

Environmental Statement For Jockey Club Racecourses Ltd SANDOWN PARK RACECOURSE PORTSMOUTH ROAD ESHER

19 February 2019

Our Ref: srs/385/12/6

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CONTENTS

1	INTRODUCTION	2
2	METHODOLOGY	8
3	BACKGROUND TO DEVELOPMENT	13
4	DEVELOPMENT DESCRIPTION	18
5	ALTERNATIVES	20
6	PLANNING POLICY	25
7	TRANSPORTATION	28
8	AIR QUALITY	55
9	OVERVIEW	97
10	REFERENCES AND GLOSSARY	100

Figures

Figure 1.1	Wider Site Locational Context
Figure 1.2	Site Masterplan
Figure 2.1	EIA process
Figure 5.1	Initial Masterplan Concept, October 2018
Figure 8.1	Diffusion Tube Monitoring
Figure 8.2	Wind Rose
Figure 8.3	Operational Phase Sensitive Receptors
Figure 8.4	Annual Mean NO2 DM
Figure 8.5	Annual Mean NO2 DS
Figure 8.6	ADMS Road Inputs

Technical Appendices - separate volume

7.1	Transport Assessment, February 2019, TPP
7.2	Outline Construction Management Plan, February 2019, Blue Sky Building
7.3	Draft Travel Plans, February 2019, TPP
8.1	Air Quality Methodology

QUALITY ASSURANCE



1 INTRODUCTION

- 1.1 Jockey Club Racecourses Ltd (JCR) (the applicant) is proposing masterplan-led development proposals at the Sandown Park Racecourse. The locational context of the Site is shown at **Figure 1.1** together with the boundaries of the application outlined in red.
- 1.2 The Development comprises -

Outline planning application (with all matters reserved except for access to the development) for:

- Enhancement and rationalisation of existing racecourse facilities/infrastructure and car parking;
- Re-location of an upgraded children's nursery (Use Class D1);
- Development of a circa 150 room hotel (Use Class C1), and
- Demolition of existing buildings/structures and residential development of approximately 318 dwellings (Use Class C3).

Full planning application for:

- Racetrack widening to the southwest and east sections of the existing racecourse track, including associated ground levelling/earthworks to the southwest section, and repositioning of fencing, and improvements to a section of the existing internal access road from More Lane, and
- New bellmouth accesses serving the development.
- 1.3 The Site Masterplan is presented at Figure 1.2.
- 1.4 This ES presents the findings of an independent EIA. The EIA is a systematic process which identifies the 'significant' environmental effects of a proposed development and allows environmental concerns to be taken into account in the decision making process before development consent is granted. It also provides an opportunity for such issues to be considered at an early stage and, where possible, for impacts to be designed out of the development.

REQUIREMENT FOR EIA

- 1.5 The requirement for an EIA is derived from the EC Directive no. 2011/92/EU (*ref. 1.1*). These directives are transposed into UK law through the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 ('the Regulations')(*ref. 1.2*). The Regulations require that prior to the grant of planning permission the likely significant effects of a project on the environment should be assessed.
- 1.6 The Regulations set out the types of development which will always be subject to EIA under Schedule 1 and other development which may require EIA under Schedule 2. It is considered that the application proposals fall under Schedule 2 of the Regulations, specifically category 10 (b) Urban Development Projects.

CONSULTANT TEAM

- 1.7 The application is being submitted on behalf of JCR.
- 1.8 The ES has been compiled by Rapleys LLP, members of the Institute of Environmental Management and Assessment (IEMA), in conjunction with technical input from a number of professional consultants whose roles are set out below.

Table 1.1: EIA Consultant Team

Organisation	Role
Rapleys LLP	Project Management; all planning matters; EIA co-ordinator.
TPP	All matters Transport.
PRC	All matters masterplanning.
Redmore Environmental	All matters Air Quality.

1.9 The remainder of the consultant team for the application consists of -

Table 1.2: Non-EIA Consultant Team

Organisation	Role
Tyler Grange	All matters Ecology and Trees.
EDP	All matters Archaeology, Cultural Heritage, Landscape/Townscape/Visual Amenity.
Hafren Water	All matters Flooding /Drainage.
Lister Geo	All matters Land Contamination.
Element Sustainability	All matters Energy and Sustainability.
Waterman Group	All matters Utilities.
Sharps Redmore	All matters Noise.
Graham White Lighting Consultancy	All matters Lighting.

STRUCTURE OF THE ES

1.10 This ES comprises the following documents:

Environmental Statement - Main Text

- 1.11 This document presents the full ES text and is divided into chapters, supported by figures and tables as appropriate.
- 1.12 Chapter 2 outlines the methodology for the EIA and details the technical assessments required.
- 1.13 Chapter 3 sets out the background to the Development Proposals.
- 1.14 Chapter 4 provides a summary of relevant national and local planning policy.
- 1.15 Chapter 5 provides a description of the alternatives studied by the applicant, as required by the EIA Regulations.

- 1.16 Chapter 6 provides a summary description of the Development Proposals.
- 1.17 Chapters 7 and 8 present an assessment of the environmental effects of the Proposed Development on a topic by topic basis.
- 1.18 Chapter 9 provides an overview of the cumulative environmental effects of the Proposed Development post-mitigation.

Environmental Statement - Technical Appendices

1.19 A set of technical appendices is presented as a separately bound volume, which support the assessments provided in the chapters above. This is to allow the ES to be a readable document whilst providing the full basis for assessment if required.

Environmental Statement - Non Technical Summary (NTS)

- 1.20 A non-technical summary has been produced as a freestanding document, which provides a summary of the whole ES in non-technical language, to be easily understood by a lay audience.
- 1.21 The Application is also supported by a number of other documents including:
 - Planning Statement;
 - Green Belt Statement;
 - Green Belt Review;
 - Design and Access Statement;
 - Statement of Community Involvement;
 - Viability Report;
 - Environmental Noise Report;
 - Sustainability and Energy Statement;
 - Preliminary Arboricultural Impact Assessment, including Arboriculture Survey, Tree Retention and Removal Plans;
 - Preliminary Ecological Appraisal and Preliminary Bat Roost Assessment, and HRA Screening Document;
 - Drainage Report, with Flood Risk Assessment (where applicable);
 - Landscape/Townscape Visual Appraisal;
 - Archaeological and Heritage Assessment;
 - Phase 1 Geotechnical Report;
 - Site Waste Management Statement;
 - Lighting Assessment;

- Utilities Report, and
- Construction Management Plan.

COMMENTS

1.22 Comments on the planning application and ES should be forwarded to Elmbridge Borough Council (EBC):

Mr E Chetwynd-Stapylton Elmbridge Borough Council Civic Centre High Street Esher KT10 9SD

(Email: ecstapylton@elmbridge.gov.uk)

AVAILABILITY OF DOCUMENTS

1.23 Additional copies of the NTS (free of charge) and ES and Technical Appendices (POA) are available from:

Rapleys 33 Jermyn Street LONDON SW1Y 6DN

Tel: 0370 777 6292 Email: <u>info@rapleys.co.uk</u>

1.24 Details on how to obtain additional copies of other documentation submitted in support of the Application are also available from the above address.

Figure 1.1 - Wider Site Context Plan



Figure 1.1 - Wider Site Context Plan.

Figure 1.2 - Site Location Plan



Figure 1.2 - Site Masterplan.

2 METHODOLOGY

2.1 The key stages of the EIA process are identified in **Figure 2.1**. Both project and design team meetings attended by key members of the project team were held regularly throughout the scheme evolution process. These meetings ensured that the design team were made aware of potential environmental effects and these were 'designed out' as far as possible. Conversely, this process has also allowed mitigation measures to be 'designed into' the Development Proposal - this is known as 'inherent or design' mitigation, and is line with the IEMA best practice.

SCREENING AND SCOPING

- 2.2 Initial pre-application discussions with the EBC identified several 'areas of concern' in relation to traffic impact and associated air quality impacts, in particular HGV traffic emissions, given the proximity of the racecourse to a number of Air Quality Management Areas (AQMA). Baseline survey work and initial analysis in respect of traffic and air quality confirmed 'no significant effects' and on the back of this, a formal Screening Opinion request (ref. 2.1) was submitted to EBC in December 2018 following pre-application discussions, in accordance with the 2017 EIA Regulations (ref. 2.2). The Screening Opinion request concluded that the Proposed Development would not create 'significant effects' and consequently did not constitute EIA development.
- 2.3 The Screening Opinion received from EBC also concluded that the Proposed Development was not EIA development and as such, an EIA was not necessary to accompany the planning application.
- 2.4 Notwithstanding this, JCR has taken the decision to undertake an EIA of the Development. Due to time constraints, no formal Scoping Opinion request was submitted to EBC. However, bearing in mind the fact that EBC identified construction traffic impact and associated air quality impacts as areas of concern, given the nearby Air Quality Management Areas (AQMA's) designated around Sandown Park Racecourse, the scope of the ES is limited to these topics only. The undertaking of the EIA on this basis also helps to re-inforce the premise that 'significant effects' will not be created as a result of the Development.

KEY EIA ISSUES

- 2.5 The following environmental issues associated with the Development are to be addressed in detail by the ES:
 - Transportation, and
 - Air quality.
- 2.6 Impacts associated with the following topics are considered to be 'non significant' and are not considered further in this ES:
 - Sunlight, daylight and overshadowing,
 - Wind,
 - Light pollution,
 - Ecology and biodiversity,
 - Land Contamination,
 - Flooding and Drainage,

- Archaeology and cultural heritage,
- Noise,
- Landscape, townscape and visual amenity.
- 2.7 The topics identified above were considered within the Screening Opinion not to create 'significant effects'. However, separate reports on these are submitted in support of the Application outside of the EIA Regulation remit.

TECHNICAL EIA ASSESSMENTS

- 2.8 Each key issue has been given a separate chapter in the ES (chapters 7 and 8). The technical assessments all follow the same format as recommended by relevant good practice guidance (ref. 2.3). Accordingly each chapter follows the structure below.
- 2.9 Each chapter starts with an **introduction** outlining the topic area to be assessed.
- 2.10 The **context** for the assessment is then set out including reference to national, and where appropriate, local guidance relevant to the topic area.
- **2.11** The methods for undertaking the technical studies are then outlined in the **methodology** section, making reference to best practice and other relevant legislation and guidance.
- 2.12 Whilst the Proposed Development is described consistently, the geographical extent of the assessment varies depending upon the aspect being assessed. For example, some environmental effects are confined within the boundaries of the Proposed Development Site; others have a wider assessment area. Accordingly, the geographical scope of the assessments is confirmed in each of the specialist chapters with an indication of the sensitive receptors identified on a topic by topic basis.
- 2.13 The methodology also confirms the consistent use of terminology for the assessment criteria. As required by Schedule 4 of the Regulations, the assessments consider impacts in terms of:
 - Direct and Indirect;
 - Permanent and Temporary;
 - Beneficial or Adverse;
 - Short term, Medium term or Long term, and
 - Local, District, Regional and National.
- 2.14 To assist in consistency, three tables are utilised to set out the sensitivity/value of the receptor, magnitude of the impact and impact significance. In terms of significance the terms nil, negligible, slight, moderate or substantial are utilised. The applicability of these criteria is specific to each individual topic and is explained in detail in the individual chapters.
- 2.15 Any topic specific limitations/constraints or assumptions are then included, again as required by the Regulations.
- 2.16 The **baseline conditions** are then described, against which the potential environmental impacts of the Proposal are assessed. The conditions are referred to as at the present time,

on the basis no significant changes are anticipated between assessment and development works commencing.

- 2.17 The **potential impacts** are then assessed utilising the methodology as set out above.
- 2.18 **Mitigation measures** are then considered to avoid, offset or reduce the significant adverse effects of the Development (in the hierarchy of avoid, reduce, then remedy). Such measures may relate to the site's construction or implications for the development during operations. Measures and design features that provide beneficial impacts or enhancements are also described in this section.
- 2.19 A **summary of the residual impacts** is then included, in order to assess development after mitigation measures have been applied. A summary table is provided at the end of each chapter to present this information.
- 2.20 The final chapter of the technical section provides an **overview** of the impacts following mitigation measures and in the longer term.

CUMULATIVE IMPACTS

- 2.21 It has been considered throughout this ES that the re-development of some of the land at Sandown Park Racecourse contributes to the housing need within the Borough of Elmbridge. Consequently due consideration needs to be given to the cumulative impacts of development taking place in the locality.
- 2.22 The Regulations require the EIA to consider cumulative effects. Good practice identifies two types of cumulative effects :
 - i. the combined effect of the Proposed Development together with other reasonably foreseeable or committed developments (taking into consideration effects at both the construction and operational phases): and
 - ii. the combined effects caused by the combination of a number of impacts on a particular receptor, which may collectively cause a more significant effect than individually.
- 2.23 Cumulative impacts are therefore considered in terms of the combination of effects of the scheme, and other relevant development in the vicinity comprising:
 - Application no. 2014/5061 for 38 dwellings and a Lidl at Riverdene Business Park, Moseley Road, Hersham, KT12 4RG;
 - App no. 2013/5035 (outline) and 2015/2627 (reserved matters) for 296 dwellings at Rydens Enterprise School, Hersham Road, Walton-on Thames, KT12 5PY;
 - App. No. 2013/4421 for 10 dwellings at Ditton Lea & 1 Grant Cottages, Portsmouth Road, Esher, KT 10 9QA.

ASSUMPTIONS AND LIMITATIONS

- 2.24 The principal assumptions that have been made, and any limitations that have been identified, in undertaking the EIA are set out below. Assumptions specifically relevant to each topic have been set out in each chapter.
 - The assessments contained within each of the technical chapters are based on the overall masterplan Development Proposals, for which planning approval is sought;

- Baseline conditions have been established from a variety of sources, including historical data, but due to the dynamic nature of the environment, conditions may change during the construction and operation of the Development;
- For the purposes of the ES, it has been assumed Development would start in 2019 and would take 8 years to build out, with the overall Development completing during 2027;
- Construction activities will take place to a pre-determined schedule and are likely to be conditioned as part of any planning permission, and
- A commitment is made to the delivery of a Construction (Environmental) Management Plan (CEMP), and again is likely to be conditioned.

Figure 2.1 - Key Stages of EIA Process

ASSESSMENT METHOD



3 BACKGROUND TO DEVELOPMENT

THE APPLICANT AND SANDOWN PARK RACECOURSE

- 3.1 The Planning Statement (chapters 3 and 4 specifically) which accompanies the Application sets out the background to Sandown Park Racecourse in detail. A summary of the key aspects of this is provided below.
- 3.2 JCR is the largest racecourse group in the UK by turnover and attendances, with a focus on hosting the highest quality Flat, Jumps and All-Weather Track racing. It currently operates 14 racecourses in the UK, including internationally renowned courses at Cheltenham, Aintree (home of the Grand National), Epsom (home of the Derby) and Newmarket.
- 3.1 JCR is governed by Royal Charter and re-invests all of its profits into British Racing as a sport, which includes investment in the long term development and enhancement of its racecourse facilities and venues. JCR recognises the need to operate an efficient and diverse business to secure its long term future by delivering an offer of non-racing activities, to secure reinvestment in the enhancement and regeneration of its racing venues.
- 3.2 JCR has invested significantly into the redevelopment and renewal of Cheltenham Racecourse and the redevelopment of the grandstand at Epsom Downs Racecourse, and has seen a major success through these upgrades and enhancements to the facilities. JCR is therefore experienced in delivering its vision to secure a long term future for its venues, and is seeking to repeat its success at Sandown Park Racecourse.
- 3.3 Sandown Park Racecourse is a Jump and Flat racing venue hosting 25 racing fixtures annually. It brings a range of economic benefits to the local economy as both a sporting venue and visitor attraction, as well as job creation:
 - The Racecourse attracts approximately 120,000 visitors to the 25 racing fixtures per annum (including Music Nights);
 - As one of JCR's regional hubs, Sandown Park employs 110 permanent staff through the year-round employment of administrative staff and other staff for the operation of race meetings;
 - In addition to the permanent staff, the Racecourse employs around 4,000 stewards, car park attendants and cleaners for the operation of the 25 race meetings, as well as 280 catering staff per race meeting;
 - The Racecourse offers a wide range of training opportunities to its staff;
 - The Racecourse uses a variety of contractors and service provides for the operation of race meetings and events and maintenance of the Racecourse, and
 - The Racecourse generates a significant number of indirect jobs, for example in the racehorse training industry.
- 3.4 A significant number of visitors are also attracted to Sandown Park each year through the hosting of non racing events approximately 300 complementary events such as conferences, weddings, banqueting and public exhibitions, attracting between 118,000 to 128,000 visitors per annum.

SITE AND SURROUNDINGS

- 3.5 Sandown Park Racecourse extends up to approximately 66 ha in total, of which 17.68hectares comprise the application sites, and is located in Esher, Surrey, immediately to the north of Esher Town Centre and to the west of Esher Railway Station.
- 3.6 The whole of Sandown Park Racecourse is located within the Green Belt and is bounded by Portsmouth Road (south east), More Lane (west), Lower Green Road (north) and Station Road (east). The racecourse's main access is via Portsmouth Road (the A307) which is a primary route through Esher connecting to London, Surrey and further afield. The Site is therefore in a sustainable location as a sporting venue and visitor attraction.
- 3.7 The operational facilities including the stables and paddock area, stable staff accommodation, and car parking are located on the southern part of Sandown Park Racecourse, with the Grandstand and Eclipse building overlooking the racetracks to the north.
- 3.8 Sandown Park Racecourse also contains established conference and banqueting facilities for holding conferences, events and public exhibitions. In addition to the racecourse and its associated buildings and facilities, there is also a dry ski slope/gym/fitness centre/skywalk adventure at The Warren (south west of the racecourse), a karting circuit, golf centre including driving range (centre of the racecourse), a children's nursery (on Portsmouth Road), and staff housing (north west of the racecourse).
- 3.9 The surrounding areas are suburban residential neighbourhoods with the high street of Esher Town Centre offering a wide range of shops and facilities.
- 3.10 There are a number of bus services along Lower Green Road, More Lane and Portsmouth Road that travel to and from the site, specifically to Weybridge, Brooklands, Addlestone, Kingston Upon Thames, Staines, Guildford, Downside and Walton-on-Thames. Esher Train Station (east of the site) travels towards London Waterloo, Clapham Junction, Surbiton, Walton-on-Thames, Weybridge and Woking.
- 3.11 More specifically, the individual proposal sites are described as follows:

The Enhancement Sites

Site A

- 3.12 The 2.2 ha site contains the main operational area and facilities for the racecourse, which comprises a pre-parade ring, stable blocks, saddling enclosures, and a hardstanding area for horsebox unloading and car parking.
- 3.13 It also contains Sandown Park Lodge, a two storey brick building providing a canteen and hostel accommodation (21 bedrooms) for stable staff during race meetings. Main vehicular access is from Portsmouth Road (A307) in the eastern corner.
- 3.14 The site is within flood zone 1.

Site B

- 3.15 The 0.3 ha site is located to the east of the existing Grandstand, on a predominantly hard standing area overlooking the racecourse. The site is vacant of building and is used for overflow car parking. The site adjoins the existing car park and is accessed from Portsmouth Road.
- 3.16 The site falls within flood zone 1.

Site C

- 3.17 The 3.3 ha site is located in the centre of the racecourse and contains a kart track, hard surfaced parking area and associated facilities. The site adjoins the golf course and driving range structure to the north, with the racetrack passing closely along the north and south boundaries of the site (along the latter is an internal service road). Further to the south is the Grandstand.
- 3.18 Access to the site runs along the southern boundary of Site D via a tarmac road, leading to More Lane to the west. The site levels fall from the southwestern corner of the site to the north eastern corner.
- 3.19 The site is falls within flood zone 1.

Site D

- 3.20 The 3.5 ha site is located in the centre of the racecourse, to the west of Site C. The area contains a hard surfaced parking area for the golf centre to the north, and a grassed area which is used for parking during race meetings. There are no significant buildings or trees within the site.
- 3.21 There is an internal access road to the site from More Lane. The racecourse passes closely along the north, south and west boundaries of the site. Further to the north is the golf course and to the south is the Grandstand. The site levels fall from the southwestern corner of the site to the north eastern corner.
- 3.22 The site falls within flood zone 1.

Sites E1 and E2

- 3.23 Site E1 is 0.46 ha and is situated towards the southwestern edge of the racecourse and borders Site D. It falls within flood zone 1, and is currently used as part of the overflow car parking on high capacity race days.
- 3.24 Site E2 is 0.22 ha and is located towards the north eastern edge of the racecourse, adjacent to the golf course, and falls within flood zone 2.
- 3.25 Both grassed sites are within immediate setting of the racecourse track.

Site F

- 3.26 Site F extends to 3.68 hectares and lies between the Grandstand, Portsmouth Road, Site B and Site 5. It is the main visitor car park for the racecourse on race and major event days. The southern part of Site F is formally laid out in rows but is not tarmacked. The northern part of Site F is also used for car parking, but is a grassed area with no markings.
- 3.27 In addition, Site F extends between the racecourse and Site B. This part of the site is currently used as a broadcasting compound on race days.

The Facilitator Sites

Site 1

3.28 The 0.24 ha site contains stables (for existing overflow provision) on the southern boundary with access taken from More Lane. To the north is a wooded area known as 'The Warren' containing leisure/recreation facilities and classified as ancient woodland with tree preservation orders in place. The gardens of properties on Esher Green and Tellisford back onto the site from the south.

- 3.29 Dual access is available from within Sandown Park through the stable area and from the eastern side of More Lane/Esher Green. The site rises up from the southern to the northern boundary.
- 3.30 The western part of the site is located within Esher Conservation Area with a group of four listed buildings to the west of the site (Cobblestones, Orangery, Garden Reach Cottage and listed walls), and one listed building to the south (Ekwalls) on Esher Green.
- 3.31 The site falls within flood zone 1.

Site 2

- 3.32 The 0.46 ha site is existing parking area for Sandown Park Lodge (within Site A), with pedestrian access to the site provided via steps to Portsmouth Road at the south western corner which also provides pedestrian links to the parade of shops and facilities in Esher high street.
- 3.33 Vehicle access is provided via the main entrance to Sandown Park off Portsmouth Road (A307), into the north eastern edge of the site.
- 3.34 The site's boundary along Portsmouth Road is defined by a tree line and timber fence. There is a Grade II listed Travellers Rest located adjacent to the southern boundary, with the Grade II Sandown House opposite.
- 3.35 The site is within flood zone 1.

Site 3

- 3.36 The 1.76ha ha site is located on the north western end of the racecourse, with access taken from Lower Green Road and the perimeter road within the racecourse. The site consists of four single and two-storey detached houses providing racecourse staff accommodation.
- 3.37 Immediately to the north of the site are trees and vegetation, beyond which are residential dwellings, including three locally listed buildings (144 and 146 Lower Green Road). To the east, are maintenance compounds serving the racecourse.
- 3.38 There are no heritage designations on this site. The site falls within flood zone 2.

Site 4

- 3.39 The 0.57 hectare site is a redundant area in the eastern corner of Sandown Park Racecourse, immediately to the north of a two storey Café Rouge restaurant off Station Road which provides access into the south eastern corner of the site.
- 3.40 The site's perimeter has some vegetation and trees, with its southern edge falling within flood zone 2.
- 3.41 The site is less than 250 m from Esher Railway Station. There are no heritage designations on the site however there is a listed and scheduled Monument, Milestone (White Lady) located 30 metres south.

Site 5

- 3.42 The 0.99 hectare site is characterised by two halves. The western half is currently used an informal overflow car parking on high capacity race days and a through route into the eastern half of the site. The eastern half accommodates a children's nursery (Use Class D1).
- 3.43 Access to the site is provided at its western edge from Portsmouth Road (A307) via the main entrance to Sandown Park. The southern boundary is heavily screened from Portsmouth Road (A307) by timber fence and trees.

- 3.44 Part of the children's nursery building is the locally listed Toll House that has been extended over the years with a further single storey building. There are two listings in close proximity to the site adjacent to the southern boundary is the Grade II listed coal tax post and to the south west are the Grade II listed gates and railings to Sandown Park Racecourse.
- 3.45 There are few mature trees and vegetation within the boundary of the site, with a landscape buffer screening the site from the racecourse to the north. The site is delineated by high timber fencing at all sides. The eastern edge of the site is bound by Cheltonion Place a residential apartment building. There are also further residential dwellings opposite the site to the south.
- 3.46 The majority of the site is designated as an area of high archaeological importance.
- 3.47 The site is within flood zone 1.

PLANNING HISTORY OF THE SITE

- 3.48 There have been a number of planning applications dating back to 1949 relating to the operations of the racecourse and the uses that currently exist within its boundaries. Section 6 of the Planning Statement sets these out in more detail. Suffice it to say, there have continually been a range of operational changes across Sandown Park Racecourse in order to upgrade and enhance its infrastructure and facilities over time.
- 3.49 None of these previous applications have been considered to be EIA development.

4 DEVELOPMENT DESCRIPTION

4.1 This hybrid planning application comprises the following:

OUTLINE ELEMENT

4.2 The outline element of the Application (with all matters reserved aside from access), includes the following operational enhancement and facilitating proposals:

Site A (Racecourse Operational Facilities) - redevelopment and rationalisation of the stables, the paddock area, pre-parade ring, horse box parking area that are to be removed, with replacement facilities built to latest British Horseracing Authority Standards. Two-storey race day staff accommodation (20no.bedrooms) and associated facilities will also be re-provided.

Site B (Hotel) - the erection of a six -storey circa 150 bedroom hotel (Use Class C1) close to the eastern end of the Grandstand.

Site C (Family/Community Zone) - demolition of existing building and remodelling of the existing kart track to accommodate a new year round family/community zone which shall comprise outdoor recreational areas and cycle track and indoor soft play and ancillary café buildings.

Site D (Rationalisation of Car Park) - improvement of the car parking area through the establishment of grasscrete surface or similar to assist vehicular access that is to be retained off and provided via More Lane.

Site F (Remodelling of Car Park) - improvements to the existing car parking and amendments to layout through soft and hard landscaping, including relocation of the existing broadcasting compound and turnstiles/kiosk to elsewhere within Site F, and installation of a new ring main unit.

Site 1 (Residential Mews) - demolition of the existing stables and erection of flatted mews development of circa 15 no. residential units (Use Class C3) comprising a mix of 5 no. 1 bedroom units and 10 no. 2 bedroom units. In addition, associated access off More Lane, car/cycle parking, landscaping and bin stores shall be provided. Building heights ranges between 1, 2 and 3 storeys.

Site 2 (Residential Urban Frontage) - demolition of the existing buildings to be replaced by new flatted development of circa 49 no. residential units (Use Class C3) fronting Esher High Street comprising 4 no. 1 bedroom units, 26 no. 2 bedroom units and 19 no. 3 bedroom units. In addition, associated access, car/cycle parking, landscaping and bin stores shall be provided. Building heights will range between 2, 3 and 4 storeys. The car parking area will be undercroft and covered by a landscaped deck.

Site 3 (Residential Villas) - demolition of existing buildings to be replaced by 9 no. new residential villa development of circa 114 no. residential units (Use Class C3) fronting the racecourse, comprising 27 no. 1 bedroom units and 87 no. 2 bedroom units. In addition, associated the new access off Lower Green Road, emergency access to racecourse, car/cycle parking, landscaping and bin stores shall be provided. Building heights will range between 1 to 3 storeys.

Site 4 (Residential Crescent) - development of circa 72 no. new residential units (Use Class C3), comprising 2 no. studios, 39 no. 2 bedroom units and 31 no. 3 bedroom units within a crescent form. In addition, associated access off Station Road, ramp access to new basement car/cycle parking, landscaping and bin stores shall be provided. Building heights will be stepped to 4, 5 and 6 storeys, providing rooftop terraces and vies out onto the recourse.

Site 5 (Residential Villas and Day Nursery/Community Use) - existing children's nursery buildings (aside from the original Toll House) to be demolished, with an upgraded, 2- storey children's nursery (Use Class D1) and associated amenity space, car parking relocated to the western part of the site. Access to the nursery shall remain as existing, via the main entrance to Sandown Park. The original Toll House shall be renovated and utilised as part of the proposed residential development. The remaining part of the site, to the east, shall accommodate development of circa 68 no. new residential units (Use Class C3), comprising 36 no. 1 bedroom units, 24 no. 2 bedroom units and 8 no. 3 bedroom units. In addition, associated access via Portsmouth Rad, car/cycle parking, landscaping and bin stores shall be provided. Residential building heights will be stepped and range between 3 and 4 storeys.

4.3 For further details relating to the Proposals, please refer to the accompanying Site Masterplan, Figure 1.2. In addition, parameter plans and indicative layouts, for illustrative purposes, are submitted as part of the Application documentation. can be found in the Design and Access Statement and Landscape Strategy.

FULL ELEMENT

4.4 The full element of the Application relates to the following:

Racetrack widening at Site E1 and Site E2 within the south western and north eastern edges of the racecourse. The proposals primarily involved a minor ground levelling (southwest works only) with and repositioning of the white fence.

Bellmouth accesses serving the new development sites.

4.5 For further details, please refer to the accompanying technical track widening and access drawings and Design and Access Statement.

5 ALTERNATIVES

5.1 The EIA Regulations Schedule 4, Part 1 (*ref: 5.1*) requires that an ES provides:

"An outline of the main alternatives studied by the applicant and an indication of the main reasons for the choice, taking into account the environmental effects".

5.2 This section outlines the main alternatives considered.

NEED FOR THE DEVELOPMENT AND ITS OBJECTIVES

- 5.3 As noted in chapter 3 of the ES, the Planning Statement explains in detail (in chapters 3 and 4) the need for the Development. A summary of these key aspects is provided below.
- 5.4 Notwithstanding the current number of visitors Sandown Park attracts and its significance (as identified in chapter 3 of this ES), the business faces a number of challenges to its long term success, including:
 - The existing racecourse infrastructure is ageing and absorbs a significant maintenance spend;
 - Investment is required to maintain a competitive race programme and to raise its position as a world class racing venue;
 - The existing buildings require upgrading to ensure that the venue keeps pace with the future needs of users and visitors, and
 - The visitor experience requires investment to retain existing customers and to attract new audiences from the wider community.
- 5.5 In order to deliver a competitive and sustainable future for the Racecourse business, three objectives have been identified, with the first two delivered by the third:
 - 1. A higher quality racing programme and guest experience;
 - 2. Wider and improved community provision, and
 - 3. Racecourse enhancements to existing built environment and infrastructure.
- 5.6 To achieve this, a range of improvements and enhancements have been identified as necessary:
 - New state-of-the art stables and enhancement of the paddock;
 - Regeneration of the Grandstand and Eclipse buildings through refurbishment and improvements to provide a high quality race day experience and year-round events and leisure;
 - Much needed, high quality Sandown Park hotel, helping to drive the events and leisure business and the local economy in Esher;
 - New ancillary stable staff accommodation and facilities;
 - Improvements to the entrance and car parks to the Racecourse, driving a new connection between Esher town centre, the Racecourse and the railway station;
 - Provision of an all year round family/community zone through redevelopment of the kart track, and

- Infrastructure improvements, including the racetrack widening and access improvements, drainage improvements and improvement of the site wide parking strategy.
- 5.6 The Site Masterplan identifies Development Proposals which require planning permission to be delivered in phases over several years. Enhancement of the Grandstand and Eclipse building through refurbishment and other infrastructure upgrades (such as drainage) are JCR's major commitment for the future, which will be delivered alongside the Masterplan proposals.
- 5.7 A review of the potential enhancements of essential operational activities at the Racecourse has led to the identification of potential sites for residential development on a small proportion of Sandown Park, without having a detrimental impact on racing operations or the Green Belt. These sites provide the opportunities to develop much needed, high quality housing for Esher. In addition, the release of these sites will enable the capital raised to be reinvested into the business to deliver Sandown Park's vision to secure its long term successful and sustainable future, and to provide benefits to the community.
- 5.8 In addition to the needs of the JCR, EDC has a duty to provide a sufficient and continuous five year supply of housing to meet its identified needs. Esher Town itself is a primary location for development where sustainable growth is to be concentrated. There is a pressing need for housing to be delivered in the EDC area and the development proposals represent an opportunity on which to make a contribution to much needed housing (albeit this needs to be balanced with the site's Green Belt location).
- 5.9 The key objectives of the Development Proposals can be summarised as follows:
 - To deliver a sustainable future for Sandown Park Racecourse through the Improvement of an existing leisure facility that is attractive, sustainable, and in accordance with planning policy; and
 - Provision of much needed housing this serves two purposes (i) to assist the JCR with achieving the aforementioned objective (above), and (ii) to assist EBC in meeting its housing objectives and requirements.

ALTERNATIVES

- 5.10 There are a number of ways of considering Alternatives the status quo or 'do nothing scenario'; different sites; different use combinations within the Site and different design/layout combinations.
- 5.11 These are considered briefly in turn below.

Do Nothing Scenario

- 5.12 The 'do nothing' scenario is a hypothetical alternative, conventionally considered in EIA as a basis for comparing the development proposal under consideration.
- 5.13 In this situation, this would comprise the status quo of land uses and operations within the JCR boundary. However, the current facilities are out of date, less than fully utilised, deteriorating and in need of substantial renovation and modernisation to be fully fit for purpose. As a result, it is evidently no longer meeting modern requirements and expectations in comparison to competing facilities and this is not sustainable. Therefore, major works are required in order to secure the site's long term viability.

- 5.14 The Racecourse provides economic, social and environmental benefits to the town, the Borough and the wider economy. The consequence of not carrying out the works would ultimately result in further decline and deterioration of the racecourse and its associated facilities and the loss of these planning benefits. This would evidently amount to substantial harm in planning terms, for Esher, Elmbridge and further afield, i.e., the consequences of the 'do nothing scenario' are likely to be considerable.
- 5.15 It has therefore been discounted as a viable alternative.

Site Alternatives

- 5.16 The land within the Application is owned by, and under the control of, JCR. For the most part, the Site is the operational racecourse which is being retained either as existing or, as refurbished facilities to assist in the function and management of the business overall. A considerable proportion of the Development Proposals involve improvements to the racetrack itself, the stables, parade ring, car parking, etc.
- 5.17 There is no reasonable alternative for the provision of these facilities.
- 5.18 The land identified for the housing element of the Development Proposals is similarly within the boundary of the JCR and Sandown Park Racecourse. It is previously developed land and/or adjoins the existing built-up area. Most of the housing is intended to be accommodated on land that does not form an essential functioning part of the racecourse from a racing perspective. However, as a means of cross-subsidising the vital and necessary improvements to the racecourse itself, the surplus land has an important and vital role.
- 5.19 As JCR does not own any other land within Esher or the immediate locality there is no other option to cross subsidise/fund the necessary improvements. The use of JCR surplus land represents the only viable alternative in this instance.

Use Alternatives

- 5.20 There are a number of potential use alternatives for the Development Proposal land parcels within the Site mixed use, solely leisure or solely housing. However, the facilitator sites (those proposed for housing within the Development Proposals) are generally in locations surrounded or close to residential properties. As far as compatible uses are concerned, the use of the surplus brownfield land for housing is considered to be the most appropriate.
- 5.21 Furthermore, from a cross-subsidy and viability point of view, residential use generates the best return and most efficient use of the land.
- 5.22 Consequently, the Development Proposals are considered to represent the most appropriate, reasonable and viable alternative.

Design Alternatives

5.23 Discussions concerning the nature and form of the development of the Site have been ongoing for a number of months. During this time various design and development solutions have been considered and presented to the Council and displayed at a public exhibition in Esher as part of a programme of public consultation agreed with EDC. The Design and Access Statement accompanying the Application details the most recent evolution of the design. The ES summarises a selection of the design alternatives below.

October 2018 Initial Masterplan

5.24 The Initial Masterplan introduces the rationale for the proposed scheme and the initial design concept in October 2018 (see **Figure 5.1**). The principles here focussed on identifying the proposed development Site boundary and principles of land use, and broad

layout and building heights to reflect the Site's opportunities and constraints, as well as JCR's operational requirements.

5.25 This masterplan was part of the early pre-application submission to the EBC as outlined in the accompanying Planning Statement.

The Illustrative Masterplan January 2019

- 5.26 The final illustrative masterplan design (**Figure 1.2** in this ES) is shown in the Design and Access Statement (January 2019) and described in detail in chapter 4 of the ES. This represents the culmination of consideration of public comment, Council and statutory consultee feedback, further environmental and technical survey and design work, racing industry needs and on-going discussions. The scheme iteration includes:
 - A reduction of the building height (site 3);
 - Omission of an earlier residential site known as The Warren which was considered to be the most environmentally sensitive and challenging;
 - The retention of the original tollhouse building (site 5);
 - The retention of the kart track to be reused as a cycle track and associated boundary change (Site C);
 - A reduction in the site area as a result of the change of Site C (Site D), and
 - Omission of a pedestrian link through the site with an alternative (improvements to the existing public footpath).
- 5.27 It is considered that the final Site Masterplan represents the most appropriate and viable alternative for the Proposed Development.

Figure 5.1 - Initial Masterplan Concept October 2018



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ENHANCEMENTS OF EXISTING BUILDINGS & INFRASTRUCTURE

6 PLANNING POLICY

6.1 A detailed review of the Proposals against the background of the planning policy context set out in section 8 of the Planning Statement accompanying the Application. This chapter sets out the general guidance in relation to the development of the Site. Specific policy regarding individual issues is referred to in the relevant topic chapters.

NATIONAL PLANNING POLICY

- 6.2 Relevant Central Government Policy is contained within the National Planning Policy Framework (the "NPPF"), adopted in February 2019(ref 6.1) and its accompanying National Planning Practice Guidance ("NPPG"), adopted/launched online in 2014 (ref 6.2).
- 6.3 The NPPF sets out the Government's planning policies for England and is underpinned by the presumption in favour of sustainable development applied by plan making and decision making.
- 6.4 Key considerations and policies of relevance to this Application include those relating to
 - The Green Belt,
 - Delivering a sufficient supply of homes,
 - Building a strong, competitive economy,
 - Promoting sustainable transport, and
 - Making effective use of land.

LOCAL PLANNING POLICY AND GUIDANCE

- 6.5 The proposal sites lie within EBC with the statutory development plan consisting of the:
 - Core Strategy (2011) (ref 6.3)
 - Policies Map (2011) (ref 6.4), and
 - Development Management Plan (2015) (ref 6.5).
- 6.6 The Core Strategy sets out the vision, spatial strategy and core policies that are used to shape future development in the Borough up to 2026, with the Development Management Plan containing more detailed policies that all planning applications will be assessed against.
- 6.7 According to the Policies Map (2011), all the proposals fall within designated Green Belt and the defined settlement boundary. In addition, the following site-specific designations are noted:
 - Site 1 The western part of site falls within Esher Conservation Area,
 - Site 2 No specific designations. Adjacent to the Grade II listed Travellers Rest and Sandown House,
 - Site 3 Flood zone 2,
 - Site 4 Flood zone 2 (proposed residential development), flood zone 1 (proposed car parking),

- Site 5 Contains locally listed Toll House. Adjacent to southern boundary is the Grade II listed coat tax post and Grade II listed gates and railings to Sandown Racecourse to the southwest,
- Sites A, B, C and D no specific designations, and
- Sites E1 and E2 no specific designations.
- 6.8 The Core Strategy recognises Sandown Park Racecourse as one of the Borough's main visitor attractions and assets, and a major employer. It identifies that Sandown Park helps to support the town centre's economy and that a comprehensive approach to parking and traffic issues will bring benefits to the town centre and to visitors to the Racecourse. Development for Sandown Park is supported in a way that brings economic and environmental benefits whilst protecting the amenities for local residents. Notably, it recognises that additional visitor accommodation will support the major tourist attractions within and adjoining the Borough, and supports sustainable growth of tourism, ensuring that it remains a strong element of the Borough's economy.
- 6.9 The most relevant policies for the proposals from an environmental point of view contained within the Core Strategy (2011) and Development Management Plan (2015) are summarised below. The full list can be found in the Planning Statement.
 - Policy DM17 (Green Belt Development of new building)
 - Policy DM19 (Horse-related uses and development),
 - Policy CS2 (Housing Provision, Location and Distribution),
 - Policy CS9 (Esher),
 - Policy CS21 (Affordable Housing),
 - Policy CS24 (Hotels and Tourism),
 - Policy DM4 (Comprehensive Development),
 - Policies CS16 (Social and Community Infrastructure) and DM9 (Social and Community Facilities),
 - Policy DM20 (Open Space and Views),
 - Policy DM12 (Heritage),
 - Policy CS14 (Green Infrastructure),
 - Policy CS15 (Biodiversity),
 - Policy DM6 (Landscape and Trees),
 - Policy DM21 (Nature Conservation and Biodiversity),
 - Policy CS25 (Travel and Accessibility),
 - Policy DM7 (Access and Parking),

- Policy DM7 (Access and Parking),
- Policies CS26 (Flooding), and
- DM5 (Pollution).

Emerging Planning Policy

6.10 EDC is currently preparing a new Local Plan, which will supersede the Core Strategy (2011). A Strategic Options Consultation took place December 2016 - February 2017.

SUMMARY

- 6.11 In summary, the following policy themes are highlighted:
 - Within the green belt, appropriate development includes redevelopment of PDL, affordable housing and outdoor sport and recreation which would preserve or not have a greater impact on openness, and in other instances where 'very special circumstances' exist that outweigh any harm resulting from the proposal.
 - Policies support the upgrade and enhancement of existing sport, recreational and community facilities, including Sandown Park which is recognised as one the Borough's main visitor attractions and assists as a major employer.
 - The latest evidence base confirms that there is a high need to provide new homes within Elmbridge.
 - Policy supports sustainable development that in particular prioritises recycling urban land within settlements that is near to services and public transport links.

7 TRANSPORTATION

INTRODUCTION

- 7.1 This chapter of the ES assesses the likely significant effects of the proposed Development with respect to traffic and transport. It also describes the methods used to assess the effects of the proposed Development; the baseline conditions currently existing at the Site and surrounding area; the mitigation measures required to prevent, reduce or offset any significant negative effects; and the likely residual effects after these measures have been adopted.
- 7.2 The Transportation work for the ES is supported by a Transport Assessment (TA) as **Technical Appendix 7.1** (ref 7.1), an Outline Construction Environmental Management Plan (CEMP) as **Technical Appendix 7.2** (ref 7.2) and Draft Travel Plans (DTP) as **Technical Appendix 7.3** (ref 7.3), and should be read alongside this document. This chapter and the TA and DTP have been prepared by Transport Planning Practice (TPP).

PLANNING POLICY CONTEXT

National Planning Policy

- 7.3 The National Planning Policy Framework (NPPF) (ref 7.4) focuses on a presumption in favour of sustainable development. One of the core planning principles relates to actively managing patterns of growth to make the fullest possible use of public transport, walking and cycling and focusing significant development in locations which are or can be made sustainable.
- 7.4 The NPPF recognises that the transport system should be balanced in favour of sustainable transport modes so that people are given a real choice about how they travel. It encourages solutions which support reductions in both greenhouse gas emissions and congestion.
- 7.5 Chapter 9 Promoting sustainable transport (paragraph 102) states that "Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:
 - the potential impacts of development on transport networks can be addressed;
 - opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised for example in relation to the scale, location or density of development that can be accommodated;
 - opportunities to promote walking, cycling and public transport use are identified and pursued;
 - the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and
 - patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places".
- 7.6 Developments which generate significant movement should be located where the need to travel will be minimised and the use of sustainable transport modes can be maximised. All developments which generate significant amounts of movement should be supported by a Transport Statement or a Transport Assessment and required to provide a Travel Plan.

Planning decisions should then consider whether opportunities for sustainable travel modes have been taken up, whether safe and suitable access to the site can be achieved for all people and whether improvements can be undertaken within the transport network, which effectively limit the significant impacts of the development.

- 7.7 Developments should be located and designed where practical to:
 - Accommodate the efficient delivery of goods and supplies, and access by emergency vehicles;
 - Give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;
 - Create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians;
 - Consider the needs of people with disabilities by all modes of transport.

7.8 I

- In respect of parking standards, the NPPF states that local planning authorities should take into account the following:
 - the accessibility of the development;
 - the type, mix and use of development;
 - the availability of and opportunities for public transport;
 - local car ownership levels;
 - the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles.

Regional Policy

Surrey Transport Plan (LTP3) (2012)

- 7.9 The Surrey Transport Plan (ref 7.5) is a statutory document that sets out the strategy to help people to meet their transport and travel needs effectively, reliably, safely and sustainably within Surrey. The Plan is made up of strategies, sections on the overarching vision and objectives, transport problems in Surrey, the indicators and targets, implementation programmes and the statutory assessments.
- 7.10 Strategies within the Transport Plan include Cycling, Local Bus, Rail, Travel Planning and Parking. Each of these form separate documents produced and updated to different timescales. The current Parking Strategy was published in January 2018.

Local Policy

Elmbridge Core Strategy (2011)

- 7.11 The adopted Elmbridge Core Strategy (ref 7.6) sets out a plan for the future development of the Borough in the period 2011 to 2026. Its role is to provide a delivery strategy to deal with particular challenges and issues that have been identified as being of local importance.
- 7.12 Policy CS9 covers the area of Esher. It states that Esher will continue to fulfil a diverse range of important roles as a centre for residential, employment, leisure, recreational and

tourism uses. Additional residential development will be provided across the area, primarily through redevelopment of previously developed land, taking account of relative flood risk. All new development will be expected to enhance local character. Specific attention will need to be given to areas of high heritage value, including West End and Esher Conservation Areas.

- 7.13 Esher has relatively good accessibility and higher density residential / mixed use developments could be appropriate within and around the town centre, provided that they take account of its historic context and support the town centre's vitality and viability, contributing to the diversity of uses available to local people.
- 7.14 The Council will work in partnership with landowners and Surrey County Council to implement appropriate measures that could address traffic congestion through the town centre and reduce the negative impact of lorry movements through residential areas. The Council will also promote improved access to and within the area for pedestrians and cyclists and public transport users. The Council will continue to work in partnership with Surrey County Council, in order to take a coherent approach to on and off-street parking. The Council will promote the provision of hotel accommodation in order to support the tourist venues at Sandown Park Racecourse and Claremont Landscape Gardens.
- 7.15 Policy CS25 states that the Council will promote improvements to sustainable travel and accessibility to services by:
 - Directing high trip generating developments to sustainable locations with good public transport accessibility.
 - Applying maximum parking standards to all uses.
 - Requiring a Transport Assessment and Travel Plan for major proposals to promote use of sustainable transport.
 - Protecting existing footpaths, cycleways and bridleways; delivering new cycling and walking schemes.
 - Improving transport infrastructure.
 - Improving the environmental impact of transport.

Elmbridge Borough Council's Development Management Plan (2015)

- 7.16 The adopted Development Management Plan (ref 7.7) contains the day-to-day policies against which planning applications will be assessed. These policies will ensure that development contributes to the wider, strategic aims of the Core Strategy, providing further detail where necessary in order to deliver the long-term spatial vision for Elmbridge.
- 7.17 Policy DM7 states the following with regard to access:
 - The layout and siting of accesses should be acceptable in terms of amenity, capacity, safety, pollution, noise and visual impact
 - Access to and from the highway should be safe and convenient for pedestrians, cyclists and motorists.
- Provisions for loading, unloading and the turning of service vehicles are expected to be designed into the scheme ensuring highway and pedestrian safety.
- The proposal should minimise the impact of vehicles and traffic nuisance, particularly in residential areas and other sensitive areas.
- 7.18 Policy DM7 states the following with regard to parking:
 - The proposed parking provision should be appropriate to the development and not result in an increase in on-street parking stress that would be detrimental to the amenities of local residents. In such instances, a minimum provision of one space per residential unit will be required.
 - Garaging, cycle stores and car parking designs should be integrated into the scheme and respect the character of the area.

METHODOLOGY

- 7.19 The following guidance documents have been considered in this assessment:
 - Department for Communities and Local Government (DCLG)/Department for Transport (DfT) Guidance on Transport Assessment (2007) (ref. 7.8) (although it is noted that this has been superseded with the release of NPPF);
 - Department for Communities and Local Government (DCLG) National Planning Policy Framework (2018) (ref 7.9);
 - Department for Communities and Local Government (DCLG) National Planning Practice Guidance (2014) (ref 7.10); and
 - Institute of Environmental Management and Assessment (IEMA) has prepared Guidelines for the Environmental Assessment of Road Traffic (Guidance Note. 1, 2003) (ref7.11).
- 7.20 Independent traffic survey contractors undertook comprehensive traffic counts of links that would potentially be affected by the Development. The counts were undertaken between the 7th and the 19th of December 2018. The counts were timed to avoid the school holidays and can therefore be considered to be robust.
- 7.21 The surveys comprised the placement of Automatic Traffic Counters (ATCs) at the following locations for seven days recording traffic volumes and speeds:
 - Station Road to the east of the Application Site;
 - Portsmouth Road to the south-east of the Applications site;
 - More Lane to the south-west of the Application Site; and
 - Lower Green Road to the north of the Application Site.
- 7.22 The effect of traffic associated with the Development, identifying the expected increase in traffic on the local highway network in both absolute and percentage terms during the weekday AM and PM peak hours is then assessed. Both the construction and operational phases of the proposed Development are considered, with reference to each of the following, in accordance with the Institute of Environmental Management (IEMA) Guidelines for the Environmental Assessment of Road Traffic (Guidance Note 1):
 - Severance;

- Driver stress and delay;
- Pedestrian and cyclist amenity and delay;
- Accidents and safety, and
- Fear and Intimidation.
- 7.23 The methodology for assessing each of the above criteria is outlined below.
- 7.24 Irrespective of whether the assessment indicates an impact on the local highway or during construction or not, Surrey County Council requires the submission of a CEMP prior to the commencement of development. The CEMP will advise on the management measures that will be undertaken to mitigate the impacts of deliveries, etc. associated with the construction phase of the development and the routes of construction vehicles to and from the Site. Notwithstanding this, an outline CEMP has been prepared and is submitted with the application, indicating the management principles that will be/are being applied.

Severance

- 7.25 Severance is the perceived division that can occur within a community when it becomes separated by a major traffic route. The assessment of severance pays full regard to specific local conditions, in particular the location of pedestrian routes to key local facilities and whether crossing facilities are provided or not. Several factors are considered in determining the existing level of severance. These include: road width, traffic flow and composition, vehicle speed and the availability of pedestrian crossing facilities.
- 7.26 The IEMA guidelines suggest that a 30%, 60% and 90% increase in traffic flows would have a slight, moderate and substantial change in severance respectively. Severance can be associated with residents, local employees, motorists, cyclists or pedestrians.

Driver Stress and Delay

- 7.27 Traffic delays to non-development traffic can occur:
 - At the site entrances where there will be additional turning movements;
 - On the highways passing the site where there may be additional flow, and
 - At key junctions on the local highway network.
- 7.28 Driver stress and delay to non-development traffic can occur where there is likely to be additional traffic and turning movements. Impacts may be beneficial or adverse depending on whether the change in traffic results in an increase or decrease in driver delay. Driver stress and delay has been based on the change in traffic that would occur on key links as a result of the proposed development. The assessor has also used judgement to determine whether there will be a significant impact.

Cyclist and Pedestrian Amenity and Delay

7.29 The importance of walking and cycling amenity in contributing towards sustainable travel patterns is outlined in the NPPF, which places focus on the roles that walking and cycling can play as both the main modes of transport or as part of a longer journey by public transport. The IEMA guidance broadly defines amenity as:

"The relative pleasantness of a journey, and is considered to be affected by traffic flows, traffic composition and pavement width/separation from traffic".

- 7.30 A tentative threshold for changes in pedestrian amenity is where traffic flows are halved or doubled.
- 7.31 Few quantitative methods of assessing pedestrian and cyclist delay exist. The IEMA guidelines recommend that rather than rely on thresholds for pedestrian and cycle delay; the assessor should use judgement to determine whether there will be a significant impact.
- 7.32 Increases in traffic levels as a consequence of a development are likely to lead to increased delay to pedestrians and cyclists wishing to cross roads. The degree of pedestrian and cycle delay therefore corresponds to the level of severance.

Accidents and Safety

7.33 The IEMA Guidelines state that an assessment of road safety on the highway network should be undertaken based on recent collision records. Personal Injury Collision (PIC) data has been obtained for the study area around the Site for the period between 1st January 2015 and 31st October 2018 and is summarised later in the baseline conditions section of this ES chapter.

Fear and Intimidation

- 7.34 A further impact that traffic may have on pedestrians is fear and intimidation. This impact is dependent on the volume of traffic, its HGV composition and its proximity to people and/or lack of protection caused by factors such as narrow pavement widths.
- **7.35** The IEMA guidelines suggest thresholds based on 18-hour daily flow and vehicle speeds, as shown in **Table 7.1**.

Degree of Hazard	Average Traffic Flow over 18-hour day (veh/hr)	Total 18-hour HGV Flow	Average Speed over 18-hour day (mph)
Extreme	1800+	3000+	20+
Great	1200-1800	2000-3000	15-20
Moderate	600-1200	1000-2000	10-15

Table 7.1: Fear and intimidation thresholds

Affected Parties

- 7.36 The groups or locations which may be sensitive to change in traffic conditions are identified below:
 - Local residents and employees;
 - Sensitive groups including children, elderly and disabled;
 - Sensitive locations e.g. hospitals, churches, schools, historical buildings;
 - Pedestrians and cyclists;
 - Open spaces, recreational sites, shopping areas;

- Sites of ecological/nature conservation value, and
- Sites of tourist/visitor attraction.
- 7.37 The above list will be considered in relation to each of the assessment criteria.

BASELINE CONDITIONS

Site Location

7.38 Sandown Park Racecourse is bound by Lower Green Road to the north, Station Road to the east, Portsmouth Road to the south-east and More Lane to the west. The Site is located to the south-west of Esher Railway Station and within walking distance from Esher town centre, which is located to the south of the Site.

Strategic and Local Highway Network

- 7.39 The Racecourse main site access is located on the A307 Portsmouth Road. To the west of the access, Portsmouth Road links to Esher town centre and the A3 Esher Bypass via the A245. The A3 then links to the M25 at junction 10. To the east of the access, Portsmouth Road links to the B3379 Station Road via a signal controlled junction and to the A309 Kingston Bypass via the 'Scilly Isles' junction which links to the A3 and central London.
- 7.40 At the 'Scilly Isles' junction, the A309 Hampton Court Way links the Racecourse to the M3 Motorway via the A308. The M3 Motorway provides access to the M25 to the north via junction 12. Locally, the A307 Portsmouth Road links to Kingston upon Thames to the east.

Baseline Traffic Data

7.41 Traffic surveys were required to review the operation of the local highway network. The surveys determine the volume, speed and mix of traffic on the roads local to the Site. ATCs, which record volume, speed and classification of vehicles data (24 hours a day), were installed on Lower Green Road, Station Road, Portsmouth Road and More Lane for a period of 12 days from Friday 7th December to Wednesday 19th December 2018.

Personal Injury Accidents

- 7.42 The Personal Injury Accident (PIA) data for a 46 month period between the 1st of January 2015 and the 31st of October 2018 has been obtained from Surrey County Council for the area surrounding the proposed Development. A total of 76 collisions with 94 casualties were recorded for the analysed area during the study period.
- 7.43 With respect to the 94 casualties, 11 were classified as serious and the remaining 83 as slight. Of these three involved pedestrians, 18 involved cyclists and a further 18 involved motorcyclists.
- 7.44 With respect to the 76 collisions, 27 occurred on Portsmouth Road, six occurred on More Lane, four occurred on Lower Green Road and one occurred on Station Road. Nine of the collisions that occurred on Portsmouth Road occurred at or in the vicinity of the entrance to Sandown Park. These were primarily attributed to human error and comprise three cyclists.
- 7.45 The largest cluster of accidents occurred at the junction between Lammas Lane / Church Street / Esher Green, located to the south of the Site and near Esher town centre. At this location, a total of 30 collisions occurred. Of these, four were classified as serious and the remaining as slight.

Walking and Cycling

- 7.46 The Racecourse Site is well located for pedestrian and cycle access to Esher town centre which is an approximately 500m from the main Grandstand. In addition, the Racecourse is within a reasonable walking distance of public transport nodes with footways linking to them.
- 7.47 There are a number of bus stops which are located on the A307 Portsmouth Road, and Esher Green and More Lane to the west of Racecourse. The Racecourse Grandstand is approximately a 1.3Km walk from Esher Station via the A307 Portsmouth Road and B3379 Station Road. On race days, a pedestrian route directly from both Station platforms and linked via an underpass provide access to the Racecourse via a footpath and the turnstiles on Lower Green Road. This route is approximately 1.0Km from the Station.
- 7.48 Intermittent advisory cycle lanes run along the length of the A307 Portsmouth Road to the south of the Racecourse which helps to prevent vehicles travelling to close to cyclists.

Public Transport Accessibility

Bus Network

7.49 The nearest bus stops to the Racecourse are located on the A307 Portsmouth Road, Esher Green and More Lane. Table 7.2 summarises the bus services stopping at these bus stops.

Due	Direction		Hourly frequency				
route	Bus stop names	towards		Mon - Fri		Sat	Sup
		towards	AM	Inter-peak	PM	Jac	Juli
	Esher Green	Kingston	1	1	1	1	0
515 Lower Green Esher High Street	Addleston	1	1	1	1	0	
715 (Portsmo	Littleworth Common Esher Sandown Park	Kingston upon Thames	1	1	1	1	0
Branch)	ranch) Esher Council Office	Guildford	0	1	1	1	0
715 (More	Lower Green Esher Green	Kingston upon Thames	0	0	0	0	1
Branch) High School	Guildford	0	0	0	0	1	
	Esher Sandown Park	Staines	1	1	1	1	1
458 Litt Eshe	Littleworth Common Esher Council Office	Kingston upon Thames	1	1	1	1	1

Table 7.2: Summary of Bus Services

Rail Network

7.50 Esher Station is approximately 1.3Km walking from the Racecourse Grandstand via the A307 Portsmouth Road and the B3379 Station Road. The station is served by South Western Railway and links to London Waterloo and Clapham Junction Stations to the east and Woking to the west. On race days, the Racecourse operates a free of charge shuttle mini-bus between the station and the main entrance to the Racecourse behind the Grandstand. However, visitors can walk directly from the Station platforms to the turnstiles at the north of Racecourse. Table 7.3 summarises the rail services stopping at Esher Station.

Direction		Mon - Fri		Sat	Sup	times
	AM	Inter-peak	PM	Jac	Juii	cimes
To London Waterloo	6	2	2	2	2	23 - 30 mins
From London Waterloo	2	2	4	2	2	20 - 28 mins
To Woking	2	2	4	2	2	20 - 25 mins
From Woking	5	2	2	2	2	19 - 25 mins

Table 7.3: Summary of Rail Services

Development Proposals

7.51 The Development proposals comprise:

Site 1 - Mews

- 7.52 The site has an area of circa 2,400m² and currently consists of a proportion of the Racecourse overflow stables and associated facilities. The site is currently accessed from the Racecourse's main site access on the A307 Portsmouth Road via the Sandown Park Lodge car park. There is an emergency vehicle access directly onto More Lane.
- 7.53 The demolition of the existing stables which will be relocated within Site A as part of the enhancement of the operational facilities will facilitate residential development on Site 1. The proposals are to provide 15 residential units and 21 car parking spaces.
- 7.54 Access to Site 1 would be relocated to More Lane. This access junction is currently used as an emergency access to and from the Racecourse, the facility of which would be retained while also providing access to the proposed residential development. To accommodate the residential development the existing junction would be improved to enhance visibility.
- 7.55 The accessibility of Site 1 to the town centre, nearest bus stop, Esher Station and local schools is set out in Table 7.4.

Table 7.4: Site 1 - Accessibility

Location	Distance (m)	Walking Time (80m/min)	Walking Time (100m/min)	Details
Town centre	424	5	4	Via Esher Green / Church Street
Nearest bus stop	228	3	2	Esher Green Stops E and F
Esher Station	1,870	23	19	Via Lower Green Road / Racecourse footpath
Nearest Primary School	1,370	17	14	Cranmere Primary School
Nearest Secondary School	538	7	5	Esher C of E School
Nearest convenience shop	563	7	6	McColls on Portsmouth Road

Site 2 - Urban Frontage

- 7.56 The site has an area of circa 4,600m² and currently comprises a proportion of the Racecourse stables and associated facilities and two car parks. The proposals are to provide 49 residential units and 72 car parking spaces.
- 7.57 Access to Site 2 would continue to be from Portsmouth Road via the secondary Racecourse entrance as per the existing situation.
- 7.58 The accessibility of Site 2 to the town centre, nearest bus stop, Esher Station and local schools is set out in Table 7.5.

Table 7	7.5:	Site	2 -	Accessibility
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Location	Distance (m)	Walking Time (80m/min)	Walking Time (100m/min)	Details
Town centre	608	8	6	Via Portsmouth Road
Nearest bus stop	282	4	3	Council Office Stop A and B on Portsmouth Road
Esher Station	1,250	16	13	Via Station Road into the main entrance
Nearest Primary School	1,660	21	17	Esher Church School
Nearest Secondary School	1,210	15	12	Esher C of E School
Nearest convenience shop	447	6	4	McColls on Portsmouth Road

Site 3 - Villas

- 7.59 Site 3 is located in the northwest corner of Sandown Park Racecourse and has an area of circa 17,600m². It is currently developed with eight residential units that provide Racecourse staff accommodation.
- 7.60 Access to Site 3 is from Lower Green Road. The site is connected to the rest of the Racecourse via an internal road that runs from the Centre of Course access on More Lane through to the turnstiles located next to the railway bridge that crosses Lower Green Road.
- 7.61 Reconfiguration of the maintenance compounds and facilities provides an opportunity to develop a linear arrangement of south facing apartments, the majority of which will have excellent views over the Racecourse. The proposals are to provide 114 residential units and 158 car parking spaces.
- 7.62 With the development proposals access to Site 3 would continue to be from Lower Green Road. However, a new access junction would be constructed approximately 45m to the east of the existing access which would be removed. The new access would provide improved visibility compared with the existing situation by locating it away from the bend on More Lane so that the entire junction visibility splay falls within a straight section of carriageway. In addition, locating the new access junction further east increases the distance between the site access and the More Lane junctions.
- 7.63 As well as providing access to the proposed residential development the relocated junction would continue to provide emergency access to the racecourse and an exit for cars leaving the racecourse at peak times on race days and other event days.

7.64 The accessibility of Site 3 to the town centre, nearest bus stop, Esher Station and local schools is set out in Table 7.6.

Table 7.6:	Site 3 -	Accessibility
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Location	Distance (m)	Walking Time (80m/min)	Walking Time (100m/min)	Details
Town centre	1,250	16	13	Via Lower Green Road and Esher Green
Nearest bus stop	181	2	2	Lower Green stop on More Lane
Esher Station	921	12	9	Via Lower Green Road and the Racecourse Footpath
Nearest Primary School	417	5	4	Cranmere Primary School
Nearest Secondary School	690	9	7	Esher C of E School
Nearest convenience shop	300	4	3	The Corner Shop on Farm Lane

Site 4 - Crescent

- 7.65 The site has an area of circa 5,700m² and is currently an infill site to the north of Café Rouge on Station Road. The site is currently accessed from Station Road via a large gated access. The proposals are to provide 72 residential units and 117 car parking spaces.
- 7.66 A new access located to the north of the existing site access would be provided from Station Road for Site 4. The proposed access would be located approximately 15m further from the signal controlled junction with Portsmouth Road than the existing site access.
- 7.67 The accessibility of Site 4 to the town centre, nearest bus stop, Esher Station and local schools is set out in Table 7.7.

Location	Distance (m)	Walking Time (80m/min)	Walking Time (100m/min)	Details
Town centre	1,370	17	14	Via Station Road and Portsmouth Road
Nearest bus stop	177	2	2	Littleworth Common Stop on Portsmouth Road
Esher Station	292	4	3	Via Station Road into the main entrance
Nearest Primary School	1,320	17	13	Weston Green School
Nearest Secondary School	1,960	25	20	Esher C of E school
Nearest convenience shop	1,200	15	12	McColls on Portsmouth Road

Table 7.7: Site 4 - Accessibility

Site 5 - Villas & Nursery

- 7.68 This site is currently developed with two buildings that are used as a Nursery. The site has an area of 7,700m² and is accessed from the Racecourse's main site access on the A307 Portsmouth Road. There is a Grade II Listed post located on the highway near the south east corner of the site.
- 7.69 Demolition of the existing nursery buildings provides the opportunity for new high quality apartments as a continuation of the existing streetscape from the east. Furthermore, respecting the existing landscape and mature trees will allow the development of new apartment blocks overlooking the Racecourse to the north. The proposals are to provide a replacement class D1 nursery, 68 residential units and 87 car parking spaces.
- 7.70 Access to Site 5 would be from a new purpose built junction on Portsmouth Road.
- 7.71 The accessibility of Site 5 to the town centre, nearest bus stop, Esher Station and local schools is set out in Table 7.8.

Location	Distance (m)	Walking Time (80m/min)	Walking Time (100m/min)	Details
Town centre	932	12	9	Via Portsmouth Road
Nearest bus stop	197	2	2	Sandown Park on Portsmouth Road
Esher Station	983	12	10	Station Road into the main entrance
Nearest Primary School	2,020	25	20	Esher Church School, Via Portsmouth Road and Claremont Lane
Nearest Secondary School	1,520	19	15	Esher C of E School
Nearest convenience shop	766	10	8	McColls on Portsmouth Road

Table 7.8: Site 5 - Accessibility

7.72 The replacement nursery will be provided to the west of the site. The nursery access would continue to be from the Racecourse main access as per the existing situation. The replacement nursery will be similar in size and operation to the existing situation.

Site A - Racecourse Operational Facilities

- 7.73 Site A currently comprises a proportion of the Racecourse stables and associated facilities, the pre-parade ring and the 21-bedroom Sandown Park Lodge hotel.
- 7.74 Site A would re-provide the entire Racecourse stables and associated facilities, the preparade ring, horsebox parking including horse ramps for loading and unloading horses, and a replacement Lodge. The horseboxes would access the site from Portsmouth Road via the main Racecourse entrance as per the existing situation.

Site B - Hotel site

- 7.75 The site is located to east of the Racecourse Grandstand. This site comprises an area of hard standing and green space used for parking on race days. The proposals are for a 150-bedroom hotel.
- 7.76 The hotel would not have any conferencing facilities so that those located within the Grandstand are not displaced.
- 7.77 The hotel car parking will be determined based on the operator's requirements and the predicted demand. An area of the existing Racecourse general admission parking provision will be allocated to the hotel and managed on race days and large events. The likely level

of parking allocated to the hotel has been based on one space per bedroom which equates to 150 parking spaces. Accessibility to the proposed hotel site is set out in Table 7.9.

Table 7.9: Hotel - Accessibility

Location	Distance (m)	Walking Time (80m/min)	Walking Time (100m/min)	Details
Town centre	744	9	7	Via Portsmouth Road
Nearest bus stop	420	5	4	Sundown Park on Portsmouth Road
Esher Station	1,220	15	12	Portsmouth Road and Station Way into the main entrance

Site C - Family / Community Zone

- 7.78 The site is located in the centre of the Racecourse and contains a Go-kart track, hard surfaced parking area and associated facilities. The site adjoins the golf course and driving range structure to the north.
- 7.79 The current and proposed access to Site C is via More Lane using the existing Centre of Course access junction. This also provides access to the Racecourse car parking (Site D) in the centre of the course, the ski slope, health club and golf club.
- 7.80 The improved access arrangement will provide a widened vehicle access to allow two-way flow and a pedestrian entrance with a new footway linking to the existing footways on More Lane.
- 7.81 The proposals comprise replacing the existing Go-kart track and café with a new family/community zone which includes a recreational cycle track, an indoor soft play with ancillary café, children's adventure playgrounds and a picnic area. Accessibility to the site is summarised in Table 7.10.

Location	Distance (m)	Walking Time (80m/min)	Walking Time (100m/min)	Details
Town centre	1,040	13	10	Via More Lane and Church Street
Nearest bus stop	663	8	7	Esher High School Station on More Road
Esher Station	2,230	28	22	Lower Green Road and Racecourse footpath

Table 7.10: Family / Community Zone - Accessibility

7.82 The Site C proposals will result in the loss of 113 parking spaces within the Centre of Racecourse.

Site D - Improvements to the Racecourse Car Parking - Centre of Course

- 7.83 Site D is located in the Centre of the Racecourse adjacent to Site C. The area contains a hard surfaced parking area for the golf course to the north, with a grassed area which is used as parking for race meetings. However, during the winter months parking on the grassed area can become difficult when the ground becomes soft. Therefore, the proposals include a number of measures to improve Site D so that it can be used in its entirety for parking throughout the year.
- 7.84 The measures to improve the centre of Racecourse parking include the provision of a resin bound gravel car park for the use of the Racecourse on race and event days, and at all other times by Site C; and areas with treated with improved drainage and reinforced grass. The proposed resin bound gravel car park area would be the same as that removed for the Gokart track.
- 7.85 The current and proposed access to Site D is via More Lane using the existing Centre of Course access junction. This also provides access to the Centre of Course facilities, the ski slope, health club and golf club.
- 7.86 The improved access arrangement will provide a widened vehicle access to allow two-way flow and a pedestrian entrance with a new footway linking to the existing footways on More Lane.

Site E - Racetrack widening

7.87 Site E includes widening of the racetrack at the south west and eastern corners of the Racecourse.

Site F - Improvements to the Racecourse Car Parking - Portsmouth Road

- 7.88 Site F is located adjacent to Portsmouth Road and contains a mixture of parking surfaces including 'Type 1' hardstanding, gravel bound tarmac and grass. The site is accessed from Portsmouth Road via the Racecourse's main entrance and secondary entrance, and via two gates located within the Listed Fence.
- 7.89 The proposed hotel on Site B will require some realignment of one of the site's internal access road's to serve the hotel, replacement nursery and the Racecourse car parking. It is proposed to relocate the existing broadcasting compound and turnstiles/kiosk elsewhere within Site F and install of a new ring main unit.

Delivery and servicing

- 7.90 All the residential sites will have access junctions with appropriate geometry to allow access by service vehicles. In addition, the refuse stores will be located to ensure that refuse collection vehicles can stop with their rear loading points within 10.m of the store access doors.
- 7.91 All development sites will incorporate turning heads to allow service vehicles to enter and exit the site in forward gear.

IMPACTS

- 7.92 This section considers the impact of the proposed Development upon the baseline conditions for both the construction period and post completion of the Development, in respect to the following:
 - Driver Delay and Stress;
 - Pedestrian/Cycle Delay and Amenity;
 - Accidents and Safety;
 - Hazardous Loads;
 - Severance, and
 - Fear and Intimidation.

Construction Impacts

Overall Construction Traffic Impact

7.93 Increased traffic flows during construction - IEMA guidance states:

"detailed environmental impact studies will normally only be triggered where road links experience change in traffic level greater than 30% or 10% where links contain sensitive interest".

- 7.94 The former is considered relevant to the proposed Development for Portsmouth Road and Station Road as there are limited sensitive receptors along both roads (e.g. amenities with road side frontages, roads with narrow footways etc.). Lower Green Road and More Lane have been assessed as sensitive links due to the presence of residential units on both roads and Esher C of E High School on More Lane.
- 7.95 Two-way traffic flows were recorded by the ATCs in December 2018. The vehicle flows presented in Table 7.11 are based on the virtual weekday calculation of the flows observed between Monday 10th and Wednesday 19th of December. The ATC tube on Station Road did not function from 08:00 on Tuesday 11th until 12:00 on Wednesday 12th. Hence, the assessment was based on the remaining data. This methodology has been reviewed against the other data which has confirmed that this would not materially have affected the results.

	2018 Base						
Link	Weekday AM Peak Hour	Weekday PM Peak Hour	Daily				
Lower Green Road	38	23	334				
Station Road	57	21	575				
Portsmouth Road	82	61	1,710				
More Lane	23	16	220				

Table 7.11: 2018 Traffic Flows (HGVs)

- 7.96 The assumed daily volume of HGV traffic associated with the construction of the site is provided in the outline CEMP which accompanies this Application (**Technical Appendix 7.2**). The document states that the anticipated average daily number of vehicles is expected to peak at approximately 44 HGVs per day (or 88 movements) during Phase 2 of the building programme. Phase 2 comprises the construction of Sites 1, 2, A, C, D and E. This would result in approximately 5-6 HGVs travelling to / from these sites during peak times (resulting in 10-12 movements) via Portsmouth Road.
- 7.97 Given that the peak period of construction will occur for sites that are accessible from Portsmouth Road, local roads such as Lower Green Road, Station Road and More Lane are not expected to be utilised by HGVs to access the Site during this time. However, More Lane is expected to be utilised during the construction period of Sites C and D which would result in a maximum of 15 vehicles per day (30 vehicle movements and approximately 1-2 vehicles per hour) during the peak time of construction. Furthermore, Lower Green Road and Station Road are both expected to be utilised for the construction of Phase 4 which would result in a maximum of 18 vehicles per day (36 vehicle movements and approximately 2-3 vehicles per hour) during the peak time of construction. Hence, the impact assessment on local traffic conditions has been undertaken based on the worst case scenario that would occur on each local road (as per described above).
- 7.98 Based on the results presented in Table 7.11, if the anticipated construction traffic was to be applied to each link it would result in the following increase in traffic.

	% Increase						
Link	Weekday AM Peak Hour	Weekday PM Peak Hour	Daily				
Lower Green Road	+15.8%	+26.1%	+10.8%				
Station Road	+10.5%	+28.6%	+6.3%				
Portsmouth Road	+14.6%	+19.7%	+2.6%				
More Lane	+17.4%	+25.0%	+13.6%				

Table 7.12: % Increase due to Construction Traffic Flows (HGVs)

- 7.99 Table 7.12 indicates that the anticipated peak construction traffic would increase average traffic flows on Portsmouth Road and Station Road less than 30% during peak times and throughout the day as set out in IEMA guidance. However, the proportions of HGVs are expected to increase above 10% on Lower Green Road and More Lane. This can be attributed to the relatively low HGV flows currently on Lower Green Road and More Lane.
- 7.100 Although the proportion of HGVs is expected to increase, this would only occur for a brief period of time. Based on the construction traffic data presented within the outline CEMP, this is expected to occur over a period of up to a month with the remaining months of construction resulting in fewer deliveries.
- 7.101 The content of the final CEMP will be agreed with Surrey Council as part of the reserved matters for each of the sites prior to the commencement of construction. It will be developed further once the details of the development on each site have been agreed with the Councils and will be more comprehensive than the draft. The final CEMP will include HGV routes and measures to attempt to reduce the number of deliveries to the Site. This

would include the prefabrication of components or consolidation of deliveries to reduce the number of vehicles travelling to the Site.

7.102 It is concluded that HGV traffic generated during the construction period would have a **temporary minor magnitude of change** on the local road network resulting in a **slight impact** that is not significant.

Driver Delay and Stress

- 7.103 Delays to drivers using the local highway network are identified by assessing the increased traffic congestion and delay arising from the additional traffic generated by the Development.
- 7.104 As indicated in Table 7.12, the construction traffic generated by the proposals would result in an increase in HGV flows on Lower Green Road, Station Road, Portsmouth Road and More Lane. The increases are expected to occur over a brief period of time which equates to the busiest time of construction. As previously stated, this is expected to occur over a period of up to one month with the remaining months of construction resulting in fewer deliveries. It is therefore anticipated that the proposed construction traffic would result in **temporary minor impact** on driver delay and stress.

Pedestrian/Cycle Delay and Amenity

- 7.105 Pedestrian and cycle delay is measured as the potential effects on pedestrians and cyclists associated with delays caused by changes in traffic volume or speed of traffic.
- 7.106 The anticipated traffic associated with the construction phase of the Development will be spread across the course of the day. The proposed construction traffic will result in **temporary negligible impact** on pedestrian and cycle delay and amenity.

Accidents and Safety

7.107 The construction phase will only result in a temporary increase in traffic on the local highway network and is therefore expected to have a **local temporary negligible impact** on accidents and highway safety.

Hazardous Loads

7.108 It is not anticipated that the proposed construction of the Development will result in the need for any hazardous loads, however, this will managed through the more detailed reserved matters CEMP, which will be agreed with Surrey County Council prior to commencement of construction.

Severance

7.109 The IEMA guidelines suggest that only changes in traffic flow in excess of 30% or more are likely to result in increased severance. The increase on Portsmouth Road and Station Road during the busiest phase of construction is expected to be below 30%. Although the increase on Lower Green Road and More Lane may be higher than their recommended value, this is expected to occur over a brief period of time. It is therefore considered that the effect on severance during construction will be **temporary in nature** and the significance will therefore be **negligible**.

Fear and Intimidation

7.110 It is anticipated that the busiest construction phase will result in daily HGV movements of 88 which is below the threshold of 100 movements. Therefore the construction traffic is considered to have a **temporary negligible impact** on the fear and intimidation.

Summary

7.111 Although the proportion of HGVs within the local key links may increase as a result of the construction stage, the increase in total traffic is predicted to be low within the study area. Therefore, there is likely to be a **local temporary negligible impact** on severance; pedestrian and cycle amenity and delay; accidents and safety; and fear and intimidation as a result of traffic movements during the construction period. There is likely to be a **local temporary slight/minor impact** on driver stress and delay.

Operational Impacts

7.112 The IEMA Guidelines states:

"detailed environmental impact studies will normally only be triggered where road links experience change in traffic level greater than 30% or 10% where links contain sensitive interest".

- 7.113 The former is considered relevant to the proposed Development for Portsmouth Road and Station Road as there are limited sensitive receptors along both roads (e.g. amenities with road side frontages, roads with narrow footways etc.). Lower Green Road and More Lane have been assessed as sensitive links due to the presence of residential units on both roads and Esher C of E High School on More Lane.
- 7.114 The impact of the Development has been assessed for the year of full completion i.e. 2027. This has been undertaken by applying TEMPRO factors for the AM and PM peak periods to the existing weekday traffic flows.
- 7.115 The traffic flows associated with the proposed residential and hotel developments have been determined based on trip rates obtained from the TRICS database. For the residential development, person trip rates have been obtained from TRICS and mode share has been determined by applying the 2011 Census data 'method of travel to work' for the resident population in the Elmbridge 013 Middle Layer Super Output Area. For the hotel development, vehicle trip rates have been obtained from the TRICS database. The methodology to determine the trip generation for both uses is further described in the Transport Assessment (Technical Appendix 7.1).
- 7.116 The traffic flows with and without the proposed Development are shown in **Table 7.13**, and the percentage change in traffic is presented in **Table 7.14**.

	2018	Base	2027	Base	2027 with Development		
Link	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday AM Peak Hour	Weekday PM Peak Hour	
Lower Green Road	742	536	805	585	826	604	
Station Road	690	576	748	629	769	648	
Portsmouth Road	1,656	1,528	1,790	1,663	1,840	1,707	
More Lane	1,021	806	1,107	880	1,126	901	

Table 7.13: Traffic Flows - 2018 baseline, 2027 future baseline and 2027 with development

Table 7.14: % Increase due to Operational Traffic Flows

	% Increase					
Link	Weekday AM Peak Hour	Weekday PM Peak Hour				
Lower Green Road	+2.6%	+3.3%				
Station Road	+2.8%	+3.0%				
Portsmouth Road	+2.8%	+2.7%				
More Lane	+1.7%	+2.4%				

7.117 **Table 7.15** identifies the magnitude of change (in percentage terms) in traffic flows and its effect (negligible, minor, moderate and major).

Table 7.15: Magnitude of change in traffic flows

Major	Moderate	Minor	Negligible
Exceeding the road's traffic capacity or a junction with a predicted ratio of flow to capacity greater than 0.9 for signalised junctions and 0.85 for priority junctions			
Change	in total traffic, HGV or hazai	dous load flows more than 9	90%
	Change in total traffic, HGV or hazardous loads flows of 60% to 90%		
		Change in total traffic, HGV or hazardous load flows of 30% to 60%	

Change in total traffic, HGV or hazardous load flows of less than 30%

Severance and Driver Delay

- 7.118 The IEMA guidelines suggest that only changes in traffic flow in excess of 30% or more are likely to result in increased severance. The proposed increase in traffic associated with the Development on the links in the vicinity of the Site is identified as being less than 30%. In accordance with Table 7.15, this would result in a "negligible" impact.
- 7.119 Due to the negligible impact that the proposed operational flows would have on local traffic conditions, it is anticipated that there will be little delay to drivers within the local highway network. Delay to drivers at the entrances to the Site is expected to be minimal.
- 7.120 It is not predicted that any noticeable severance will occur during the operation of the Development. An increase in vehicle movements will occur, but it is considered that communities will not be severed by the increase.

Pedestrian / Cycle Delay and Amenity

7.121 An **adverse effect** is anticipated on pedestrian and cycle delay as there will inevitably be more traffic on the network in the vicinity of the Site. However, the increase will be **negligible**. Furthermore, the implementation of some off-site measures is expected to improve conditions for pedestrians around the Site.

Accidents and Safety

7.122 The increase in traffic during the operation of the Development is expected to be small, and a **negligible impact upon accidents and safety** is anticipated. It is therefore considered that the effect upon accidents and safety during the operation of the Development will be permanent and of **negligible** significance. Furthermore, the improved accesses to the Site are expected to improve the level of safety at those locations and potentially result in a reduction of accidents.

Fear and Intimidation

7.123 The increase in traffic associated with the Development over an 18-hour period is expected to be below the thresholds outlined in Table 7.1. Currently, Portsmouth Road is the only road whose fear and intimidation levels can be classified as 'great' whereas the flows on Lower Green Road, Station Road and More Lane are below 'moderate' levels. The hourly uplifts are expected to be small and will not increase the levels of fear and intimidation on any of the links. Hence whilst traffic will increase in the vicinity of the Site, the levels of increase are considered to have a **negligible effect** on fear and intimidation.

MITIGATION

Construction

7.124 The outline CEMP includes the principles of restrictions, routes and control (e.g. routing, parking) of construction vehicles (including HGVs and contractors' vans / cars) that will be applied, firmed up and agreed with Surrey County Council as part of the reserved matters submissions for the Development and prior to the commencement of Development.

Operational

- 7.125 The proposed Development will not have a noticeable impact on the transport network.
- 7.126 However, it is recognised that the existing local road network is already congested and that, from a planning policy perspective, the Development should seek to encourage sustainable modes of transport. Consequently, this will be managed through the use of Travel Plans for the residential and hotel uses and for race and exhibition days (**Technical Appendix 7.3**). A range of measures to improve conditions for pedestrians and cyclists and manage traffic on the road network will also be provided. These measures will be agreed with the County Council before the application goes to committee and will be secured by planning conditions.

RESIDUAL IMPACTS AND CUMULATIVE IMPACTS

Residual Impacts

7.127 **Tables 7.16 and 7.17** show the residual impacts on Transportation during the construction and operational phases respectively.

Торіс	Magnitude of Impact	Duration	Nature	Significance
Driver delay & stress	Minor/Slight	Temporary	Adverse	Negligible
Pedestrian & cycle delay & amenity	Negligible	Temporary	Adverse	Negligible
Accidents & safety	Negligible	Temporary	Adverse	Negligible
Severance	Negligible	Temporary	Adverse	Negligible
Fear and Intimidation	Negligible	Temporary	Adverse	Negligible

Table 7.16: Summary of Impacts during the Construction Phase

Table 7.17: Summary of Impacts during the Operational Phase

Торіс	Magnitude of Impact	Duration	Nature	Significance
Driver delay & stress ; severance	Negligible	Permanent	Adverse	Negligible
Pedestrian & cycle delay & amenity	Negligible	Permanent	Adverse	Negligible
Accidents & safety	Negligible	Permanent	Adverse	Negligible
Fear and Intimidation	Negligible	Permanent	Adverse	Negligible

7.128 The increase in daily traffic during the construction period is predicted to be **minor/negligible** on the roads that surround the Site and across the wider highway network. With the implementation of the CEMP and proposed routing strategy (avoiding local residential roads wherever possible), the construction activities are expected to have a **temporary negligible** effect on severance; driver stress and delay; pedestrian amenity and delay; and accidents and safety.

7.129 The increase in daily traffic during the operational phase of the completed and occupied Development is predicted to be **negligible** on the roads that surround the Site and the wider highway network. As detailed earlier, the completed and occupied Development is expected to have a **permanent negligible** effect on severance; driver stress and delay; pedestrian delay; fear and intimidation; and accidents and safety.

Cumulative Impacts

- 7.130 The cumulative effect of the Development has been considered in the context of other developments in the area. The following sites have been deemed of relevance for the proposed development due to their proximity and size of development. They have planning permission but are unimplemented as of yet.
 - Application no. 2014/5061 for 38 dwellings and a Lidl at Riverdene Business Park, Moseley Road, Hersham, KT12 4RG
 - App no. 2013/5035 (outline) and 2015/2627 (reserved matters) for 296 dwellings at Rydens Enterprise School, Hersham Road, Walton-on Thames, KT12 5PY
 - App. No. 2013/4421 for 10 dwellings at Ditton Lea & 1 Grant Cottages, Portsmouth Road, Esher, KT 10 9QA
- 7.131 Application site 2014/5061 is located in Hersham and the proposals are for a mixed use development of a Lidl food store and 38 residential apartments. A Transport Assessment was prepared by Gateway TSP in December 2014 for the planning application. The document indicated that the additional flows generated by the development would approach the site from Molesey Road and that they would not be directed on the A244 Esher Road (which leads to Sandown Park). Hence, it is anticipated that these proposals would not have an effect in the vicinity of Sandown Park and have not been considered.
- 7.132 Application site 2013/5035 (and 2015/2627) is located Hersham and comprises the redevelopment of an existing school (with 1,100 students) to provide a new school with 1,688 students and up to 300 residential dwellings. A Transport Assessment was prepared by Motion in September 2014 for the outline planning application. The document indicates that the proposals would result in an increase in traffic travelling on the A244 (towards Sandown Park) of approximately 86 vehicles during the AM peak and 47 vehicles during the PM peak. Although these vehicles may travel towards Sandown Park, the assessment undertaken within this ES chapter for the operational development comprised a growth in traffic up to 2027 which is expected to cover the additional flows from application site 2013/5035. Hence, the flows for site 2013/5035 have not been considered.
- 7.133 Application site 2013/4421 is located on Portsmouth Road and comprised 10 dwellings. A Transport Statement was prepared by Bellamy Roberts in October 2013 for the planning application. The document states that the proposals would generate six vehicle movements during the AM peak and four vehicle movements during the PM peak. Given the vicinity of this site, the aforementioned flows have been incorporated into the impact assessment of the operational development. The percentage increase in traffic with these new flows, however, does not change and remains as per the results in Table 7.14.
- 7.134 Other unimplemented developments (with planning permission) are smaller than nine dwellings (mostly are one or two dwellings) and are much further away (i.e. Molesey, Walton and Weybridge) from Sandown Park. These developments have not been considered as part of this cumulative assessment as their impact has been deemed negligible.

Construction

7.135 It is considered that the cumulative effect of development in the area will result in a temporary increase in traffic during construction due to the construction vehicles. However this is considered to be only a **negligible temporary issue**.

Operational

- 7.136 The assessment undertaken within this ES chapter already takes into account the planned development of application site 2013/4421.
- 7.137 Sites 2014/5061 and 2013/5035 (and 2015/2627) have been deemed to be too distant from Sandown Park to be included within the assessment. Furthermore, it is expected that the TEMPRO growth factors (from 2027) implemented on local traffic as part of the Sandown Park Development will cover both sites.

SUMMARY

- 7.138 The likely transport impacts of the Development on the surrounding transport network, as well as, on the pedestrian and cycle networks have been assessed as part of this chapter. Relevant government policy at a national, regional and local level has been considered for this assessment.
- 7.139 The baseline indicates that the local area provides facilities and infrastructure for pedestrians, cyclists and public transport users. There are a variety of bus stops and Esher Railway Station within walking distance from the Site.
- 7.140 The increase in daily traffic during the construction period is predicted to be minor/negligible on the roads that surround the Site and across the wider highway network and on driver stress and delay. Construction activities are expected to have a negligible effect on severance, pedestrian amenity and delay; and accidents and safety.
- 7.141 The impact assessment for the operational phase of the Development has shown that there will be a permanent negligible effect on local traffic conditions, driver delay, driver stress, pedestrian delay, pedestrian amenity, cycle delay, cycle amenity, accidents and safety, severance, fear and intimidation.
- 7.142 The implementation of the CEMP would dictate the hours of operation at construction sites and the HGV routing to each respective site. Management measures will be provided within the document to ensure that the impact of HGV vehicles during peak hours is minimised.
- 7.143 From a planning policy perspective, the implementation of the Travel Plans will provide the management and operational framework to influence future travel behaviour and encourage the use of more sustainable modes in conjunction with reducing the overall need to travel by private vehicle.
- 7.144 In conclusion, the analysis of the likely impacts of the proposed Development demonstrates that the Site can accommodate the proposed Development without undue effect upon the safe and efficient operation of the local highway and transport network and the surrounding environment.
- 7.145 Table 7.18 summarises the impacts of the Development on the transport environment.

Table 7.18: Summary Table

Description of Likely Significant Effects	Significance (Substantial, Moderate, Slight, Negligible or Nil)	Effects				Description of Mitigation / Enhancement Measures	Description of Residual Effects	Significance (Substantial, Moderate, Slight, Negligible or Nil)	Residual Effe	cts			
		(B/A)	(P/T)	(D/I)	ST/M T/LT	(L/R/ N)				(B/A) (P/T)	(D/I)	ST/M T/LT)	(L/R/ N)
Demolition and Const	ruction Phase												
Impact on driver delay & stress	Slight/Minor	Adverse Term,	e, Tem Local	porary, I	Direct, M	edium	Implementation of CEMP	Changes in traffic flows from construction vehicle movements / HGVs on the local highway network during peak hours and throughout the day	Negligible	Adverse, Terr Term, Local	porary,	Direct, M	edium
Impact on pedestrian & cycle delay & amenity	Negligible	Adverse, Temporary, Direct, Medium Term, Local			edium	Implementation of CEMP	Changes to pedestrian and cycle movements, amenities	Negligible	Adverse, Temporary, Direct, Medium Term, Local		edium		
Impact on accidents & safety	Negligible	Adverse, Temporary, Direct, Medium Term, Local			edium	As above	Change in risk of accidents	Negligible	Adverse, Temporary, Direct, Medium Term, Local		edium		
Impact on severance	Negligible	Adverse Term,	e, Tem Local	porary, [Direct, M	edium	As above	Change in impact on severance	Negligible	Adverse, Temporary, Direct, Medium Term, Local			
Impact on fear and intimidation	Negligible	Adverse, Temporary, Direct, Medium Term, Local			edium	As above	Change in impact on fear and intimidation	Negligible	Adverse, Temporary, Direct, Medium Term, Local				
Operational Phase													
Impact on driver delay & severance	Negligible	Adverse, Permanent, Direct, Long			ong	Implementation of Travel Plans, improved accesses and potential improvement to local pedestrian and cycling facilities - though not strictly necessary from ES impact perspective	Changes in traffic flows from operational vehicle movements on the local highway network during peak hours and throughout the day	Negligible	Adverse, Perr Term, Local	nanent,	Direct, L	ong	

Impact on pedestrian & cycle delay & amenity	Negligible	Adverse, Permanent, Direct, Long Term, Local	As above	Changes to pedestrian and cycle movements, amenities	Negligible	Adverse, Permanent, Direct, Long Term, Local
Impact on accidents & safety	Negligible	Adverse, Permanent, Direct, Long Term, Local	As above	Change in risk of accidents	Negligible	Adverse, Permanent, Direct, Long Term, Local
Impact on fear and intimidation	Negligible	Adverse, Permanent, Direct, Long Term, Local	As above	Change in impact on fear and intimidation	Negligible	Adverse, Permanent, Direct, Long Term, Local

(Beneficial or Adverse) (B/A), (Permanent or Temporary) (P/T), (Direct or Indirect) (D/I), (Short Term, Medium, Long Term) (ST, M, LT), (Local, Regional, National) (L, R, N)

8 AIR QUALITY

INTRODUCTION

- 8.1 This chapter of the ES assesses the impact of the Proposed Development on air quality.
- 8.2 The Proposed Development has the potential to cause air quality impacts at sensitive locations during the construction and operational phases, as well as exposure future occupants to elevated pollution levels.
- 8.3 This chapter presents the findings of the air quality assessment undertaken for the proposed development, which includes:
 - Establishing the current and future baseline air quality conditions at and in proximity to the Application Site, including identifying existing receptors sensitive to changes in air quality;
 - Assessing potential construction phase air quality impacts at identified sensitive receptors, specifically relating to fugitive dust and exhaust emissions associated with construction activities;
 - Assessing potential operational phase local air quality impacts at identified sensitive receptors, particularly associated with sections of the local road network where changes in vehicle emissions are likely to be caused by the introduction of the Proposed Development; and
 - Assessing the suitability of the application site for the proposed land uses, which includes the addition of potentially sensitive receptors (e.g. residential properties).
- 8.4 It should be noted that the assessment has considered nitrogen dioxide (NO₂) and particulate matter with an aerodynamic diameter of less than 10µm (PM₁₀) concentrations as these specific pollutants are the recommended focus for detailed assessments of road traffic with respect to air quality (ref 8.1).
- 8.5 Where necessary, details of the mitigation measures required to prevent, reduce, or offset identified air quality impacts associated with the Proposed Development are stated in this chapter. The resulting residual impacts are also reported, which assumes that mitigation will be applied.
- 8.6 It is noted that the Proposed Development comprises a number of individual sites with separate boundaries. However, as all land parcels are encompassed by a wider boundary and will generate a cumulative impact with respect to air quality, the overall masterplan boundary has been considered for the purpose of this chapter. As such, any reference to the Proposed Development relates to all land parcels and any reference to the site boundary refers to the total masterplan boundary.

POLICY CONTEXT

8.7 This section of the ES discusses the context of the proposed development with regard to the relevant European Union (EU) and UK air quality legislation, in addition to national and local planning policies.

European Directives

8.8 The European Union (EU) air quality legislation is provided within Directive 2008/50/EC (ref 8.2), which came into force on 11th June 2008. This Directive consolidated previous legislation which was designed to deal with specific pollutants in a consistent manner and

provided new Air Quality Limit Values (AQLVs) for particulate matter with an aerodynamic diameter of less than 2.5µm. The consolidated Directives include

- Directive 1999/30/EC the First Air Quality "Daughter" Directive sets ambient AQLVs for NO₂, oxides of nitrogen (NO_x), sulphur dioxide, lead and PM₁₀;
- Directive 2000/69/EC the Second Air Quality "Daughter" Directive sets ambient AQLVs for benzene and carbon monoxide; and,
- Directive 2002/3/EC the Third Air Quality "Daughter" Directive seeks to establish long-term objectives, target values, an alert threshold and an information threshold for concentrations of ozone in ambient air.
- 8.9 The fourth daughter Directive was not included within the consolidation and is described as:
 - Directive 2004/107/EC sets health-based limits on polycyclic aromatic hydrocarbons, cadmium, arsenic, nickel and mercury, for which there is a requirement to reduce exposure to as low as reasonably achievable.

UK Legislation

- 8.10 The Air Quality Standards Regulations (2010) (ref 8.3) came into force on 11th June 2010 and transpose EU Directive 2008/50/EC into UK law. AQLVs were published in these regulations for 7 pollutants, as well as Target Values for an additional 5 pollutants.
- 8.11 Part IV of the Environment Act (1995) (ref 8.4) requires UK government to produce a national Air Quality Strategy (AQS) which contains standards, objectives and measures for improving ambient air quality. The most recent AQS was produced by the Department for Environment, Food and Rural Affairs (DEFRA) and published in July 2007 (ref 8.5). The AQS sets out Air Quality Objectives (AQOs) that are maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedances over a specified timescale. These are generally in line with the AQLVs, although the requirements for the determination of compliance vary.
- 8.12 **Table 8.1** presents the AQOs for pollutants considered within this assessment.

Pollutant	Air Quality Objective					
	40	Annual mean				
NO ₂	200	1-hour mean, not to be exceeded on more than 18 occasions per annum				
PM ₁₀	40	Annual mean				
	50	24-hour mean, not to be exceeded on more than 35 occasions per annum				

Table 8.1: Air Quality Objectives

8.13 **Table 8.2** summarises the advice provided in DEFRA guidance on where the AQOs for pollutants considered within this chapter apply.

Averaging Period	Objective Should Apply At	Objective Should Not Apply At
		Building façades of offices or other places of work where members of the public do not have regular access
Annual mean	All locations where members of the public might be regularly exposed	Hotels, unless people live there as their permanent residence
Annual mean	Building façades of residential properties,	Gardens of residential properties
	schools, hospitals, care nomes etc.	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
24-hour mean	All locations where the annual mean objective would apply, together with hotels Gardens of residential properties	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
	All locations where the annual mean and 24 and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets)	
1-hour mean	Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more	Kerbside sites where the public would not be expected to have regular access
	Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer	

Table 8.2: Examples of Where the Air Quality Objectives Apply

Local Air Quality Management

8.14 Under Section 82 of the Environment Act (1995) (Part IV) Local Authorities (LAs) are required to periodically review and assess air quality within their area of jurisdiction under the system of Local Air Quality Management (LAQM). This review and assessment of air quality involves comparing present and likely future pollutant concentrations against the AQOs. If it is predicted that levels at locations of relevant exposure, as summarised in Table 2, are likely to be exceeded, the LA is required to declare an Air Quality Management Area (AQMA). For each AQMA the LA is required to produce an Air Quality Action Plan (AQAP), the objective of which is to reduce pollutant concentrations in pursuit of the AQOs.

Dust

8.15 The main requirements with respect to dust control from industrial or trade premises not regulated under the Environmental Permitting (England and Wales) Regulations (2016) (ref

8.6) and subsequent amendments, such as construction sites, is that provided in Section 79 of Part III of the Environmental Protection Act (1990) (ref 8.7). The Act defines nuisance as:

"any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance."

8.16 Enforcement of the Act, in regard to nuisance, is currently under the jurisdiction of the local Environmental Health Department, whose officers are deemed to provide an independent evaluation of nuisance. If the LA is satisfied that a statutory nuisance exists, or is likely to occur or happen again, it must serve an Abatement Notice under Part III of the Environmental Protection Act (1990). Enforcement can insist that there be no dust beyond the boundary of the works. The only defence is to show that the process to which the nuisance has been attributed and its operation are being controlled according to best practicable means.

National Planning Policy

- 8.17 The revised National Planning Policy Framework (NPPF) (ref 8.8) sets out the Government's planning policies for England and how these are expected to be applied.
- 8.18 The purpose of the planning system is to contribute to the achievement of sustainable development. In order to ensure this, the NPPF recognises three overarching objectives, including the following of relevance to air quality:

"c) An environmental objective - to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adaption to climate change, including moving to a low carbon economy."

8.19 Chapter 15 of the NPPF details objectives in relation to conserving and enhancing the natural environment. It states that:

""Planning policies and decisions should contribute to and enhance the natural and local environment by:

[...]

e) preventing both new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality [...]"

8.20 The NPPF specifically recognises air quality as part of delivering sustainable development and states that:

"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan." 8.21 The implications of the NPPF have been considered throughout the chapter.

National Planning Practice Guidance

- 8.22 The National Planning Practice Guidance (ref.8.9) (NPPG) web-based resource was launched by the Department for Communities and Local Government on 6th March 2014 to support the NPPF and make it more accessible. The air quality pages are summarised under the following headings:
 - 1. Why should planning be concerned about air quality?
 - 2. What is the role of Local Plans with regard to air quality?
 - 3. Are air quality concerns relevant to neighbourhood planning?
 - 4. What information is available about air quality?
 - 5. When could air quality be relevant to a planning decision?
 - 6. Where to start if bringing forward a proposal where air quality could be a concern?
 - 7. How detailed does an air quality assessment need to be?
 - 8. How can an impact on air quality be mitigated?
 - 9. How do considerations about air quality fit into the development management process?
- 8.23 These were reviewed and the relevant guidance considered as necessary throughout the undertaking of the chapter.

Local Planning Policy

8.24 The Elmbridge Local Plan comprises two key documents which contain the planning policy of relevance to the borough.

Elmbridge Core Strategy

8.25 The Elmbridge Core Strategy (ref. 8.10) was adopted in July 2011 and is the main document in the Council's Local Development Framework. It sets out a plan for future development of the borough. Review of the Core Strategy did not reveal any specific policies of relevance to this chapter.

Elmbridge Development Management Plan

8.26 The Development Management Plan (ref 8.11) was adopted in April 2015 and provides the detailed policies against which planning applications are assessed. Review of the Development Management Plan revealed the following policy of relevance to this chapter:

"DM5 - Pollution

[...]

c. Air Quality

Within designated Air Quality Management Areas, the Council will promote measure to improve air quality and will expect development proposals to avoid introducing additional sources of air pollution. For proposals falling within an Air Quality Management Area and/or where the Council considers that air quality objectives are likely to be prejudiced, applicants will be expected to submit a detailed specialist report which sets out the impact that the proposed development would have upon air quality. Planning permission will not be granted for proposals where there is significant adverse impact upon the status of the Air Quality Management Area or where air quality may have a harmful effect on the health of future occupiers of the development, taking into account their sensitivity to pollutants, unless the harm can be suitably mitigated." 8.27 The above policy was taken into consideration during the production of this chapter.

METHODLOGY

8.28 This section sets out the methodology used to determine the potential air quality impacts associated with the construction and operational phases of the development.

Consultation

8.29 The scope of the assessment and associated methodology was agreed with Paul Leadbeater, Environmental Health Officer at EBC.

Sources of Baseline Data

- 8.30 Baseline air quality conditions in the vicinity of the Application Site have been defined from a number of sources. These include a desk-based review of the following:
 - The DEFRA air quality resource website (ref. 8.12);
 - Pollutant monitoring results provided by EBC via email;
 - Consultation with the Environmental Health Department at EBC;
 - EBC Air Quality Annual Status Report (ref. 8.13);
 - Aerial photography available from Google Maps (ref. 8.14);
 - Ordnance Survey feature maps (ref. 8.15); and,
 - The Multi Agency Geographic Information for the Countryside (MAGIC) website (ref.8.16).
- 8.31 Reference should be made to the Section entitled 'Baseline Conditions' for details of the baseline situation and prevailing environmental conditions.

Construction Phase Assessment

Fugitive Dust Emissions

- 8.32 There is the potential for fugitive dust emissions to occur as a result of construction phase activities. These have been assessed in accordance with the methodology outlined within the Institute of Air Quality Management (IAQM) document 'Guidance on the Assessment of Dust from Demolition and Construction V1.1' (ref. 8.17).
- 8.33 Activities on the proposed construction site have been divided into four types to reflect their different potential impacts. These are:
 - Demolition;
 - Earthworks;
 - Construction; and,
 - Trackout.
- 8.34 The potential for dust emissions was assessed for each activity that is likely to take place and considered three separate dust effects:
 - Annoyance due to dust soiling;

- Harm to ecological receptors; and,
- The risk of health effects due to a significant increase in exposure to PM₁₀.
- 8.35 The assessment steps are detailed below.

Step 1

8.36 Step 1 screens the requirement for a more detailed assessment. Should human receptors be identified within 350m from the boundary or 50m from the construction vehicle route up to 500m from the site entrance, then the assessment proceeds to Step 2. Additionally, should ecological receptors be identified within 50m of the site or the construction vehicle route up to 500m from the site entrance, then the assessment also proceeds to Step 2.

Step 2

- 8.37 Step 2 of the assessment screens the risk of potential dust impacts. It should be noted that the standard IAQM terminology of risk has been replaced with significance criteria, and the magnitude of dust emissions small and large have been replaced with low and high, respectively, to allow continuity throughout the ES and comparison of various effects. A site is therefore allocated an effect significance (risk) category based on two factors:
 - The sensitivity of the area to dust impacts, which can be defined as low, medium or high sensitivity; and,
 - The scale and nature of the works, which determines the magnitude of dust arising as low, medium or high.
- 8.38 The two factors are combined in order to determine the potential effect significance without mitigation applied.
- 8.39 Step 2A defines the potential magnitude of dust emission through the construction phase. The relevant criteria are summarised in Table 8.3.

Magnitude	Activity	Criteria
ligh	Demolition	Total volume of building to be demolished greater than 50,000m ³ Potentially dusty material (e.g. concrete) On-site crushing and screening Demolition activities more than 20m above ground level
	Earthworks	Total site area greater than 10,000m ² Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) More than 10 heavy earth moving vehicles active at any one time Formation of bunds greater than 8m in height More than 100,000 tonnes of material moved
	Construction	Total building volume greater than 100,000m ³ On site concrete batching Sandblasting
	Trackout	More than 50 Heavy Duty Vehicle (HDV) trips per day Potentially dusty surface material (e.g. high clay content) Unpaved road length greater than 100m

Table 8.3: Construction Dust - Magnitude of Emission

Magnitude	Activity	Criteria
	Demolition	Total volume of building to be demolished between 20,000m ³ and 50,000m ³ Potentially dusty construction material Demolition activities 10m to 20m above ground level
Medium	Earthworks	Total site area 2,500m ² to 10,000m ² Moderately dusty soil type (e.g. silt) 5 to 10 heavy earth moving vehicles active at any one time Formation of bunds 4m to 8m in height Total material moved 20,000 tonnes to 100,000 tonnes
	Construction	Total building volume 25,000m ³ to 100,000m ³ Potentially dusty construction material (e.g. concrete) On site concrete batching
	Trackout	10 to 50 HDV trips per day Moderately dusty surface material (e.g. high clay content Unpaved road length 50m to 100m
	Demolition	Total volume of building to be demolished less than 20,000m ³ Construction material with low potential for dust release (e.g. metal cladding or timber) Demolition activities less than 10m above ground and during wetter months
Low	Earthworks	Total site area less than 2,500m ² Soil type with large grain size (e.g. sand) Less than 5 heavy earth moving vehicles active at any one time Formation of bunds less than 4m in height Total material moved less than 20,000 tonnes Earthworks during wetter months
	Construction	Total building volume less than 25,000m ³ Construction material with low potential for dust release (e.g. metal cladding or timber)
	Trackout	Less than 10 HDV trips per day Surface material with low potential for dust release Unpaved road length less than 50m

8.40 Step 2B defines the sensitivity of the area around the development to potential dust impacts. The influencing factors are shown in Table 8.4.

Receptor Sensitivity	Examples				
	Human Receptors	Ecological Receptors			
High	Users expect high levels of amenity High aesthetic or value property People expected to be present continuously for extended periods of time Locations where members of the public are exposed over a time period relevant to the AQO for PM ₁₀ . e.g. residential properties, hospitals, schools and residential care homes	Internationally or nationally designated site e.g. Special Area of Conservation			
Medium	Users would expect to enjoy a reasonable level of amenity Aesthetics or value of their property could be diminished by soiling People or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land e.g. parks and places of work	Nationally designated site e.g. Sites of Special Scientific Interest			
Low	Enjoyment of amenity would not reasonably be expected Property would not be expected to be diminished in appearance Transient exposure, where people would only be expected to be present for limited periods. e.g. public footpaths, shopping streets, playing fields, farmland, short term car parks and roads	Locally designated site e.g. Local Nature Reserve			

Table 8.4: Construction Dust - Examples of Factors Defining Sensitivity of an Area

8.41 The guidance also provides the following factors to consider when determining the sensitivity of an area to potential dust impacts:

- Any history of dust generating activities in the area;
- The likelihood of concurrent dust generating activity on nearby sites;
- Any pre-existing screening between the source and receptors;
- Any conclusions drawn from analysing local meteorological data which accurately represent the area; and if relevant the season during which works will take place;
- Any conclusions drawn from local topography;
- Duration of the potential impact, as a receptor may become more sensitive over time; and,
- Any known specific receptor sensitivities which go beyond the classifications given in the document.
- 8.42 These factors were considered in the undertaking of this assessment.

8.43 The criteria for determining the sensitivity of the area to dust soiling effects on people and property is summarised in Table 8.5.

Table 8.5: Construction Dust - Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor	Number of	Distance from the Source (m)			
Sensitivity Receptors		Less than 20	Less than 50	Less than 100	Less than 350
	More than 100	High	High	Medium	Low
High	10 - 100	High	Medium	Low	Low
	1 - 10	Medium	Low	Low	Low
Medium	More than 1	Medium	Low	Low	Low
Low	More than 1	Low	Low	Low	Low

8.44 Table 8.6 outlines the criteria for determining the sensitivity of the area to human health impacts.

Table 8.6: Construction Dust - Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance from the Source (m)				
			Less than 20	Less than 50	Less than 100	Less than 200	Less than 350
High	Greater than 32µg/m³	More than 100	High	High	High	Medium	Low
		10 - 100	High	High	Medium	Low	Low
		1 - 10	High	Medium	Low	Low	Low
	28 - 32µg/m ³	More than 100	High	High	Medium	Low	Low
		10 - 100	High	Medium	Low	Low	Low
		1 - 10	High	Medium	Low	Low	Low
	24 - 28µg/m³	More than 100	High	Medium	Low	Low	Low
		10 - 100	High	Medium	Low	Low	Low

Pecentor	Annual Mean	Number of	Distance from the Source (m)				
Sensitivity	PM ₁₀ Concentration	Receptors	Less than 20	ess than Less than 20 50	Less than 100	Less than 200	Less than 350
		1 - 10	Medium	Low	Low	Low	Low
		More than 100	Medium	Low	Low	Low	Low
	Less than 24ug/m ³	10 - 100	Low	Low	Low	Low	Low
	2 1µ5/111	1 - 10	Low	Low	Low	Low	Low
	Greater than 32µg/m³	More than 10	Low	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low	Low
	28 - 32µg/m³	More than 10	Low	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low	Low
Medium	24 - 28µg/m³	More than 10	Low	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low	Low
	Less than	More than 10	Low	Low	Low	Low	Low
	24µg/m ³	1 - 10	Low	Low	Low	Low	Low
Low	-	1 or more	Low	Low	Low	Low	Low

8.45 Table 8.7 outlines the criteria for determining the sensitivity of the area to ecological impacts.

Table 8.7: Construction Dust - Sensitivity of the Area to Ecological Impacts

Receptor	Distance from the Source (m)		
Sensitivity	Less than 20	Less than 50	
High	High	Medium	
Medium	Medium	Low	
Low	Low	Low	

- 8.46 Step 2C combines the dust emission magnitude with the sensitivity of the area to determine the unmitigated impact.
- 8.47 Table 8.8 outlines the impact significance from demolition activities. It should be noted that the terms in the IAQM guidance have been replaced with the relevance descriptors utilised throughout the ES to allow continuity between chapters.

Receptor		Dust Emission Magnitude	
Sensitivity	High	Medium	Low
High	Substantial	Moderate	Moderate
Medium	Substantial	Moderate	Slight
Low	Slight	Slight	Negligible

Table 8.8: Construction Dust - Impact Significance from Demolition Activities

8.48 Table 8.9 outlines the impact from earthworks and construction activities.

Table 8.9: Construction Dust - Impact Significance from Earthworks and Construction Activities

Receptor	Dust Emission Magnitude				
Sensitivity	High	Medium	Low		
High	Substantial	Moderate	Slight		
Medium	Moderate	Moderate	Slight		
Low	Slight	Slight	Negligible		

8.49 Table 8.10 outlines the impact significance from trackout activities.

Table 8.10: Construction Dust - Impact from Trackout Activities

Receptor	Dust Emission Magnitude				
Sensitivity	High	Medium	Low		
High	Substantial	Moderate	Slight		
Medium	Moderate	Slight	Negligible		
Low	Slight	Slight	Negligible		

Step 3

8.50 Step 3 requires the identification of site specific mitigation measures within the IAQM guidance to reduce potential dust impacts based upon the relevant impacts identified in Step 2. For sites with negligible impacts, mitigation measures beyond those required by legislation are not required. However, additional controls may be applied as part of good practice.

Step 4

8.51 Once the unmitigated impacts of dust have been determined and the appropriate mitigation measures identified, the final step is to determine the significance of any residual impacts. For almost all construction activity, the aim should be to control effects through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual
effect will normally be not significant. This is also considered not significant with respect to the Town and Country Planning (Environmental Impact Assessment) Regulations (2017) (ref.8.18).

Road Vehicle Exhaust Emissions

- 8.52 The development has the potential to impact on existing air quality as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site during the construction phase. A screening assessment was therefore undertaken using the criteria contained within the IAQM 'Land-Use Planning & Development Control: Planning for Air Quality' guidance to determine the potential for trips generated by the development to affect local air quality.
- 8.53 The following criteria to help establish when an assessment of potential impacts on the local area is likely to be considered necessary:
 - A change of Light Duty Vehicle (LDV) flows of more than 100 Annual Average Daily Traffic (AADT) within or adjacent to an AQMA or more than 500 AADT elsewhere;
 - A change of HDV flows of more than 25 AADT within or adjacent to an AQMA or more than 100 AADT elsewhere;
 - Realignment of roads where the change is 5m or more and the road is within an AQMA; or,
 - Introduction of a new junction or removal of an existing junction near to relevant receptors.
- 8.54 Should these criteria not be met, then the IAQM guidance considers air quality impacts associated with a scheme to be negligible and no further assessment is required.
- 8.55 Should screening of the relevant data indicate that any of the above criteria are met, then potential impacts at sensitive receptor locations can be assessed by calculating the change in pollutant concentrations as a result of the proposed development. The significance of predicted impacts can then be determined in accordance with the methodology outlined in the following Section for Operation Phase Impacts.

Operational Phase Assessment

- 8.56 The development has the potential to affect existing air quality as a result of road traffic exhaust emissions associated with vehicles travelling to and from the site during the operational phase, as well as expose future occupants to poor air quality. Potential impacts have been defined by predicting pollutant concentrations at sensitive locations using dispersion modelling for the following scenarios:
 - 2017 Verification;
 - Opening year Do-Minimum (DM) (predicted traffic flows in 2027 should the proposals not proceed); and,
 - Opening year Do-Something (DS) (predicted traffic flows in 2027 should the proposals be completed).
- 8.57 The DM scenario (i.e. without development) included baseline traffic data, inclusive of anticipated growth and committed developments, for the relevant assessment year. The DS scenario (i.e. with development) included baseline traffic data, inclusive of anticipated

growth and committed development for the relevant assessment year, in addition to predicted traffic associated with the operation of the proposals.

8.58 Reference should be made to **Technical Appendix 8.1** for assessment input data and details of the verification process.

Potential Development Impacts

- 8.59 Locations sensitive to potential changes in pollutant concentrations were identified within 200m of the highway network in accordance with the guidance provided within the Design Manual for Roads and Bridges (DMRB) on the likely limits of pollutant dispersion from road sources. The criteria provided within DEFRA guidance on where the AQOs apply, as summarised in Table 8.2, was utilised to determine appropriate receptor positions.
- 8.60 The significance of predicted air quality impacts was determined in accordance with the guidance provided within the IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality'. Using this methodology impacts were defined based on the interaction between the predicted pollutant concentration from the DS scenario and the magnitude of change between the DM and DS scenarios.
- 8.61 The sensitivity of receptors to potential changes in pollutant concentrations as a result of road vehicle exhaust emissions is outlined in Table 8.11. It should be noted that these are based on the values provided within the IAQM guidance with additional descriptors to ensure consistency throughout the ES.

Receptor Sensitivity	Pollutant Concentration at Receptor in Assessment Year
Very High	110% or more of AQO
High	103 - 109% of AQO
Medium	95 - 102% of AQO
Low	76 - 94% of AQO
Very Low	75% or less of AQO

Table 8.11: Operational Phase Road Vehicle Exhaust Emissions - Receptor Sensitivity

8.62 The magnitude of predicted air quality impacts was calculated based on the predicted concentration change between the DM and DS scenarios as a proportion of the AQO. This is outlined in Table 8.12.

Table 8.12: Operational Phase Road Vehicle Exhaust Emissions - Magnitude of Impact

Predicted Concentration Change as a Proportion of AQO (%)	Magnitude of Impact
0	Negligible
1	Low

Predicted Concentration Change as a Proportion of AQO (%)	Magnitude of Impact
2 - 5	Medium
6 - 10	High
More than 10	Very High

- 8.63 It should be noted that the categories shown in Table 8.12 are intended to be used by rounding the change in percentage pollutant concentration to whole numbers.
- 8.64 The interaction between the magnitude of impact and sensitivity of the receptor was utilised to define the impact significance, as outlined in Table 8.13. This table is in accordance with the IAQM guidance but has been adapted using additional descriptors to ensure consistency throughout the ES.

	Magnitude of Impact			
Receptor Sensitivity	Very High	High	Medium	Low
Very High	Substantial	Substantial	Substantial	Moderate
High	Substantial	Substantial	Moderate	Moderate
Medium	Substantial	Moderate	Moderate	Slight
Low	Moderate	Moderate	Slight	Negligible
Very Low	Moderate	Slight	Negligible	Negligible

Table 8.13: Operational Phase Road Vehicle Exhaust Emissions - Impact Significance

- 8.65 Following the prediction of impacts at discrete receptor locations, the IAQM document provides guidance on determining the overall air quality impact significance of the operation of a development. The following factors are identified for consideration by the assessor:
 - The existing and future air quality in the absence of the development;
 - The extent of current and future population exposure to the impacts; and,
 - The influence and validity of any assumptions adopted when undertaking the prediction of impacts.
- 8.66 The IAQM guidance states that an assessment must reach a conclusion on the likely significance of the predicted impact. Where the overall effect is moderate or major, the effect is likely to be considered significant with regard the EIA Regulations, whilst if the impact is minor or negligible, the impact is likely to be considered not significant with regard to the EIA Regulations.

Future Exposure

8.67 The proposed development has the potential to expose future residents to poor air quality. Pollutant concentrations were therefore quantified across the Site using dispersion modelling. The results were subsequently compared with the relevant AQOs to determine the potential for any exceedance.

BASELINE CONDITIONS

Introduction

8.68 Existing air quality conditions in the vicinity of the Proposed Development Site were identified in order to provide a baseline for assessment. These are detailed in the following Sections.

Local Air Quality Management

8.69 As required by the Environment Act (1995), EBC has undertaken Review and Assessment of air quality within their area of jurisdiction. This process has indicated that annual mean concentrations of NO₂ are above the AQO within the Borough. As such, seven AQMAs have been declared. The closest to the development is described as follows:

"An area extending along the High St, Church St and including parts of Esher Green and Lammas Lane"

- 8.70 The southern extent of the Site boundary is located immediately north of the AQMA. As such, there is the potential for any emissions associated with the proposals to cause air quality effects within this sensitive area. This has been considered throughout the assessment.
- 8.71 EBC has concluded that concentrations of all other pollutants considered within the AQS are currently below the relevant AQOs. As such, no further AQMAs have been designated.

Air Quality Monitoring

8.72 Monitoring of pollutant concentrations is undertaken by EBC throughout their area of jurisdiction. Recent results recorded in the vicinity of the development are shown in Table 8.14. Results in exceedance of the AQO are shown in **bold**.

Table 8.14: Monitoring Results

Monitoring Site	Monitored NO ₂ Concentration (μ g/m ³)		
	2015	2016	2017
Esher 1	48.8	44.9	37.1
Esher 4	43.4	39.8	33.4
Esher 7	48.4	40.5	39.2
Esher 8	44.4	42.0	38.6
Esher 9	32.1	32.7	28.7
Esher 10	33.0	30.2	28.5
Esher 11	38.9	32.8	32.7

Monitoring Sito	Monitored NO ₂ Concentration (μ g/m ³)		
Monitoring site	2015	2016	2017
Esher 13	39.8	33.6	31.5
Hinchley Wood 1	44.8	38.3	35.4
Hinchley Wood 2	33.0	31.2	30.8

- 8.73 As shown in Table 8.14, annual mean NO₂ concentrations were above the AQO at the Esher 1, Esher 4, Esher 7, Esher 8 and Hinchley Wood 1 monitors in recent years. Results at all sites were below the AQO in 2017. Reference should be made to **Figure 8.1** for a map of the survey positions.
- 8.74 EBC do not undertake PM₁₀ monitoring within the vicinity of the Proposed Development.

Background Pollutant Concentrations

8.75 Predictions of background pollutant concentrations on a 1km by 1km grid basis have been produced by DEFRA for the entire of the UK to assist LAs in their Review and Assessment of air quality. The centre of the Proposed Development Site is located in grid square NGR: 514500, 165500. Data for this location was downloaded from the DEFRA website for the purpose of the assessment and is summarised in Table 8.15.

Table 8.15: Background Pollutant	Concentration Predictions
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Pollutant	Predicted Background Pollutant Concentration (µg/m³)		
	2017	2019	2027
NO ₂	15.79	14.55	10.82
PM ₁₀	13.54	13.31	13.03

8.76 As shown in Table 8.15, predicted background NO_2 and PM_{10} concentrations are below the relevant AQOs at the Site.

Sensitive Receptors

8.77 A sensitive receptor is defined as any location which may be affected by changes in air quality as a result of a development. These have been defined for dust and road vehicle exhaust emission impacts in the following Sections.

Construction Phase Sensitive Receptors

8.78 Receptors sensitive to potential dust impacts during demolition, earthworks and construction were identified from a desk-top study of the area up to 350m from the Site boundary. These are summarised in Table 8.16.

Distance from Site Boundary (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Up to 20	10 to 100	0
Up to 50	More than 100	0
Up to 100	More than 100	
Up to 350	More than 100	

Table 8.16: Demolition, Earthworks and Construction Dust Sensitive Receptors

8.79 Receptors sensitive to potential dust impacts from trackout were identified from a desk-top study of the area up to 50m from the road network within 500m of the anticipated Site access routes. These are summarised in Table 8.17.

Table 8.17: Trackout Sensitive Receptors

Distance from Site Access Route (m)	Approximate Number of Human Receptors	Approximate Number of Ecological Receptors
Up to 20	More than 100	0
Up to 50	More than 100	0

- 8.80 There are no ecological receptors within 50m of the Site or trackout boundary. As such, ecological impacts have not been assessed further within this report.
- 8.81 A number of additional factors have been considered when determining the sensitivity of the surrounding area. These are summarised in Table 8.18.

Table 8.18: Additional Area Dust Sensitivity Factors

Guidance	Comment
Whether there is any history of dust generating activities in the area	The desk top study did not indicate any dust generating activities in the local area
The likelihood of concurrent dust generating activity on nearby sites	A review of the planning portal did not indicate any additional development proposals likely to result in concurrent dust generation in the vicinity of the Site
Pre-existing screening between the source and the receptors	There is no significant screening around the Site boundary
Conclusions drawn from analysing local meteorological data which accurately represent the area: and if relevant the season during which works will take place	As shown in Figure 8.2 , the predominant wind bearing at the Site is from the south. As such, receptors to the north of the boundary are most likely to be affected by dust releases

Guidance	Comment
Conclusions drawn from local topography	There are no significant topographical constraints to dust dispersion
Duration of the potential impact, as a receptor may become more sensitive over time	It is anticipated that the construction phase will last for approximately 8-years. However, as the Proposed Development covers multiple land parcels it is considered unlikely that the sensitivity of local receptors will change significantly
Any known specific receptor sensitivities which go beyond the classifications given in the document	No specific receptor sensitivities identified during the baseline assessment

- 8.82 Based on the criteria shown in Table 8.4, the sensitivity of the receiving environment to potential dust impacts was determined as high. This was because the identified receptors included residential properties.
- 8.83 The sensitivity of the surrounding area to specific potential dust impacts was determined based on the sensitivity of the receiving environment and the number of residential receptors. This is shown in Table 8.19.

Table 8.19: Sensitivity of the Surrounding Area to Specific Dust Impacts

	Sensitivity of the Surrounding Area			
Potential Impact	Demolition	Earthworks	Construction	Trackout
Dust Soiling	High	High	High	High
Human Health	Medium	Medium	Medium	Medium

Operational Phase Sensitive Receptors

8.84 Locations sensitive to potential operational phase road vehicle exhaust emission impacts were identified from a desk-top study and are summarised in Table 8.20. It should be noted that this included locations within the Esher Gyratory and Kingsway Bypass AQMAs. Receptor heights were selected based on the location of residential units to allow for less sensitive land uses, such as retail, at ground level.

Table 8.20: Operational Phase Vehicle Exhaust Emission Sensitive Receptors

Recentor		NGR	(m)	Height (m)
		Х	Y	
R1	Residential - Station Road	514638.2	165984.3	1.5
R2	Residential - Lower Green Road	514328.6	165841.2	1.5

	Percentor	NGR	lloight (m)	
	Receptor	Х	Y	
R3	Residential - More Lane	513623.0	165208.3	1.5
R4	Residential - Esher Green	513796.4	164869.1	1.5
R5	Residential - Lammas Lane	513654.0	164760.3	1.5
R6	Residential - Lammas Lane	513107.3	164395.1	1.5
R7	Hospice - Lammas Lane	512598.7	164598.4	1.5
R8	Residential - Portsmouth Road South	513558.4	164201.7	1.5
R9	Residential - Portsmouth Road South	513662.2	164378.7	1.5
R10	Residential - Claremont Lane	513978.1	164408.3	1.5
R11	Residential - Station Road	514654.0	165886.0	1.5
R12	Residential - Ember Lane	514618.2	166637.9	1.5
R13	Residential - Kingston Bypass	515224.7	165570.5	1.5
R14	Residential - Kingston Bypass	515264.8	165445.3	1.5
R15	Residential - Portsmouth Road North	515148.5	165722.5	1.5
R16	Residential - Portsmouth Road North	515479.2	165900.0	1.5
R17	Residential - First Floor High Street	513724.6	164476.4	4.5
R18	Residential - First Floor Church Street	513832.2	164681.0	4.5
R19	Residential - Church Street	513830.8	164730.7	1.5
R20	Residential - Church Street	513842.7	164660.2	1.5
R21	Residential - First Floor High Street	513753.2	164514.0	4.5
R22	Residential - First Floor High Street	513782.1	164550.2	4.5
R23	Residential - First Floor High Street	513792.4	164530.8	4.5
R24	Residential - First Floor High Street	513802.5	164578.9	4.5
R25	Residential - High Street	513824.7	164614.4	1.5
R26	Residential - Portsmouth Road	513917.2	164681.8	1.5
R27	Residential - First Floor Portsmouth Road	513870.1	164667.4	4.5
R28	Residential - First Floor Portsmouth Road	513938.7	164704.5	4.5

Recentor		NGR	NGR (m)	
		Х	Y	
R29	Residential - Lammas Lane	513949.4	164766.2	4.5
R30	Residential - Portsmouth Road First Floor	514000.3	164800.5	4.5
R31	Residential - Portsmouth Road First Floor	514020.2	164780.2	4.5
R32	Residential - Portsmouth Road	514411.0	165200.8	1.5
R33	Residential - Portsmouth Road	514608.9	165447.0	1.5
R34	Residential - Hampton Court Way	515095.0	166263.0	1.5
R35	Education Facility - Weston Green	515172.0	166297.8	1.5
R36	Residential - Hampton Court Way	515118.9	166564.6	1.5

8.85 Reference should be made to **Figure 8.3** for a graphical representation of road vehicle exhaust emission sensitive receptor locations.

IMPACTS

8.86 There is the potential for air quality impacts as a result of the construction and operation of the Proposed Development. These are assessed in the following Sections.

Construction Phase Assessment

Fugitive Dust Emissions

Step 1

- 8.87 The undertaking of activities such as demolition, excavation, ground works, cutting, construction, concrete batching and storage of materials has the potential to result in fugitive dust emissions throughout the construction phase. Vehicle movements both on-site and on the local road network also have the potential to result in the re-suspension of dust from haul roads and highway surfaces.
- 8.88 The potential for impacts at sensitive locations depends significantly on local meteorology during the undertaking of dust generating activities, with the most significant effects likely to occur during dry and windy conditions.
- 8.89 The desk-study undertaken to inform the baseline identified a number of sensitive receptors within 350m of the site boundary. As such, a detailed assessment of potential dust impacts was required.

Step 2

8.90 Demolition will be undertaken at the start of the construction phase and will involve clearance of selected existing buildings on the Application Site. It is estimated that the building volume to be demolished is less than 20,000m³. In accordance with the criteria outlined in Table 8.3, the magnitude of potential dust emissions from demolition is therefore low.

- 8.91 Table 8.19 indicates the sensitivity of the area to dust soiling effects on people and property is high. In accordance with the criteria outlined in Table 8.8, the unmitigated dust soiling impact is predicted to be moderate as a result of demolition activities.
- 8.92 Table 8.19 indicates the sensitivity of the area to human health impacts is medium. In accordance with the criteria outlined in Table 8.8, the unmitigated human health impact is predicted to be slight as a result of demolition activities.
- 8.93 Earthworks will primarily involve excavating material, haulage, tipping and stockpiling, as well as site levelling and landscaping. The Application Site covers an area greater than 10,000m². In accordance with the criteria outlined in Table 8.3, the magnitude of potential dust emissions from earthworks is therefore high.
- 8.94 Table 8.19 indicates the sensitivity of the area to dust soiling effects on people and property is high. In accordance with the criteria outlined in Table 8.9, the unmitigated dust soiling impact is predicted to be substantial as a result of earthworks.
- 8.95 Table 8.19 indicates the sensitivity of the area to human health impacts is medium. In accordance with the criteria outlined in Table 8.9, the unmitigated human health impact is predicted to be moderate as a result of earthworks.
- 8.96 Due to the size of the Development the total building volume is likely to be greater than 100,000m³. In accordance with the criteria outlined in Table 8.3, the magnitude of potential dust emissions from construction is therefore high.
- 8.97 Table 8.19 indicates the sensitivity of the area to dust soiling effects on people and property is high. In accordance with the criteria outlined in Table 8.9, the unmitigated dust soiling impact is predicted to be substantial as a result of construction.
- 8.98 Table 8.19 indicates the sensitivity of the area to human health impacts is medium. In accordance with the criteria outlined in Table 8.9, the unmitigated human health impact is predicted to be moderate as a result of earthworks.
- 8.99 Based on the site area and existing hard standing, it is anticipated that the unpaved road length is likely to be between 50m and 100m. In accordance with the criteria outlined in Table 8.3, the magnitude of potential dust emissions from trackout is therefore medium.
- 8.100 Table 8.19 indicates the sensitivity of the area to dust soiling effects on people and property is high. In accordance with the criteria outlined in Table 8.9, the unmitigated dust soiling impact is predicted to be moderate as a result of trackout.
- 8.101 Table 8.19 indicates the sensitivity of the area to human health impacts is medium. In accordance within the criteria outlined in Table 8.9, the unmitigated human health impact is predicted to be slight as a result of trackout.
- 8.102 A summary of the unmitigated impact from each dust generating activity is provided in Table 8.21.

		Unmitigated Impact			
Potential Impact	Demolition	Earthworks	Construction	Trackout	
Dust Soiling	Moderate	Substantial	Substantial	Moderate	
Human Health	Slight	Moderate	Moderate	Slight	

Table 8.21: Summary of Potential Unmitigated Dust Impacts

- 8.103 As indicated in Table 8.21, the predicted unmitigated dust soiling impact is **substantial** from earthworks and construction and **moderate** from demolition and trackout. The predicted unmitigated human health impact is **moderate** from earthworks and construction and **slight** from demolition and trackout.
- 8.104 It should be noted that the potential for impacts depends significantly on the distance between the dust generating activity and receptor location. These were predicted based on a worst-case scenario of works being undertaken at the Site boundary closest to each sensitive area. Therefore, actual impacts are likely to be lower than that predicted during the majority of the construction phase.

Road Vehicle Exhaust Emissions

- 8.105 Any vehicle movements associated with the construction phase of the Development will generate exhaust emissions on the local and regional road networks. Information provided by Blue Sky Building, who produced the Outline Construction Environmental Management Plan (CEMP) for the scheme, indicated that the proposals are predicted to produce an average of 21 AADT HDV movements across the 6-year construction period. A maximum of 32 AADT HDV movements are predicted to be generated during the second year of construction.
- 8.106 Based on the above information potential air quality impacts associated with construction phase road vehicle exhaust emissions could not be screened as negligible. As such, appropriate mitigation has been identified later in this chapter to ensure effects are controlled to an acceptable level.

Operational Phase Assessment

- 8.107 Vehicle movements associated with the operation of the Proposed Development will generate exhaust emissions on the local and regional road networks. An assessment was therefore undertaken using dispersion modelling in order to quantify potential changes in pollutant concentrations at sensitive locations in the vicinity of the Site, as well as consider potential exposure of future occupants to AQO exceedances.
- 8.108 The assessment considered the following scenarios:
 - 2017 Verification;
 - 2027 DM; and,
 - 2027 DS.
- 8.109 The DM scenario (i.e. without Development) represented anticipated baseline traffic data, inclusive of anticipated growth for the relevant assessment year. The DS scenario (i.e. with Development) represented anticipated baseline traffic data, inclusive of anticipated growth for the relevant assessment year, in addition to predicted vehicle trips associated with the operation of the proposals.
- 8.110 Reference should be made to **Technical Appendix 8.1** for full assessment input details.

Road Vehicle Exhaust Emission Impacts

8.111 Annual mean NO₂ concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. These are summarised in Table 8.22.

Pecontor		Predicted Annual Mean NO $_2$ Concentration (μ g/m 3)		
	Receptor	DM	DS	Change
R1	Residential - Station Road	15.98	16.08	0.10
R2	Residential - Lower Green Road	14.37	14.42	0.05
R3	Residential - More Lane	13.98	14.01	0.03
R4	Residential - Esher Green	17.17	17.27	0.10
R5	Residential - Lammas Lane	16.65	16.72	0.07
R6	Residential - Lammas Lane	14.88	14.92	0.04
R7	Hospice - Lammas Lane	16.30	16.36	0.06
R8	Residential - Portsmouth Road South	14.93	14.97	0.04
R9	Residential - Portsmouth Road South	15.79	15.85	0.06
R10	Residential - Claremont Lane	17.84	17.94	0.10
R11	Residential - Station Road	14.54	14.59	0.05
R12	Residential - Ember Lane	14.58	14.63	0.05
R13	Residential - Kingston Bypass	20.14	20.21	0.07
R14	Residential - Kingston Bypass	15.37	15.40	0.03
R15	Residential - Portsmouth Road North	19.83	19.90	0.07
R16	Residential - Portsmouth Road North	16.34	16.38	0.04
R17	Residential - First Floor High Street	19.72	19.85	0.13
R18	Residential - First Floor Church Street	26.92	27.15	0.23
R19	Residential - Church Street	20.83	20.97	0.14
R20	Residential - Church Street	29.68	29.95	0.27
R21	Residential - First Floor High Street	22.39	22.56	0.17
R22	Residential - First Floor High Street	22.79	22.97	0.18
R23	Residential - First Floor High Street	19.43	19.55	0.12
R24	Residential - First Floor High Street	22.23	22.39	0.16
R25	Residential - High Street	22.77	22.93	0.16

Table 8.22: Predicted Annual Mean NO_2 Concentrations

Pecentor		Predicted Annual Mean NO $_2$ Concentration (µg/m 3)		
	Receptor	DM	DS	Change
R26	Residential - Portsmouth Road	27.26	27.49	0.23
R27	Residential - First Floor Portsmouth Road	26.12	26.33	0.21
R28	Residential - First Floor Portsmouth Road	23.73	23.91	0.18
R29	Residential - Lammas Lane	17.58	17.67	0.09
R30	Residential - Portsmouth Road First Floor	25.74	26.01	0.27
R31	Residential - Portsmouth Road First Floor	23.18	23.40	0.22
R32	Residential - Portsmouth Road	17.02	17.11	0.09
R33	Residential - Portsmouth Road	16.49	16.57	0.08
R34	Residential - Hampton Court Way	15.91	15.94	0.03
R35	Education Facility - Weston Green	15.06	15.09	0.03
R36	Residential - Hampton Court Way	15.98	16.02	0.04

- 8.112 As indicated in Table 8.22, predicted annual mean NO₂ concentrations were below the relevant AQO at all receptors in both the DM and DS scenarios.
- 8.113 Reference should be made to **Figures 8.4 and 8.5** for graphical representations of predicted annual mean NO₂ concentrations for the DM and DS scenarios, respectively.
- 8.114 Annual mean PM₁₀ concentrations were predicted at the sensitive receptor locations for the DM and DS scenarios. These are summarised in Table 8.23.

Table 8.23: Predicted Annual Mean PM₁₀ Concentrations

	Recentor	Predicted Annual Mean PM_{10} Concentration (µg/m ³)		
		DM	DS	Change
R1	Residential - Station Road	13.83	13.85	0.03
R2	Residential - Lower Green Road	13.45	13.47	0.02
R3	Residential - More Lane	13.33	13.34	0.01
R4	Residential - Esher Green	14.08	14.11	0.03

	December	Predicted Annual Mean PM_{10} Concentration (µg/m ³)		
	Receptor	DM	DS	Change
R5	Residential - Lammas Lane	13.92	13.94	0.02
R6	Residential - Lammas Lane	13.50	13.51	0.01
R7	Hospice - Lammas Lane	13.93	13.95	0.02
R8	Residential - Portsmouth Road South	13.57	13.58	0.01
R9	Residential - Portsmouth Road South	13.78	13.80	0.02
R10	Residential - Claremont Lane	14.33	14.35	0.03
R11	Residential - Station Road	13.50	13.51	0.01
R12	Residential - Ember Lane	13.52	13.54	0.01
R13	Residential - Kingston Bypass	15.07	15.09	0.02
R14	Residential - Kingston Bypass	13.73	13.74	0.01
R15	Residential - Portsmouth Road North	14.88	14.90	0.02
R16	Residential - Portsmouth Road North	14.00	14.01	0.01
R17	Residential - First Floor High Street	14.80	14.83	0.04
R18	Residential - First Floor Church Street	16.20	16.25	0.06
R19	Residential - Church Street	14.79	14.82	0.03
R20	Residential - Church Street	16.87	16.94	0.07
R21	Residential - First Floor High Street	15.14	15.18	0.04
R22	Residential - First Floor High Street	15.22	15.26	0.04
R23	Residential - First Floor High Street	14.47	14.50	0.03
R24	Residential - First Floor High Street	15.10	15.14	0.04
R25	Residential - High Street	15.22	15.26	0.04
R26	Residential - Portsmouth Road	16.27	16.33	0.06
R27	Residential - First Floor Portsmouth Road	16.00	16.05	0.05
R28	Residential - First Floor Portsmouth Road	15.44	15.49	0.04
R29	Residential - Lammas Lane	14.07	14.09	0.02

Receptor .		Predicted Annual Mean PM_{10} Concentration (µg/m ³)		
		DM	DS	Change
R30	Residential - Portsmouth Road First Floor	16.02	16.09	0.07
R31	Residential - Portsmouth Road First Floor	15.40	15.45	0.05
R32	Residential - Portsmouth Road	14.28	14.31	0.03
R33	Residential - Portsmouth Road	14.11	14.14	0.03
R34	Residential - Hampton Court Way	13.90	13.91	0.01
R35	Education Facility - Weston Green	13.66	13.66	0.01
R36	Residential - Hampton Court Way	13.92	13.93	0.01

- 8.115 As indicated in Table 8.23, predicted annual mean PM₁₀ concentrations were below the relevant AQO at all sensitive receptors in both scenarios.
- 8.116 Predicted impacts on annual mean NO₂ concentrations at the sensitive receptor locations are summarised in Table 8.24.

	Receptor	Sensitivity of Receptor	Magnitude of Impact	Impact Significance
R1	Residential - Station Road	Below 75% of AQO	0	Negligible
R2	Residential - Lower Green Road	Below 75% of AQO	0	Negligible
R3	Residential - More Lane	Below 75% of AQO	0	Negligible
R4	Residential - Esher Green	Below 75% of AQO	0	Negligible
R5	Residential - Lammas Lane	Below 75% of AQO	0	Negligible
R6	Residential - Lammas Lane	Below 75% of AQO	0	Negligible
R7	Hospice - Lammas Lane	Below 75% of AQO	0	Negligible
R8	Residential - Portsmouth Road South	Below 75% of AQO	0	Negligible
R9	Residential - Portsmouth Road South	Below 75% of AQO	0	Negligible
R10	Residential - Claremont Lane	Below 75% of AQO	0	Negligible
R11	Residential - Station Road	Below 75% of AQO	0	Negligible

Table 8.24: Predicted Impacts - NO₂

	Receptor	Sensitivity of Receptor	Magnitude of Impact	Impact Significance
R12	Residential - Ember Lane	Below 75% of AQO	0	Negligible
R13	Residential - Kingston Bypass	Below 75% of AQO	0	Negligible
R14	Residential - Kingston Bypass	Below 75% of AQO	0	Negligible
R15	Residential - Portsmouth Road North	Below 75% of AQO	0	Negligible
R16	Residential - Portsmouth Road North	Below 75% of AQO	0	Negligible
R17	Residential - First Floor High Street	Below 75% of AQO	0	Negligible
R18	Residential - First Floor Church Street	Below 75% of AQO	1	Negligible
R19	Residential - Church Street	Below 75% of AQO	0	Negligible
R20	Residential - Church Street	Below 75% of AQO	1	Negligible
R21	Residential - First Floor High Street	Below 75% of AQO	0	Negligible
R22	Residential - First Floor High Street	Below 75% of AQO	0	Negligible
R23	Residential - First Floor High Street	Below 75% of AQO	0	Negligible
R24	Residential - First Floor High Street	Below 75% of AQO	0	Negligible
R25	Residential - High Street	Below 75% of AQO	0	Negligible
R26	Residential - Portsmouth Road	Below 75% of AQO	1	Negligible
R27	Residential - First Floor Portsmouth Road	Below 75% of AQO	1	Negligible
R28	Residential - First Floor Portsmouth Road	Below 75% of AQO	0	Negligible
R29	Residential - Lammas Lane	Below 75% of AQO	0	Negligible
R30	Residential - Portsmouth Road First Floor	Below 75% of AQO	1	Negligible
R31	Residential - Portsmouth Road First Floor	Below 75% of AQO	1	Negligible
R32	Residential - Portsmouth Road	Below 75% of AQO	0	Negligible
R33	Residential - Portsmouth Road	Below 75% of AQO	0	Negligible
R34	Residential - Hampton Court Way	Below 75% of AQO	0	Negligible
R35	Education Facility - Weston Green	Below 75% of AQO	0	Negligible

Receptor		Sensitivity of	Magnitude of	Impact	
		Receptor	Impact	Significance	
R36	Residential - Hampton Court Way	Below 75% of AQO	0	Negligible	

- 8.117 As indicated in Table 8.24, impacts on annual mean NO₂ concentrations as a result of the Proposed Development were predicted to be **negligible** at all receptors.
- 8.118 Predicted impacts on annual mean PM₁₀ concentrations at the sensitive receptor locations are summarised in Table 8.25.

Table 8.25: Predicted Impacts - PM₁₀

	Receptor	Sensitivity of Receptor	Magnitude of Impact	Impact Significance
R1	Residential - Station Road	Below 75% of AQO	0	Negligible
R2	Residential - Lower Green Road	Below 75% of AQO	0	Negligible
R3	Residential - More Lane	Below 75% of AQO	0	Negligible
R4	Residential - Esher Green	Below 75% of AQO	0	Negligible
R5	Residential - Lammas Lane	Below 75% of AQO	Below 75% of AQO 0	
R6	Residential - Lammas Lane	Below 75% of AQO	0	Negligible
R7	Hospice - Lammas Lane	Below 75% of AQO	0	Negligible
R8	Residential - Portsmouth Road South	Below 75% of AQO	0	Negligible
R9	Residential - Portsmouth Road South	Below 75% of AQO	0	Negligible
R10	Residential - Claremont Lane	Below 75% of AQO	0	Negligible
R11	Residential - Station Road	Below 75% of AQO	0	Negligible
R12	Residential - Ember Lane	Below 75% of AQO	0	Negligible
R13	Residential - Kingston Bypass	Below 75% of AQO	0	Negligible
R14	Residential - Kingston Bypass	Below 75% of AQO	0	Negligible
R15	Residential - Portsmouth Road North	Below 75% of AQO	0	Negligible
R16	Residential - Portsmouth Road North	Below 75% of AQO	0	Negligible
R17	Residential - First Floor High Street	Below 75% of AQO	0	Negligible
R18	Residential - First Floor Church Street	Below 75% of AQO	0	Negligible
R19	Residential - Church Street	Below 75% of AQO	0	Negligible

	Receptor	Sensitivity of Receptor	Magnitude of Impact	Impact Significance
R20	Residential - Church Street	Below 75% of AQO	0	Negligible
R21	Residential - First Floor High Street	Below 75% of AQO	0	Negligible
R22	Residential - First Floor High Street	Below 75% of AQO	0	Negligible
R23	Residential - First Floor High Street	Below 75% of AQO	0	Negligible
R24	Residential - First Floor High Street	Below 75% of AQO	0	Negligible
R25	Residential - High Street	Below 75% of AQO	0	Negligible
R26	Residential - Portsmouth Road	Below 75% of AQO	0	Negligible
R27	Residential - First Floor Portsmouth Road	Below 75% of AQO	0	Negligible
R28	Residential - First Floor Portsmouth Road	Below 75% of AQO	0	Negligible
R29	Residential - Lammas Lane	Below 75% of AQO	0	Negligible
R30	Residential - Portsmouth Road First Floor	Below 75% of AQO	0	Negligible
R31	Residential - Portsmouth Road First Floor	Below 75% of AQO	0	Negligible
R32	Residential - Portsmouth Road	Below 75% of AQO	0	Negligible
R33	Residential - Portsmouth Road	Below 75% of AQO	0	Negligible
R34	Residential - Hampton Court Way	Below 75% of AQO	0	Negligible
R35	Education Facility - Weston Green	Below 75% of AQO	0	Negligible
R36	Residential - Hampton Court Way	Below 75% of AQO	0	Negligible

8.119 As indicated in Table 8.25, impacts on annual mean PM₁₀ concentrations as a result of the Proposed Development were predicted to be **negligible** at all receptors.

Potential Future Exposure

- 8.120 The Proposed Development has the potential to cause the exposure of future residents to elevated pollution levels. Dispersion modelling was therefore undertaken with the inputs described in **Technical Appendix 8.1** to quantify air quality conditions at the Site. Reference should be made to **Figures 8.5** for a graphical representation of predicted annual mean NO₂ concentrations during the operation of the Development.
- 8.121 As shown in **Figure 8.5**, annual mean NO₂ concentrations were predicted to be below the AQO of 40μ g/m³ at all locations across the Development. As such, future occupants are not predicted to be exposed to NO₂ concentrations above the AQO.

8.122 Based on the assessment results, the Site is considered suitable for the proposed land use from an air quality perspective.

MITIGATION

Construction Phase

Fugitive Dust Emissions

8.123 The IAQM guidance provides potential mitigation measures to reduce impacts as a result of fugitive dust emissions during the construction phase. These have been adapted for the Development Site as summarised in Table 8.26 and are included in broad terms within the outline CEMP (accompanying this ES and application as **Technical Appendix 7.2**). These may be reviewed prior to the commencement of construction works and incorporated into the final CEMP or similar if required by the LA.

Table 8.26: Fugitive Dust Emission Mitigation Measures

lssue	Control Measure
Communications	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site
	Display the name and contact details of person(s) accountable for air quality and dust issues on the Site boundary. This may be the environment manager/engineer or the site manager
	Display the head or regional office contact information
	Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority.
Site Management	Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken
	Make the complaints log available to the LA when asked
	Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.
	Hold regular liaison meetings with other high risk construction sites within 500m of the Site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised
Monitoring	Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the LA when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary
	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce

Issue	Control Measure
	dust are being carried out and during prolonged dry or windy conditions
Preparing and maintaining the	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
site	Erect solid screens or barriers around dusty activities or the Site boundary that are at least as high as any stockpiles on site
	Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period
	Avoid site runoff of water or mud
	Keep site fencing, barriers and scaffolding clean using wet methods
	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site
	Cover, seed or fence stockpiles to prevent wind whipping
Operating vehicle/machinery	Ensure all on-road vehicles comply with the requirements of the London Low Emission
and sustainable travel	Zone and the London NRMM standards
	Ensure all vehicles switch off engines when stationary - no idling vehicles
	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable
	Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate)
	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials
Operations	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems
	Ensure an adequate water supply on the Site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate
	Use enclosed chutes and conveyors and covered skips
	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment
	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods

Issue	Control Measure				
Waste management	Avoid bonfires and burning of waste materials				
Demolition	Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust)				
	Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground				
	Avoid explosive blasting, using appropriate manual or mechanical alternatives				
	Bag and remove any biological debris or damp down such material before demolition				
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable				
	Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable				
	Only remove the cover in small areas during work and not all at once				
Construction	Avoid scabbling (roughening of concrete surfaces) if possible				
	Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.				
	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery				
	For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust				
Trackout	Use water-assisted dust sweeper(s) on the access and local roads, if required				
	Avoid dry sweeping of large areas				
	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport				
	Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.				
	Record all inspections of haul routes and any subsequent action in a site log book				
	Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.				
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable)				

lssue	Control Measure
	Access gates to be located at least 10m from receptors where possible

Road Vehicle Exhaust Emissions

8.124 As shown previously, the Development has the potential to result in an increase of 32 AADT HDV movements during the second year of the construction period. As such, an outline CEMP has been produced which confirms that the construction Contractor will use designated traffic routes which will be agreed with EBC. The location of relevant AQMAs will be taken into consideration when determining these routes to ensure that there are less than 25 daily HDV movements on any road link within an AQMA. The number of lorry movements, hours of operation and any lorry holding areas will also be agreed in advance with EBC. This will ensure that traffic flows do not increase above the relevant IAQM criteria. As a result, any impacts will be effectively controlled.

Operational Phase

8.125 Road vehicle exhaust emissions impacts during the operational phase of the Proposed Development were predicted to be negligible at all sensitive receptor locations. As such, mitigation to further reduce effects is not considered necessary.

RESIDUAL AND CUMULATIVE IMPACTS

Residual Impacts

- 8.126 During the construction phase of the Proposed Development there is the potential for air quality impacts as a result of fugitive dust emissions from the Site. These were assessed in accordance with the IAQM methodology. With the outlined mitigation measures implemented, the residual effect from all dust generating activities is predicted to be not significant with respect to the Town and Country Planning (Environmental Impact Assessment) Regulations (2017).
- 8.127 During the construction phase of the Proposed Development there is the potential for air quality impacts as a result of road vehicle exhaust emissions. These were assessed in accordance with the IAQM methodology. With the outlined mitigation measures implemented, the residual effect from construction traffic exhaust emissions is predicted to be not significant with respect to the Town and Country Planning (Environmental Impact Assessment) Regulations (2017).
- 8.128 During the operational phase of the Proposed Development there is the potential for air quality impacts as a result of vehicle exhaust emissions. These were assessed in accordance with the IAQM methodology. The residual effect of the Proposed Development was predicted to be not significant with respect to the Town and Country Planning (Environmental Impact Assessment) Regulations (2017).

Cumulative Impacts

8.129 The Proposed Development may result in cumulative dust emission impacts should the construction phase overlap with that of any other scheme within 700m of the Site boundary. However, as previously outlined, any fugitive emissions generated by the Proposed Development would be controlled through the mitigation outlined above and similar measures would be anticipated for any other local developments. Therefore, residual

cumulative effects are predicted to be not significant with respect to the Town and Country Planning (Environmental Impact Assessment) Regulations (2017).

- 8.130 The Proposed Development may result in cumulative road vehicle exhaust emission impacts during construction. However, as previously outlined, any vehicle movements generated by the Proposed Development would be controlled through the mitigation outlined above and similar measures would be anticipated for any other local developments. Therefore, residual cumulative effects are predicted to be not significant with respect to the Town and Country Planning (Environmental Impact Assessment) Regulations (2017).
- 8.131 There is the potential for cumulative operational phase road vehicle exhaust emission impacts should other developments generate traffic which utilised the same routes as movements generated by the subject Development. As such, the traffic flow data utilised in the assessment included trips associated with anticipated future growth in the area. Predicted impacts using this data set were negligible at all sensitive receptor locations. As such, residual cumulative effects are predicted to be not significant with respect to the Town and Country Planning (Environmental Impact Assessment) Regulations (2017).

SUMMARY

- 8.132 The Development has the potential to cause air quality impacts as a result of fugitive dust emissions during construction and road traffic exhaust emissions associated with vehicles travelling to and from the Site during construction and operation. As such, an assessment was undertaken in order to determine baseline conditions and assess potential effects as a result of the scheme.
- 8.133 During the construction phase of the Development there is the potential for air quality impacts as a result of fugitive dust emissions from the Site. These were assessed in accordance with the IAQM methodology. Assuming good practice dust control measures are implemented (through the use of the CEMP), the residual significance of potential air quality effects from dust generated by demolition, earthworks, construction and trackout activities was predicted to be not significant.
- 8.134 During the construction phase of the Development there is the potential for air quality impacts as a result of road vehicle exhaust emissions associated with traffic generated by the Proposals. These were assessed in accordance with the IAQM methodology. Assuming the CEMP is implemented, the residual significance of potential air quality effects was predicted to be not significant.
- 8.135 Potential impacts during the operational phase of the Development may occur due to road traffic exhaust emissions associated with vehicles travelling to and from the Site. Dispersion modelling was therefore undertaken in order to predict pollutant concentrations at sensitive locations as a result of emissions from the local highway network both with and without the Development in place. Results were subsequently verified using local monitoring data.
- 8.136 Review of the dispersion modelling results indicated that effects on annual mean NO_2 and PM_{10} concentrations as a result of traffic generated by the Development were classified as negligible at all receptor locations.
- 8.137 Based on the worst case predicted impact, the overall significance of potential air quality effects was classified as negligible. Following consideration of the relevant issues, air quality effects as a result of the operation of the Development were considered to be not significant.

Table 8.27: Summary Table

Description of Likely Significant Effects	Significance (Substantial, Moderate, Slight, Negligible or Nil)	Effects		Description of Mitigation / Enhancement Measures	Description of Residual Effects	Significance (Substantial, Moderate, Slight, Negligible or Nil)	Residual Eff	ects	
		(B/A) (P/T) (D/l)	ST/M (L/R/ T/LT N)				(B/A) (P/T)	(D/I)	ST/M (L/R/ T/LT) N)
Demolition and Const	truction Phase								
Fugitive dust emission impacts on amenity and health	Substantial to slight	A, T, D, MT, L		CEMP with measures as described previously	Fugitive dust emission impacts on amenity and health	Negligible	A, T, D, MT,	L	
Road vehicle exhaust emission impacts on nearby human receptors	Moderate	A, T, D, MT, L		CEMP with measures as described previously	Road vehicle exhaust emission impacts on nearby human receptors	Negligible	A, T, D, MT,	L	
Operational Phase	Operational Phase								
Road vehicle exhaust emission impacts on nearby human receptors	Negligible	A, T, D, LT, L		None required	Road vehicle exhaust emission impacts on nearby human receptors	Negligible	A, T, D, LT,	L	

(Beneficial or Adverse) (B/A), (Permanent or Temporary) (P/T), (Direct or Indirect) (D/I), (Short Term, Medium, Long Term) (ST, M, LT), (Local, Regional, National) (L, R, N)

Figure 8.1 - Diffusion Tube



Figure 8.2 - Wind Rose





Project Sandown Park Racecourse, Esher Figure 8.3 - Phase Receptor



Figure 8.3 - Operational Phase Sensitive Receptor Locations.

Figure 8.4 - Annual Mean NO2 DM





Figure 8.5 - Annual Mean NO2 DS



Figure 8.5 - Annual Mean NO² DS.

Legend					
C7	Masterplan Boundary				
50 46 42 40 38 34 30 26 22 18	Annual Mean N0 2 Concentration (µg/m3)				
Title Figure 8.5: Mean N0 2 0	: Predicted Annual Concentrations (µg/ m ³)				
Do-Somethir Project	ng				
Sandown Pa	rk Racecourse, Esher				
Contains Ordnance Sur vey Data					

© Crow n Cop yright and Database Act 2018

Figure 8.6 - ADMS Road Inputs




9 OVERVIEW

INTRODUCTION

- 9.1 This chapter summarises the impacts in relation to the Proposed Development. It also provides an overview of the predicted environmental impacts of the Development Proposal. It draws upon the conclusions of each of the technical chapters.
- 9.2 Construction impacts prior to mitigation are identified as:
 - Potential for increased traffic on the local road network predicted to be negligible, and therefore on exhaust emissions on human health, predicted to be moderate;
 - Potential fugitive dusts emissions arising from on-site construction activities on health and local environment are predicted to range from substantial to slight depending on the location.
- 9.3 Operational impacts are identified as:
 - Potential for increased traffic on the local road network, predicted to be negligible;
 - Potential for exhaust emissions on human health, predicted to be negligible.

MITIGATION

- 9.4 Mitigation proposals are summarised amongst others as:
 - Use of a CEMP with such measures as -
 - (i) Specific routeing of construction traffic away from AQMA and residential areas as far as possible;
 - Damping down and covering of construction lorries entering and leaving the Site;
 - (iii) Wheel washing of vehicles leaving the Site;
 - (iv) Control of the timing of construction vehicles entering/leaving the Site.

RESIDUAL CONSTRUCTION EFFECTS

- 9.5 Residual construction effects are those temporary effects that are predicted for or within the duration of the construction period that would remain even after the use of the identified mitigation. These relate largely to the impact of the Development under construction on:
 - AQMA, and
 - Local residents and businesses.
- 9.6 It is apparent from the Site specific assessments that the introduction of best practice measures and adherence to sustainability principles generally would minimise adverse impacts on the local and wider environment.

RESIDUAL OPERATIONAL/COMPLETED DEVELOPMENT IMPACTS

9.7 Residual operational/completed Development effects are those permanent effects that are predicted for the post-construction or operational/completed Development period, after the implementation of the identified mitigation.

9.8 The assessment has indicated that there are no specific residual operational impacts on either transport or air quality.

Key Long-term Impacts

- 9.9 Some effects would remain significant in the longer term and would present an improvement over the situation predicted for 2019 and 2027, being the earliest and latest dates estimated for overall completion of the Development in the Application.
- 9.10 These key long term effects would be beneficial. Specifically Sandown Park Racecourse would be a state of the art, modern, sustainable leisure facility that provides both social, economic and environmental benefits for the local and district economy.

CUMULATIVE IMPACTS

- 9.11 The locations where cumulative effects may be expected share several things in common:
 - They are sensitive receptors being generally residential areas close to the Proposed Development;
 - The cumulative effects would generally be the same for each, although the degree of these effects would vary within and between the receptors; and
 - The cumulative impacts are predominantly associated with the construction period.
- 9.12 These sensitive receptors include:
 - Existing nearby residents,
 - Local and wider road network/AQMA.
- 9.42 The traffic flows generated by the Development would increase throughout the construction period. Traffic growth would hit an optimum once the construction period was complete. In order to minimize the construction period traffic, the JCR has produced an outline CEMP to be submitted as part of the Application, which will control the movement and routes (amongst other matters) of construction traffic.
- 9.43 In respect of the growth in traffic on existing networks as a result of the completed Development, this is anticipated to be negligible. As part of good planning practice and in accordance with general sustainable development planning policies, a series of measures are to be implemented in relation to the provision of facilities within walking/cycling distance of the new dwellings, some off-site improvement works and implementation of travel plans. These measures will encourage residents and the local population to use more sustainable modes of travel and will assist in maintaining the negligible impact of the Development Proposals.

CONCLUSIONS

- 9.44 This ES has demonstrated that the Development Proposals would give rise to negligible/minor disbenefits to the environment and local community, both during the construction and operational periods, albeit recognising the potential for slight to substantial impact of dust during the construction period.
- 9.45 Careful management through planning conditions (such as phasing and CEMP) and adherence to the mitigation principles identified in the ES and outline CEMP, will assist in reducing the immediate and long term impacts of the Development Proposals on the environment and local community.

Table 9.1: Overall Summary Table

Description of Likely Significant Effects	Significance (Substantial, Moderate, Slight, Negligible or Nil)	Effects	Description of Mitigation / Enhancement Measures	Description of Residual Effects	Significance (Substantial, Moderate, Slight, Negligible or Nil)	Residual Effects
		(B/A) (P/T) (D/I) ST/M (L/R/ T/LT N)				(B/A) (P/T) (D/I) ST/M (L/R/ T/LT) N)
Demolition and Construction Phase						
Fugitive dust emissions on amenity and health	Substantial to slight depending on location	A, T, D, MT, L	CEMP - covering of lorries leaving/entering Site; damping down of works on Site; wheel washing; etc.	Fugitive dust emissions on amenity and health	Negligible	A, T, D, MT, L
Road vehicle exhaust emission impacts on nearby human receptors	Moderate	A, T, D, MT, L	CEMP - routing of construction traffic away from AQMA, etc.	Road vehicle exhaust emission impacts on nearby human receptors	Negligible	A, T, D, MT, L
Increased traffic on driver stress & delay	Minor/Slight	A, T, D, MT, L	CEMP	Increased traffic on driver stress & delay	Negligible	A, T, D, MT, L
Increased traffic on pedestrian, cycle delay & amenity; accidents & safety; severance; fear & intimidation	Negligible	A, T, D, MT, L	CEMP		Negligible	A, T, D, MT, L
Operational Phase						
Road vehicle exhaust emission impacts on nearby human receptors	Negligible	A, T, D, LT, L	None required	Road vehicle exhaust emission impacts on nearby human receptors	Negligible	A, T, D, LT, L
Increased traffic on driver stress & delay; pedestrian, cycle delay & amenity; accidents & safety; severance; fear & intimidation	Negligible	A, P, D, MT, L	Travel Plans and other pedestrian/cycle improvements - though not strictly necessary from ES impact perspective	Increased traffic on driver stress & delay; pedestrian, cycle delay & amenity; accidents & safety; severance; fear & intimidation	Negligible	A, P, D, MT, L

(Beneficial or Adverse) (B/A), (Permanent or Temporary) (P/T), (Direct or Indirect) (D/I), (Short Term, Medium, Long Term) (ST, M, LT), (Local, Regional, National) (L, R, N)

10 REFERENCES AND GLOSSARY

References

Chapter 1: Introduction

- 1.1 EC Directive no. 2011/92/EU
- 1.2 Town and Country Planning (environmental Impact Assessment) Regulations 2017, HMSO

Chapter 2: Methodology

- 2.1 Screening Opinion Request, Sandown Park Racecourse, December 2018, Rapleys LLP
- 2.2 Town and Country Planning (Environmental Impact Assessment) Regulations 2017, HMSO
- 2.3 Department of the Environment, 1995, Preparation of Environmental Statements for planning projects that require Environment Assessment: A Good Practice Guide, London

Chapter 5: Alternatives

5.1 Town and Country Planning (Environmental Impact Assessment) Regulations 2017, HMSO

Chapter 6: Planning Policy

- 6.1 National Planning Policy Framework, 2019, DCLG
- 6.2 Online Planning Practice Guidance, 2014, DCLG
- 6.3 Elmbridge Core Strategy 2011, EBC
- 6.4 Elmbridge Policies Map, 2011, EBC
- 6.5 Elmbridge Development Management Plan, 2015, EBC

Chapter 7: Transportation

- 7.1 Technical Appendix 7.1 Transport Assessment for Sandown Park Racecourse, February 2019, TPP
- 7.2 Technical Appendix 7.2 Outline Construction Management Plan, February 2019, Blue Sky
- 7.3 Technical Appendix 7.3 Draft Travel Plans, February 2019, TPP
- 7.4 National Planning Policy Framework, 2019, DCLG
- 7.5 Surrey Transport Plan, 2012, Surrey County Council
- 7.6 Elmbridge Core Strategy 2011, EBC
- 7.7 Elmbridge Development Management Plan, 2015, EBC
- 7.8 Guidance on Transport Assessment, 2007, Department for Communities and Local Government (DCLG)/Department for Transport (DfT) (although it is noted that this has been superseded with the release of NPPF);
- 7.9 National Planning Policy Framework, 2018, DCLG
- 7.10 Online National Planning Practice Guidance, 2014, DCLG

- 7.11 Guidelines for the Environmental Assessment of Road Traffic (Guidance Note. 1, 2003), Institute of Environmental Management and Assessment (IEMA)
- 7.12 Construction Environmental Management Plan, February 2019,

Chapter 8: Air Quality

- 8.1 Department for Environment, Food and Rural Affairs. Local Air Quality Management Technical Guidance (TG16). 2018.
- 8.2 European Parliament. Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe. 2008.
- 8.3 Air Quality Standards Regulations. 2010.
- 8.4 Part IV Air Quality. The Environmental Act. 1995.
- 8.5 Department for Environment Food and Rural Affairs. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. 2007.
- 8.6 Environmental Permitting (England and Wales) Regulations. 2016.
- 8. Part III Statutory Nuisances and Clean Air. Environmental Protection Act 1990.
- 8.8 Ministry of Housing, Communities and Local Government. National Planning Policy Framework. 2019.
- 8.9 Planning Practice Guidance. 2014.
- 8.10 Elmbridge Borough Council. Elmbridge Core Strategy. 2011.
- 8.11 Elmbridge Borough Council. Development Management Plan. 2015.
- 8.12 Department for Environment, Food and Rural Affairs. Background Mapping Data_ https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2015. 2018.
- 8.13 Elmbridge Borough Council. Air Quality Annual Status Report. 2017.
- 8.14 Google Maps. Google. [Online] https://maps.google.co.uk.
- 8.15 Limited, Ordnance Survey. OS Open Map Local.
- 8.17 Institute of Air Quality Management. Guidance on the Assessment of Dust from Demolition and Construction V1.1. 2016.
- 8.18 Town and Country Planning (Environmental Impact Assessment) Regulations. 2017.
- Highways Agency. Design Manual for Roads and Bridges, Section 3, Part 1, HA207/07.
 2007.
- 8.20 Land-Use Planning & Development Control: Planning for Air Quality. Institute of Air Quality Management. 2017.

GLOSSARY

Application - the application being prepared and submitted and subject of the ES.

AMQ - air quality management area - designated by the local planning authority where there are issues with local air quality as a result of traffic.

CEMP - construction management plan - a plan setting out measures to be followed during the construction of the development, controlling things like hours of operation, site management practices, construction traffic routing, etc. It is usually a condition on a planning permission which will be agreed with the Council.

Development Proposals/ Proposed Development - the proposals for development contained within the Application.

Site/Application Site/Masterplan Site - the overall site subject of the Application, i.e. that covered by the red-line boundary. Within the Site, there are individual 'sites' for residential development /racecourse specific development.