)	
Highways England	

Each technical assessment chapter of the ES will include a summary of the relevant consultations undertaken as part of the EIA.

As part of the design and EIA process, measures will be developed and discussed with relevant consultees (i.e. NE, EA) and stakeholders to avoid, reduce, mitigate likely adverse effects, or provide enhancements to likely beneficial effects, as appropriate.

2. PLANNING CONTEXT

2.1 Planning History

This section summarises the key planning history of most relevance to the application site and provides background to the existing and consented land uses at the application site. Relevant applications are summarised as follows:

- 87/TP/1105: Development to provide three retail warehouses, one restaurant, together with car parking, internal site roads, service area and landscaping on land at junction of Caversham Road and Vastern Road, Reading. Application permitted with conditions on 18/03/1988.
- 070767: Minor external alterations to shopfront, erection of canopy to front of building, minor external alterations to south-east elevation and siting of secure compound in rear service yard. Application permitted 30/10/2007.
- 071279: Change of use of 2322 m² of ground floor from retail (A1) to leisure (D2) or retail (A1). Application permitted 11/04/2008.

The application site has been in retail use since the 1980s and is occupied by two warehouse type buildings (Use Class A1) sub divided into four retail units on the southern and eastern boundaries, as well as a third building occupied by a restaurant unit (Use Class A3) in the north-western corner. The buildings are located within extensive surface level car parking.

2.2 Application Documents

The scope of the application for outline planning permission is due to be agreed with RBC; however, at this stage it is anticipated that the following documents will be required to accompany the application:

- Covering Letter and Application form;
- Community Infrastructure Levy (CIL) Additional Information form;
- RBC Local Floor Space Information form;
- Site Location Plan;
- Existing Buildings and Demolition Drawings;
- Development Parameters (including text and plans);
- Design and Access Statement (including Illustrative Scheme)
- Landscape Statement (including Open Space Assessment and Sustainable Drainage Strategy (SUDS));
- Planning Statement (including Housing Statement and Planning Obligations);
- Transport Assessment (including Travel Plan, Parking Provision);
- Affordable Housing Statement;
- Energy Statement;
- Sustainability Statement;
- Environmental Statement (including the Townscape and Visual, Built Heritage, Flood Risk Assessment, Air Quality Assessment, Archaeology Assessment, Ecology Assessment, Daylight, Sunlight and Overshadowing Assessment, Ground Conditions Assessment, Noise Assessment, Wind Microclimate Assessment, Arboriculture Impact Assessment);
- Site Waste Management Plan;
- Sustainable Design and Construction Statement;
- Statement of Community Consultation;

- Economic Assessment;
- Foul Sewage and Utilities Assessment; and
- Internal Daylight and Sunlight Assessment.

2.3 Planning Policy

The design development of the proposed development will be guided by policy and guidance discussed in this section. It is important to note that although policy and guidance will inform the scope of technical assessments within the EIA, the proposed development's compliance to and performance against these policy directives and guidance (together with associated planning standards/targets) will be appraised within the Planning Statement and Design and Access Statement for the application, and not within the EIA.

Accordingly, the ES will not include an exhaustive discussion of the policies that have informed the scope of the technical topics. Instead, a list of legislation and policies that have been considered in preparing the EIA as a whole, would be appended to ES Chapter 2: EIA Process and Methodology.

2.3.1 National Legislation and Policy

National Planning Policy Framework, 2019

The 2019 National Planning Policy Framework (NPPF)¹ was published and became immediately effective on 19 February 2019, superseding the 2012 NPPF. It sets out the Government's planning policies for England. It provides within a single document the greater part of national planning policy advice and articulates the Government's vision for delivering sustainable development. The NPPF is a material planning consideration.

Planning Practice Guidance

The Planning Practice Guidance (PPG)² is an online resource which became effective in March 2014 and is continually updated. The PPG aims to make planning guidance more accessible, and to ensure that the guidance is kept up-to-date.

2.3.2 Regional and Local Policy

The ES will have regard to the following local planning documents:

- Reading Borough Local Development Framework Core Strategy (2015);
- Reading Station Area Framework (2010);
- Reading Central Area Action Plan (2009);
- Reading City Centre Framework (2009);
- Sites and Detailed Policies Document (2015); and
- Draft Reading Borough Local Plan (2017).

Reading Borough Local Development Framework Core Strategy, 2015

The Reading Borough Local Development Framework Core Strategy³ (adopted in January 2008 and altered in January 2015) states that the application site is located in an area designated as a 'Major Development Area in the Centre'. The adopted Core Strategy indicates that up until 2026, there would be a greater concentration of housing and employment in the centre of Reading, near the station.

¹ Secretary of State for Ministry of Housing, Communities and Local Government, 2019. National Planning Policy Framework.

² <https://www.gov.uk/government/collections/planning-practice-guidance>

³ Reading Borough Council, 2015. Reading Borough Local Development Framework. Core Strategy.

Submission Draft Reading Borough Local Plan, 2018

RBC is in the process of producing a new Local Plan, which will contain planning policies to guide development up to 2036. The Submission Draft Reading Borough Local Plan and Proposals Map⁴ were submitted to the Secretary of State for Communities and Local Government in March 2018. The application site is located in the Draft Reading Borough Local Plan under Policy 'CR11e: North Station'. The policy states the following:

"There will be retail and leisure development on the ground floor activating the streets and spaces including the new northern station square, with other uses including residential and offices on upper floors. Public car parking will be provided. A high quality route incorporating a green link should be provided through to the Thames. Development should take account of mitigation required as a result of a Flood Risk Assessment."

2.3.3 Policy Designations

Reading Central Area Action Plan, 2009

The application site is located within the boundary of the Reading Central Area Action Plan⁵ (RCAAP) which was adopted in 2009. The application site is located in the sub-area Station/River Major Opportunity Area. Policy RC1e states the following:

"There will be retail and leisure development on the ground floor with other uses including residential and offices on upper floors."

The RCAAP states that no one area in the centre is seen as being inappropriate for housing development.

Reading Station Area Framework, 2010

RBC produced the Reading Station Area Framework⁶ in order to provide a comprehensive approach to the area's future redevelopment. The framework sets out broad development principles to guide the planned redevelopment of the area, individual sites, the public realm and new transport infrastructure taking into account of existing and emerging policy. The framework should be considered to be a bridge between the provisions of the Core Strategy and the RCAAP, and the more specific requirements of individual site briefs for key sites in the area. The framework has the status of a Supplementary Planning Document, supplementing policy RC1 of the RCAAP, and as such is a material consideration in the determination of planning applications for development in the area.

Strategic Housing Market Assessment, 2016

The Strategic Housing Market Assessment⁷ identifies that 699 new dwellings per year is required in Reading up to 2036. A significant proportion of the development to be provided in Reading, as identified within the Local Plan, will be within the central area, including 7,600 homes, 71,000 m² of offices and up to 27,000 m² of retail and related uses.

Supplementary Planning Documents

The following RBC Supplementary Planning Documents (SPDs) are of relevance:

⁴ Reading Borough Council, 2018. Submission Draft Reading Borough Local Plan.

⁵ Reading Borough Council, 2009. Reading Central Area Action Plan.

⁶ Reading Borough Council, 2010. Reading Station Area Framework.

⁷ GL Hearn Limited, 2016. Berkshire (including South Bucks) Strategic Housing Market Assessment.

- Community Infrastructure Levy Charging Schedule, 2015⁸: This document provides information on the charge imposed on new developments to support the provision of infrastructure;
- Statement of Community Involvement, 2014⁹: This document sets out the consultation process for matters relating to planning; and
- Affordable Housing Supplementary Planning Document, 2013: This document provides developers with guidance on the policy and explains developer requirements to contribution to affordable housing.

⁸ Reading Borough Council, 2015. Community Infrastructure Levy Charging Schedule.
⁹

3. APPLICATION SITE

3.1 Application Site Location

The application site is located in Reading city centre as shown in Figure 1.1.

The application site's immediate boundaries are defined by the following:

- Vastern Road (A329) to the north, beyond which are residential units and a Scottish and Southern Energy office unit;
- Trooper Potts Way to the east, beyond which is Reading Railway Station car park;
- Network Rail Thames Valley Area site office to the south, beyond which is Reading Railway Station railway lines; and
- Caversham Road to the west, beyond which are a range of commercial, residential and industrial units.

The wider context of the application site is characterised by urban development with a fragmented mixture of commercial, industrial and residential uses.

Reading Railway Station is located 50 m to the south and the River Thames is located 150 m north-west of the application site. The Ockem Controls of Major Accidents Hazards (COMAH) Establishment is located approximately 1.65 km east of the application site. The application site does not lie within the consultation zones of the COMAH Establishment.

Reading is undergoing significant redevelopment in the area surrounding Reading Railway Station. Of particular relevance to the proposed development, given its close proximity, is the Reading Metropolitan development proposal by Hermes on the current Network Rail Thames Valley Area site office (former Royal Mail site) on Caversham Road, directly adjacent to the application site along its southern boundary. The current Hermes proposals indicate that the tallest building would extend up to 25 storeys in height. It is understood that the planning application for this scheme has been submitted to RBC and is currently being determined.

3.2 Site Description

The application site boundary is presented in Figure 3.1.

The application site covers an area of approximately 1.80 hectares (ha) and lies at an elevation of between approximately 37,8 m and 38,8 m Above Ordnance Datum (m AOD).

The application site comprises three pavilion style buildings and surfaced car parking. The buildings are occupied by commercial units (including an Aldi, The Range, Mothercare and Majestic Wine) and a separate building in restaurant use (TGI Fridays). The units are low rise, approximately 2-3 storeys high. There is currently provision for 280 surface car parking spaces.

The application site access point is off Caversham Road and egress is from Vastern Road (A329). The site is serviced from Trooper Potts Way.

Landscaping forms the southern edge of Vastern Road and eastern edge of Caversham Road. This includes a number of canopy trees, in addition to grass and shrub planting.

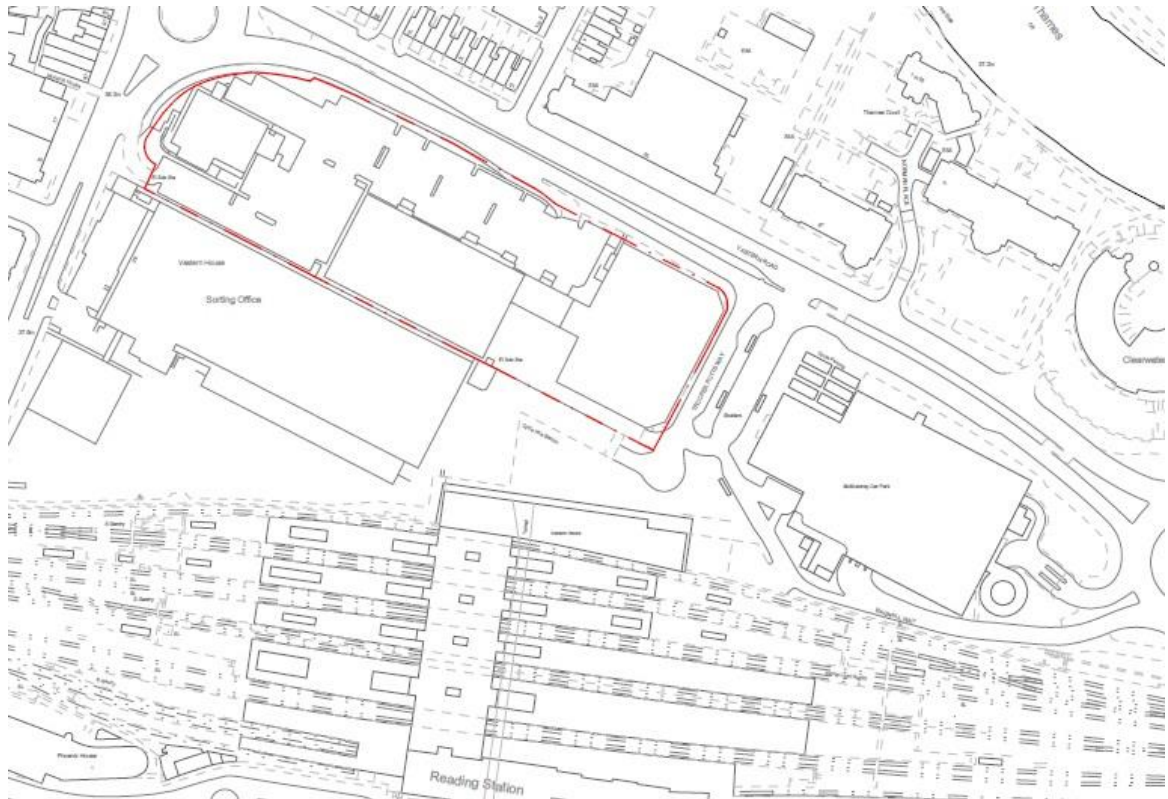


Figure 3.1: Application Site Redline Boundary

3.3 Surrounding Environment and Environmental Considerations

A description of the environmental considerations is presented in each of the technical sections in Sections 7 - 9. A selection of the key considerations is presented spatially in Figure 3.2.

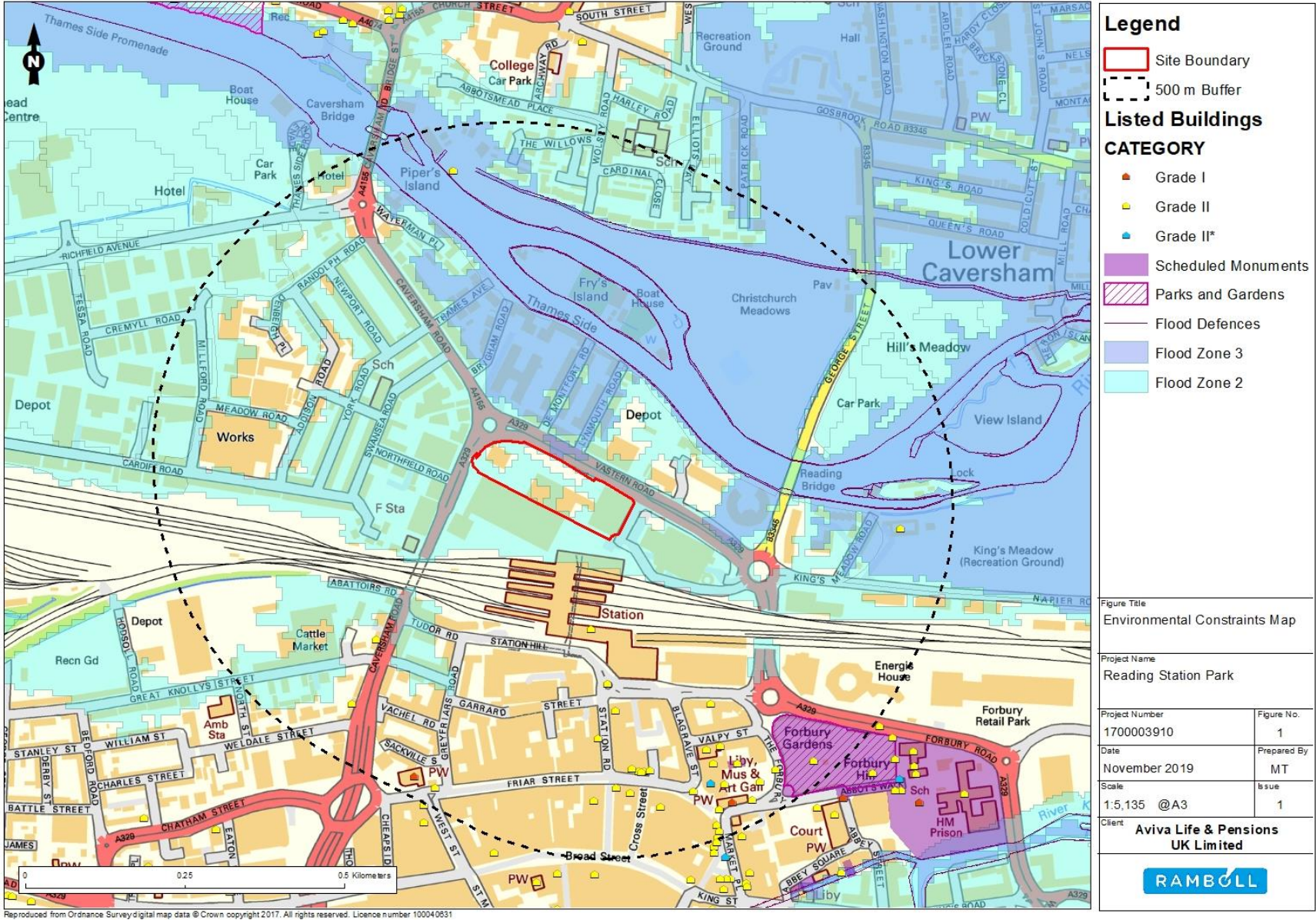


Figure 3.2: Selection of Environmental Considerations

3.4 Potential Sensitive Receptors

A number of receptors have been identified that would potentially be sensitive to effects resulting from the proposed development, as set out in Table 3.1. Further detail is provided as appropriate in Sections 7 - 9.

Table 3.1: Potential Sensitive Receptors	
Environmental Consideration	Sensitive Receptors within Study Area
Severance, Fear and Intimidation, Delay, Amenity	Existing pedestrians and users of the application site and within the surrounding area who would be present during the demolition and construction works and once the proposed development is completed.
Residential Amenity and Health	- Existing residential properties, including those to the north and west - Future residential properties on-site, as well as those within identified cumulative schemes
Non-residential Amenity, Employment	Existing commercial and retail uses on-site and within the study area
Community Facilities Amenity and Capacity	- Existing primary and secondary schools - Existing healthcare facilities – GPs, dentists and hospitals - Existing community facilities, including leisure centres and local community centres - Existing open space and amenity space
Townscape Character, Views and Heritage Setting	- Existing townscape character areas (including Reading Tall Building Strategy Character Area 22: Vastern Road) - Heritage assets including listed buildings, registered parks and gardens, listed buildings and structures
Transportation Facilities and Capacity	- Reading Railway Station (overland rail) - Reading North Bus Station (bus) - Road network (drivers) - Pedestrian and cycling paths and routes (pedestrians, cyclists)
Controlled Waters Quality and Flood Risk	- River Thames - Ground water - Underlying geology and hydrology (including the Principal Aquifer)
Ecology	- Habitats, including trees and vegetation within and adjacent to the application site - Protected species - River Thames and associated habitat and species
Air Quality and Climate	- On and off-site residential receptors - Demolition and construction workers - Local air quality (Air Quality Management Area (AQMA))
Contamination	- Demolition and construction workers - Underlying geology and hydrogeology – primarily Principal Aquifer - River Thames
Resource consumption and demand	Foul and potable water

4. PROPOSED DEVELOPMENT

The development proposals, which are currently being refined through the on-going pre-application design and consultation processes, are expected to deliver the comprehensive redevelopment of the application site.

The proposed development is anticipated to comprise of the following:

- Demolition of the existing buildings;
- Construction of a single level basement to allow for any necessary below ground surface water attenuation;
- Construction of approximately four new buildings, up to approximately 112.9 mAOB, indicatively up to 23 storeys;
- Delivery of a total maximum floorspace of up to 115,000 m² gross external area (GEA), which could include:
 - up to a maximum of approximately 1,000 new residential units within a maximum floorspace of up to 100,000 m² GEA, provided within a range of apartment buildings of varying scale and a mix of unit sizes, including a proportion of affordable homes;
 - up to a maximum floorspace of approximately 7,000 m² GEA flexible retail, leisure and community uses (Use Class A1-A5, D1-D2), with a minimum of 2,000 m² Use Class A1-A5, D1-D2 to be provided;
 - up to a maximum floorspace of approximately 115,000 m² GEA office use (Use Class B1a);
 - up to a maximum floorspace of approximately 8,000 m² GEA hotel use (Use Class C1);
- Delivery of residential car parking provision (including disabled parking provision) in accordance with Approved Document M of the Building Regulations 2010 Part M4 Category 3. The remainder of uses would be designed in accordance with Part M4 Category 2.
- Delivery of cycle storage in line with current policy requirements;
- Delivery of a mix of public and private open space, including children's playspace equivalent to a minimum of approximately 10 % of the application site area.

New pedestrian and cycle routes would be provided within the proposed development creating permeability through the application site. In addition, vehicular access would be provided.

Although the design proposals are still evolving, it is anticipated that any revisions to the proposals described above would be likely to fall within the parameters presented within this EIA Scoping Report.

The draft 'minimum separation distances' parameter plan is presented in Figure 4.1.



Figure 4.1: Building Plots Parameter Plan Including Separation Distances

5. EIA PROCESS AND APPROACH

5.1 Need for Environmental Impact Assessment

EIA is a formal process by which the effects of certain types of development projects on the environment are identified, assessed and reported upon and mitigation identified in order for the effects to be taken into account by the relevant competent authority when considering whether to grant planning permission.

As noted at Section 1, the proposed development falls within Schedule 2 (10(b)) of the EIA Regulations and an EIA is required.

The EIA Regulations set out in general terms the content of an ES and allow an Applicant to obtain a formal EIA Scoping Opinion from the relevant planning authority regarding the issues to be considered within the EIA for a specific development proposal; what information should be contained in the ES; and what effects are likely to be more significant than others. EIA best practice encourages applicants to consult other organisations likely to have an interest in a development proposal.

5.2 Content of Environmental Statement

The specified information to be included in the ES of the proposed development will comply with Regulations 18(3) - 18(5) and Schedule 4 of the EIA Regulations. In summary the ES will present the following:

- A description of the application site, its location and surrounding context and associated environmental sensitivities – baseline conditions;
- A description of the proposed development containing information on the:
 - physical characteristics and land use requirements of the proposed development during the demolition and construction works and the completed development;
 - main characteristics of the operational stage of the proposed development including energy demand, nature and quantity of the materials and natural resources used (water, land, soil and biodiversity);
 - expected residues and emissions (water, air, soil, sub-soil pollution, noise, vibration, light, heat, waste) resulting from the construction and operation of the proposed development;
- A description of the reasonable alternatives studied by the Applicant, as relevant to the proposed development, and the reasons for the selection of the chosen option, including a comparison of the environmental effects;
- A description of the relevant aspects of the baseline and an outline of the likely evolution thereof without the implementation of the proposed development (see 'Do-Nothing scenario' in Section 5.4 and 5.5) as far as natural changes from the baseline can be assessed;
- A description of the factors of the environment likely to be significantly affected by the proposed development, including:
 - population;
 - human health;
 - biodiversity (fauna and flora);
 - land (land take);
 - soil;
 - water (quantity and quality);
 - air;
 - climate (greenhouse gas emissions, adaptation to climate change);
 - population vulnerability to major accidents and disasters;

- material assets, including the architectural, archaeological and landscape assets;
- the interaction between the above factors;
- A description of the likely significant effects of the proposed development on the environment, which should indicate the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, beneficial and adverse effects of the proposed development resulting from the:
 - construction and existence of the development, including demolition works;
 - use of natural resources, in particular land, soil, water, biodiversity and the sustainability of resources where possible;
 - emission of pollutants such as noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;
 - risk to human health, cultural heritage or the environment (due to accidents or disasters);
 - accumulation of effects with other existing and/or approved projects, taking into account existing environmental problems or the use of natural resources;
 - impacts on climate (nature and magnitude of greenhouse gas emissions) and the vulnerability of the proposed development to climate change;
 - technologies and substances used;
- A description of the forecasting methods used to assess the effects on the environment including details of difficulties encountered and the main uncertainties;
- A description of mitigation measures to avoid, prevent, reduce or where possible, offset any significant adverse effects on the environment and, where appropriate, any proposed monitoring arrangements for both the demolition and construction stage and the completed development stage;
- A non-technical summary of the information provided above;
- A reference list detailing sources used for the descriptions and assessments included in the ES; and
- A statement outlining the relevant experience and or qualifications of the experts who have prepared the ES.

5.3 Format of Environmental Statement

The ES will comprise the following suite of documents:

- Non-Technical Summary
 - Individual volumes of the ES will be summarised within a Non-Technical Summary (NTS), which will outline the key findings of the EIA, presented in non-technical language to assist the reader;
- Volume 1: Main Environmental Statement Report comprising:
 - Five introductory chapters (Introduction; EIA Process and Methodology; Alternatives and Design Evolution; Proposed Development Description; and Demolition and Construction Environmental Management);
 - Technical assessment chapters which will report on the EIA of the proposed development as described in the introductory chapters, as well as in documents that will accompany the application, as explained in Section 3;
 - Two concluding chapters (Intra Cumulative Effects and Residual Effects);
- Volume 2:
 - Townscape and Visual Impact Assessment accompanied by Accurate Visual Representations (AVRs);
 - Built Heritage Assessment;

- Volume 3: Technical Appendices including amongst others;
 - Preliminary Ecological Appraisal (PEA); Arboriculture Impact Assessment (AIA); Historic Environment Assessment (HEA); Preliminary Risk Assessment (PRA); and Flood Risk Assessment (FRA).

5.4 Basis of Environmental Impact Assessment

The EIA will be undertaken based on the proposed development as described in the introductory chapters of the ES (as described in Section 5.3 of this report).

It is anticipated that the outline planning application for the proposed development will seek to reserve all matters associated with land use; scale and massing; internal layout; appearance, and landscaping. Access is anticipated to be fixed.

At this stage it is anticipated that the reserved matters would be defined by means of the following:

- Development Parameters (including plans and statements);
- Maximum area schedule; and
- Indicative residential unit and tenure mix.

At this stage it is anticipated that the parameters identified and assessed through the EIA will likely consider the following:

- Development Footprint;
- Site Access and Site Egress;
- Minimum Separation Distances;
- Maximum Heights (m AOD) for Residential and Non-Residential uses; and
- Basement Footprint.

The parameter plans will be accompanied by a parameter statements and supported by a Design & Access Statement and design code, which will present design principles for the proposed development and landscape proposals, indicative material palette, as well as development commitments. Due to the indicative nature of the material palette, the EIA will place no reliance on this information.

The above would define the maximum quantum of individual use classes (and minimum in the case of 2000 m² GEA of Use Classes A1-A5, D1-D2) and provide a controlling set of design principles within which the reserved matters will be brought forward.

To ensure that the EIA is proportionate, it will assess the worst-case development for each technical discipline scoped within the EIA.

At this stage, it is anticipated that the following supporting documents will be considered during the preparation of the EIA for the proposed development, although it is noted that the scope of the planning submission documents is still to be agreed with the RBC:

- Design and Access Statement, including an outline lighting strategy and outline waste strategy which will describe the key principles to be adopted within the proposed development;
- Foul Sewage and Utilities Assessment which will summarise the foul sewage and utility connections required and the predicted consumption of water and energy;
- Energy Statement which will include, amongst others, a high-level assessment of the proposed development's energy demand and a high-level assessment of the energy efficiency and renewable technologies that could be adopted in the proposed development;
- Sustainability Statement which will describe the options available to embed sustainability into the proposed development at reserved matters stage;

- Transport Assessment (TA); and
- Outline Waste Management Plan which will describe the demolition and construction waste management measures and controls that would be adopted for the proposed development; and
- Stand-alone environmental reports, which will be appended to the ES (see Sections 9 and 10).

Where information is not available due to the outline nature of the proposed development, the EIA will make reasonable assumptions which will be clearly set out and based on professional judgement and experience of developments of a similar nature and scale.

5.5 Baseline Conditions

Consideration will be given, as appropriate (and subject to programmed implementation), within the EIA to the following existing and future site conditions:

- As identified during site surveys and desk-based data collection (Existing Baseline);
- In the event that the proposed development does not proceed (the 'Do Nothing' scenario);
- At the time the proposed development is completed and becomes operational (Future Baseline); and
- In combination with other existing and/or approved development in the cumulative study area of the application site (Cumulative Future Baseline as discussed in Section 5.7.4)).

5.5.1 Baseline – Existing and Future (Opening Year)

The EIA will predict the likely change in environmental conditions as a result of the proposed development. The assessment of the scale and nature of a likely change will be undertaken against a reference condition, known as the 'existing baseline'. In most cases, the existing baseline represents the environmental condition of the application site and the surrounding area at the time of the assessment, although it may also include a projected environmental condition at a defined point in the future, the 'future baseline'.

The existing baseline for the EIA will be taken as the existing application site and its immediate surrounds, with the exception of transport and accessibility; air quality; and noise and vibration where a future baseline, namely the year of the proposed development's completion, will be considered.

Various baseline surveys (Extended Phase 1 Habitat Survey, PRA, Noise Survey) will be undertaken to characterise the existing baseline conditions at the application site.

Additional assessments and surveys undertaken during the course of the EIA process will utilise information already available, as well as new information provided in response to this EIA Scoping Report. Collectively the information will establish an existing baseline against which changes introduced by the proposed development will be assessed.

The future baseline will be predicted by means of third party data, modelling and application of future growth factors as appropriate for air quality, noise and transport.

5.5.2 Do Nothing

The 2017 EIA Regulations stipulate that the ES should consider the likely evolution of the existing application site conditions in the absence of the proposed development (i.e. the 'Do Nothing Scenario'). The evolution of application site conditions will be qualitatively reviewed within ES Chapter 3: Alternatives and Design Evolution presented within ES Volume 1.

5.6 Alternatives

The EIA Regulations require that the ES provides an outline of the reasonable alternatives to the proposed development considered by the Applicant and the reasons for the selection of the preferred option. The alternatives considered in the course of the design process, such as site location, land uses, layouts and design evolution, will be presented. The environmental factors that informed each of the options would be presented as relevant.

5.7 Assessment Methodology

5.7.1 Approach

The EIA will be undertaken in line with best practice guidance, which includes the following publications:

- England and Wales: Online National Planning Practice Guidance¹⁰;
- Department for Transport: Design Manual for Roads and Bridges Volume 11: Environmental Assessment¹¹, 2008;
- Department of the Environment, Transport and the Regions (DETR) Mitigation Measures in Environmental Statements, 1997;
- Institute of Environmental Assessment: Guidelines for Environmental Assessment of Road Traffic¹², 1994;
- Institute of Environmental Management and Assessment: Guidelines for Environmental Impact Assessment¹³, 2004;
- Institute of Environmental Management and Assessment: The State of Environmental Impact Assessment Practice in the UK, 2011;
- Department for Communities and Local Government (DCLG): Amended Circular on Environmental Impact Assessment (consultation paper)¹⁴, 2006;
- DCLG: Environmental Impact Assessment: A guide to good practice and procedures (consultation paper)¹⁵, 2006;
- Department of the Environment (DOE) Good Practice Guide - Preparation of Environmental Statements for Planning Projects that Require Environmental Assessment, 1995;
- European Commission: Environmental Impact Assessment – Guidance on Scoping, 2001
- DCLG: Guidance for Environmental Impact Assessment. On-line Resource¹⁶, 2014;
- Office of the Deputy Prime Minister: Environmental Impact Assessment: A Guide to Procedures, 2000;
- Institute of Environmental Management and Assessment: Shaping Quality Development, 2015¹⁷; and
- Institute of Environmental Management and Assessment: Special Report into the State Environmental Impact Assessment Practice in the UK¹⁸, 2011.

¹⁰ <http://planningguidance.planningportal.gov.uk/blog/guidance/environmental-impact-assessment>

¹¹ Department for Transport, 2008. Design Manual for Roads and Bridges Volume 11: Environmental Assessment.

¹² Institute for Environmental Assessment (IEMA), 1994. Guidelines for Environmental Assessment of Road Traffic [Now the Institute of Environmental Management and Assessment.

¹³ Institute of Environmental Management and Assessment (IEMA), 2004, Guidelines for Environmental Impact Assessment. IEMA.

¹⁴ Department for Communities and Local Government, 2006. Amended Circular on Environmental Impact Assessment: A consultation paper. DCLG.

¹⁵ Department for Communities and Local Government, 2006. Environmental Impact Assessment: A guide to good practice and procedures – a consultation paper. DCLG.

¹⁶ Department for Communities and Local Government, 2014. Guidance for Environmental Impact Assessment. DCLG.

¹⁷ Institute of Environmental Management and Assessment, November 2015. Shaping Quality Development.

¹⁸ Institute of Environmental Management and Assessment, 2011. The State of Environmental Impact Assessment Practice in the UK.

The EIA will employ a range of tools and approaches aimed at predicting the likely scale and nature of environmental effects. Some technical assessments will rely on mathematical models which provide a numerical estimate of the size of an environmental change or impact, such as the levels of noise or air pollutants likely to arise from net additional traffic, or from heating plant emissions. Other technical assessments will rely on map-based techniques to plot the extent of land use change or habitat loss or use illustrative methods to communicate how the proposed development might appear from a particular viewpoint.

The predictions in the EIA will indicate the scale and nature of the proposed development's likely effects, to enable informed planning decisions about the likely environmental outcomes of the proposed development; however, these predictions may be subject to a degree of uncertainty. As such, the tools employed, and the assumptions made in each case will be developed accordingly and set out clearly.

As a general rule, the EIA will assess the potential environmental impacts and effects that are likely to arise as a consequence of the proposed development. Any embedded mitigation developed through the proposed development's evolution will be considered within this assessment, and a level of significance will be applied to the likely effects.

Any additional mitigation measures and/or enhancement measures that would need to be incorporated to reduce or off-set likely effects, will then be discussed and the assessment would be undertaken again as necessary to incorporate the identified measures. The outcome of likely residual effects following the incorporation of additional mitigation and/or enhancement measures would then be presented and consideration will be given as to whether any proposed monitoring arrangements would be appropriate.

It is anticipated that the demolition and construction programme of the proposed development would be sequenced over an approximate 3.5 - 4 year period. The EIA will assess and report on the completed development as a whole and not the phased development. This is because no significant delay (i.e. of more than 12 months) is anticipated between the development phases. In addition, a phased assessment is not proposed to be undertaken for the following reasons:

- A robust phasing strategy will be prepared by the Applicant based on detailed consideration of receptors within the immediate surroundings of the application site, as well as newly introduced receptors (e.g. residents of completed residential units); and
- The impacts and effects that are likely to arise during the demolition and construction stage would not materially differ on a phase-by-phase basis and therefore robust assessments would be presented in each technical chapter.

5.7.2 Demolition and Construction Stage Effects

As mentioned in Section 5.3, ES Volume 1 will contain an introductory chapter (Chapter 5: Demolition and Construction Environmental Management) which will describe the proposed development's anticipated development programme and the key activities that are expected to be undertaken during demolition and construction works. The information will form the basis for the assessment of the proposed development's demolition and construction effects.

The chapter will not assess the significance of likely effects during the demolition and construction works, as this will be addressed within subsequent individual technical assessment chapters of the ES, where relevant.

Understanding of demolition and construction works (methods, techniques, equipment and phasing) is rarely available at the outline planning application stage. Where this is the case, 'realistic' scenarios will be adopted, with assumptions clearly identified in the relevant technical chapters of the ES. This will be based on demolition and construction methodologies for the application site which can be used as a benchmark that would not be exceeded. Outputs will be

identified that can be the subject of controls. It should be noted that in using this approach, actual construction methods may be more benign.

The chapter will also outline the measures that would be adopted/incorporated as part of the development proposals to avoid, reduce and mitigate typical environmental impacts and effects during the demolition and construction stage. As such the chapter will provide a framework Construction Environmental Management Plan (CEMP) for the proposed development, which will define policies, a management framework and procedures for the implementation of specific measures and controls. The framework CEMP will be a key form of embedded mitigation for the proposed development and would form the basis for a CEMP to be secured by means of a suitably worded planning condition to be imposed by the RBC.

5.7.3 Completed Development Stage Effects

As mentioned in Section 5.3, ES Volume 1 will contain an introductory Chapter 4: Proposed Development Description which will describe the proposed development's physical characteristics, proposed access arrangements, landscaping strategy, proposed utilities and plant, estimated emissions and arisings, operational provisions and controls, as well as technical capacity, by reference to the defined parameters, commitments and design code. The description will include mitigation measures that have been embedded within the development proposals. The information will form the basis for the assessment of the proposed development's completed development (and operational) effects.

5.7.4 Cumulative Effects

The EIA Regulations require that, in assessing the effects of a particular development proposal, consideration is also given to the cumulative effects which might arise from the proposal in conjunction with other existing and/or approved development proposals in the vicinity. The following two types of Cumulative Effects will be considered within ES Volume 1 and 2:

- Intra-Project effects of different types of impact from the proposed development on particular receptors at or surrounding the application site. Potential impact interactions include the combined effects of noise, dust and visual impacts during demolition and construction of the proposed development on a particular sensitive receptor; and
- Inter-Project effects which are combined effects generated from the proposed development with other existing and/or approved developments. These other developments may generate their own individually insignificant effects but when considered together could amount to a significant cumulative effect, for example, combined townscape and visual impacts from two or more (existing and/or approved) developments.

Intra-Project Cumulative Effects

Impact interactions from the proposed development itself on particular receptors at or surrounding the application site will be considered during the demolition and construction works, and also once the proposed development is completed. It is possible; however, that depending on the predicted individual 'completed developments' impacts, only the demolition and construction work effects will be considered as often they generate the greatest likelihood of interactions occurring and hence significant effects.

Dependent on the relevant sensitive receptors, the assessment will focus either on key individual receptors or on groups considered to be most sensitive to potential interacting effects. The criteria for identifying those receptors which are considered to be potentially sensitive will include existing land uses, proximity to the demolition and construction works and the application site, and likely duration of exposure to impacts. It should be noted that only minor to major residual effects will be considered within this assessment.

With regard the potential for cumulative effects to occur, it is anticipated that standard mitigation measures as detailed in a site-specific CEMP (such as dust suppression measures, use of quiet plant, restrictions on working hours) can be applied to prevent temporary unacceptable effects from the interaction of effects occurring on-site.

Cumulative effects will be assessed using professional judgment. Due to the 'cross-boundary' and 'overlapping' nature of intra-project cumulative effect across various environmental topics, and the assessment approach adopted, the results of intra-project cumulative effects will be holistically presented within a discrete assessment chapter and not within each of the technical assessment chapters. This will avoid unnecessary duplication and repetition and presents a proportionate approach.

Inter-Project Cumulative Effects

To ensure that Inter-Project (in-combination) cumulative effects are assessed as comprehensively and realistically as possible, the EIA would consider other 'approved projects'. These approved projects are:

- Development proposals for which planning permission has been granted (e.g. resolution to grant issued or signed legal agreement); AND
- located within 1 km of the redline boundary of the application site; AND
- 10,000 m² GEA in floor area or would give rise to >150 residential units or relevant large-scale infrastructure projects.

For those cumulative schemes which have had subsequent amendments (minor and non-material), the latest known iteration will be assessed with the EIA. For those cumulative schemes were reserved matters applications have been submitted pursuant to an outline consent, the outline consent will be considered as this represent the worst case.

The schemes which fall within the spatial and quantum parameters defined above, and which are likely to give rise to significant cumulative effects in combination with the proposed development, will be quantitatively assessed on a topic by topic basis, subject to the availability of scheme information in the public domain. Where information is not available, a qualitative assessment will be undertaken.

The results of the inter-project cumulative effects will be presented in each of the technical assessment chapters of the ES.

At this stage, four cumulative schemes have been identified that comply with the above selection criteria, as presented in Table 5.1, and will be assessed quantitatively in the ES.

In addition to the approved projects, a further four schemes have been identified which are not yet 'approved', but are likely to be approved in the near future and are therefore classified as 'reasonably foreseeable' and due to their scale and proximity to the proposed development, warrant inclusion within the EIA for consideration of potential in combination cumulative effects. The first of these, scheme five, is the former Royal Mail site scheme (80 Caversham Road) which lies adjacent to the southern boundary of the application site. Given its close proximity, this scheme will also be considered quantitatively in the ES. Schemes six-eight will be assessed qualitatively.

Table 5.1: Description of Cumulative Schemes				
No	Address	App. Ref.	Description of Cumulative Scheme	Assessment Approach
Approved Projects (including Resolution to Approve)				
1	Former BMW Site – Thames Quarter	190809	Erection of a part 13-storey, part 23 storey building comprising 335 apartments in a mix of studio, one-bedroom, two-bedroom and three-bedroom units, residents' lounges, tech-hub, dining room, and cinema room, various rooftop outdoor amenity spaces, concierge/reception with coffee meeting area, gym, residents' storage facilities, post room, ancillary back-of-house facilities, 335 secure cycle parking spaces, car parking spaces, landscaping, and associated works.	Quantitative
2	Station Hill	151426 and 151427 (as varied by 190441 and 190442 which relate to non-compliance with conditions)	Outline application with all matters reserved for mixed use redevelopment of Plot E of the Station Hill site and neighbouring Telecom House site (48 to 51 Friar Street and 4 to 20 Garrard Street) to comprise the demolition of existing buildings and erection of new buildings/structures to provide residential units, a range of town centre uses including retail and related uses (Use Class A1 - A5), associated infrastructure, public realm works and ancillary development.	Quantitative
		190465	Application for the approval of reserved matters (access, scale, appearance, layout and landscaping) for Plot E within the development site known as Station Hill submitted pursuant to Outline Planning Permission ref. 190442 and submission of details for approval pursuant to conditions attached to that permission. The proposals comprise the construction of a 12 storey building (plus basement storey) containing 370 'Build to Rent' residential units (Use Class C3), 1,151 m ² (GEA) of flexible retail floorspace (Use Classes A1, A2, A3, A4, A5), cycle storage, car parking, servicing, plant areas, landscaping, new public realm and other associated works (amended description).	
		190466	Application for approval of reserved matters (access, scale, appearance, layout and landscaping) for Plot F within the development site known as Station Hill submitted pursuant to Outline Planning Permission ref. 190441, and submission of details for approval pursuant to Conditions attached to that permission. The proposals comprise construction of a 12 storey (plus basement storey) building containing 168 Build to Rent residential units (Use Class C3), 390 m ² (GEA) of flexible retail floorspace (Use Classes A1, A2, A3, A4, A5, D2), 656 m ² (GEA) of leisure floorspace (Use Class D1 or D2), cycle storage, car parking, servicing, plant areas, landscaping, new public realm and other associated works (amended description).	

Table 5.1: Description of Cumulative Schemes				
No	Address	App. Ref.	Description of Cumulative Scheme	Assessment Approach
3	Kenavon Drive	170509	Demolition of the two existing retail (Homebase and former Toys R Us) structures and the erection of new buildings ranging between 2 and 11 storeys in height, providing 765 (18 x studio, 302x1, 409x2 and 36x3- bed) residential units (Class C3), 5 commercial units (1x flexible Class A1-A4, B1 or D1-D2, 1x flexible D1 or D2, 1x flexible Class A1- A5, 1x flexible Class A3 or A4, 1x flexible A1-A5 or D1-D2 uses), various works to the public realm, including a new riverside square, landscaping, accesses, parking and associated works.	Quantitative
4	Land between Weldale Street and Chatham Street, Reading	170326	Demolition of all existing buildings (including 3 retail units) and structures, and erection of new buildings ranging between lower ground and 4 storeys to lower ground and 11 storeys in height, providing 427 (233x1, 182x2 & 12x3-bed) residential units (Class C3) and 1 flexible ground floor retail shop (Class A1) or restaurant and cafe (Class A3) unit, together with new public realm, landscaping, accesses, parking and associated works (amended description).	Quantitative
5	29 Station Road Reading, RG1 1LG	181930	Demolition of the existing vacant 6-storey retail and office building and erection of a replacement basement and part 4, part 22 (with rooftop plant above) storey building to provide flexible retail (Class A1, A2, A3, A4 or A5) use at part ground floor level, a 135- bedroom hotel (Class C1) at 1 st to 16 th floors and offices (Class B1a) at 17 th to 21 st floors, associated servicing from Garrard Street and other associated works(amended description).	Qualitative
6	52 to 55 Friar Street and 12 Greyfriars Road, Reading RG1 1DX	162210	Demolition of existing building and structures (Class A1) and erection of three new buildings ranging between 6 - 12 (and basement) storeys in height to provide 135 (1xstudio, 54x1, 73x2 & 7x3-bed) residential units (Class C3), a flexible Class A1-A5 use at ground floor level fronting onto Friar St, a flexible Class A1-5, B1(a) or D2 (gym only) use at ground floor level fronting onto Greyfriars Rd, with associated access, parking, servicing, landscaping and engineering works.	Quantitative
Reasonably Foreseeable Schemes				
7	Network Rail Thames Valley Area site office/ Former Royal Mail site	182252 Validated (allocation CR11e)	Outline application considering access, landscaping, layout and scale involving the demolition of all existing buildings and structures (Classes B1a and B2) and erection of new buildings ranging between basement and 2 - 25 storeys in height, providing 658 (79 x studio, 227x1, 335x2 & 17x3-bed) residential units, office accommodation (Class B1a), flexible ground floor Class A1-3 uses, a community	Quantitative

Table 5.1: Description of Cumulative Schemes				
No	Address	App. Ref.	Description of Cumulative Scheme	Assessment Approach
			centre(Class D1), health centre uses (Class D1) and various works including car parking, servicing, public and private open space, landscaping, highways, pedestrian and vehicular access and associated works.	
8	Former Scottish and Southern Energy site	Awaiting application (allocation CR11e)	Demolition of a number of structures on the site and the erection of a new residential scheme (up to 210 units), with a max height of 11 storeys (up to 36 m above ground level) including a new north south pedestrian link, connecting Christchurch Bridge to Vastern Road towards the station as well as drainage infrastructure and landscaping.	Qualitative
9	Broad Street Mall Broad Street Reading, RG1 7QG	182137 (allocation CR12c)	Construction of three residential buildings (Use Class C3) ranging in height from 5 to 22 storeys (Site E to provide 52 units, Site B to provide 139 Units and Site A to provide 172 units) above Broad Street Mall and provision of a podium level amenity area; construction of an 18 storey building on South Court comprising ground and first floor retail (Use Class A1/A2/A3) and residential over upper floors (Use Class C3, Site C to provide 99 units); change of use and extension of Quadrant House to form a 3 storey residential building (Use Class C3, Site D to provide 31 units); and creation of three ground floor retail units (Use Class A1/A2/A3) fronting Dusseldorf Way and Queens Walk.	Qualitative

The number of schemes to be considered for each technical assessment presented in ES Volume 1 or 2 will vary, depending on the likelihood for significant in-combination environmental effects to arise. Where a cumulative scheme has been excluded, this will be clearly stated within each technical chapter with justification for the exclusion.

It is requested that the RBC review Table 5.1 and confirm whether the list of cumulative schemes is acceptable.

Following receipt of feedback from the RBC and before submission of the application for the proposed development, if any relevant additional cumulative schemes have been consented during this period, they will be assessed qualitatively within the ES.

5.7.5 Significance

In assessing the significance of likely and residual effects, regard will be had to the:

- sensitivity, value or susceptibility of the environmental receptor to the change or impact, based on a scale of high, medium or low;
- magnitude of the potential impact, based on a scale of high, medium, small and unknown;
- likelihood of the effect occurring, based on a scale of certain, likely or unlikely;
- duration of the effect, based on a scale of long, medium and short term (temporary);
- geographical extent of the effects at local, borough, regional, national and international levels; and
- reversibility of the effect, being either reversible or irreversible.

Unless indicated otherwise within a technical assessment the duration of the effect would be defined as follows:

- Short term: up to 5 years;
- Medium term: 5-10 years; and
- Long term: 10 years +.

In order to provide a consistent approach to the presentation of the scale and nature of residual effects, the following terminology will be used throughout the ES:

- **Nature/Type of Effects**

- **Adverse:** detrimental or negative effect to an environmental resource or receptor;
- **Neutral:** an effect that on balance, is neither beneficial nor adverse to an environmental resource or receptor; and
- **Beneficial:** advantageous or positive effect to an environmental resource or receptor.

- **Scale of Effects**

- **Negligible:** effects which are beneath levels of perception;
- **Minor:** slight, very short or highly localised effects;
- **Moderate:** limited effects (by magnitude, duration, reversibility, value and sensitivity of receptor) which may be considered significant; and
- **Major:** considerable effect (by magnitude, duration, reversibility, value and sensitivity of receptor, which may be more than of a local significance or lead to a breach of a recognised environmental threshold, policy, legislation or standard).

Based on the above, residual effects of moderate and major scale may be considered significant, but would be dependent on the relevant technical assessment, as well as the existence of published assessment guidance. Where published assessment guidance is not definitive in respect of categorising/determining significant environmental effects, professional judgement will be applied, taking into account the duration, extent and context of the effect, to determine significant effects. Significant effects would be considered material to the planning decision making process.

Where there are any deviations to the terminology set out above (e.g. due to published industry guidance or professional judgement), this will be clearly identified and explained within the relevant ES chapter.

6. PROPOSED SCOPE OF ENVIRONMENTAL STATEMENT

This section considers the potential environmental impacts and likely effects that are at this stage anticipated to arise in connection with the proposed development and therefore the technical topics proposed for inclusion within the ES.

Initial appraisals for each technical topic have been undertaken to determine the existing baseline conditions and as a result, the potential for each technical topic to exhibit significant environmental effects.

Table 6.1 presents the technical topics considered in scoping the EIA.

Table 6.1: Proposed Scope of ES		
Scoped In Topics	Scoped Down Topics	Scoped Out Topics
Socio-Economics	Noise and Vibration	Archaeology
Air Quality	Daylight, Sunlight, Overshadowing and Solar Glare	Transport and Accessibility
Wind Microclimate		Ecology
Built Heritage		Water Resources and Flood Risk
Townscape and Visual		Ground Conditions
		Arboriculture
		Climate Change
		Health
		Major Accidents and Disasters
		Waste
		Telecommunication Interference

The methodology and scope of the 'scoped in' and 'scoped down' topics is addressed in Sections 7 and 8 respectively. Section 9 addresses the 'scoped out' topics that are unlikely to generate significant effects.

7. POTENTIAL SIGNIFICANT ENVIRONMENTAL IMPACTS AND LIKELY EFFECTS – SCOPED IN

This section summarises the potential significant environmental impacts and likely effects that are at this stage anticipated to arise in connection with all stages of the proposed development and will therefore be addressed in the EIA. It sets out the approach to be adopted in each instance, the scope of technical assessments to be undertaken and the assessment methods proposed.

7.1 Socio-Economics

A Socio-Economic assessment will be presented in ES Volume 1. The assessment will consider the potential socio-economic impacts of the proposed development; particularly the impact on employment, housing, population and community facilities. The assessment will be undertaken in the context of the existing site conditions, existing and future socio-economic baseline conditions in the study area and the relevant policy framework.

The proposed development will create a range of employment opportunities both through the demolition and construction stage, and once the proposed development is completed and operational. The proposed new homes and non-residential floorspace will bring new residents and on-site employees to this area of Reading, introducing additional socio-economic effects such as increases in economic output and demand for community infrastructure (e.g. healthcare and schools).

7.1.1 Site Information and Baseline Conditions

The application site is located within the boundary of the Reading Central Area Action Plan (RCAAP) which was adopted in 2009. The application site is located in the sub-area Station/River Major Opportunity Area. Policy RC1e states that the area to the north of the station would provide retail and leisure development on ground floor with other uses including residential on upper floors. The RCAAP states that no one area in the centre is seen as being inappropriate for housing development.

A desktop study will be undertaken, which will include a review of available information to determine the existing baseline conditions at site, local and borough level. This will focus on demographic, economic and employment data; the location and capacity of community facilities (including education, healthcare and leisure/open space); and crime statistics. Consideration will be given to employment generated by existing on-site uses.

The existing baseline will be established using a combination of data sources including nationally published statistics from the Office for National Statistics (ONS)¹⁹, Ministry of Housing, Communities and Local Government (MHCLG)²⁰, Department for Education (DfE)²¹, National Health Service (NHS)²², Home Office²³ and RBC²⁴ where relevant. This includes the Business Register and Employment Survey²⁵, Annual Population Survey²⁶ and Census 2011²⁷, Sub National

¹⁹ Office for National Statistics (ONS), various data sets and years

²⁰ Ministry of Housing, Communities and Local Government, 2015. Indices of Deprivation

²¹ DfE, January 2019 School Census, School Capacity Forecasts 2017/2018

²² NHS, GP workforce Statistics March 2019 and location data of GP practices and branches and dental surgeries, May 2019

²³ Home Office, Police.UK Crime Statistics, various years

²⁴ RBC, Reading Childcare Sufficiency 2017; Reading Annual Monitoring Report 2017-2018; Reading Open Spaces Strategy (March 2007); and Reading Open Spaces Strategy Update Note 2018 (January 2018)

²⁵ Business Register and Employment Survey, various years

²⁶ Annual Population Survey, various years

²⁷ ONS, 2011. Census

Population Projections (SNPP)²⁸, Sub National Household Projections (SNHP)²⁹ and Mid-Year Population Estimates (MYPE)³⁰.

Relevant policy and supplementary planning guidance produced by the RBC will be consulted.

7.1.2 Potential Impacts and Likely Effects

- The assessment will consider the effects of the proposed development within the context of the policy framework and existing/future baseline conditions. A review of the existing on-site operations and associated employment will be undertaken.

The assessment will consider the following potential impacts and likely effects:

- Development works and the resulting loss of existing employment and economic activity; Development works and the resulting generation of direct and indirect employment and economic output, measured in Gross Value Added (GVA);
- Generation of direct and indirect and induced employment and GVA resulting from the delivery of non-residential floorspace, taking account of existing on-site economic activity and displacement;
- Delivery of new housing including affordable housing;
- Introduction of a new residential population accommodated by the residential units and the resulting demand for local community services and infrastructure on:
 - Primary healthcare (GP provision);
 - Early years, primary and secondary education;
- Impacts on existing levels of deprivation in the local study area; and
- Impacts on crime and safety.

7.1.3 Approach and Methodology

There are no published assessment guidance and technical significance criteria to assess socio-economic effects. Accordingly, the assessment will be undertaken based on professional experience and judgement, having regard to the existing baseline position.

Consultation

No specific consultation over and above this scoping exercise is considered necessary.

Study Area

The assessment will be considered at the site level, the local area level (Abbey Ward), borough level (RBC area) and national level (England), or where applicable within a certain distance of the application site boundary, as summarised in Table 7.1.

Table 7.1: Socio-Economic Study Area	
Assessment	Study Area (distance from site boundary)
Development works employment and economic output	Local area and RBC
Loss of on-site economic activity and jobs during development works	Local area and RBC
Completed development employment and economic output	Local area and RBC
Housing delivery	Local area and RBC

²⁸ ONS, 2016-based SNPP

²⁹ ONS, 2016-based SNHP

³⁰ ONS, 2018 MYPE

Table 7.1: Socio-Economic Study Area	
Assessment	Study Area (distance from site boundary)
Early years education	1.0 km application site boundary
Primary education	2.6 km from application site boundary
Secondary education	5.6 km from application site boundary
Primary healthcare (GP and dental practices)	1.0 km from application site boundary
Secondary healthcare (i.e. hospitals)	Local area and RBC
Community and recreational facilities	Local area and RBC
Open space	Various based on RBC Open Spaces Strategy (March 2007) and Update Note 2018 (January 2018)
Play space	Various based on RBC Open Spaces Strategy (March 2007) and Update Note 2018 (January 2018)
Deprivation	Local area and RBC
Crime and safety	Local area and RBC

Demolition and Construction

- Direct construction employment effects will be calculated using the estimated construction value alongside the Construction Industry Training Board (CITB), Labour Forecasting Tool (LFT)³¹.
- Indirect and induced employment will be calculated using multipliers from the Homes and Communities Agency (HCA) Additionality Guide (2014)³². Other additionality factors such as displacement rates from the Additionality Guide will be applied to reach a final net result.
- GVA will be calculated by applying the latest Oxford Economics GVA per worker (2016-2019) figures.

Completed Development

- Completed development direct operational employment will be calculated by using land use specific employment densities from HCA Employment Density Guidelines (2015)³³, which will be applied to the non-residential floorspace schedule.
- Completed development indirect and induced employment will be calculated by applying multipliers from the HCA Additionality Guide, with other additionality factors such as displacement applied to reach an overall net employment result.
- GVA will be calculated by applying the latest Oxford Economics GVA per worker (2016-2019) figures.
- Delivery of housing will be evaluated by using the quantum of proposed residential units compared to the existing housing stock in RBC and alongside identified housing targets.
- Assessment of local expenditure will be evaluated by multiplying the quantum of proposed residential units by household expenditure data published by Experian³⁴.

³¹ <https://www.citb.co.uk/about-citb/construction-industry-research-reports/consultancy/labour-forecasting-tool/revolutionise-industry/>

³² Homes and Communities Agency, 2014. Additionality Guide, 4th ed. HCA.

³³ Homes and Communities Agency, 2015. Employment Density Guidelines. HCA.

³⁴ Experian Retail Planner Data, 2017

- Residential population yields will be calculated by multiplying the number of residential units by the average household size in the anticipated completion year of the proposed development as projected by the ONS 2016-based SNHP.
- Primary and secondary school children yields will be calculated through application of pupil product ratios (to be advised by RBC) to the residential accommodation schedule, in order to derive expected demand for school places from the new population of the proposed development. This information will be compared to the current capacity in primary and secondary schools derived from DfE Annual School Census and school capacity data (presented within the baseline assessment) to establish whether the expected demand from the new population can be accommodated within the existing provision. Assessment of effects on early years education will be assessed qualitatively in the context of baseline conditions informed by the RBC Childcare Sufficiency Assessment 2017.
- In terms of local community services impacts, residential population yields (described above) will be compared to the current capacity at GP surgeries and dental surgeries derived from NHS GP workforce statistics (presented within the baseline assessment) to establish whether the expected demand from the new population can be accommodated within the existing provision.
- Available open space and recreational facilities within the study area will be determined by desk top review of local planning documents. This information will be considered against open space standards set out in RBC's Open Space Strategy (March 2007) and Open Space Strategy Update Note 2018 (January 2018) and the proposed development's demand for recreational facilities will be assessed using the Sports England Calculator³⁵. Play space requirements will be based on those derived by the Landscape Architects.
- The potential impact on deprivation resulting from the proposed development will be assessed qualitatively considering the new employment opportunities and residential units, local socio-economic characteristics.
- The impact of the proposed development on crime will be assessed qualitatively based on the extent to which increased population and modern housing design techniques are expected to impact upon crime, or the fear of crime.

The evaluation of proposed development's effects will be based on an assessment of the magnitude of the impact and the sensitivity of the identified receptor. The scale of effects will be identified on a matrix basis.

Mitigation measures integral to the development proposals (i.e. inherent mitigation) will be considered, whilst any additional mitigation measures will be recommended, where necessary, to reduce potential adverse effects.

Consideration will be given to inter-project cumulative effects, subject to availability of cumulative scheme information in the public domain.

7.2 Air Quality

An Air Quality technical assessment will be presented in ES Volume 1. The assessment will consider the implications of current and future ambient air quality at the application site for the proposed residential and commercial use, as well as the implications of emissions from the proposed development on local air quality. Consideration will be given to the potential for emissions from existing road and rail sources to impact air quality on the application site. Potential new sources of air pollution arising from the proposed development during the demolition and construction stage, and once completed (i.e. traffic flows and heating plant), will be considered.

³⁵ <https://www.activeplacespower.com/>

7.2.1 Site Information and Baseline Conditions

The application site is located within the Reading Air Quality Management Area (AQMA) which covers the town centre and areas along the major arterial roads leading into Reading. The AQMA was declared for exceedances of the annual mean NO₂ objective. The main source of air pollutants impacting the application site will be from the arterial roads and roundabouts to the north, east and west and from the rail line.

Air quality monitoring conducted by RBC indicates the potential of roadside exceedances of the annual mean NO₂ objective close to the application site, particularly close to Caversham Road. Slightly lower concentrations have been recorded on Vastern Street, just meeting the air quality objective.

7.2.2 Potential Impacts / Effects

The assessment will consider the effects of the proposed development within the context of the policy framework and baseline conditions. The assessment will consider the following potential impacts and associated likely effects:

- Development works, the resulting dust impacts and the associated effects on human health, amenity and ecological receptors;
- Development works, the resulting demolition and construction traffic and the associated traffic emission effects on human health receptors;
- Impacts from existing road emissions in the vicinity of the application site and the associated effects on human health receptors introduced by the proposed development;
- Completed development traffic emissions from the operation of the proposed development, taking into account the removal of the traffic generated by the existing uses, and the associated effects on human health receptors both on- and off-site; and
- Heating plant emissions from the operation of the proposed development and the associated effects on human health receptors both on- and off-site.

It is considered that the proposed development would not give rise to any odour impacts and associated effects and will therefore not be assessed as part of the ES Chapter.

7.2.3 Approach and Methodology

The suite of air quality assessments will be undertaken in accordance with the most recent Environmental Protection UK and Institute of Air Quality Management (IAQM)³⁶ air quality planning guidance.

Consultation

Consultation would be undertaken with the Air Quality Officer at the RBC to agree the scope of the assessment.

Study Area

The study area will include the application site and the main road network identified within the Transport Assessment as likely to be impacted by the proposed development. The study area will encompass representative off-site receptors identified as at risk of impacts from the proposed development and will consider identified neighbouring cumulative schemes and commercial activities adjacent to the application site.

³⁶ EPUK & IAQM. May 2015. Land-Use Planning & Development Control: Planning for Air Quality. Guidance from Environmental Protection UK and the Institute of Air Quality Management for the consideration of air quality within the land-use planning and development control processes.

Demolition and Construction

A qualitative assessment of the potential impact on local air quality from demolition and construction activities will be undertaken in accordance with the Institute of Air Quality Management (IAQM) document 'Guidance on the Assessment of Dust from Demolition and Construction'³⁷ to assess the magnitude and significance of these impacts during the demolition and construction stage.

The risk of dust arising in sufficient quantities to cause annoyance and/or health impacts will be determined using four risk categories: negligible, low, medium and high risk. A development is allocated to a risk category based on two factors:

- The scale and nature of the works, which determines the potential dust emission magnitude as small, medium or large; and
- The sensitivity of the area to dust impacts, which is defined as low, medium or high sensitivity. These risk categories are defined in detail within the latest guidance issued by the Mayor of London.

These two factors will be combined to determine the risk of dust impacts. The risk category assigned to the proposed development can be different for each of the four potential activities (demolition, earthworks, construction and trackout).

Potential impacts from exhaust emissions from demolition and construction vehicles using the wider road network will be assessed following the methodology set out for operational vehicles given below for the completed proposed development.

Completed Development

Potential impacts from existing road traffic and rail emissions will be assessed to determine the suitability of the application site for residential development and the need for additional mitigation to protect future residents from poor air quality. A qualitative review of existing off-site emissions from industrial sites in proximity to the proposed development will be carried out to ensure that potential impacts are included within the future baseline data included within the assessment. The need to explicitly model off-site point sources of emissions is not anticipated and is proposed not to be undertaken.

To assess potential on- and off-site impacts from road traffic emissions, the assessment will utilise the latest version of the ADMS-Roads modelling software and consider the current and future baseline air quality in the area, as well as the potential effects of the change in traffic levels as a result of the completed proposed development.

Overall, the assessment will include the air quality impacts under the following three scenarios:

- Existing Baseline;
- Future Baseline (existing baseline + future growth derived from tempo factors + cumulative schemes); and
- Future Baseline + proposed development.

Modelled concentrations in the current baseline year will be compared against local monitoring data in order to verify the model output.

Where emissions of oxides of nitrogen from heating plant associated with the on-site energy centre exceed 5 mg/s, potential impacts would be modelled using the ADMS model to predict concentrations with the proposed development fully operational.

The impact of traffic and heating plant emissions would be combined to assess potential impacts at both on and off-site receptors. Changes in air quality impacts at existing receptors as a result

³⁷ Guidance on the assessment of dust from demolition and construction, IAQM, February 2014.

of the proposed heating plant and changes to traffic flows will be assigned impact descriptors based on the most recent Environmental Protection UK and the Institute of Air Quality Management (IAQM) air quality planning guidance.

Consideration will be given to inter-project cumulative effects, subject to availability of cumulative scheme information in the public domain.

7.3 Wind Microclimate

A wind microclimate technical assessment will be presented in ES Volume 1. The assessment will consider the potential wind impacts of the proposed development; particularly with regard to the suitability of the proposed development for the intended pedestrian and occupier use, as well as unsafe wind conditions as designated by the Lawson Comfort Criteria³⁸.

7.3.1 Site Information and Baseline Conditions

The application site is located in Reading, where there are prevailing south westerly winds. There is also a secondary peak of north easterly winds which occurs around springtime.

The existing built form across the application site comprises low to medium sized commercial properties. This built form also characterises the immediate surrounding area, along with some two-three storey residential properties located to the north and west of the application site. Due to the relatively open nature of the site, as well as the River Thames located 150 to the north-east, it is anticipated that the application site is afforded limited protection from both prevailing wind directions.

7.3.2 Potential Impacts / Effects

Given the envisaged size and geometry of the proposed development, it is important to avoid undesirable wind speeds being generated at ground level and at any other level where pedestrian activity is proposed. The wind microclimate assessment will quantify the potential changes to the local wind environment (both on-site and within the immediately surrounding area) in terms of sensitive pedestrian areas such as entrances, thoroughfares, podium and roof terraces, public realm, private and communal open space and quantify these in relation to their 'usability' for a range of pedestrian activities defined by the well-known and established Lawson Comfort Criteria.

The assessment will consider the effects of the proposed development within the context of the policy framework and baseline conditions.

The assessment will consider the following potential impacts and associated likely effects:

- Change in wind conditions as a result of the introduction of new built form and the associated effects on pedestrian comfort and safety with the completed proposed development and within the immediate surrounding study area.

7.3.3 Approach and Methodology

The assessment will be undertaken by reference to the Lawson Comfort Criteria.

Consultation

No specific consultation over and above this scoping exercise is considered necessary.

Study Area

The study area will consist of surrounding built environment and landscape features within a 300 m radius of the application site boundary.

³⁸ Lawson TV, 2001. Building Aerodynamics. London. Imperial College Press.

Demolition and Construction

As the proposed development is constructed, the wind conditions on-site will alter on a regular basis. Additionally, the worst-case scenario in terms of wind conditions is assumed to be when the proposed development is completed. Therefore, the demolition and construction stage will not be assessed quantitatively, with wind conditions commented on using professional judgement.

Completed Development

A wind microclimate Computational Fluid Dynamics (CFD) assessment of the proposed development will be undertaken. The CFD assessment will compare values to the Lawson Comfort and Safety Criteria.

The assessment will consider the following three scenarios:

- Existing baseline;
- Existing baseline + proposed development; and
- Existing baseline + proposed development + cumulative schemes.

Cumulative schemes within a 300 m radius of the application site boundary will be considered. Cumulative schemes outside of this radius would not be expected to have significant impact due to their distance from the proposed development.

The CFD assessment will use a Lattice Boltzmann Method (LBS) which is a trusted solver for wind microclimate assessments. CFD modelling will be conducted in the absence of any soft or hard landscaping, in order to provide a conservative result.

The results of this analysis will be benchmarked against the well-established Lawson Comfort Criteria to determine the suitability of the different pedestrian use areas both within and surrounding the application site for sitting, standing, entering a building, strolling or walking, with an additional criteria for areas likely to be unsafe for pedestrians. The suitability of the conditions both within the proposed development and surrounding the application site will be presented and discussed within the ES. Should mitigation measures be required to ensure that wind conditions are suitable for their intended use, the areas requiring mitigation will be identified and mitigation measures will be proposed; either through additional modelling or through professional judgement, depending on the significance of the mitigation required. The potential for strong winds to occur will also be quantified.

Through the determination of the suitability for use of the pedestrian areas surrounding the application site, a direct comparison can then be made with the baseline/existing off-site conditions where applicable, and the effect to these surrounding areas assessed, with the significance of effects identified.

It should be noted that the focus of the assessment will be a comparison of the measured conditions to the desired use of the proposed development. Due to the outline nature of the application, the proposed development will be governed by parameters, and therefore no detailed information on the likely locations of sitting areas, public realm and open space will be available. Accordingly, the assessment will report the modelled wind speeds at identified receptor locations on-site and the associated use. An interpretation would be made of the likely future use and recommendations made on required mitigation measures at the reserved matter stage, should this be required.

The results of these assessments will be presented within the ES Chapter.

The focus of ground level locations such as thoroughfares and entrances will be for the windiest season, as these locations are expected to be usable at all times throughout the year.

Consideration will be given to inter-project cumulative effects, subject to availability of cumulative scheme information in the public domain.

7.4 Daylight, Sunlight, Overshadowing and Solar Glare

A daylight, sunlight, overshadowing and solar glare technical assessment will be undertaken and presented in ES Volume 1. The assessment will consider the potential daylight, sunlight and overshadowing impacts of the proposed development; particularly to the existing neighbouring residential buildings and emerging developments. In addition, the potential for solar glare to affect users of the surrounding road network, will be considered.

Internal daylight to the new residential units and sunlight within the new open space (2 hour sun on ground test) of the proposed development will be assessed separately and the results presented in a stand-alone report accompanying the planning application. Accordingly, these assessments will not form part of the scope of the EIA and have not been considered further within this EIA Scoping Report.

7.4.1 Site Information and Baseline Conditions

The application site is occupied by four low-rise pavilion style commercial units and one building, extending to approximately 2-3 storeys high.

The wider context of the application site is characterised by low rise urban development with a mixture of commercial, industrial and residential uses.

Daylight and Sunlight

The assessment will consider the likely significant effects of the proposed development on daylight, sunlight and overshadowing to existing residential properties with an expectation of daylight and sunlight amenity, together with overshadowing to existing open space and public amenity areas.

The following receptors have been identified as sensitive in relation to daylight and sunlight and will therefore be considered within the assessment:

- 15-53 Vastern Road;
- 87-89 Caversham Road;
- 91 Caversham Road; and
- 93-97 Caversham Road.

Overshadowing

There do not appear to be any existing areas of amenity to the north of the application site that would be sensitive to overshadowing. The ES Chapter will consider the quality of direct sunlight the proposed development amenity space will receive.

Solar Glare

The BRE states that "*glare or solar dazzle can occur when sunlight is reflected from a façade or area of metal cladding*". This is a consideration in relation to road users and train drivers whereby instances of reflection can obscure the view of traffic/rail signals and thus have the potential to cause an accident.

At the outline stage, the details of the façade treatment will not be developed. However, it is likely that a solar glare assessment will be required in respect of the junction of Caversham Road and Vastern Road. Due to the distance of the Reading Railway Station from the application site (50 m) and intervening development, significant effects on the rail signalling system are considered unlikely and will therefore not be assessed.

Reasonable assumptions will be made in respect of the likely façade treatment, based on the design code and in consultation with the architects.

7.4.2 Potential Impacts / Effects

The assessment will consider the effects of the proposed development within the context of the policy framework and baseline conditions.

The assessment will consider the following potential impacts and associated likely effects:

- Daylight, sunlight and overshadowing to existing neighbouring residential developments; and
- Daylight, sunlight and overshadowing to cumulative residential schemes.

It is considered that there will be no further impacts and associated effects arising from the proposed development that require assessment as part of the ES Chapter.

7.4.3 Approach and Methodology

The assessment will be undertaken in accordance with the guidance and recommendations given in the following documents, as well as the application of professional judgement:

- The Building Research Establishment (BRE) Report 'Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice' (BRE 209)³⁹;
- Chartered Institution of Building Services Engineers (CIBSE) Lighting Guide (2014)⁴⁰;
- British Standard BS8206:2 (2008)⁴¹;
- Solar Dazzle Reflected from Sloping Glazed Facades (1987)⁴²; and
- CIE Collection on Glare (2002)⁴³.

Consultations

No additional consultation over and above this EIA scoping exercise is considered necessary to inform the assessment.

Study Area

Daylight, Sunlight and Overshadowing

Existing sensitive receptors, buildings under construction and cumulative schemes with planning permission within 150 m of the application site boundary will be assessed.

Demolition and Construction

The level of effect on daylight and sunlight availability to existing neighbouring residential properties would vary throughout the demolition and construction stage and would steadily increase in magnitude as the superstructure is built. Any temporary accommodation or construction equipment such as cranes would only have a temporary effect on the daylight and sunlight levels to the surrounding properties.

Those effects that would be perceptible as the superstructure and cladding progress would be similar to those of the completed development. A qualitative assessment will be undertaken using professional judgement, with the worst-case scenario represented by the completed development.

Completed Development

Daylight and Sunlight to Surrounding Receptors

The likely significant effects of the completed development will be discussed within the ES Chapter.

³⁹ Building Research Establishment, 2011. Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice (BRE209)

⁴⁰ Chartered Institution of Building Services Engineers, 2014. LG10/14 Lighting Guide 10: Daylighting – A Guide for Designers – LG10

⁴¹ British Standards Institute, 2008. BS 8206-2: 2008 Lighting for Buildings. Code of Practice for Daylighting. BSI.

⁴² British Standards Institute, 1987. BRE Information Paper Solar Dazzle Reflected from Sloping Glazed Facades by P. J Littlefair (April 1987)

⁴³ Commission Internationale de L'Eclairage, 2002. CIE Collection on Glare 146:2002. Austria. CIE

The BRE Report focuses on the daylight and sunlight amenity within residential properties and those properties where natural light is considered desirable (i.e. hospitals and schools). In line with the BRE Report, the assessment will undertake daylight and sunlight analysis of the nearest existing and emerging residential properties to the application site identified by a site inspection and a desktop study. In addition, survey information will be used to identify residential properties most likely to experience effects from the proposed development.

Information on the receptors will be gathered using details available on the RBC's planning database, estate agent's property particulars and site inspections. Where analysis is to be undertaken of buildings under construction or emerging developments, information available on RBC's planning portal will be used to determine the position of windows. If information is available to determine the layout of the rooms, the interior layouts will also be applied to the analysis model and additional daylight testing will be undertaken. Where information on existing receptors are not available, reasonable room layout assumptions will be made and presented in the assessment.

The studies to be undertaken will use a three-dimensional computer model of the application site and the surrounding buildings in the study area for the following scenarios:

- Existing baseline (representing the current site conditions);
- Existing baseline + proposed development; and
- Existing baseline + proposed development + cumulative schemes.

A separate scenario will be assessed following the above three scenarios, namely Existing Baseline + Reading Station Area Framework (RSAF) massing. As the RSAF is a material consideration, this scenario will consider the available daylight, with the implementation of the massing set out in the RSAF and the associated results compared with the analysis for the scheme.

The effect of the proposed development on the daylight and sunlight amenity received by the neighbouring buildings will be analysed using bespoke software.

The assessment will be carried out in accordance with the guidance given in the BRE Report. The assessment will include an analysis at all windows serving residential accommodation where they overlook the proposed development. Additionally, where information is available, daylight analysis within the rooms served by the windows will be undertaken.

In analysing the resultant daylight and sunlight assessment data, consideration will be given to the criteria set out in the BRE Report guidelines. However, since the BRE Report guidelines do not specifically relate to metropolitan locations, a degree of flexibility will be applied to the application site, as it is located in an urban area.

Residential properties will be considered a high sensitivity receptor. Receptor sensitivity will take into account the likely daylight and sunlight requirements for the property room use, using the BRE Report as a guide. For example, the main living space in a dwelling will be considered as a receptor of high sensitivity whereas a bedroom, which are considered as 'less important' in terms of daylight and sunlight requirements, will be a low sensitivity receptor.

Numerical criteria will be presented for the magnitude of impact. A matrix approach taking into account the receptor sensitivity and magnitude of impact will be adopted to establish the scale of effect.

Professional judgment will be applied to establish the significance of the effect. In this regard the interpretation of the scale will consider the actual quantum of light lost or gained rather than the percentage change. The percentage value may well be misleading, particularly where the baseline values are already low. For example, where the baseline values are low, a small change in the quantum of light could represent a high percentage change in the overall figure. This would imply

that there would be a significant change in daylight. However, in reality, the difference would be imperceptible.

Solar Glare

Solar glare is a highly localised and temporary effect dependent on the direction the viewer is "looking", the position of the sun relative to the viewer and the reflecting surface and localised weather conditions. The effect of solar glare, the reflected image of the sun on the façade of the proposed development would be analysed at specific locations determined on the basis that they are most likely to have the potential to be affected by any glare generated by the proposed development.

To aid the full solar glare calculations, assumed material specifications and façade treatment will be applied to the three-dimensional computer model of the proposed development and an appropriate average material specification applied to the neighbouring buildings. MBS software will be used to generate fish eye images with a 180 degree field of view. This exercise allows the total luminance of a view to be sampled when the images are transferred into the Radiance software. Glare calculations, using the Radiance software, will then undertaken.

Where testing and review indicates it is required, the CIE Glare Index will be used to identify glares sources across the full 180 degree field of view of the fish eye images and apply a ratio to the significance of the glare instance.

Consideration will be given to inter-project cumulative effects, subject to availability of cumulative scheme information in the public domain.

7.5 Townscape and Visual

The townscape and visual impact assessment (TVIA) will be presented in ES Volume 2. The assessment will consider the potential impacts of the proposed development on townscape character and views, particularly the:

- baseline of the townscape features, character and views;
- change to the application site's features and characteristics arising from the proposed development;
- change to townscape character areas within the study area;
- effects on features and townscape character arising from these changes;
- changes arising from the proposed development to views of the application site, including locally important or designated views;
- effects of the proposed development on both fixed and transient visual receptors, in particular pedestrians and surrounding residential receptors;
- combined effects in conjunction with cumulative schemes.

7.5.1 Site Information and Baseline Conditions

The application site is currently of a utilitarian character, comprising retail warehouse buildings; hard standing serving as frontage car parking and a service yard to the rear of the retail units; a restaurant, with associated hard landscape; and soft landscape forming the southern edge of Vastern Road and eastern edge of Caversham Road. This includes soft landscape including a number of canopy trees, in addition to grass and shrub planting.

The application site and its immediate setting fall within Reading Tall Building Strategy (RTBS) (2018) Character Area (CA) 22: Vastern Road. The northern edge of the application site immediately abuts CA12 - Caversham Road. CA1 - Station Hill abuts the boundary of CA22 to the south and CA23 - King's Meadow abuts the northern and eastern boundaries of CA22.

The description of CA22 notes the predominance of warehousing and retail park use, including blocks of large footprint, albeit not high rise; and extensive car parking, combining to create a medium-scale townscape of unexceptional quality which does not respond well to adjacent residential land use.

There are no established key views within the CA but views towards it are obtained from elevated land to the north and Oxford Road to the west. The Reading Station Area Framework (RSAF, 2010) sets out the location for two new views to be created within the CA from the Station Square North and Christchurch Bridge. Representative designated views towards the Site within the study area comprise the following as identified separately in the RTBS, Reading Central Area Action Plan (RCAAP, 2009) and RSAF:

- Kings Meadow (RCAAP and RSAF);
- Reading Bridge (RTBS, RCAAP and RSAF);
- Christchurch Meadows (RSAF);
- War Memorial, Christchurch Meadows (RSAF);
- Lynmouth Road (RSAF); Junction of Prospect Street and Peppard Road (RSAF);
- Balmore Park (RTBS, RCAAP and RSAF);
- Caversham Court Gardens (RTBS and RSAF);
- Junction of Mount Pleasant and Southampton Street (RTBS and RSAF);
- Station Road (RSAF);
- A33 near water treatment works (RTBS and RSAF);
- The Horse Close (RTBS and RSAF);
- A4 at Shepherd's Hill, Earley (RSAF);
- Junction of Wokingham Road and Green Road (RTBS, RCAAP and RSAF);
- Blagrove Street (RSAF);
- Henley Road junction with Lower Henley Road (RSAF);
- Caversham Road (RSAF);
- Northfield Road (RSAF);
- Caversham Bridge (RTBS and RSAF); and
- Oxford Road (RCAAP).

The CA is considered to be suitable for tall buildings, albeit not along the roadsides and the tallest structures should be adjacent to the railway line. The RSAF includes a number of corridor views towards the application site from the west and north and a view to be created from the station subway south of the application site.

7.5.2 Potential Impacts / Effects

The assessment will consider the effects of the proposed development within the context of the policy framework and baseline conditions.

The assessment will consider the following potential impacts and associated likely effects during the construction of the proposed development:

- Development works and associated visibility of machinery, cranes and other equipment used in construction works; and the hoarding and site lighting which will be visible at street level.

The assessment will consider the following potential impacts and associated likely effects of the completed proposed development:

- Visibility of the proposed development in local views (including RBC designated views), effects on the quality of local views and on viewers;

- Impacts on the townscape character and quality of the application site; and
- Impacts on the townscape character and quality of the townscape character areas within the study area.

7.5.3 Approach and Methodology

The suite of townscape and visual assessments will be undertaken by reference to the guidance listed below and application of professional judgement.

Consultation

The set of views for assessment and study area will be agreed in consultation with RBC and other relevant consultees as identified by RBC.

Study Area

The study area for the visual assessment will be agreed with RBC, but is likely to extend up to approximately 3.5 km from the application site boundary, including for a number of designated viewpoints from elevated locations. Beyond this distance it is considered that there would not be potential for the significance of effects on views.

The study area for townscape character will be approximately 1 km from the application site, within which area it is judged that the height and scale of the proposed development could result in significant effects on townscape character due to the visibility of the proposed tall elements within that area.

The viewpoints will be determined through analysis of topography, streetscape and urban grain of the area surrounding the application site, the existing townscape character in the surrounding area, and through tests of the emerging design in selected views which indicated the extent and nature of visibility. Due to the urban nature and location of the application site, no Zone of Theoretical Visibility (ZTV) modelling will be undertaken.

Demolition and Construction

The assessment of demolition and construction works will be based on the typical impacts and effects associated with a development of the proposed nature and scale taken in conjunction with the particular application site and its sensitivities. The visual character and effects of the process would alter at different times of day and throughout the different phases of demolition and construction work, and so it is not possible to accurately represent the process in the verified views. Additionally, none of the effects resulting from the process, apart from those associated with the completed proposed development, would continue beyond the construction process, and so it is considered appropriate for the TVIA to consider the effects of the completed proposed development in greater detail than those of demolition and construction, because those effects will be permanent and long-term. Accordingly, a qualitative assessment will be undertaken for the demolition and construction works based on professional judgement and experience.

Completed Development

The TVIA will be undertaken by reference to the following key guidance documents and relevant local, regional and national policy:

- Guidelines for Landscape and Visual Impact Assessment (2013)⁴⁴;
- Townscape Character Assessment Technical Information Note (2018)⁴⁵
- NPPF (2019); and
- Planning Practice Guidance (PPG).

⁴⁴ IEEMA and The Landscape Institute, 2013. Guidelines for Landscape and Visual Impact Assessment. Third Edition.

⁴⁵ Landscape Institute, 2018, LI Technical Information Note 05/2017, Revised April 2018

The baseline assessment of the TVIA will include an account of:

- The contemporary character of the townscape on and around the application site;
- The existing characteristics of the pre-selected set of views;
- The sensitivity of the townscape, with regard to its value and susceptibility to the proposed type of change; and
- The sensitivity of views, with regard to their value and susceptibility to the proposed type of change, and with regard to the type and numbers of likely viewers (as described in the Guidelines on Landscape and Visual Impact Assessment, GLVIA 3rd Edition).

The study areas are described above. For the visual assessment, not every view of the proposed development within the study area will be assessed. A range of representative views would be selected to reflect the likely extent of the visibility of the proposed development. All of the viewpoints considered will be from public places and locations frequented by pedestrians rather than solely vehicles. Within this study area, two types of viewing locations will be selected for assessment:

- Representative townscape locations from particular points of the compass from which the proposed development will be visible, and from which the effect on other points nearby can be deduced; This will include locations where there is extensive open space between the viewer and the proposed development, such as from across rivers, parkland and along streets directed towards the application site, which will give visual prominence to the taller elements of the proposed development; and
- Views and locations of particular sensitivity, including designated views.

Verified views will be prepared for the assessment views. These will include representations of the proposed development in outline (wireline). The view scenarios for assessment will be as follows:

- Existing baseline;
- Existing baseline + proposed development; and
- Existing baseline + proposed development + cumulative schemes.

A full set of views will be proposed to RBC for agreement in due course.

The assessment will consider the magnitude of change in relation to the sensitivity of each receptor. Judgements of sensitivity and magnitude will be made on a word scale. A matrix will be set out in the methodology will set out how these are combined to determine the scale and nature of the effect, and ultimately to make a judgement on the significance of the effect. It should be noted that the qualitative and subjective nature of the subject area of the TVIA means that the results cannot be easily quantified, and so reference must always be made to the rationale for the combination of these judgements which will be explained in the narrative of the assessment.

The significance of effect also includes a qualitative judgement. The terms used in this judgement will be 'beneficial, neutral and adverse'. A 'beneficial' effect is where the quality of the environment (townscape character or view) is enhanced. An 'adverse' effect is where the quality of the environment is diminished or harmed. A 'neutral' effect is where the quality of the environment is preserved or sustained or where there is an equal balance of benefit and harm.

7.6 Built Heritage

A heritage impact assessment will be presented in ES Volume 2. The assessment will consider the potential for the proposed development to affect those elements of setting that contribute to the heritage significance of identified and relevant heritage assets, within the study area.

The TVIA will be considered and will be cross-referenced as appropriate.

7.6.1 Site Information and Baseline Conditions

Review of the baseline situation has identified that there are no statutory listed built heritage assets within the application site.

The following listed buildings are located within the identified study area:

- Main Building of Reading General Station, Grade II listed, National Heritage List reference 1321892;
- Regent Place Grade II listed National Heritage List reference 1113434;
- Statue of King Edward VII Grade II listed National Heritage List reference 1113589;
- Walter Parsons Corn Stores Grade II listed National Heritage List reference 1248738;
- Great Western House Grade II listed National Heritage List reference 1113591; and
- Kings Meadow Swimming Pool Grade II listed National Heritage List reference 1391153.

7.6.2 The following conservation areas are located within the identified study area:

- The Market Place/London Street Conservation Area which extends to 280 m from the approximate site centre.

7.6.3 The following registered parks and gardens and landscapes are located within the identified study area:

- The Forbury Garden Registered Grade II National Heritage List reference 1000586 which is 430 m from the approximate site centre.

7.6.4 The following locally listed buildings are located within the identified study area:

- The Entrance building, Part of Scottish and Southern Energy (SSE), 55 Vastern Road, Reading, RG1 8BU is 125 m from the approximate site centre.

7.6.5 Potential Impacts and Likely Effects

The proposed construction of new built forms would have the potential to indirectly affect the particular significance of the built heritage assets within the study area, as a result of change to their setting and also shared local and or longer distance views to and from these built heritage assets.

7.6.6 Approach and Methodology

There is currently no prescribed or preferred method of preparing an EIA built heritage assessment. There are a number of potential methodologies in guideline documents (rather than policy or prescribed guidance), which have been accepted in a number of contexts. The methodology proposed will be informed by established national policy, guidance and advice documents to frame the assessment process. Crucially, it will acknowledge how the understanding and appreciation of the heritage values of the asset and its constituent elements can be affected both directly and indirectly through change to setting, and not only physically and visually but also as part of a broader experience.

Guidance on the assessment of built heritage effects is largely provided within the NPPF, PPG and supported by other national guidance and advice, including those provided by Historic England. The assessment will therefore be undertaken with reference to the relevant statutory duties of the Planning (Listed Buildings & Conservation Areas) Act 1990, the NPPF, the PPG, the Development Plan, relevant best practice/guidance and material considerations.

The built heritage assessment will provide an assessment of the likely significant effects of the proposed development on the settings of individual above ground designated built heritage assets

within the study area and the contribution of the effect on the setting of a heritage asset will make to the significance of that asset.

Townscape and visual and built heritage assessments are separate, although linked, procedures. The townscape and visual baseline analysis contribute to the scope of the built heritage assessment and built heritage assets contribute to the character and appearance of the townscape character and representative views. The townscape and visual assessment in turn contributes to the understanding of likely significant effects on the settings of built heritage assets. Accordingly, the assessment will be informed by the verified views prepared for the TVIA.

The heritage assessment will include consideration of the effects of the proposed development in relation to the criteria and terms set out in the NPPF and PPG. In accordance with that policy and guidance, where adverse effects are found, they would be judged to be either of 'less than substantial harm' or 'substantial harm' to the significance of the affected heritage asset. The relevant tests of the NPPF would then be triggered by this judgement.

Consultation

No additional consultation over and above this EIA scoping exercise is considered necessary to inform the assessment.

Study Area

The study area would extent up to 500 m from the redline boundary of the application site and will be based on views testing undertaken as part of the TVIA to establish the likely zone of visual influence and range within which significant effects of development of this scale would be experienced within the existing townscape context.

Demolition and Construction

The methodology utilised for assessing the construction effects will be consistent with that utilised for the completed development stage effects.

Construction works are a necessary first step in the redevelopment of the application site and one that is associated with urban environments, where there is an awareness of development taking place. Construction impacts are not considered to be significant, in EIA terms, as they are indirect, temporary in nature and short-medium term in duration.

Completed Development

The methodology that will be followed can be summarised as follows:

- Identify the relevant built heritage baseline situation / conditions within the built heritage study area through a desktop survey and site visit;
- Refine the built heritage assets and built heritage study area (i.e. identify those resources that would not be affected by the proposed development, and so be excluded further from the EIA process);
- Undertake detailed consideration of the identified heritage assets and apply judgement in respect of the importance and sensitivity of the assets based on defined significance criteria. The Heritage Statement will provide the necessary proportionate assessments of significance of the identified built heritage assets, and any contribution of setting to that significance, in line with the requirements of paragraph 128 of the NPPF. This baseline will inform the professional judgement and conclusions reached in the ES with regard to heritage effects;
- Consider the effect of the proposed development on each of the identified heritage assets and form a judgement as to the duration, extent and scale of the effect. This will include assessment of effects at both the construction, and operational stages of the proposed development. In doing so, consideration will be given to the mitigation measures that have been taken on board in the design and construction or operational lifetime of the proposed

development. The significance of any residual effects, i.e. those that might remain after mitigation would then be considered. Appropriate cross-referencing will be made between the HEA and TVIA.

- Consider cumulative effects and a form a further judgement on the effect on the built heritage assets in conjunction with those other schemes agreed.

Identification of built heritage assets to establish the baseline situation will include review of existing national and local historic environment records and other resources, and also Historic England's best practice guidance and advice.

Following the identification of each built heritage asset, a judgement will be made of the heritage importance of the asset based upon an assessment of its particular significance. This will be proportionate to both the importance of the asset and the nature and extent of the development proposals, taking into account the relative location and role of the application site in their setting and significance. In addition, and as a further layer of analysis, the relative sensitivity of each of the heritage assets to further change will be defined. This will provide an NPPF-compliant assessment of effects which will inform the assessments carried out for EIA purposes.

A number of tables contained within Historic England's guidance document *Seeing the History in the View: A Method for Assessing Heritage Significance within Views*⁴⁶ will be used as a helpful starting point to determine relevant criteria for the assessment of the importance and sensitivity of the heritage assets, and magnitude of impact of the proposed development on each, and then to measure the overall scale and significance of heritage effects.

The assessment will also utilise more recent advice published by Historic England alongside, including Historic Environment Good Practice Advice in Planning Note 2: Managing Significance in Decision Taking in the Historic Environment⁴⁷ and Good Practice Advice in Planning Note 3: The Setting of Heritage Assets⁴⁸. These guidelines assist in understanding and appreciating and then articulating how change can affect heritage significance and setting. Together this will provide an appropriate framework and approach, as informed by professional judgement, to utilise for determining the significance of the residual effects of the proposed development.

Consideration will be given to inter-project cumulative effects, subject to availability of cumulative scheme information in the public domain.

⁴⁶ English Heritage, 2012. *Seeing the History in the View. A Method for Assessing Heritage Significance within Views*.

⁴⁷ Historic England, 2015. *Managing Significance in Decision-Taking in the Historic Environment*

⁴⁸ Historic England, 2017. *Good Practice Advice in Planning Note 3: The Setting of Heritage Assets*

8. POTENTIAL SIGNIFICANT ENVIRONMENTAL IMPACTS AND LIKELY EFFECTS – SCOPED DOWN

This section summarises the potential significant environmental impacts and likely effects that are at this stage anticipated to arise in connection with particular stages of the proposed development or aspects of the application site and will therefore be addressed in the EIA within 'scoped down' chapters. It sets out the approach to be adopted in each instance, the scope of technical assessments to be undertaken and the assessment methods proposed.

8.1 Noise and Vibration

A Noise technical assessment will be presented in ES Volume 1. The assessment will assess the effects of ambient noise on the proposed development, with traffic and trains considered the dominant sources. The assessment will also consider the potential noise impacts from the proposed development; particularly construction noise and vibration, road traffic noise, and any external plant noise on existing sensitive receptors.

It is considered that the proposed development would not give rise to the following impacts and associated effects and will therefore not be assessed as part of the ES Chapter:

- Vibration impacts from existing identified vibration sources, such as passing trains, and the effects on future residents of the proposed development. Due to the distance between the proposed development and the railway lines, it is considered that at this distance no effects will arise on future residents.
- Vibration impacts from the proposed development during operation on existing receptors. Due to the nature of the proposed development no activities that generate high levels of vibration are proposed.

8.1.1 Site Information and Baseline Conditions

The application site is located in an existing commercial area, with commercial and residential properties surrounding the application site. Reading Railway Station is located approximately 50 m to the south of the application site.

A baseline noise survey will be undertaken to quantify the existing noise climate. It is considered likely that the existing dominant noise sources comprise road traffic noise from the A329 and noise from passing trains. A written description of the noise climate will be undertaken.

The proposed development has the potential to give to vibration during the course of demolition and construction works.

The proposed development has the potential to contribute to the existing ambient noise climate during the course of demolition and construction works and during its operation. With regard to the latter, the operation of associated plant and the operation of any potential commercial, retail and community uses would have the potential to generate noise.

8.1.2 Potential Impacts / Effects

The assessment will consider the potential noise and vibration impacts and associated likely effects of the proposed development within the context of the policy framework and baseline conditions.

The assessment will consider the following potential impacts and associated likely effects:

- Development works, the resulting demolition and construction plant noise and vibration impacts and the associated effects on buildings and on existing and future residents and building occupants within the study area;
- Development works, the resulting demolition and construction traffic and the associated noise effects on existing and future residents within the study area;
- Ambient noise effects from surrounding noise sources (e.g. future traffic flows of surrounding road links, taking into account the removal of the traffic generated by the existing uses, as well as other existing noise sources) on future residents of the proposed development;
- Noise effects on future residents of the proposed development from the operation of non-residential components of the proposed development (e.g. industrial, community, commercial and retail).
- Noise effects on existing local residents as a result of traffic generated by the proposed development, taking into account the removal of the traffic generated by the existing uses; and
- Building services plant noise effects associated with the operation of the proposed development upon existing noise sensitive receptors.

8.1.3 Approach and Methodology

The suite of noise and vibration assessments will be undertaken in accordance with relevant British Standards as set out below, as well as the Calculation of Road Traffic Noise (CRTN)⁴⁹ method and World Health Organisation (WHO) Guidance for Community Noise (1999)⁵⁰.

Consultation

Consultation with the RBC will be undertaken to agree the proposed assessment methodology for the ES Chapter and to confirm the methodology for the baseline noise survey.

Study Area

The study area incorporates:

- The application site;
- Existing nearest Noise Sensitive Receptors (NSR's) to the application site boundaries, including:
 - Residential premises to the north of the application site (opposite side of Vastern Road);
 - Great Brighams Mead (opposite side of Vastern Road);
 - SSE Contracting Limited (opposite side of Vastern Road);
 - Residential units above the commercial uses to the west of the application site (opposite side of Caversham Road);
 - Network rail offices / sorting offices to the south of the application site; and
- The main road network identified within the TA as being impacted by the proposed development and the existing NSR's situated along these roadways.

The car park to the east of the application site is not considered to be noise-sensitive. More distance receptors will only be assessed if significant impacts are predicted to the closest noise-sensitive receptors.

⁴⁹ The Department for Transport, 1988. Calculation of Road Traffic Noise.

⁵⁰ World Health Organization, 1999. Guidelines for Community Noise, Stockholm University & Karolinska Institute.

Baseline Noise Survey

The baseline noise survey will comprise attended day and night-time noise monitoring and attended short-term noise measurements to quantify the existing noise climate. Unattended measurements cannot be undertaken due to security reasons.

Demolition and Construction

The assessment of demolition and construction noise and vibration on surrounding sensitive receptors will be considered in accordance with the following standards, guidance and methodologies:

- BS5228-1:2009 for demolition and construction plant noise and construction traffic noise⁵¹;
- BS7385 for vibration in buildings⁵²; and
- BS6472-1 for vibration effects on humans⁵³.

Completed Development

The assessment of noise on and from the proposed development will be undertaken in accordance with the following standards, guidance and methodologies:

- CRTN for the impact of operational road traffic noise and change in road traffic noise as a result of the proposed development;
- BS8233:2014⁵⁴ and WHO 'Guidance for Community Noise':1999 for noise break-in, external amenity space (balconies and communal open space) noise; and
- BS4142: 2014 for industrial and commercial noise⁵⁵.

The assessment will consider the following three scenarios:

- Existing baseline;
- Future baseline (existing baseline + future growth derived from tempo factors + cumulative schemes); and
- Future baseline + proposed development.

Where the identified impacts indicate a notable change in noise and vibration levels compared to the baseline an assessment, appropriate additional mitigation measures will be recommended.

In order to determine the significance of likely effects, the magnitude of the impact and sensitivity of the NSR will be considered together. On that basis, the scale of identified effects will be determined.

Consideration will be given to inter-project cumulative effects, subject to availability of cumulative scheme information in the public domain.

⁵¹ British Standards Institution, 2009. BS 5228-1 Code of practice for noise and vibration control on construction and open sites, BSI.

⁵² British Standards Institution, 1993. BS 7385 Evaluation and measurement for vibration in buildings, BSI.

⁵³ British Standards Institution, 2008. BS 6472-1 Guide to evaluation of human exposure to vibration in buildings, BSI.

⁵⁴ British Standards Institution, 2014. BS 8233:2014 Guidance on sound insulation and noise reduction for buildings, BSI.

⁵⁵ British Standards Institution, 2014. BS 4142: 2014 Methods for rating and assessing industrial and commercial sound, BSI.

9. POTENTIAL NON-SIGNIFICANT ENVIRONMENTAL IMPACTS AND LIKELY EFFECTS – SCOPED OUT

During the EIA scoping process, consideration has been given to ensuring that the EIA is proportionate and therefore only focuses on the likely significant effects of the proposed development. Accordingly, the scoping process has identified a number of potential environmental issues that are unlikely to generate significant effects on the environment and therefore, are proposed to be scoped out of the ES. These issues are discussed in this section.

9.1 Archaeology

An archaeology technical assessment will be presented in as a technical appendix in ES Volume 3. The assessment will consider the potential demolition and construction stage impacts of the proposed development; particularly the proposed basement construction.

9.1.1 Site Information and Baseline Conditions

There are no statutorily designated assets on the application site and the application site is not located within a Conservation Area (CA). The closest CA is Market Place/London Street Conservation Area located approximately 390 m south-east of the application site. The closest listing building is the Grade II listed main building of Reading general station (Listing entry 1321892), approximately 230 m to the south of the application site. There are 25 Grade II listed buildings within 550 m of the application site, the Grade II* town council chamber and offices with clock tower (Listing Entry 1113400) and the Grade I Listed Greyfriars Church (Listing Entry 1321952).

The application site is not within an area of archaeological potential as designated by RBC.

The British Geological Survey (BGS) data indicates that the application site is located within the Thames River on an 'island' of brickearth. Data from borehole logs held by the BGS online data library from developments in the 1980s would that the brickearth has been removed as in all logs within the application site found alluvium directly beneath under-dated made ground. However, evidence from archaeological investigations on the south side of the Thames would indicate that the presence of an earlier River Thames channel.

There have been no archaeological investigations within the application site but 29 have been carried out within the study area. Of these there are four which are within 50 to 150 m of the application site; two are to the north on the northern side of Vastern Road (the A329), one on the eastern side of Vastern Road/Forbury Road (the A329) and one the south side of the railway lines and west of Reading Railway Station. All these investigations recorded approximately 2m of made ground directly over alluvium. Further, none of the investigations recorded buried heritage assets earlier than the late post medieval, i.e. 1800s and onwards. Archaeological data from within the study area indicates that settlement throughout all periods was focused south of the station, on the outcrop of Taplow Gravels between the Thames to the north of the application area and the River Kennet 870 m to the south. Being located within the River Thames channel, the application would have been prone to flooding and therefore unsuitable for permanent settlement. Prehistoric artefacts to north of the application site suggest that the application site may have been used seasonally or possibly for the ritual deposition of artefacts. Throughout the medieval period, it is likely to have been used for pasture. Thus, there is a low potential for the presence of remains dating from the later prehistoric (Neolithic onwards) to the late 19th century. There is moderate potential for palaeoenvironmental remains of low significance given to presence of alluvium and there is an uncertain potential for early prehistoric remains but these would be buried towards the bottom of the alluvial sequence and at the interface between the alluvium and natural Thames gravels and unlikely to be affected by the proposed development.

Given that no remains of high significance have been identified, a generally low potential for the presence for remains of all other periods, other than from the late 19th century onwards, it is recommended that the Archaeology be scoped out.

9.1.2 Potential Impacts / Effects

The assessment will consider the effects of the proposed development within the context of the policy framework and baseline conditions. The assessment will consider the following potential impacts and associated likely effects:

- Development works, in particular the proposed basement excavation and construction, as well as any remediation works (if required) which could remove below ground heritage/archaeological assets with its footprint to its maximum depth;
- Development works in particular piled foundations which would have impacts similar to that of the basement construction. Piles would only have an impact if inserted prior to basement construction, and pile caps and ground beams, depending on the depth of the basement, may have no further impact; and
- Development works, in particular landscaping and any associated works, servicing etc., which could remove any later, e.g. late medieval and post medieval remains at the top of the alluvial sequence.

It is considered that due to the nature of the proposed development, it would not give rise to the following impacts and associated effects and will therefore not be assessed:

- Operational /completed development stage effects.

This is because once the proposed development has been completed, no further ground disturbance would occur and consequently there would be no additional impacts or resulting environmental effects upon buried heritage assets.

9.1.3 Approach and Methodology

The suite of assessments will conform entirely to requirements of the NPPF, and to standards specified by the Chartered Institute for Archaeologists⁵⁶ (CIfA) and Historic England⁵⁷ and the RBC.

Consultation

Consultation was undertaken with Berkshire Historic Environment Records (BHER) office to confirm the study area. Consultation with Berkshire Archaeological Advisor will be undertaken during the writing of the HEA regarding the mitigation. No specific consultation during scoping exercise is considered necessary.

Study Area

In order to set the application site into its full archaeological and historical context, a 550 m-radius study area around the application site boundary will be considered. Information on the known historic environment features within that study area will be collected from the primary repositories of such information.

⁵⁶ Chartered Institute for Archaeologists, December 2014. Standards and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment, Reading.

⁵⁷ English Heritage, 2008. Conservation principles, policies and guidance. Swindon.

Historic England, 2015. The Setting of Heritage Assets – Historic Environment Good Practice Advice in Planning: 3. Historic England in collaboration with the Historic Environment Forum, second edition.

Historic England, 2015. Managing Significance in Decision-Taking in the Historic Environment – Historic Environment Good Practice Advice in Planning: 2. Historic England in collaboration with the Historic Environment Forum, second edition.

Demolition and Construction

A desk-based Historic Environment Assessment (HEA) will be produced in support of the EIA, to be included as a Technical Appendix in ES Volume 3.

The HEA will put the proposed development into its full archaeological and historical context and provide an assessment of the significance of known and potential buried heritage assets within and beyond the application site, which may be affected by the proposed development. They will include assessments of factors which will have compromised the survival of buried heritage remains.

Physical effects upon buried heritage assets would all be permanent, whether or not the proposed development works are temporary in nature (e.g. ground excavation for temporary services, lighting and hoardings).

The archaeological specialist will liaise closely with other topic specialists (e.g. ground conditions) to ensure that there is no overlap in the assessment of effects, along with the design team. Where possible there will be an attempt to mitigate, by design, any impacts on particularly sensitive assets, although these are not considered to be present.

The fully illustrated assessment will put the application site into its archaeological and historical context and include a detailed baseline compiled through a broad range of standard data sources, including the Berkshire Historic Environment Record (BHER), Historic England's National Heritage List (NHL), and local authority data sources along with published works and cartographic sources specific to the area, and geotechnical and geoarchaeological data. The assessment will also consider any earlier desk-based assessments and archaeological investigations in or around the application site. The MOLA in-house Geographical Information System (GIS) will be consulted which holds information on statutory designations' GIS data, projected Roman roads, georeferenced published historic maps and Defence of Britain survey data.

The HEA will use these sources to assess the likely presence and significance of any heritage assets which may be affected by development. This would include known assets and the potential for previously unrecorded remains, the likely depth of remains and a review of factors which may have compromised asset survival.

An appropriate mitigation strategy will be set out in the EIA with the aim of reducing or offsetting any adverse effect (i.e. resulting in no significant residual effects). Measures to mitigate effects would normally consist of design adjustments, to allow significant resources to be protected and retained (preservation *in situ*) or, where this is not justified or feasible, investigation and recording before and during development, with dissemination at an appropriate level (preservation by record).

Consideration will be given to inter-project cumulative effects, subject to availability of cumulative scheme information in the public domain.

9.2 Transport and Accessibility

A Transport and Accessibility technical assessment is proposed to be scoped-out of the ES. Due to the anticipated significant reduction in traffic movements following redevelopment, it is considered that the proposed development would not give rise to significant environmental effects in relation to Transport and Accessibility. The proposed development would have significantly fewer parking spaces than the existing retail park and hence the anticipated reduction in traffic movement. A Transport Assessment will be produced and submitted alongside the planning application which will provide a full analysis of the existing and proposed site trip generation and associated impacts.

This assessment approach was confirmed with the RBC Transport Development Control Manager. Confirmation of the approach was received by email on 26 November 2019.

9.2.1 Site Information and Baseline Conditions

The application site is located within an established mixed-use area, comprising both commercial and residential land uses. The site benefits from good transport infrastructure in close proximity which facilitates travel by non-car modes such as walking, cycling and public transport.

Vehicular access to the site is currently achieved from Caversham Road to the west with egress being off Vastern Road to the north. It is proposed to retain similar vehicular access/egress arrangements for the proposed development.

There are good walking linkages in the local area, with extensive footway provision along Caversham Road, Vastern Road and Trooper Potts Way. Controlled pedestrian crossing facilities are provided across Caversham Road just south of Northfield Road, Vastern Road just east of its roundabout junction with Caversham Road and also to the west of the Vastern Road / George Street / Napier Road, as well as on Trooper Potts Way at its junction with Vastern Road adjacent the northeast corner of the application site.

A pedestrian route from the application site to the town centre can be easily achieved via the northern entrance to Reading Railway Station (accessed via Trooper Potts Way), where it is possible to walk through the station building and exit onto Station Hill at the northern end of the town centre. The application site's very close proximity to the town centre means that there is potential for trips to be made on foot, noting that there are numerous leisure, retail and employment uses within the town centre.

In terms of cycling infrastructure, a shared use foot/cycle way extends southwards from the Vastern Road / Caversham Road roundabout along Caversham Road along the application site's western boundary. A shared foot/cycle way is also provided along Vastern Road along part of the site's northern frontage, although cyclists are directed to re-join the carriageway where it connects with the Retail Park egress road. All of the signalised crossings on Vastern Road between the Caversham Road roundabout and Napier Road/Bagnall Way roundabout are Toucan crossings and therefore suitable for use by cyclists.

There are six bus stops accessible within 400 m of the application site on Trooper Potts Way to the east of the application site and on Caversham Road to the west and north-west. There are approximately 12 different bus services available from these stops combined. The application site is therefore considered to be ideally situated to facilitate a highly sustainable development with low parking provision and low levels of vehicle trips.

The application site is also situated approximately 50 m north of Reading Railway Station, which can be accessed by pedestrians via Caversham Road and Trooper Potts Way. The station is served by frequent rail services to/from London Paddington and Oxford which will be further enhanced when Crossrail services commence. Up to four Crossrail services an hour in each direction will serve Reading Railway Station, allowing passengers to travel through central London without having to change trains.

9.2.2 Potential Impacts and Likely Effects

Demolition and Construction

This stage will generate movements by HGVs. Based on experience of similar scale schemes, HGV trips would not have a significant effect on delay, amenity, severance, safety etc. A Construction Logistics Plan / Construction Traffic Management Plan will form part of the planning application and will set out ways of mitigating the impacts of construction traffic.

Completed Development

The proposed development would deliver an improved public realm with new pedestrian and cycle routes through the application site. Additionally, the application site is anticipated to generate

significantly fewer vehicle trips than the current retail park resulting in beneficial effects on highway safety, severance, amenity, fear & intimidation, and delay. A Travel Plan will be submitted setting out measures to further reduce the impact of the development on the surrounding transport networks, including measures to reduce the need for people to travel.

Car Parking Provision

The proposed development would have significantly reduced levels of parking compared to the existing retail park, resulting in fewer traffic movements being generated. A Car Parking Management Plan will form part of the TA and will set out the ways in which the onsite car parking will be managed.

Trip Generation

- Private car
The number of private car trips generated would be significantly reduced as a result of the development.
- Public transport
The proposed development would lead to an increase in public transport trips, to be assessed in detail within the TA.
- Cycling
The proposed development would lead to an increase in cycle trips, to be assessed in detail within the TA. However, the significant reduction in car trips would be beneficial for cyclists.
- Pedestrian
The proposed development would lead to an increase in pedestrian trips, to be assessed in detail within the TA. However, the significant reduction in cars trips would be beneficial for pedestrians, particularly in relation to highway safety, amenity, severance and fear & intimidation.
- Servicing
Servicing trips would be generated by the proposed development, but these would be accommodated within the site. The number of servicing trips generated would be relatively low and would have minimal impact on the highway network.

9.2.3 Approach and Methodology

Given the nature of the proposed development and standard mitigation measures that would be committed to by the Applicant, significant transport and accessibility effects are unlikely to arise. The significant reduction in vehicle trips to the application site following redevelopment would have a beneficial effect on the surrounding highway network, and would be beneficial for all road users, particularly pedestrians and cyclists but also public transport users through improved/more reliable bus journey times as a result of reduced congestion and queuing on the highway network.

The highways and transport implications of the proposed development would be comprehensively considered within the Transport Assessment which will be submitted with the planning application.

There will be additional documents prepared which will address other specific highways and transport related issues such as a Construction Logistics Plan, Construction Travel Management Plan, Delivery and Servicing Plan, Parking Management Plan and Travel Plan. The primary function of these documents will be to minimise the proposed developments associated highways and environmental impact.

9.3 Ground Conditions

A Ground Conditions technical assessment is proposed to be scoped-out of the ES. It is considered that the proposed development would not give rise to significant environmental effects in relation to Ground Conditions.

9.3.1 Site Information and Baseline Conditions

The potential for ground contamination at the application site has been assessed from a site visit undertaken on the 16 April 2019 and review of historical maps. Local authority records and information from environmental databases have also been obtained.

Site History

The application site was historically occupied by part of the Great Western Railway Works including a coal depot by the late 1890s with multiple railway sidings. The railway sidings were no longer present by the late 1980s, with buildings present on-site in the current configuration. Two electricity substations are present in the south and west of the application site.

Potential contaminants could include oils and fuels, asbestos fibres, metals and chemicals, and there is the likelihood of Made Ground/fill being present at the application site from the construction of the current and past developments.

Geology

The application site is located in an area of moderate sensitivity with regard to groundwater resources. The application site is underlain by Unproductive Strata, which is further underlain by a Principal Aquifer. There are 10 groundwater abstractions recorded within 2 km, none of which are for public potable water supply. The abstractions are considered likely to be from the Chalk Principal Aquifer, which is separated from the Made Ground by the low permeability Langley Silt Member. The clay and silt deposits can be expected to provide some protection to downward migration of contamination (if present) within groundwater. The application site is not located within a groundwater Source Protection Zone.

Hydrology

The application site is located in an area of moderate sensitivity with regard to surface water resources given that the River Thames is located 150 m north-east. There are three surface water abstractions within 2 km of the application site; however, none of the abstractions are for sensitive uses such as for public potable water supply.

The majority of the application site (approximately 95 %) is located in Flood Zone 2 (Medium Probability). Small areas (<5 %) in the west and centre of the site are located in Flood Zone 1 (Low Probability), and small portion (< 5%) of the north-eastern site boundary is located in Flood Zone 3 (High Probability).

Hydrogeology

The application site is underlain by Unproductive Strata, which is further underlain by a Principal Aquifer.

9.3.2 Potential Impacts and Likely Effects

The preliminary contamination risk assessment undertaken for the application site identified a number of potential pollutant linkages at both the construction and completed development stages of the proposed development. In consideration of this, and in the absence of mitigation, the following potential pollutant linkages could present a potentially unacceptable risk (as defined in Model Procedures for the Management of Contaminated Land, CLR 11):

- Future site users and construction workers may come in to direct contact with potentially contaminated shallow soils (including Made Ground) and NAPL impacted shallow groundwater. This could include dermal, ingestion and inhalation pathways;
- Chemical attack from the direct contact of potentially contaminated soils with proposed structures on site, including potable water supply pipes and building materials;
- Migration of ground gas and contaminant vapours into new buildings and structures;
- Adjacent site users may come into contact with potentially contaminated dust from construction works; and
- Potentially contaminated groundwater may migrate and impact both the shallow and deep aquifers and River Thames.

9.3.3 Approach and Methodology

Due to the nature of the proposed development, there would be no direct pollutant linkage in respect of the newly introduced residential receptors. This is because the proposed development will either cap or encapsulate the ground preventing future site users being exposed to potential contaminants. Vapour migration pathways, if necessary, would be managed through appropriate industry standard barriers or controls.

In advance of development works commencing on-site, the following standard regulatory and environmental mitigation measures and protection controls will be developed and implemented for the proposed development to avoid significant risks to construction workers and controlled waters:

- A Ground Contamination Risk Assessment will be prepared to inform the emerging proposals and will be presented as a technical appendix to the ES. The assessment will identify the risks associated with soil and groundwater contamination and the risk management strategy to allow the proposed development to proceed in a manner that avoids and minimises risks to human health and controlled waters;
- Further investigation and testing will be undertaken post-planning to further quantify the extent of soil and groundwater contamination and the characteristic ground gas and vapour situation for the application site. Any material which potentially contains asbestos will be managed in line with best practice guidance and current regulatory requirements;
- A Remediation Strategy will be prepared and agreed in consultation with RBC; and
- A Foundation Works and Piling Risk Assessment will be undertaken to determine risk management procedures during piling to avoid the creation of pollution pathways during substructure works before the removal of material during excavation of the basement area.

As is standard practice the above measures will be secured by means of appropriately worded planning conditions.

During the construction stage, standard best practice protocols and procedures will be adopted to ensure appropriate on-site storage of materials and to avoid the risk of accidental spills and contamination. These measures would be set out within the CEMP to be secured by means of an appropriately worded planning condition.

On the basis of the above, it is considered that the proposed development is unlikely to give rise to significant adverse environmental effects in relation to ground conditions. Accordingly, a ground conditions technical assessment chapter is proposed to be scoped out of the EIA. For completeness, the Ground Contamination Risk Assessment will be included within ES Volume 3: Technical Appendices of the ES.

9.4 Water Resources and Flood Risk

A Water Resources and Flood Risk technical assessment is proposed to be scoped-out of the ES. It is considered that the proposed development would not give rise to significant environmental effects in relation to Water Resources and Flood Risk.

9.4.1 Site Information and Baseline Conditions

There are no surface water features on the application site.

The majority of the application site is occupied by hardstanding with small areas of landscaping around the perimeter. The application site benefits from an existing drainage system although detailed drainage surveys have not yet been carried out.

The River Thames is located 150 m north-west of the application site.

The majority of the application site (approximately 95%) is located in Flood Zone 2 (Medium Probability). Small areas (<5%) in the west and centre of the site are located in Flood Zone 1 (Low Probability), and small portion (<5%) of the north-eastern site boundary is located in Flood Zone 3 (High Probability).

The EA is working with partners to design a potential scheme to reduce flooding from the River Thames in north Reading and Lower Caversham⁵⁸. The latest design proposes a mixture of flood walls and embankments, as well as temporary flood barriers around Christchurch Meadows. The scheme is currently in consultation period, seeking views from local stakeholders on the current designs. The EA is aiming to submit planning permission in summer 2020, with the possibility for the scheme to be completed by summer 2021.

Therefore, actual flood risks at the application site would be significantly lower than those typically associated with areas of Flood Zones 2 and 3.

9.4.2 Potential Impacts and Likely Effects

During the demolition and construction works there would be a risk of accidental spills and contamination of surface water run-off. The proposed development would present an opportunity to reduce surface water run-off as part of the redevelopment works and reduce the risk of flooding.

The intensification of land uses would result in an increase in potable water demand and foul water discharge.

9.4.3 Approach and Methodology

There are no surface water features on the application site. The application site is not located in a Source Protection Zone.

In respect of controlled waters, the application site benefits from an existing drainage system which collects surface water runoff and foul sewage before discharging to the public sewerage system. There are no known direct connections from the application site to surface water features.

In advance of development works commencing on-site, potential contamination on-site will be addressed by means of standard mitigation measures, including the development of an appropriate Remediation Strategy and the removal of sources of contamination as appropriate. As such, the proposed development would not pose any risks to controlled waters.

During the construction stage, the proposed development will adopt standard best practice measures to ensure appropriate surface water management, storage of any liquids and sediment

⁵⁸ <https://consult.environment-agency.gov.uk/thames/reading-and-caversham-flood-alleviation-scheme-inf/>

management. These measures will be set out within the CEMP to be secured by means of an appropriately worded planning condition.

The proposed development will incorporate SuDS which will reduce the risk of flooding downstream and reduce the risk of pollution. No basements are proposed as part of the development and there are no proposals for any discharge to ground.

In respect of water consumption, the proposed development would adopt standard water saving devices and features as part of its design.

Based on the above, no significant adverse environmental effects are likely to arise in relation to Water Resources and Flood Risk. A formal Water Resources Assessment is therefore proposed to be scoped out of the EIA, but the proposed development's FRA (including an outline drainage strategy) will be presented as a technical appendix in the ES.

The FRA will be produced in accordance with the NPPF and PPG: Flood Risk and Coastal Change. In particular, the FRA would assess whether the proposed development is likely to be affected by current or future flooding and will consider the potential for flood risks to arise as a result of the introduction of the proposed development, either on or off-site.

The FRA will include a SuDS feasibility assessment which will, taking into account the underlying ground conditions, propose a SuDs strategy for the application site. Approach and Methodology

9.5 Ecology

An Ecology assessment is proposed to be scoped-out of the ES. It is considered that the proposed development would not give rise to significant environmental effects in relation to Ecology of sufficient significance to warrant an EIA chapter; however, a separate Ecological Impact Assessment (EcIA) report will be prepared in accordance with CIEEM guidelines⁵⁹.

9.5.1 Site Information and Baseline Conditions

An ecological survey of the application site was undertaken on 02 April 2019 by a Ramboll Ecologist. The purpose of the survey was to identify any preliminary ecological constraints and opportunities at the application site.

The survey confirmed that the on-site habitats comprise buildings, hardstanding, amenity grassland, introduced shrub, scattered trees, and slate chippings.

The application site contains two separate units of buildings, with shops including The Range, Aldi, Mothercare and TGI Fridays with associated hard standing (paths and car parking). There are areas of amenity grassland and introduced shrub around the buildings. Scattered trees are present across the application site. There is a small area of bare ground to the east of the application site, with a small area of slate chippings to the south-west of the application site.

The buildings, hardstanding, and slate chippings are of negligible ecological importance. Amenity grassland, introduced shrub, and scattered trees are of importance at Site level only.

The application site does not hold any statutory designations for wildlife and no statutory designated sites are present within 1 km. The following three non-statutory designated sites have been identified within 1 km of the application site:

- Cow Lane Depot;
- Warren Woodlands Complex; and
- Coal, Kennetmouth, and Kings Meadow East.

⁵⁹ CIEEM, 2018. Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. Chartered Institute for Ecology and Environmental Management, Winchester.

The application site is unlikely to support significant populations of rare or protected invertebrates due to it comprising largely hardstanding and buildings.

It is also considered of Negligible suitability to support great crested newt and other amphibians, otter, reptiles, badger and hedgehog.

The application site is considered to be of Site level importance for use by common species of nesting and foraging bird.

The trees and buildings on the application site are considered to have Negligible potential to support roosting bats. The application site contains minimal habitat suitable to support foraging bats and is unlikely to function as a commuting corridor.

Overall the application site is of limited ecological value, and the value that exists is related to common species of nesting and foraging birds.

9.5.2 Potential Impacts and Likely Effects

During the demolition and construction works, all of the existing habitats on-site would be removed. However, the proposed development would offer the opportunity to deliver biodiversity enhancements through the landscaping proposals and other measures.

9.5.3 Approach and Methodology

A stand-alone EcIA report will be provided as an appendix to the ES. The EcIA will describe the baseline conditions on the application site and define the ecological importance of the features that could be affected by the redevelopment. The effects of the redevelopment (in construction and operation) would be assessed and mitigation proposed for any significant effects noted. The report would propose enhancement measures to promote biodiversity in the redeveloped scheme.

Biodiversity mitigation and enhancement measures would be incorporated within the parameters of the proposed development. These would include demolition of buildings and removal of trees and vegetation at an appropriate time of year to avoid impacts on nesting birds (or ecological supervision/watching brief if this is not possible), erection of bird boxes, provision of landscape planting.

Opportunities for ecological enhancement within the application site would also be provided, for instance, the potential to install bat boxes within the proposed development would be investigated. The provision of lighting would be carefully designed to avoid light spill onto areas of suitable bat foraging and commuting habitat.

On this basis, and taking into account the relatively low ecological value of the application site, significant ecological effects are unlikely to arise from the proposed development.

9.6 Telecommunication Interference

A Telecommunication Interference technical assessment is proposed to be scoped-out of the ES. It is considered that the proposed development would not give rise to significant environmental effects in relation to Telecommunication Interference. However, an assessment of possible interference to broadcast television reception will be undertaken. In addition, an assessment of interference to other telecommunications technologies (in particular, fixed microwave and point to point radio links) will be conducted. These assessments will include site visits (to determine the locations of any sensitive receptors around the application site) and baseline reception surveys to understand the pre-construction reception conditions.

9.6.1 Site Information and Baseline Conditions

The application site currently comprises four pavilion style commercial units (including an Aldi, The Range, Mothercare and Majestic Wine) and a separate building in restaurant use. It is likely

that there are a number of antenna systems in use around the application site for both signal transmit and receive purposes. These could be used for various technologies; however, it is likely that most will be used for standard television reception. Any baseline surveys to assess telecommunications coverage in and around the site will detail what any antenna is used for, especially in areas that may be subject to theoretical signal shadowing effects from the use of tower cranes and the proposed development itself.

9.6.2 Potential Impacts and Likely Effects

New, tall buildings and structures have the potential to impact on radio, television and other broadcast services as a result of shadowing and reflection effects caused. Table 9.1 provides an appraisal of the services that could potentially be affected by the proposed development.

Table 9.1: Telecommunication and Broadcast Services Appraisal	
Service	Key Outcomes
Analogue Terrestrial Television	Due to the completed Digital Television Switchover, it is now not possible for the proposed development to impact analogue terrestrial television reception, as analogue television transmissions have been switched off South-East England region.
Digital Terrestrial Television (DTT)	DTT is more commonly known as 'Freeview'. The area is served by DTT services from the Crystal Palace transmitter (NGR TQ 33940 71220) to the east of the application site, and the Hannington transmitter (SU 52740 56807) to the west of the application site. In relation to Crystal Palace, the signal shadows from the proposed development would be created to the west, and for the Hannington transmitter, signal shadows would be created to the east. Although the application site and surrounding area is relatively undeveloped in comparison to the proposed development, industrial and commercial use is dominant to the north-east (in what will be the signal shadow) and it is therefore anticipated that the proposed development would not significantly affect reception in the locality. However, by understanding the baseline reception conditions (from a pre-construction signal survey) and by undertaking a reception impact assessment, an accurate understanding of possible impacts and effects can be ascertained and this standalone technical report would support the application. Should television reception be affected post development, the Applicant would investigate the complaints, and if deemed authentic and attributable to the proposed development, mitigation measures in the form of antenna betterment, antenna repositioning or via the provision of a cabled TV services would be provided.
Digital Satellite Television	Digital satellite television services are provided by geo-stationary earth orbiting satellites positioned above the equator. For the optimum

Table 9.1: Telecommunication and Broadcast Services Appraisal	
Service	Key Outcomes
	reception of all satellite services, all receiving dishes must be positioned on the highest part of the rooftop as possible to ensure views to the sky's south-east horizon are free from other local skyline building clutter. Should there be any roof mounted satellite signal receiver dishes on the adjacent locations where line-of-sight views to the serving satellites may be obscured by the proposed development, relocating dishes to areas on the roof top where views to those satellites remain clear, would ensure the good reception of satellite television signals.
Cable Television	A number of 'TV over cable' operators exist in Reading. TV services are provided to a property via cables and decoded using a set top box or an integrated television set. Virgin Media, Sky and BT all provide such services. The availability of cable TV depends on provider's cable infrastructure. As cabled TV services operate via wired broadband, fibre and ADSL, interference effects cannot occur due to the nature of content delivery (through a cable, underground) and there is no possibility of effects from the proposed development on these services.
VHF (FM) Radio	The reception of VHF (FM) broadcast radio services are unlikely to be affected by the proposed development due to the nature of the radio broadcast network, the methods used for the encoding and decoding of signals and the likely current good coverage provided by the local VHF (FM) radio transmitters.
DAB Radio	The reception of DAB radio would not be affected by the proposed development as coverage is currently excellent throughout the Reading area and the network is designed to operate well in densely cluttered urban environments.
Mobile Phone Communications	The area will be served well by 2G, 3G and 4G mobile phone networks. The proposed development would not have any impact upon the operation of mobile telephones. The cellular nature of a mobile telephone network enables each handset to 'pick' the best cell site to ensure the correct operation of the handset. At this location, mobile telephone coverage would be optimal and robust due to the nature of the commercial requirements in buildings within the wider area.
Fixed Microwave Links and other point-to-point Radio Communications Channels	Radio and microwave links can be adversely affected by obstructions on and near to their transmission path such as construction cranes, buildings and trees. In general, the directional nature of radio links means that interference can

Table 9.1: Telecommunication and Broadcast Services Appraisal	
Service	Key Outcomes
	be avoided by defining clearance zones beyond which any degradation will be insignificant, or by moving the link to avoid the obstruction. Should any existing links be impacted upon because of the proposed development, standard mitigation options would be likely to comprise the: • use of other radio scanner sites; • use of a radio relay site; • construction of a new base station site; • use of private circuits or satellite services; and • redefining of the exclusion zones by the use of aerial engineering. The identification of the appropriate measures would be determined by a detailed review of the existing radio communications infrastructure at each base station, confirmation of the data for the services operated by the link's owner from the identified radio sites; and review of the theoretical analysis of the proposed development layout on the existing radio communication systems, to identify the exclusion zone for any affected radio infrastructure. It is noted that such standard mitigation measures can be readily implemented to ensure the continuing operation of links such that the proposed development is not considered likely to generate any significant residual effects on these services.
New Telecommunication Services within the proposed development	All new telecommunications services into the proposed development would consider the expected growth in internet traffic and would provide bandwidth for heavy simultaneous use. The 'e-infrastructure' would be designed well and easily upgradeable for a modern building. Any signal distribution systems would be designed to be future proof and the nature of such networks would ensure that no unwanted or uncontrolled electromagnetic emissions would occur. Any radio transmitters used within the proposed development (for example, Wi-Fi or maintenance needs) would be CE Certified, meaning that the products have undergone stringent radio emission testing for use within the UK.

9.6.3 Approach and Methodology

As set out in Table 9.1, potential effects on telecommunication services may be limited to fixed DTT (Freeview) reception and fixed microwave links and other point-to-point radio channels only (should such links be present near the application site); however, these can be readily mitigated by means of standard measures as listed in Table 9.1.

Due to the presence of existing microwave links around the application site and the potential for television interference, the following reports will be produced as technical appendices to the ES:

- Pre-Construction Television Reception Impact Assessment; and
- Telecommunications / Microwave Fixed Link Impact Assessment.

9.7 Climate Change

A Climate Change technical assessment is proposed to be scoped-out of the ES. It is considered that the proposed development would not give rise to significant levels of greenhouse gas (GHG) emissions that would contribute to climate change.

9.7.1 Site Information and Baseline Conditions

The UK Climate Projections (UKCP09)⁶⁰ have produced predictions of climatic changes for the UK, including more intensive summers, milder winters, sea level rise, and more frequent storms and heavy rainfall. Given the location of the application site 150 m from the River Thames, it would be at risk from increased flooding as a result of climate change.

The EA is working with partners to design a potential scheme to reduce flooding from the River Thames in north Reading and Lower Caversham⁶¹. The latest design proposes a mixture of flood walls and embankments, as well as temporary flood barriers around Christchurch Meadows. The scheme is currently in consultation period, seeking views from local stakeholders on the current designs. The EA is aiming to submit planning permission in summer 2020, with the possibility for the scheme to be completed by summer 2021.

Given the existing commercial uses on the application site and in the surrounding area, the proposed development is unlikely to result in increased GHG emissions from the application site over and above existing conditions.

9.7.2 Potential Impacts and Likely Effects

Vulnerability to Climate Change

Increased flood risk associated with climate change will be addressed in the FRA, as well as best-practice mitigation measures that have been embedded as part of the proposed development.

Other climatic predictions, such as increased temperatures, and their likely environmental effects, such as overheating within residential units, will be addressed as part of the reserved matters stage.

Greenhouse Gas Emissions

The potential for the proposed development to affect the climate would largely be determined by the demolition and construction works of the proposed development, as well as the way the new buildings and residential units are used during operation; however, development and planning can play an important role within the wider determinants of climate mitigation including sustainable design initiatives.

The primary greenhouse gas (GHG) from urban development projects is carbon dioxide (CO₂), set out as CO₂ equivalent (CO_{2e}) to take account of all GHGs collectively, to prevent an understatement of global warming impact.

The Applicant will seek to achieve a number of sustainable design initiatives in line with policy requirements.

The proposed development's outline energy and sustainability strategy will therefore aim to:

⁶⁰ Department for Environment, Food and Rural Affairs, 2009. Adapting to Climate Change – UK Climate Projections 2009.

⁶¹ <https://consult.environment-agency.gov.uk/thames/reading-and-caversham-flood-alleviation-scheme-inf/>

- minimise overheating within the residential units through appropriate design measures;
- minimise overall energy demand and consumption through practicable energy efficient design;
- minimise carbon dioxide emissions arising from the operation of the proposed development as far as practicably possible through the use of efficient plant, fittings and fixtures; and
- reduce carbon dioxide emissions arising from the operation of the proposed development as a result of on-site low carbon technology.

The Applicant will also seek to ensure that the proposed development's design is resilient in respect of climate change (for example in respect of flood risk) and that construction materials are selected following the Building Research Establishment (BRE) 'Green Guide to Specification' to:

- minimise embodied energy content (the energy used in manufacture);
- use recyclable materials where they have high embodied energy; and
- maximise the recycled content of the material, ease of maintenance, appropriate sourcing of materials and totally excluding deleterious and hazardous materials.

The proposed development will also seek to reduce the need to travel by private car as there will be a reduction in the number of car parking spaces than the existing use. Furthermore, the application site is within good proximity to sustainable transport options, such as Reading Rail Station. The proposed development will provide secure cycle parking and other initiatives to improve accessibility and links with the nearby amenities.

Furthermore, the Applicant will commit to best practice measures during the demolition and construction stage to minimise potential climate impacts. These measures will be set out within the CEMP, to be secured by means of a suitably worded planning condition.

9.7.3 Approach and Methodology

In addition to the Air Quality ES Chapter and the FRA, which will form a technical appendix to the ES, the following stand-alone assessments will consider the proposed development's indirect or secondary impacts on climate:

- Energy Statement; and
- Sustainability Statement (including BREEAM Pre-Assessment).

Based on the above, no significant adverse environmental effects are likely to arise in relation to Climate. Accordingly, a discrete Climate technical assessment is proposed to be scoped out of the EIA.

9.8 Major Accidents and Disasters

A Major Accidents and Disasters technical assessment is proposed to be scoped-out of the ES. It is considered that the proposed development would not give rise to significant environmental effects in relation to Major Accidents and Disasters. In particular, the proposed development would not be subject to significant risks from major accidents involving the Ockem site as this is located approximately 1.65 km west of the application site.

9.8.1 Site Information and Baseline Conditions

The application site is not located within a geographical region that has historically been subject to natural disasters although it does lie in an area which is vulnerable to flooding. However, embedded mitigation measures will include amongst others, ensuring finished floor levels are set above the Climate Change predicted flood level, ensuring a safe means of escape for vulnerable users and preparing an emergency flood evacuation plan for the proposed development.

As discussed previously, the Oxxem COMAH Establishment is located approximately 1.65 km east of the application site. As such, it is considered unlikely that this would pose risks to the proposed development. The application site does not lie within the consultation zones of the COMAH Establishment, and therefore, there is no need to consult with the Health and Safety Executive (HSE) regarding the proposed development.

9.8.2 Approach and Methodology

There is no recognised guidance on the assessment of major accidents and disasters. The 2017 EIA Regulations state that *"a description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned"* should be provided within the ES.

It is considered that the majority of major natural disasters, such as epidemics, earthquakes, volcanic eruptions and droughts are not of relevance to the application site or proposed development; however, vulnerability to flood risk and storm events are considered to be relevant.

Flood risk will be considered within the FRA, where best-practice mitigation measures will be outlined. Strong winds associated with storm events will be factored into the design of the proposed development in respect of structural integrity and appropriateness of landscaping features. It is considered that no further assessment in respect of natural disasters is necessary.

In respect of major accidents:

- Utility failure (such as electricity, gas, water supply or sewerage) will be avoided through appropriate design and sufficient consultation with utility providers, ensuring that necessary repairs can be undertaken, and continuation of supply ensured;
- Urban fires will be mitigated through appropriate design in accordance with Building Regulations and relevant safety guidance, in addition to the established 999 emergency response procedures in place in Reading; and
- Terrorist incident risk is not considered to be heightened or noteworthy due to the application site's location and intended uses of the proposed development.

Based on the above, no significant adverse environmental effects are likely to arise in relation to Major Accidents and Disasters. Accordingly, a discrete Major Accidents and Disasters technical assessment is proposed to be scoped out of the EIA.

9.9 Health

A Health technical assessment is proposed to be scoped-out of the ES. It is considered that the proposed development would not give rise to significant environmental effects in relation to Health.

9.9.1 Site Information and Baseline Conditions

The application site is occupied by several tenants for a combination of commercial and retail uses. The on-site uses offer no beneficial in-direct and direct effects on the local population with regard to human health with the current baseline conditions.

9.9.2 Considerations

The potential effects of a new development on the health of new and existing residents and workers would be largely determined by the way the proposed development's buildings and spaces are used, as well as lifestyle factors which cannot be accurately quantified or controlled at the planning stage. These wider factors sit outside of the scope of planning and EIA.

Development and planning can play an important role within the wider determinants of health and well-being, including provision of good quality work space, employment, access to health services, access to open space and access to healthy forms of transport. This role between planning and development, and health and wellbeing is limited to the location, design and nature of uses proposed and the methods in which they are constructed. The scope of this assessment needs to be applied proportionately to the type of development being considered.

Residential, commercial, office, leisure, community, retail and industrial uses are located within the surrounding area. The proposed development itself could also comprise residential, commercial, leisure, retail, and community spaces.

Mitigation measures will be incorporated into the design of the proposed development to maximise health and wellbeing such as the provisioning of well-designed residential units and pedestrian areas; the provision of on-site employment opportunities, on-site recreation opportunities, on-site open space; as well as access to schools and healthcare facilities.

9.9.3 Approach and Methodology

A number of assessments within the EIA will consider the proposed development's indirect or secondary impacts which can have an effect on health:

- Ground Conditions Risk Assessment (technical appendix);
- Socio-economic Assessment;
- Air Quality Assessment;
- Noise Assessment;
- Transport and Accessibility Assessment;
- Daylight, Sunlight and Overshadowing Assessment; and
- Wind Microclimate Assessment.

Based on the above, no significant adverse environmental effects are likely to arise in relation to Health. Accordingly, a discrete health and wellbeing technical assessment is proposed to be scoped out of the EIA.

9.10 Waste

9.10.1 Site Information and Baseline Conditions

There are currently waste streams directly arising from the operations associated with application site. On-site uses are commercial and therefore the associated waste streams include commercial waste (comprising some industrial waste). With the introduction of the proposed development, the type and quantum of waste streams would change. Existing waste production is likely to be less than what which would be produced from the proposed development.

9.10.2 Potential Impacts and Likely Effects

During demolition and construction works, the greatest potential for waste arisings would be from the demolition of existing buildings. Suitable mitigation measures will be employed in order to maximise on-site re-use and recycling and thereby reduce landfill waste from the demolition and construction works. In addition, the volume of waste produced from demolition and construction works in the surrounding area will not exceed the RBC landfill allowance and thus the cumulative effect from the development arising from demolition and construction waste will not be significant. Given the good, direct road network across the Reading Railway Station area, residential receptors in the surrounding area are unlikely to be significantly affected by vehicle movements bringing materials to the application site and taking waste away.

Although the operational waste is anticipated to increase when compared to the existing on-site waste generation, the new on-site floorspace would be provided with appropriate waste facilities to promote sustainable waste practices and recycling.

9.10.3 Approach and Methodology

Waste management during demolition and construction would be undertaken in accordance with a Construction Site Waste Management Plan (SWMP) to ensure suitable management of construction waste, minimisation of waste arising and maximisation of waste re-use and recycling.

The Applicant's contractors would be encouraged to maximise opportunities for waste recycling and re-use both on and off-site where practically possible. In the event that residual matters require off-site disposal, the Applicant's contractors would ensure the appropriate categorisation of waste in accordance with current regulatory requirements.

The Demolition and Construction Environmental Management chapter of the ES will outline likely waste quantities arising from demolition and construction works and present the Applicant's commitments to waste minimisation and management during these works.

The Proposed Development Description ES chapter will summarise the operational waste management measures which would be included within the proposed development. Sufficient information relevant to the waste management practices during all phases of the proposed development will be provided to fulfil requirements in line with the key UK waste related legislation and overarching EU Directives.

Based on the proposed development's land uses and waste streams, plus the proactive commitment to waste reduction, it is considered that waste generation would not be a significant issue in itself, requiring assessment within the EIA. Taking into account best practice mitigation measures, it is not anticipated that there would be any environmental effects from the future waste generation streams by the proposed land uses, save for the environmental effects of the collection of waste and secondary effects of emissions and traffic noise associated with waste vehicles. The movements of waste vehicles will be factored into the proposed development's trip generation figures and assessed in the Air Quality and Noise and Vibration chapters of the ES as well as in the standalone Transport Assessment.

Based on the above, no significant adverse environmental effects are likely to arise in relation to Waste. Accordingly, a discrete waste technical assessment is proposed to be scoped out of the EIA.

10. SUMMARY

The ES will address the requirements of Schedule 4 of the EIA Regulations. The preliminary structure and content of the ES is as follows:

- Non-Technical Summary;
- Volume 1: Main Environmental Statement:
 1. Introduction;
 2. EIA Process and Methodology;
 3. Alternatives and Design Evolution;
 4. Proposed Development Description;
 5. Demolition and Construction Environmental Management;
 6. Socio-Economics;
 7. Archaeology;
 8. Air Quality;
 9. Noise and Vibration;
 10. Daylight, Sunlight, Overshadowing and Solar Glare;
 11. Wind Microclimate;
 12. Intra Cumulative Effects;
 13. Summary of Residual Effects and Mitigation;Glossary of Terms and Abbreviations;
- Volume 2: Townscape, Visual and Heritage Impact Assessment including a Heritage Statement; and
- Volume 3: Technical Appendices.

Following review of the emerging proposed development it is not deemed necessary to undertake a full EIA and produce ES chapters for water resources and flood risk; ground conditions; ecology; waste; health and well-being; climate change; major accidents and disasters; and telecommunication interference; however, ES Volume 3 will include the following ES technical appendices to inform the planning application:

- Historic Environment Assessment;
- Flood Risk Assessment;
- Contamination Risk Assessment; and