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CONTENTS

INTRODUCTION ......................................................................................................................... 1
Purpose of the Environmental Impact Assessment and Non-Technical Summary.......................... 2

ASSESSMENT METHODOLOGY .................................................................................................. 2
Scoping ....................................................................................................................................... 2
Technical ‘Topics’ Included in the Environmental Impact Assessment ........................................ 3
Technical ‘Topics’ Not Included in the Environmental Impact Assessment .................................... 3
Impact Assessment .................................................................................................................. 4

THE SITE AND SURROUNDING AREA .......................................................................................... 4
Site Description and Environmental Context ................................................................................ 4
Surrounding Environmental Context ............................................................................................ 5
Sensitive Receptors ................................................................................................................... 6

ALTERNATIVES AND DESIGN EVOLUTION .............................................................................. 7
Alternative Sites ....................................................................................................................... 7
No Development Alternative .................................................................................................. 8
Design Evolution ..................................................................................................................... 8

THE PROPOSED DEVELOPMENT ................................................................................................ 10
Access ...................................................................................................................................... 10
Podium / External Landscaping ................................................................................................. 11
Sphere / Internal ....................................................................................................................... 13
Operations ................................................................................................................................ 13
Servicing ................................................................................................................................... 13

SUPPORTING DOCUMENTS ........................................................................................................ 14

ENABLING AND CONSTRUCTION ............................................................................................. 15
Anticipated Works and Programme ............................................................................................ 15
Enabling and Construction Works ............................................................................................. 15
Road Vehicle Movements ......................................................................................................... 16

ENVIRONMENTAL IMPACT ASSESSMENT .............................................................................. 16

SOCIO ECONOMICS AND HEALTH ......................................................................................... 16

HIGHWAYS, TRANSPORT AND MOVEMENT .......................................................................... 17

NOISE AND VIBRATION ............................................................................................................. 19

AIR QUALITY ............................................................................................................................... 20

WIND MICROCLIMATE .............................................................................................................. 21
DAYLIGHT, SUNLIGHT, AND OVERSHADOWING .................................................................. 21
LIGHT INTRUSION AND UPWARD SKY GLOW ....................................................................... 22
SOLAR GLARE ............................................................................................................................ 22

GEO-ENVIRONMENTAL .............................................................................................................. 24
ARCHAEOLOGY ............................................................................................................................ 25
TOWNSCAPE, BUILT HERITAGE AND VISUAL ..................................................................... 25
ECOLOGY .................................................................................................................................... 27
AVIATION ................................................................................................................................... 28

TV, RADIO AND MOBILE TELEPHONE RECEPTION ............................................................... 28
CLIMATE CHANGE ..............................................................................................................................29
The Impact of Climate Change on the Development .................................................................29
Greenhouse Gas Emissions ..............................................................................................................29
SUMMARY OF THE LIKELY SIGNIFICANT EFFECTS ..............................................................31
IN-COMBINATION EFFECTS / EFFECT INTERACTIONS ..........................................................34
In-Combination Effects / Effect Interactions ..............................................................................34
SUMMARY AND CONCLUSION ..........................................................................................................35
INTRODUCTION

1.1 Stratford Garden Development Limited is seeking planning permission for a new entertainment and leisure development on a site in Stratford, adjacent to Westfield Stratford City Shopping Centre (Figure 1).

1.2 The site is surrounded by railway lines and the ‘Chobham Farm’ residential development to the north. To the east, the site is bound by the A112 Angel Lane and railway lines running to and from Stratford Station. Beyond the railway lines are developments comprising student housing, residential, hotel and office uses. At the southern end of the site lies the Stratford Town Centre Link Bridge and Stratford Station. To the west, the site is bound by railway lines running to and from Stratford Station, an energy centre operated by Engie (the Engie Energy Centre), Montfichet Road and Westfield Stratford City Shopping Centre. The site location is shown on Figure 2 below.

1.3 This document is a Non-Technical Summary of the findings of the Environmental Impact Assessment (also referred to as EIA) which are reported on in the Environmental Statement. This Non-Technical Summary has been prepared to explain the development proposed, the likely significant beneficial and adverse environmental effects of the development and the measures proposed to protect the environment. The Environmental Impact Assessment has identified the effects that could result during the enabling and construction works and when the development is completed and in use.

1.4 The Environmental Statement has been prepared in accordance with the relevant regulations relating to Environmental Impact Assessment.

Figure 1  The MSG Sphere Stratford
Purpose of the Environmental Impact Assessment and Non-Technical Summary

1.5 Environmental Impact Assessment is a process that allows the beneficial and adverse (positive and negative) environmental effects of certain projects on the environment to be identified and reported upon. This is required by law and helps the local authority understand the environmental effects of a new development when they make their decision on whether to grant planning permission for it.

1.6 Measures to protect the environment, otherwise known as ‘mitigation measures’ have also been identified as part of the Environmental Impact Assessment process.

1.7 Trium Environmental Consulting LLP has undertaken the Environmental Impact Assessment for the development and has prepared the Environmental Statement and this Non-Technical Summary document.

1.8 The Environmental Statement is made up of a number of documents and so this Non-Technical Summary provides an overview of the Environmental Statement in non-technical language.

ASSESSMENT METHODOLOGY

Scoping

1.9 One of the first stages of the Environmental Impact Assessment process is referred to as ‘Scoping’. Scoping identifies the possible environmental effects of a development and the technical topics that need to be investigated further as part of the next stage of the Environmental Impact Assessment process.

1.10 As part of the ‘Scoping’ process, Trium Environmental Consulting LLP prepared a ‘Scoping Report’
which explained the proposed approach to the Environmental Impact Assessment. This was issued to the London Legacy Development Corporation (who are the local planning authority) on 13th August 2018.

1.11 Throughout the ‘Scoping’ stage, several discussions were had with the London Legacy Development Corporation to review the technical ‘topics’ and the assessment methodology and generally to reach agreement on the approach to the Environmental Impact Assessment.

1.12 Following these scoping discussions, the London Legacy Development Corporation issued their opinion on the scope of the Environmental Impact Assessment on 27th November 2018. The Environmental Impact Assessment has been undertaken in line with this opinion.

**Technical ‘Topics’ Included in the Environmental Impact Assessment**

1.13 Several environmental studies have been carried out as part of the Environmental Impact Assessment. The technical topic areas that have been covered are:

- Socio-Economics and Health;
- Highways, Transport and Movement;
- Noise and Vibration;
- Air Quality;
- Wind Microclimate;
- Daylight, Sunlight and Overshadowing;
- Light Intrusion and Upward Sky Glow;
- Solar Glare;
- Geo-environmental (Land Contamination);
- Archaeology;
- Townscape, Built Heritage and Visual;
- Greenhouse Gas Emissions;
- Ecology;
- Aviation; and
- Telecommunication Interference.

1.14 Each of the above technical topics are addressed in either their own chapter or volume of the Environmental Statement or through a technical report provided within the appendices to the Environmental Statement.

**Technical ‘Topics’ Not Included in the Environmental Impact Assessment**

1.15 The Scoping process identified some technical topics where significant environmental effects (either beneficial or adverse) would be unlikely and therefore would not need to be assessed further as part of the Environmental Impact Assessment process. These were as follows:

- Waste; and
- Water Resources, Drainage and Flood Risk.

1.16 However, various documents providing more information about these technical topics are provided either as part of the Environmental Statement or separate documents submitted with the planning application, for example, a ‘Flood Risk Assessment and Drainage Strategy’ is provided within the appendices to the Environmental Statement.
Impact Assessment

1.17 The environmental impact assessment process is undertaken in a number of stages, with each technical topic assessment following the same process.

1.18 Firstly, the ‘baseline’ is identified. The baseline considers the existing conditions of the area where the development will be located and includes both the site itself and the surrounding area. Where an area is subject to widespread, planned change, and is rapidly changing, a ‘future baseline’ is established. This future baseline makes reasonable predictions (based on published information and professional knowledge / experience) of the likely change that may occur, across the area. To reflect the rapidly changing environment of the Stratford area, a future baseline in the year 2022 has been used throughout the Environmental Impact Assessment. 2022 reflects the likely year the development will open and be in use.

1.19 Within the baseline conditions, a number of key environmental aspects are identified, which are defined as ‘receptors’. The sensitivity of the receptors is identified.

1.20 The impact of the proposed development is then identified and the size of the impact (impact magnitude) is considered against the receptors. Impacts are identified during the construction works and for when the development is completed and in use.

1.21 The size of the impact and how sensitive a receptor is to the impact defines the scale of an effect.

1.22 Effects can be defined as being either ‘negligible’, ‘minor’, ‘moderate or ‘major’ in scale and ‘neutral’, ‘beneficial’ or ‘adverse’ in nature. Once the effect has been identified, the assessment then determines whether the effect is considered ‘significant’ or ‘not significant’.

1.23 If a significant adverse effect is identified, measures are required to reduce or remove the effect; these measures are referred to as ‘mitigation measures’. Once the mitigation measures have been identified, the effect is re-assessed to understand whether the scale of the effect has changed because of the mitigation measures.

1.24 Effects resulting from a combination of the proposed development and other surrounding development schemes are assessed; in addition, the combination of lots of different effects from the proposed development on a single receptor are assessed as well.

1.25 All of the likely effects of the development are reported within the Environmental Statement, and the likely significant beneficial, adverse and neutral residual effects (after mitigation measures) are specifically highlighted.

1.26 The Non-Technical Summary of the Environmental Statement (i.e. this document) is required to present a summary of the likely significant effects of the proposed development. A summary of the likely significant effects relating more to the development is contained within this Non-Technical Summary and these effects are discussed in detail in each relevant technical topic assessment of the Environmental Statement (Volumes 1-5).

THE SITE AND SURROUNDING AREA

Site Description and Environmental Context

1.27 The site is roughly triangular with an area of 2.98 hectares. The site is currently covered in hardstanding and has not been used since the 2012 London Olympics when it was used as a coach park. There is an existing substation located in the north west part of the site.

1.28 The site’s main environmental features and designations are listed below in Table 1.
Table 1 Outline of the Site’s Main Environmental Features and Designations

<table>
<thead>
<tr>
<th>Environmental Topic</th>
<th>Key features and designations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic and Transport</td>
<td>High level of public transport accessibility.</td>
</tr>
<tr>
<td>Noise</td>
<td>The primary noise sources identified at the site are railway noise on the adjacent railway tracks and traffic noise on the local road network.</td>
</tr>
<tr>
<td>Air Quality</td>
<td>The site is located within the Stratford Town Centre and Romford Road Air Quality Focus Area. Focus areas are locations with air quality exceedance above specified EU limits and are also locations with high levels of human exposure to poorer air quality.</td>
</tr>
<tr>
<td>Ground Conditions</td>
<td>The geology of the site comprises; Alluvium (secondary aquifer), River Terrace Deposits (an aquifer), Lambeth Group, Thanet Sand (an aquifer) and Chalk (an aquifer) which is present at about 30m below ground level. The groundwater level is present at approximately -26 metres below ground level.</td>
</tr>
<tr>
<td>Archaeology</td>
<td>The site is located within a protected heritage area for the Stratford Railworks associated with the Great Eastern Railway. A non-designated heritage asset (old urinals) is located on an existing wall within the site boundary adjacent to the A112 Angel Lane.</td>
</tr>
<tr>
<td>Water</td>
<td>The site is located within Flood Zone 1 (there is a low risk of flooding at the site from rivers and the sea). The site is located within a groundwater area which is protected as it provides water for the drinking supply (known as a Source Protection Zone). The site is also located within an area which is at risk of surface water pollution from agricultural activities (a Nitrate Vulnerability Zone).</td>
</tr>
<tr>
<td>Ecology</td>
<td>The site is not located within a ‘sensitive area’ (as defined in the Environmental Impact Assessment Regulations). The site is of low ecological value comprising of largely hard standing with small areas of scrub within the site boundary. There is limited bat foraging habitat at the site and in the immediate surrounding area, and the site lacks linkages to other areas of bat foraging habitat. Some potential habitat for Black Redstarts is present within certain parts of the site and surrounding area.</td>
</tr>
<tr>
<td>Townscape</td>
<td>The site is not located within, or in the background to, any recognised important London views, as defined within the ‘London View Management Framework’ document.</td>
</tr>
<tr>
<td>Built Heritage</td>
<td>The site is not within a Conservation Area, but there are a number of Conservation Areas and Listed Buildings in the local area.</td>
</tr>
</tbody>
</table>

Surrounding Environmental Context

The site’s surrounding environmental context is described below in Table 2.

Table 2 The Site’s Surrounding Environmental Context

<table>
<thead>
<tr>
<th>Environmental Topic</th>
<th>Key features and designations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-Economics and Health</td>
<td>A number of educational facilities, including nursery schools, primary schools and secondary schools, and medical facilities are located the surrounding area.</td>
</tr>
<tr>
<td>Traffic and Transport</td>
<td>A number of railway stations are located in close proximity to the site, including Stratford Station, Stratford International Station and Maryland Station. These stations offer a number of services, including: London Underground (LUL) - Central Line, Jubilee Line; Dockland Light Railway (DLR) (westbound and southbound lines); London Overground; Transport for London (TfL) Rail (to become the Elizabeth Line / Crossrail); Greater Anglia Rail Line; and High Speed 1 (providing Eurostar services). Two bus stations are located near the site (the Stratford City Bus Station and the Stratford Bus Station), which offer 17 different bus services. The A112 Angel Lane and the A112 Leyton Road are located to the east of the site, which are considered major highway links. Montfichet Road, located to the west of the site, is also a key road access route.</td>
</tr>
</tbody>
</table>
### Air Quality

An Air Quality Management Area (AQMA) declared by the LBN is adjacent to the site and covers A112 Angel Lane and the A112 Leyton Road due to the potential for exceedances of nitrogen dioxide and particulate matter.

### Ground Conditions

There are two active groundwater removal locations within 250m of the site. Additionally, ongoing removal of groundwater associated with High Speed 1 is also operating within the area. This dewatering system lowers the groundwater in the Thanet Sand (an aquifer).

### Water

The Channelsea River and associated water bodies are located approximately 260-350 metres to the south / southwest of the site. The River Lea is approximately 900 metres to the west of the site, and feeds into the River Thames.

### Ecology

A number of protected ecological areas are located in the areas surrounding the site. These include a the locally protected area (The Railside Land in Newham), which is located approximately 150 metres east of the site. The site is listed as a Site of Borough Grade II Importance for Nature Conservation. This area is also listed as a wildlife site.

The Lea Valley Site of Metropolitan Importance for Nature Conservation is located approximately 900 metres west of the site.

The Lea Valley Special Protection Area is located approximately 5.1 kilometres to the northwest of the site.

### Built Heritage

A number of Conservation Areas and Listed Buildings are located in the local area.

The Stratford St John’s Conservation Area and the University Conservation Area are located to the east of the site, approximately 500 metres and 700 metres away from the site respectively.

The Theatre Royal, a listed building, is located within 250m of the site. Additionally, the Church of St John the Evangelist, a listed building, is located approximately 360m away to the east of the site.

### Aviation

The site lies to the north west of London City Airport and the site is located within London City Airport’s Safeguarding Zone.

### Sensitive Receptors

The receptors that have been considered within the Environmental Impact Assessment are very varied and include the receptor ‘groups’ identified in Table 3. Individual sensitive receptors are detailed in the Environmental Statement (Volume 1: Chapter 1, Introduction and EIA Methodology).

#### Table 3 Sensitive Receptors

<table>
<thead>
<tr>
<th>Topic</th>
<th>Key Receptor Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-Economics &amp; Health</td>
<td>Employment, training and local expenditure, both during construction and operation;</td>
</tr>
<tr>
<td></td>
<td>Health impacts of construction;</td>
</tr>
<tr>
<td></td>
<td>Access to general and emergency healthcare;</td>
</tr>
<tr>
<td></td>
<td>Provision of new food, beverage and retail space;</td>
</tr>
<tr>
<td></td>
<td>Surrounding amenity and access to green spaces;</td>
</tr>
<tr>
<td></td>
<td>Crime, community safety and social cohesion;</td>
</tr>
<tr>
<td></td>
<td>Deprivation / regeneration; and</td>
</tr>
<tr>
<td></td>
<td>Accessibility and active travel.</td>
</tr>
<tr>
<td>Highways, Transport and Pedestrian Movement</td>
<td>Pedestrians and cyclists;</td>
</tr>
<tr>
<td></td>
<td>Public transport passengers, for bus and rail;</td>
</tr>
<tr>
<td></td>
<td>Car parking; and</td>
</tr>
<tr>
<td></td>
<td>Highway Links / Junctions.</td>
</tr>
<tr>
<td>Air Quality</td>
<td>Existing and proposed residential properties;</td>
</tr>
<tr>
<td></td>
<td>Medical Centres; and</td>
</tr>
<tr>
<td></td>
<td>Locations within the development.</td>
</tr>
<tr>
<td>Noise and Vibration</td>
<td>Residential, and hotel uses within close proximity to the site; and</td>
</tr>
<tr>
<td></td>
<td>The Westfield Shopping Centre Stratford City.</td>
</tr>
<tr>
<td>Wind Microclimate</td>
<td>The site;</td>
</tr>
</tbody>
</table>
## MSG SPHERE

<table>
<thead>
<tr>
<th>Topic</th>
<th>Key Receptor Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Existing access paths, building entrances, bus stops and railway platforms near the site;</em>&lt;br&gt;*<em>Visitors to the completed development using entrances and exits, and amenity/waiting areas in and around the site; and</em>&lt;br&gt;*<em>Parts of the completed development, including waiting areas, entrances, pedestrian walkways and open space areas.</em></td>
<td></td>
</tr>
<tr>
<td><strong>Daylight, Sunlight and Overshadowing</strong></td>
<td><strong>Existing residential, student accommodation and hotel properties in proximity to the site.</strong></td>
</tr>
<tr>
<td><strong>Light Pollution</strong></td>
<td><strong>Existing residential, student accommodation and hotel properties in proximity to the site.</strong></td>
</tr>
<tr>
<td><strong>Solar Glare</strong></td>
<td><strong>Railway signals and road junctions, and surrounding residential, student accommodation and hotel properties.</strong></td>
</tr>
<tr>
<td><strong>Townscape Character Areas</strong></td>
<td>A number of areas with distinct character and intrinsic qualities which have been designated as Townscape Character Areas are located within the area surrounding the site. These include:&lt;br&gt;<strong>Stratford New Town;</strong>&lt;br&gt;<strong>Stratford High Street and Centre;</strong>&lt;br&gt;<strong>Maryland Residential;</strong>&lt;br&gt;<strong>Chobham Manor and East Village;</strong>&lt;br&gt;<strong>Westfield and Stratford International; and</strong>&lt;br&gt;<strong>The Olympic Park and Sports fields.</strong></td>
</tr>
<tr>
<td><strong>Built Heritage</strong></td>
<td><strong>Above ground heritage features within 1km of the site.</strong></td>
</tr>
<tr>
<td><strong>Geo-environmental</strong></td>
<td><strong>People using the site, including construction / maintenance workers and future site visitors / staff;</strong>&lt;br&gt;<strong>Groundwaters below the site, and the Channelsea River;</strong>&lt;br&gt;<strong>Flora within the site;</strong>&lt;br&gt;<strong>Future infrastructure on the site; and</strong>&lt;br&gt;<strong>People using areas surrounding the site.</strong></td>
</tr>
<tr>
<td><strong>Archaeology</strong></td>
<td><strong>Previous environmental deposits (palaeoenvironmental) beneath the existing ground level;</strong>&lt;br&gt;<strong>Remains of the mid-19th century to mid-20th century Stratford Works;</strong>&lt;br&gt;<strong>Urinals attached to the brick wall along Angel Lane (a non-designated heritage asset).</strong></td>
</tr>
<tr>
<td><strong>Views</strong></td>
<td><strong>Key short, medium and long-distance views to and from the site.</strong></td>
</tr>
</tbody>
</table>

### ALTERNATIVES AND DESIGN EVOLUTION

1.31 The Environmental Impact Assessment Regulations require the Environmental Statement to summarise the alternatives to the development that is proposed and also to describe the design process (the design evolution of the development). The following sections of this Non-Technical Summary explain the alternative sites considered, the option of not developing the site and the design process that has taken place.

### Alternative Sites

1.32 A number of alternative sites were looked at during the early stages of the development both within and outside of the United Kingdom. London was selected as the preferred location, because of:

- The attractiveness of London to performance artists, and the growth of London’s entertainment offering;
- The appreciation of London as an established location for performances on a world / European tour; and
- The lower number of large entertainment venues per person in London, particularly in comparison to other major European cities.

1.33 Prior to selecting the Stratford site, a number of other key locations were considered in London.
However, the site in Stratford was selected as the preferred location, because:

- The site is located within a London Opportunity Area, and there is a lot of regeneration and growth in the area. Also, the surrounding area is becoming one of London’s key urban / city centres.
- The site has been identified by the London Legacy Development Corporation as suitable for a ‘large-scale town centre use with supporting elements’. The site is also located in an area which has been identified by the London Legacy Development Corporation as providing world class cultural and creative uses, and which is seen as a visitor and tourist destination.
- The site is easily accessed by public transport, from the rest of London and the wider south east of England.
- The site is located close to established retail and leisure uses, including Westfield Stratford City Shopping Centre.
- The site is ‘brownfield land’ meaning that it has been previously developed and it is currently not used. This means that it is a sustainable ‘reuse’ of previously developed land.

**No Development Alternative**

1.34 This refers to leaving the site in its current state and not building the development on this land. This is not the preferred approach, as not building the development would result in another missed opportunity to regenerate this site and provide a use on it which works alongside and enhances the surrounding town centre uses and the existing site condition.

1.35 In addition to this, not developing the site for the development would deny the area of the regeneration benefits which would come about, including various environmental and socio-economic benefits associated with regeneration, for example job creation, new open space, improved access to the site and surrounding area including Westfield Stratford City Shopping Centre, the Queen Elizabeth Olympic Park, and the historic centre of Stratford.

**Design Evolution**

1.36 The design process has looked at various design options. These were developed in response to the consultation process and the technical aspects of the development.

1.37 To help with the design evolution process, a series of public consultation events and consultation meetings with statutory and non-statutory consultees were held. The comments provided during this process influenced certain design elements. In particular, an originally proposed café within The Square was removed to improve visibility, the South Terrace was reduced in size to reduce the overshadowing to the lower level podium and the proposed cycle lane along Montfichet Road was realigned to make it safer for pedestrians and cyclists.

1.38 Three alternatives were considered during the early design of the sphere, with additional versions of the podium and external façade also considered. The three sphere options included an elevated sphere, a spherical form, and spherical form including circulation deck. All sphere options sat within a site wide podium.

1.39 The first design proposal (the elevated sphere), included a complete spherical form reaching a height of 129m, with the event floor and service yard raised 50m above ground level *(Figure 3)*. This design had a number of associated environmental effects which required further consideration by the design team, including: the height of the development, daylight / sunlight and overshadowing considerations, construction restrictions, and the limited opportunity for the inclusion of green roofs.
Figure 3  An Elevated Sphere

The second design (a spherical form) was a perfect sphere structure, with a width of 120m across at its widest point, which would sit partially below ground level (Figure 4). This design did not include an external circulation zone and had a lower number of seats inside the venue. The adverse (negative) environmental effects of this design version were expected to be lower than the first design, specifically in relation to daylight / sunlight and overshadowing effects to surrounding properties.

Figure 4  A Spherical Sphere

The third design (spherical including circulation deck) was a sphere structure, with an additional circulation deck included 6m above the podium level (Figure 5). The seating layout inside the sphere was altered and the stage was pushed out of the sphere by 8m to ensure that the target number of seats inside the venue could be achieved. This design sat below the height of the nearby tallest buildings, and specific landscaping elements were included to contribute to green open space areas. In comparison with the previous two options, this design met the design brief regarding seating capacity whilst responding to surrounding environmental constraints.
As such, the third design option was taken forward as the development in the planning application. In addition to the sphere and surrounding podium, the design of other components of the development also evolved over time, specifically, the bridge connections into the site, the works proposed to the surrounding roads and the external surface or 'façade' of the sphere itself. Further information on this can be found in the Environmental Statement (Volume 1: Chapter 2 Alternatives and Design Evolution).

THE PROPOSED DEVELOPMENT

The development will comprise a new multi-use entertainment and leisure venue, capable of hosting a wide range of events, including (but not limited to) immersive productions and attractions, screenings, concerts, sports events, artist residencies, family shows, award shows, corporate events and product launches.

The development consists of a 20-storey entertainment venue shaped in the form of a sphere. The entertainment venue will have an illuminated light-emitting diode (LED) display on both its external and internal surfaces. Surrounding the sphere is a podium, which covers the site.

The main feature of the development is the large sphere-shaped structure located within the middle of the site. The sphere will have a maximum height of 96.5m Above Ordnance Datum (approximately 90m above the existing ground level).

The development will include the following on the first ten levels; a music club, bar / restaurant, retail space and offices, box office, playground, outdoor gym, concourses, VIP lounges and suites, plant rooms, back of house facilities, catering operation, loading bay, the plaza, a restaurant / night club/members lounge, storage rooms, the entertainment venue, the stage, offices and stage services.

The remaining levels will include the following: immersive surface service zone, plant and plant services, toilets, back of house and lighting services.

Access

Visitors arriving at the development will be able to access the site via a number of different routes. The development will construct three new pedestrian bridges, as outlined below. Visitors using these bridges will arrive onto the podium, from where they will be able to access the entertainment venue itself, or the associated retail / food and beverage / outdoor areas on the podium.

- **Bridge 1** (the Northern Montfichet Bridge Link) – this bridge will link Montfichet Road to the north of the development site;
• **Bridge 2** (the Southern Montfichet Bridge Link) – this bridge will link Montfichet Road to the south of the development site; and

• **Bridge 3** (the Town Centre Bridge Link) – this bridge will connect the existing Town Centre Link Bridge (to the south of the site) to the development site.

1.50 Other pedestrian access to the site will be from the A112 Angel Lane. This access will also provide service vehicle access to the site, which will not be publicly accessible.

1.51 A fourth bridge (Bridge 4) will be constructed to provide vehicle access to the site. This bridge will be located to the north of the site over the High Speed 1 railway line and will be used for operational purposes only.

1.52 The A112 Angel Lane / A112 Leyton Road and Montfichet Road are the two roads adjacent to the development, with the A112 Angel Lane / A112 Leyton Road to the east and Montfichet Road located to the west. Both of these roads will be used to access the development for both pedestrians and service vehicles.

**Podium / External Landscaping**

1.53 A multi-level podium covers the remaining area of the site that the entertainment venue does not take up (Figure 6). Within the podium space are two large public areas: the ‘The Square’ (to the south of the entertainment venue) and ‘The North Hub’ (to the north of the entertainment venue). The Plaza (located below The Square) includes a large circulation space in addition to the proposed music club and a bar / restaurant, with The North Hub including an outdoor gym, a café and areas of open space.

1.54 The South Terrace and the North Terrace are two upper tiers of the podium. The South Terrace provides access into the entertainment venue, and the North Terrace will function as an exit route from the entertainment venue on event days.

1.55 The main access point to the entertainment venue will be from The Square on the podium, which will be accessed from outside the site via the existing Town Centre Link Bridge and Bridge 2 (the southern bridge from Montfichet Road).

1.56 The design for the development has incorporated an extensive landscaping strategy, which has focused on the following areas:

• The Square;
• The North Hub;
• The Park (located on the South Terrace);
• The North and South Terraces;
• Montfichet Road; and
• Stage Box Green Roof.

1.57 The Square is framed along the western edge by a landscaped deck (which will also provide seating) and a large pocket of planting. The Park, located on the South Terrace, provides a green backdrop to the entertainment venue and will incorporate tall evergreen trees. The North Hub will be centred around an outdoor café and an outdoor landscape area and will provide seating and open space areas for visitors. The terraces are primarily constructed of timber materials and decking to create seating and outdoor recreational spaces.

1.58 Additionally, the landscaping strategy will include planting along Montfichet Road, which incorporates groundcover and deciduous street tree planting. This will also assist in separating pedestrians and vehicles.
Of the above areas, the three key areas of green space within the development are: the Pine Woodland ecosystem on the South Terrace (The Park), the Lowlands Meadow ecosystem near the A112 Angel Lane (part of The North Hub) and the biologically diverse green roof to the north (an inaccessible green roof above the Stage Box associated with the entertainment venue). The landscaping will include clusters of rocks and logs, grasses and deciduous street trees, which will provide habitat for birds and insects.

Figure 6 Proposed Development Key Elements
Sphere / Internal

1.60 The sphere is a 20-storey structure, with 10 of these levels comprising ‘habitable’ uses. The remaining levels are used for various operational and back of house purposes. Additionally, a basement has also been included, and will provide the majority of the development plant, servicing and waste facilities.

1.61 Within the entertainment venue, large internal concourses are proposed that provide access to ticketed seating and the main stage where events will be held. The stage and internal entertainment space can be rearranged into various configurations suitable for concerts, awards shows, e-gaming, circus, conference or cinematic experiences.

1.62 A number of bars and a restaurant / members club / night club are also located within the entertainment venue along with toilets and general services for visitors.

Operations

1.63 The likely timings of events (for both matinee and evening events) are outlined below.

- **Evening Shows:**
  - Doors Open between: 18:00 and 19:30
  - Event Start Time between: 20:00 and 21:00
  - Event Finish:
    - 00:00 Monday to Thursday
    - 00:15 Friday and Saturday
    - 23:30 Sunday

- **Matinee Shows:**
  - Doors Open between: 11:00 and 14:00
  - Event Start Time between: 12:00 and 15:00
  - Event Finish between: 15:00 and 18:00

1.64 On an agreed number of occasions per year the entertainment venue would host late finishing or overnight events with agreed curfews and subject to approval of an event specific Event Management Plan.

1.65 The entertainment venue has been designed to support the following event capacities and configurations:

- Maximum bowl capacity: 21,500 with mix of seated and floor standing or about 18,000 in fully seated configuration. However, it should be noted that full capacity shows will be occasional. The average capacities of events are shown below;

- Background capacity: ~3,500 staff and guests for the music club/retail/restaurants; and

- The ancillary commercial uses; the music club, bar/restaurant, and retail space can be open simultaneously to a full capacity event in the entertainment venue.

1.66 Reconfiguring the entertainment venue between these different event configurations will require some non-event days to be scheduled. Some formats allow different event types on the same day.

Servicing

1.67 A transport / servicing strategy has been included within the design of the development.

1.68 The development does not include any car parking available for public use. Public car parking (for both cars and motorcycles) is available in the nearby Westfield Stratford City Shopping Centre.

1.69 Bike parking spaces will be provided along Montfichet Road, for use by the public. Cycle facilities have been included within the site for use by the venue staff. For visitors wishing to use hired bicycles to access the site, a Santander Cycle Hire Station is located to the south of the site adjacent to the
Visitors wishing to use taxis to access the development will be able to use the three taxi ranks located within 500m of the development. The development will reinstate the northern ticket hall taxi rank as part of the construction works.

Coach pick up / drop off facilities are located in the area near to the development, with coach bays located on International Way, and coach parking facilities in the Here East coach park.

Internal circulation for servicing vehicles has been included in the design, with event / service vehicles able to access the site via A112 Angel Lane. Additionally, access for emergency vehicles will be via the A112 Leyton Road, with a designated emergency services ramp.

SUPPORTING DOCUMENTS

A number of documents have been prepared in regard to environmental management, operational commitments, employment, training and design quality that will accompany the planning application. The complete list of planning obligations and commitments are described within the Planning Statement and Section 106 Agreement Heads of Terms. The following reports have been produced to address environmental areas in addition to the Environmental Statement. These include (but are not limited to):

- Fire Strategy, which considers the function requirements of the Building Regulations 2010 for Part B – Fire Safety and the complex nature of the building;
- Security Strategy, which has the primary objective of ensuring the safety of people and assets;
- Greenhouse Gas Emissions Assessment, which has assessed the development’s design and operation with reference to the generation of greenhouse gas emissions;
- Energy and Sustainability Strategy, with the development targeting at least a ‘Very Good’ Building Research Establishment Environmental Assessment Method (BREEAM) rating;
- Operational Waste Management Plan, to manage wastes during the operation of the development;
- Site Waste Management Plan, to manage wastes during the enabling and construction works;
- Surface Water Management Plan, to manage the collection and runoff of water from the development;
- Flood Risk Assessment, to identify flood risks to the site;
- Transport Assessment to assess the site and wider transport implications of the development;
- Outline Construction and Environmental Management Plan that set out the framework for environmental management during the enabling and construction stage;
- Preliminary Ecological Appraisal, to identify the existing environmental condition of the site and the surrounding area; and
- Concept of Operations, which sets out the proposed event management framework and measures for the entertainment venue.
ENABLING AND CONSTRUCTION

Anticipated Works and Programme

1.74 The site currently comprises land that was previously used for the 2012 London Olympic Games as a coach parking facility. The site is currently covered with concrete which needs to be removed before the development is built.

1.75 The development will take approximately 43 months to build.

1.76 The works required to build the development include:

- Site establishment – setting up of the site ready for the construction works including site hoardings and construction site offices;
- Enabling works – including relaying of a sewer, construction of the bridges and some highway works;
- Piling and substructure work for the building’s foundations and basement;
- Construction of the sphere and the podium;
- Outside works to the sphere and podium, including the placement of the light-emitting diode (LED) panels;
- Internal works to the sphere and testing of the technology and systems; and
- Landscaping and other external works including works to Montfichet Road and the A112 Angel Lane / A112 Leyton Road.

Enabling and Construction Works

1.77 Prior to the start of the enabling and construction works, discussions with the London Legacy Development Corporation and other relevant consultees (such as Transport for London) will be undertaken in relation to enabling and construction logistics, as well as site and environmental management.

1.78 Also, a number of management plans will be prepared and agreed with the London Legacy Development Corporation, including a Construction Management Strategy, a Construction Environmental Management Plan, and a Site Waste Management Plan. Drafts of these documents have been prepared as part of the planning application and will be completed and approved by the London Legacy Development Corporation before the start of the construction works onsite. Specifically, these documents will explain how the works and the site will be managed including environmental management.

1.79 The likely construction working hours are:

- 08:00 – 18:00 hours between Monday and Friday;
- 08:00 – 13:00 hours on Saturdays; and
- No working on Sundays, Bank or Public Holidays (unless otherwise agreed with the London Legacy Development Corporation).

1.80 Night time construction works will sometimes be necessary because of the need to work within areas close to the railway lines. Undertaking these works at night time will be safer for the construction workers and will help to reduce any disruption to the railway timetables. The works that will likely need to be undertaken at night time include construction of bridge foundations and supports, parts of the bridges, perimeter sections of the podium, and for the removal of materials from site and the transport of large plant which can’t easily be undertaken during normal working hours. Prior to undertaking these works, approvals will be obtained from the London Legacy Development Corporation, Transport for London and Network Rail.
Road Vehicle Movements

1.81 It is likely that the average daily construction vehicles will peak at 179 vehicles per day. The monthly vehicle peak is anticipated to be 205 vehicles per day. Two construction vehicle peak periods are expected during the construction programme: between months 10 – 12, and months 25 – 28.

ENVIRONMENTAL IMPACT ASSESSMENT

1.82 The following sections of this Non-Technical Summary present a summary of the environmental technical topic assessments that have been undertaken as part of the Environmental Impact Assessment. Further details can be found within the Environmental Statement (Volumes 1-5).

SOCIO ECONOMICS AND HEALTH

1.83 The assessment undertaken has focussed on key social, economic and health considerations, specifically job creation, local spending, the provision of a new leisure and events destination, human health, crime, the creation of new open space and wider regeneration.

1.84 The development will have a significant beneficial effect upon London through the provision of a world class venue which will help Stratford become an International Centre. The types of events that will be held at the venue, including a variety of music, e-sports, family, entertainment and corporate events, will make the venue a world-wide destination, and will help make London more competitive in the world-wide entertainment industry.

1.85 An Employment and Skills Strategy has been prepared which shows the strong commitment to maximising local economic impacts throughout the construction and when the development is complete and in use. Significant beneficial effects are expected as a result of the creation of jobs and training programmes and so higher incomes for local people. The Employment and Skills Strategy will also create strong positive social and community engagement, through visits and programmes with schools and local community groups, and though potential investment in, and support of, other local organisations.

1.86 The redevelopment of the site is expected to lead to beneficial impacts upon human health. Poor health can be associated with unemployment and low-income levels. This can lead to crime and deprivation. A significant beneficial effect for the local area is expected because of the development through regeneration, job creation and a reduction in crime.

1.87 Furthermore, making the site easily accessible, the creation of new open spaces and the promotion of walking and cycling will also lead to beneficial health effects.

1.88 The potential for adverse health effects will be carefully managed, both during construction and when the development is in use. The management strategies include dust management and the use of ‘best available technology’ to minimise noise disturbance from construction equipment and appropriate estate management to control crowds and night time noise. In addition, a lighting strategy has been designed to protect residential amenity and avoid any significant adverse light pollution related effects.

1.89 To determine cumulative effects arising from this development, and upcoming developments within the nearby area, a cumulative effects assessment was undertaken. During the enabling and construction stage, a significant (beneficial) effect to employment creation and spending is expected. Once operational, the development combined with the surrounding cumulative schemes is anticipated to result in a significant (adverse) effect to the provision of emergency services. However, this is due to the development pipeline in Stratford and the wider area rather than the impact of the proposed development itself, which is expected to have a negligible effect on local A&E provision. Additionally, significant (beneficial) effects to the population of the local area, employment, and the availability of retail and food and beverage is expected. Table 4 summarises the significant socio-
economic and health effects of the development once it is complete and in use.

Table 4 Summary of the Significant Residual Socio-Economic and Health Effects

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Description of Significant Effect</th>
<th>Scale and Nature of Residual Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Jobs once Operational</td>
<td>A moderate beneficial effect at the local level as a result of the employment positions supported by the development which will be filled by residents who reside within the local area.</td>
<td>Moderate Beneficial</td>
</tr>
<tr>
<td>Provision of Venue Floorspace</td>
<td>A major beneficial effect at the national and regional level as a result of the provision of venue floorspace. This will allow the site to act as a world class venue for both the region and the country.</td>
<td>Major Beneficial</td>
</tr>
<tr>
<td>Effect of Job Opportunities on Income</td>
<td>A moderate beneficial effect at the local level as a result of the employment positions associated with the development being able to provide an increase in income levels.</td>
<td>Moderate Beneficial</td>
</tr>
<tr>
<td>Deprivation/Regeneration</td>
<td>A major beneficial effect at the local level as a result of the proposed development facilitating urban regeneration with associated beneficial outcomes relating to deprivation, such as income and employment.</td>
<td>Major Beneficial</td>
</tr>
<tr>
<td>Crime, Community Safety and Social Cohesion</td>
<td>A moderate beneficial effect at the local level as a result of the proposed development reducing crime within the local area.</td>
<td>Moderate Beneficial</td>
</tr>
<tr>
<td>Access to work and training</td>
<td>A major beneficial effect at the local level as a result of the local employment measures (to gain access to work and training) which will be implemented by the proposed development.</td>
<td>Major Beneficial</td>
</tr>
<tr>
<td>Chobham Farm, Unite Students Accommodation, Mox Hotel, Stratford Central (Telford Tower), Railway Tavern and Residential properties along Oxford Road, Angel Lane Tower, Manhattan Loft Gardens and Residential properties along Windmill Lane.</td>
<td>A negligible to major adverse effect as a result of noise and vibration from enabling and construction activities from a human health perspective.</td>
<td>Negligible to Major Adverse</td>
</tr>
<tr>
<td>Residential properties along Windmill Lane.</td>
<td>A moderate adverse effect to residential properties along Windmill Lane as a result of crowd dispersion at night time from a human health perspective.</td>
<td>Moderate Adverse</td>
</tr>
<tr>
<td>Stratford Central and Angel Lane Tower</td>
<td>A moderate adverse (worst case) / minor adverse (reasonable worst-case) effect as a result of people traversing between uses (music club queue, bar/restaurant and retail uses) on the podium and plaza at night time from a human health perspective.</td>
<td>Minor Adverse to Moderate Adverse</td>
</tr>
</tbody>
</table>

HIGHWAYS, TRANSPORT AND MOVEMENT

1.90 The assessment undertaken has reviewed the effects of the development on roads and traffic, public transport, pedestrian and cyclist routes. The assessment has considered possible effects relating to: severance (being or the feeling of being isolated or separated from something); pedestrian and cyclist amenity, fear and intimidation; delay for drivers, pedestrians and cyclists; accidents and safety; bus passenger delay; public transport service capacity; and car parking.

1.91 The assessment has identified that a number of significant effects are likely to occur during both the construction works, and when the development is complete and in use. The assessment has considered a ‘worst case’ scenario for a day where full capacity events (i.e. events with the largest number of people attending them) take place.

1.92 The assessment has identified significant adverse effects to severance and pedestrian and cyclist amenity (at some receptor locations) during construction, and significant adverse effects to driver delay, bus passenger delay, and car parking when the development is in use. Significant beneficial effects to pedestrian and cyclist delay have also been identified.
However, to ensure that a full assessment of the potential impacts of the development has been undertaken, an assessment of other scenarios (where certain effects may be worse) has also been completed. For example, in a situation where a large event at the proposed development takes place at the same time as a large event at the London Stadium, within the Queen Elizabeth Olympic Park or at the O2 Arena. For each of the highways, transport and movement elements considered by the assessment, the worst case has been defined and assessed, with the exception of fear and intimidation and pedestrian and cyclist delay. For each of the elements, at least one significant adverse effect has been identified.

To reduce the size of these significant adverse effects, a number of mitigation and management measures have been proposed. The potential for significant adverse effects to severance and amenity will be carefully managed during the construction works. Management strategies include appropriate construction logistics, and the appropriate segregation of pedestrians, cyclists and the general public from the construction area. Additionally, the Principal Contractor leading on the construction of the development will become a member of the local authority managed Construction Transport Management Group, to assist in the management and coordination of activities with nearby construction sites.

Once the development has been completed, a number of management measures will be implemented. These include Staff and Visitor Travel Plans, which will set out measures to encourage sustainable travel, and a monitoring programme to ensure that the measures are having the desired beneficial impact.

After accounting for the mitigation measures, the following significant effects will likely result from the development: a significant adverse effect on severance and amenity will likely occur along a short stretch of the A112 Leyton Road during construction, which is located adjacent to the construction site access. No significant adverse effects are likely to occur when the development is complete, with minor adverse effects predicted to driver and bus passenger delay, public transport capacity, and car parking.

Three significant beneficial effects to pedestrians and cyclists, in terms of severance, amenity and delay, will occur as a result of the development and the proposed works to Montfichet Road and the A112 Angel Lane. These works will improve the conditions for pedestrians and cyclists on both these roads.

The assessment of highways, transport and movement has considered a number of schemes that are upcoming (approved) within the surrounding area, which addresses the cumulative effects assessment. As such, there are no additional cumulative effects which have not already been identified.

Table 5 summarises the significant highways, transport and movements effects of the development.

### Table 5 Summary of the Significant Residual Highways, Transport and Movement Effects

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Description of Significant Effect</th>
<th>Scale and Nature of Residual Effect</th>
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<tbody>
<tr>
<td>Enabling and Construction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highway Links – Pedestrians and Cyclists</td>
<td>Impact on severance and amenity resulting from HGV traffic</td>
<td>Moderate Adverse Local</td>
</tr>
<tr>
<td>Completed Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highway Links – Pedestrians and Cyclists</td>
<td>Impact on pedestrian and cyclist severance</td>
<td>Major Beneficial Local</td>
</tr>
</tbody>
</table>
### NOISE AND VIBRATION

1.100 The assessment undertaken has focused on potential noise and vibration effects during enabling and construction, in particular construction road traffic (HGVs) and onsite works noise; and surrounding road traffic noise from the completed development, noise from the music club within the podium, on-site traffic movements, noise from crowds of people, noise from amplified music, the public-address system and building services / plant.

1.101 The assessment identified that adverse effects during enabling and construction are likely.

1.102 The following activities have been identified to result in significant adverse noise effects at surrounding noise sensitive receptors:

- Night time bridge construction;
- Pile probing;
- Structural piling;
- Excavation of the basement; and
- Sewer relaying.

1.103 Insignificant noise effects are likely as a result of the construction of the ‘superstructure’.

1.104 The noise predictions have been based on reasonable worst-case assumptions and there will be opportunities for the contractor to reduce the noise impact experienced at the nearest noise sensitive properties. An outline of the noise mitigation measures that could be applied to reduce the noise impact is provided within the Environmental Statement. These measures include approval of a Construction Environmental Management Plan which will include appropriate noise and vibration management measures, an agreed Construction Method Statement, agreement with the London Legacy Development Corporation of noise limits, and attendance by the Principal Contractor at the LLDC Construction Transport Management Group. With these measures in place, significant adverse effects during construction are still expected to result, although they will be temporary and localised.

1.105 A significant adverse effect has been identified once the development is completed, which relates to crowd noise from people using Windmill Lane to access Maryland Station after an event at night. In addition, a significant adverse effect has also been identified as a result of people traversing to and from the uses proposed on the podium and plaza at night to people living in Stratford Central and Angel Lane Tower. However, this effect is based on a worst-case scenario that is unlikely to occur during operation. Therefore, measures to manage these impacts will be put in place in the form of crowd control measures. Noise monitoring when the development is in use will also be undertaken.

1.106 No other additional significant effects (positive or negative) relating to noise and vibration have been identified once the development is complete and in use.

1.107 The assessment has considered the potential for cumulative effects to noise and vibration, from the

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<td>Impact on pedestrian and cyclist amenity and delay</td>
<td>Major Beneficial Local</td>
</tr>
<tr>
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<td>Impact on pedestrian and cyclist delay</td>
<td>Major Beneficial Local</td>
</tr>
</tbody>
</table>
development and certain nearby developments. Potential significant (adverse) effects to Morgan House (ranging from negligible to major) may result during the enabling and construction stage, with a similar effect on Telford Tower. It is noted that cumulative effects will remain local, temporary and reversible.

1.108 Table 6 summarises the significant noise and vibration effects of the development.

### Table 6 Summary of the Significant Residual Noise and Vibration Effects

<table>
<thead>
<tr>
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<td><strong>Enabling and Construction</strong></td>
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<tr>
<td>Chobham Farm, Unite Students Accommodation, Moxy Hotel, Stratford Central (Telford Tower), Railway Tavern and Residential properties along Oxford Road</td>
<td>Noise from on-site enabling and construction activities – ENABLING WORKS</td>
<td>Negligible to Major Adverse</td>
</tr>
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<td>Angel Lane Tower, Manhattan Loft Gardens and Residential properties along Windmill Lane.</td>
<td>Noise from on-site enabling and construction activities – ENABLING WORKS</td>
<td>Negligible to Moderate Adverse</td>
</tr>
<tr>
<td>Chobham Farm, Unite Student Accommodation, Moxy Hotel, Stratford Central (Telford Tower)</td>
<td>Noise from on-site enabling and construction activities – CONSTRUCTION WORKS</td>
<td>Minor to Major Adverse</td>
</tr>
<tr>
<td>Angel Lane Tower, Railway Tavern and Residential properties along Oxford Road.</td>
<td>Noise from on-site enabling and construction activities – CONSTRUCTION WORKS</td>
<td>Negligible to Moderate Adverse</td>
</tr>
<tr>
<td><strong>Completed Development</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential properties along Windmill Lane</td>
<td>A moderate adverse effect to residential properties along Windmill Lane as a result of crowd dispersion at night time from a maximum capacity event.</td>
<td>Moderate Adverse</td>
</tr>
<tr>
<td>Stratford Central and Angel Lane Tower</td>
<td>A moderate adverse (worst case)/minor adverse (reasonable worst case) effect as a result of people traversing between the uses (music club queue, bar/restaurant and retail uses) on the podium and plaza at night time.</td>
<td>Minor Adverse to Moderate Adverse</td>
</tr>
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</table>

### AIR QUALITY

1.109 The assessment undertaken has considered the potential for both the construction works, and the operation of the development, to result in air quality impacts. The key considerations of this assessment have been dust emissions and emissions from HGVs during construction, road traffic emissions once the development is in use, emissions from onsite emergency (life-safety) power generators, and emissions from existing emissions sources, specifically the surrounding road network, the neighbouring Engie Energy Centre and other surrounding development’s plant.

1.110 The assessment has identified that the development will not cause significant air quality impacts during either the construction works, or once completed and in use. Additionally, the development will be air quality neutral, as required for all new developments in London.

1.111 To minimise impacts to air quality, the development includes proposals for pedestrian and cycle facilities (including cycle parking), as well as not providing publicly available onsite car parking. These measures will encourage visitors to use public transport options to get to and from the development.

1.112 To manage impacts to air quality during the construction works, dust management measures will be incorporated into the site’s Construction Environmental Management Plan. Construction logistics
management will also be undertaken to manage construction vehicle and delivery movements to and from the site.

1.113 The potential for cumulative effects which may result from the construction and operation of the development and other upcoming (approved) projects was considered as part of the assessment. The assessment identified that the development will not cause significant cumulative effects to air quality, with measures to manage cumulative effects to be managed through construction and logistics management measures.

**WIND MICROCLIMATE**

1.114 The wind microclimate assessment has focused on understanding whether any undesirable wind conditions would be created on site and in the surrounding area as a result of the development. Undesirable wind speeds may result in effects to pedestrian comfort and safety. Areas within and around the site at ground level, including areas where outdoor seating is proposed, have been considered as well as areas on the new bridges, across the podium and on the North and South Terraces. In addition, areas around other buildings surrounding the site and at nearby bus stops, pedestrian crossings and thoroughfares have been tested.

1.115 The assessment also considered road vehicles and the possibility of overturning due to strong winds, as well as the potential for strong winds to impact upon cyclists and pedestrians. No strong winds have been identified by the wind assessment, with wind speeds not exceeding levels which would affect pedestrian safety.

1.116 The assessment identified the potential for some minor adverse wind conditions to result, particularly to building entrances, and outdoor amenity spaces on the South Terrace level. To reduce the wind speeds in these areas, a number of wind mitigation measures have been incorporated into the development. These measures include landscape planting on the South Terrace, to the north and west of the stairs connecting the South Terrace to the podium; and the use of screens on the South Terrace, at seating areas towards the south of the sphere. These could be movable and required only during periods those areas are used for seating purposes. In addition, an entrance into the sphere on its western side was recessed to provide wind conditions suitable for ‘standing’ during the winter season.

1.117 The assessment methodology used to assess the potential impact to wind microclimate, considered a number of upcoming (approved) developments within the surrounding area where appropriate. As such, no additional assessment of potential cumulative effects (from these additional developments) has been undertaken.

1.118 With the wind design measures included, the development will not have any significant wind microclimate effects.

**DAYLIGHT, SUNLIGHT, AND OVERSHADOWING**

1.119 The daylight, sunlight and overshadowing assessment has considered current and proposed property developments within a specific distance of the development. Potential daylight, sunlight and overshadowing effects associated with the development have been considered, including temporary changes during the construction works and permanent effects once the development has been completed.

1.120 Due to the current site status as an unused site, neighbours benefit from an unusually large amount of daylight and sunlight, particularly considering their location in a dense urban environment. As such, any development on the site may have an effect on neighbours’ daylight and sunlight amenity, both internal to their properties and to associated external open areas.

1.121 Daylight is the general amount of light (direct and indirect) which enters a room during the daytime.
To identify potential effects to sensitive receptors, 4,681 windows, serving 2,574 residential and hotel and student accommodation rooms in 26 property groups and individual properties surrounding the site, have been assessed. Of the 26 property groups / properties, 5 of these will experience a minor adverse effect (which is not considered significant) on daylight amenity. The remaining properties will not experience a noticeable change to daylight amenity.

1.122 Sunlight is the direct light from the sun which can be seen / which enters a room. In the United Kingdom, this is only experienced from rooms which have windows facing within 90 degrees of due south (due to the sun’s location in the sky). To identify potential effects to sensitive receptors, 1,458 rooms in 20 different property groups and individual properties surrounding the site have been assessed. Of the 20 property groups / individual properties, three of these will experience a minor adverse effect (which is not considered significant) on sunlight amenity. The remaining properties will not experience a noticeable change to sunlight amenity.

1.123 To identify potential impacts of overshadowing on open spaces surrounding the site, 28 different open areas have been assessed. Any additional shadows cast on these open areas by the development will not be noticeable to the users of these spaces. Additionally, open spaces created by the development will receive a good level of sunlight amenity.

1.124 Within the area surrounding the development, no other upcoming (approved) schemes were considered to be of a sufficient size to potentially create cumulative effects to daylight, sunlight or overshadowing. As such, a cumulative effects assessment was not considered to be necessary.

1.125 As summarised above, no significant daylight, sunlight and overshadowing effects have been identified. As all effects to sensitive receptors are considered to be minor, or not noticeable, no mitigation measures have therefore been included in the design.

**LIGHT INTRUSION AND UPWARD SKY GLOW**

1.126 The Light Intrusion and Upward Skygloss assessment has considered the potential for light pollution effects in areas where residential, student or hotel accommodation is in proximity to the development. The assessment has considered the potential for effects whilst recognising the urban context of the site and the development. The area has been classified in accordance with relevant light pollution guidelines and has also considered light coming from other surrounding developments and so the existing levels of light pollution and intrusion across the area.

1.127 The assessment of the realistic moving image scenario across the sphere element of the development and the advertising proposals establishes that there will be peak levels of light upon the facades of some of the surrounding sensitive receptors which results in light intrusion effects that are considered to be moderate adverse in scale and nature (significant).

1.128 The average level of light emission from the sphere element of the Proposed Development and the advertising proposals when illuminated with a realistic moving image would not produce a light intrusion effect to any of the surrounding sensitive receptors which is considered greater than minor adverse in scale and nature (not significant)

1.129 The level of light emitted from the sphere and advertising elements of the development will be fully controllable. The level of light emitted is capable of being regulated in intensity at an individual light, panel or zone level. This mitigation strategy will allow light intrusion into neighbouring residential / quasi-residential windows to be reduced down to levels which are considered insignificant. With measures implemented correctly, then post-curfew, residual impacts from obtrusive light are considered to be negligible to minor adverse and not significant.

1.130 It has been confirmed by the lighting design team that the technology which controls the façade display and light levels will be calibrated to prevent light emission levels exceeding a point which will result in light levels being experienced at sensitive neighbouring residential / quasi-residential
In terms of upward sky glow for both the full white light scenario and moving image scenario, as the site is currently undeveloped there will be an increase in the level of upward skyglow compared to the existing situation but that upward skyglow will fall away relatively quickly.

The assessment methodology used to assess the potential impact to light pollution and upward sky glow, considered a number of upcoming (approved) developments within the surrounding area where appropriate. As such, no additional assessment of potential cumulative effects (from these additional developments) has been undertaken. Any other future developments are unlikely to be located in positions which would materially alter the instances of light intrusion or upward skyglow described above.

In conclusion, based on the fully controllable light-emitting diode (LED) panels covering the sphere and the adherence to relevant light pollution guidelines, no significant light intrusion and upward sky glow effects have been identified.

**SOLAR GLARE**

The solar glare assessment assessed the impacts of the development to sensitive receptors, including road and rail drivers, as well as adjacent residential, student accommodation and hotel uses. 20 sensitive viewpoints which reflect these receptors have been identified and assessed.

Computer modelling and technical analysis have been used to determine locations during the year at which there is a risk of solar glare if the proposed development were a perfect reflector i.e. a mirror; this is referred to as the Annual Sequence Analysis. Following generation of the Annual Sequence, the computer modelling and technical analysis has identified those locations where solar glare could occur if the facade is a perfect reflector, and which could pose an issue because the glare instances coincide with road, rail or neighbouring building occupant usage. During this process, many locations of possible solar glare are eliminated.

The remaining incidents of possible solar glare have then been interrogated further. The analysis undertaken to date has been carried out for a range of possible façade materials with different reflectivity properties. This process has considered the sphere façade material currently proposed by the design team and has resulted in many of the locations in which solar glare could have occurred being now far less reflective with either the glare risk eliminated or reducing glare instances to within reasonable parameters.

There remain a limited number of occasions where there could be brief periods of solar glare which coincide with a road or rail viewpoint. Some of these glare instances remain significant, albeit very brief in duration. It should be borne in mind that the assessment has been undertaken for a worst-case climate scenario i.e. a clear sky, where as in reality, frequently, the sky will be overcast, particularly in the winter months, which is often when the most significant adverse effects occur due to the sun's low altitude. In addition, car and train drivers which may be affected by these brief solar glare instances will be travelling towards the proposed development at the times that they occur. As such, the instance of solar glare, as they approach the proposed development, will move to the driver’s less sensitive field of vision. In reality, therefore, the instances of disabling glare in the driver’s parafoveal and perifoveal line of sight, may last for only a matter of seconds rather than the full approximately 5 minutes occurrence instance.

It is proposed to specify an alternative façade material for the sphere (in its entirely, not just individual panels) to mitigate the issue as part of the detailed design process to be undertaken prior to the construction of MSG Sphere. The use of a lower reflectance material will either remove the glare incidences or reduce the glare incidences to an acceptable (insignificant) level. Research undertaken to date by the design team has confirmed that alternative panel materials are available.
that will allow glare to be mitigated and which will not materially affect the visual appearance of the sphere when in ‘architectural mode’.

1.139 It is evident that further detailed façade material and glare studies are required in parallel with ongoing discussions with key stakeholders, principally Network Rail. These further studies and discussions will inform the specifics of the mitigation strategy. Analysis undertaken to date of various different façade materials has demonstrated that alternative less reflective materials are available and so this allows the conclusions of the solar glare assessment to commit to no likely significant solar glare effects. It is proposed that a planning condition will be attached to any planning permission which requires further detailed solar glare analysis to define the specifics of the mitigation strategy associated with the façade material in order to secure this outcome.

1.140 The potential for cumulative effects which may result from the construction and operation of the development and other upcoming (approved) projects was not considered as part of the assessment. As future developments are unlikely to be located in positions which would influence, obscure or mitigate the instances of solar glare described above.

GEO-ENVIRONMENTAL

1.141 Geo-environmental primarily relates to land contamination and the protection of human health and the environment. Land contamination tends to arise as a result of past activity on a site and in the surrounding area. The history of an area is therefore important in understanding how contaminated a site may be.

1.142 The site and surrounding area have been previously occupied by railway buildings and infrastructure. The area was subject to mixed industrial and housing development during the late 1800s which continued through the 20th century. After this, redevelopment of the area included the construction of High Speed 1 to the north of the site and the site was used most recently as a coach park during the 2012 London Olympic Games.

1.143 Because of the site’s history, the EIA has identified that potential impacts may result during the construction works, through direct contact with contaminated soils on the site, and through the breathing in of contaminated dusts. This could cause adverse effects on human health, specifically to those working on the construction site, but also to the site’s neighbours. Additionally, contamination in the ground could be disturbed during the construction works and move through soils to affect the underground aquifers and the nearby Channelsea River. This could cause pollution of the water resource in the aquifer or the river ecosystem.

1.144 An initial investigation of whether the site is contaminated has been undertaken, and further investigations which will include taking soil and groundwater samples and analysing these will be undertaken before works start on site. It is most likely that the results of the investigation will lead to the preparation of a ‘Remediation Strategy’, which will set out the work that needs to happen on site to clean it up should the site be heavily contaminated. As the EIA has identified some risks associated with contaminated land, specific health and safety measures will be adopted throughout the construction works to protect both workers and neighbours from any adverse health effects associated with contamination and contaminated dusts.

1.145 The design of the development’s foundations and below ground services (e.g. water supply pipes), particularly the materials used, will ensure that the development can withstand any contamination that remains in the ground or groundwater following remediation works, to ensure the long-term integrity of below structures and services. The construction of the development’s foundations and below ground services will be done in such a way so as not to create contamination routes into underlying aquifers.

1.146 To ensure that no visitors to the development interact with potentially contaminated soils, all
landscaped areas (including above ground planters) will use imported soils.

The potential for cumulative effects which may result from the construction and operation of the development and other upcoming (approved) projects was considered as part of the assessment. The assessment identified that, with appropriate construction and environmental management measures in place, cumulative effects to the ground environment are unlikely.

Based on the findings of the assessment, no significant geoenvironmental effects associated with the development during construction and once complete and in use are expected.

**ARCHAEOLOGY**

Features of archaeological interest on the site comprise of palaeoenvironmental remains within alluvial deposits, and the remains of the Stratford Works facility, which is associated with the operation of the Eastern Counties Railway (more recently known as the Great Eastern Railway). These are parts of the historic environment which are considered to be important.

Limited archaeological surveys were undertaken in 2011 and 2012, which were located at the eastern side of the site. These surveys identified the presence of the 19th and 20th century Stratford Works facility. The Stratford Works facility operated from the 1840s to the 1970s and was involved in the construction and maintenance of the railway and railway carriages. Additionally, a geoarchaeological report was produced which used borehole data to map the ancient buried natural gravel topography, and to model the levels of alluvium and made ground.

The assessment identified that potential impacts may result during the construction works, which will remove any remains of the Stratford Works within the site boundary and may also require the removal of the higher levels (i.e. the most recent records) of the palaeoenvironmental remains found beneath the ground.

Monitoring of the geotechnical works through having an archaeologist on site during the works who will, if necessary, excavate any finds, will manage the potential impacts to archaeological features. On this basis, no likely significant effects to archaeology are expected.

While the development is located in close proximity to the Stratford Centre / Morgan House site, which has archaeological heritage features, no significant cumulative effects to archaeology are expected.

**TOWNSCAPE, BUILT HERITAGE AND VISUAL**

The assessment of townscape effects has considered how the development will affect the character of the area. The assessment of the effects on built heritage has considered any impact of the development on designated and non-designated heritage assets (e.g. listed buildings and conservation areas). The visual assessment has considered the makeup and character of views, including both protected views (under the London View Management Framework) and views likely to be experienced by people within the surrounding area.

The townscape character of the area has been defined through its history and a number of factors, including urban grain, building types, size and materials, arrangement of buildings, types of spaces and landscaping, types of streets or roads, trees or planting, the quality and condition of the built environment and the number, range and type of heritage assets. 41 viewpoints were considered to assess the range of ways the development may affect the existing character and quality of the surrounding townscape.

The built heritage surrounding the site includes listed buildings and conservation areas. The Stratford St John’s Conservation Area, the Grade II Theatre Royal and the Grade II listed Church of
St John the Evangelist are all located within 1km of the site. There is one non-designated heritage asset on the site (the disused urinals), which will be removed as part of the development. Built heritage was assessed from 7 different viewpoints.

1.157 The study area for the visual assessment is centred on the site and limited to locations from which the site or the proposed development can be seen. 20 viewpoints were considered to assess the range of ways the development will be seen. For some of the viewpoints, visuals of the development have been created for the daytime view and night time (dusk) view with the sphere in ‘architectural’ mode and in ‘active mode’. Architectural mode is referred to when the scheme is not operational and active mode refers to when it is operational, and images are being displayed across its surface. In addition, the development has considered the potential visual impacts as a result of advertising displayed on the entertainment venues external surface, exterior façade of the podium and upper terraces, tickertape, lift columns and bridge structure surfaces. This has been considered for three of the viewpoints.

1.158 With the exception of the removal of the urinals, the development is not expected to result in any likely significant adverse townscape, built heritage or visual effects. The former urinals will be carefully removed from their existing location, prior to the commencement of the demolition of the wall along the A112 Angel Lane. The urinals will be stored off-site until their reuse is decided. The removal is assessed as being a moderate-minor adverse effect.

1.159 Visually, a number of beneficial effects will result from the development. Some of the effects are beneficially significant. No adverse visual effects have been identified. Beneficial townscape effects are identified to four of the five townscape character areas assessed; the effects are not significant. The fifth townscape character area experiences a neutral effect.

1.160 An assessment of the potential cumulative effects to townscape, built heritage and visual elements was undertaken for the development and upcoming (approved) schemes. Verified images serve to present the cumulative scenario consisting of all the other surrounding development schemes that are anticipated to come forward in the future. While no significant effects for townscape were identified, and cumulative effects to built heritage were not assessed, a number of views were identified as having significant effects (with a combination of both neutral and beneficial effects). The following views were determined to experience significant cumulative effects:

- View 6 Queen Elizabeth Olympic Park: South Lawn (architectural and active modes);
- View 6.1 Queen Elizabeth Olympic Park: South Lawn | Night (architectural and active modes);
- View 11 West Ham Lane – East (architectural and active modes);
- View 11.1 West Ham Lane - East | Night (architectural and active modes);
- View 18 Angel Lane (architectural, active and active with advertising modes);
- View 19 Penny Brookes Street, junction with Montfichet Road (architectural, active and active with advertising modes);
- View 20 Westfield, Montfichet Road entrance (architectural, active and active with advertising modes); and
- View 20.1 Westfield, Montfichet Road entrance | Dusk (active and active with advertising mode).

1.161 Table 8 summarises the significant townscape, built heritage and visual effects of the development.

**Table 8 Summary of the Significant Residual Townscape, Built Heritage and Visual Effects**
<table>
<thead>
<tr>
<th>Element</th>
<th>Receptor</th>
<th>Description of Significant Effect</th>
<th>Scale and Nature of Residual Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed Development</td>
<td>6.1 Queen Elizabeth Olympic Park: South Lawn at Dusk Active</td>
<td>Moderate / Minor Beneficial effect providing a new visual focus point which is exciting and helps orientate visitors to the area.</td>
<td>Moderate / Minor, Beneficial</td>
</tr>
<tr>
<td></td>
<td>View 11 West Ham Lane – East (Day) Active</td>
<td>Moderate Beneficial effect providing a new visual focus point which is exciting and memorable.</td>
<td>Moderate Beneficial</td>
</tr>
<tr>
<td></td>
<td>View 11 West Ham Lane – East (Dusk) Active</td>
<td>Moderate / Minor Beneficial effect providing a new visual focus point which is exciting and memorable.</td>
<td>Moderate Beneficial</td>
</tr>
<tr>
<td></td>
<td>18 Angel Lane Architectural</td>
<td>Moderate / Minor Beneficial effect which improves the streetscape and is a distinctive form.</td>
<td>Moderate / Minor, Beneficial</td>
</tr>
<tr>
<td></td>
<td>18 Angel Lane Active &amp; Active Mode Advertising (Advertising)</td>
<td>Moderate Beneficial effect providing which improves the streetscape and provides a distinctly new visual experience.</td>
<td>Moderate / Minor, Beneficial</td>
</tr>
<tr>
<td></td>
<td>19 Penny Brookes street, Junction with Montfichet Road Architectural</td>
<td>Moderate / Minor Beneficial effect providing a distinctive visual form, providing link to surrounding buildings (the Engie Energy Centre).</td>
<td>Moderate / Minor Beneficial</td>
</tr>
<tr>
<td></td>
<td>19 Penny Brookes Street, junction with Montfichet Street Active &amp; Active Mode Advertising (Advertising)</td>
<td>Moderate / Minor Beneficial effect which provides a distinctly new visual experience.</td>
<td>Moderate / Minor, Beneficial</td>
</tr>
<tr>
<td></td>
<td>20 Westfield, Montfichet Road Entrance Architectural</td>
<td>Moderate / Minor Beneficial effect which transforms the view and transforming the area into a unique destination.</td>
<td>Moderate / Minor Beneficial</td>
</tr>
<tr>
<td></td>
<td>20 Westfield, Montfichet Road entrance Active &amp; &amp; Active Mode Advertising (Advertising)</td>
<td>Moderate / Minor Beneficial effect which transforms the view, transforming the area into a unique destination, and creates a distinctly new visual experience.</td>
<td>Moderate / Minor, Beneficial</td>
</tr>
<tr>
<td></td>
<td>20.1 Westfield, Montfichet Road entrance (Dusk) Active &amp; &amp; Active Mode Advertising (Advertising)</td>
<td>Moderate / Minor Beneficial effect which transforms the view and reinvigorates the skyline, transforming the area into a unique destination.</td>
<td>Moderate / Minor, Beneficial</td>
</tr>
<tr>
<td></td>
<td>6.1 Queen Elizabeth Olympic Park: South Lawn at Dusk Active</td>
<td>Moderate / Minor Beneficial effect providing a new visual focus point which is exciting and helps orientate visitors to the area.</td>
<td>Moderate / Minor, Beneficial</td>
</tr>
<tr>
<td></td>
<td>View 11 West Ham Lane – East (Day) Active</td>
<td>Moderate Beneficial effect providing a new visual focus point which is exciting.</td>
<td>Moderate Beneficial</td>
</tr>
<tr>
<td></td>
<td>View 11 West Ham Lane – East (Night) Active</td>
<td>Moderate / Minor Beneficial effect providing a new visual focus point which is exciting and memorable</td>
<td>Moderate Beneficial</td>
</tr>
<tr>
<td>Built Heritage</td>
<td>Former Urinals (non-designated heritage asset)</td>
<td>Moderate / Minor Adverse effect to the removal of the in-situ urinals.</td>
<td>Moderate / Minor Adverse</td>
</tr>
</tbody>
</table>

**ECOLOGY**

Some existing areas of scrub and vegetation were found along the boundary of the site, which are considered suitable for use by bird species. Ecological surveys have been undertaken, which identified the potential for the protected Black Redstart bird species and one bat species to be found on the site. It was also noted that the existing areas of scrub and vegetation were of low quality and present in small patches. To complete the construction of the development, this vegetation would
To compensate for the removal of the vegetation on the site, the development incorporates landscaping which includes a number of green spaces. These spaces include three key landscaped areas with biodiverse characteristics. These areas include the provision for habitat features for bird and insect species within open space areas. One of these areas, a green roof (that is not accessible to the public), will include features such as fixed rocks, logs and bird-boxes to provide additional habitat for the Black Redstart bird.

An assessment to determine the impact the development will have in terms of the change to biodiversity has identified that the proposed landscaping will increase the amount and variety of plant and animal life present on the site once the development is complete and operational. This considered the increased number of green spaces within the site, and the creation of new areas of habitat that will connect to wider ecological corridors in Stratford.

The illuminated light-emitting diode (LED) display that covers the surface of the entertainment venue will rapidly decrease in brightness over a short distance and therefore will not affect surrounding areas where birds, mammals or insects live or pass through.

No significant effects to ecology are expected as a result of the development during enabling and construction, nor once the development is complete and in use.

**AVIATION**

The development is located within 6km of London City Airport and 32km of London Heathrow Airport, and is located within an aerodrome safeguarding area. The size of the development and the material used to cover the entertainment venue (light-emitting diode panels) have the potential to affect the ability of pilots and aircraft to safely and efficiently take-off and land at London City Airport.

Assessments have been completed to ensure the development will not affect operations at London City Airport. The height of the building, in relation to the distance of the development from the airport, is situated well below specified building height limits. As such, the height of the development does not pose a threat to take-off and landing from London City Airport or London Heathrow Airport.

The potential for glare from the reflection of the light-emitting diode panels covering the outside of the entertainment venue, and the light produced from the light-emitting diode panels during the night time, have also been considered in terms of potential impacts to the visibility or distraction of pilots. The levels of glare created by the light-emitting diode panels are not expected to cause a significant impact to operations at London City Airport or Heathrow Airport.

The external lighting of the development, through the use of the light-emitting diode panels, will be used to display both still and moving images. The lighting is not intense and is intended for viewing by the public. The lighting of the development is not expected to impact on London City Airport or London Heathrow Airport operations.

**TV, RADIO AND MOBILE TELEPHONE RECEPTION**

An assessment of potential TV, radio and mobile telephone reception effects from the development was undertaken during the scoping assessment. The assessment considered residential properties where television is watched and / or radio is listened to but did not consider places where these services were provided as part of a commercial premise (such as hotels, offices, shops etc).

The assessment identified that no likely significant effects to radio reception, Cable TV or mobile phone reception would result from the development. Some potential loss / degradation to Digital Terrestrial TV reception may occur for residential dwellings, and there is limited potential for loss / degradation to Satellite TV resulting from the development. To manage the potential effects, planning obligations will be entered into with the London Legacy Development Corporation, which
include measures that will be undertaken to mitigate potential effects including the completion of initial surveys, further surveys (where complaints have been received) and the implementation of mitigation measures where deemed appropriate.

1.173 When considering the availability of mitigation measures relating to Digital Terrestrial TV and satellite reception, no likely significant effects to electronic interference are expected.

**CLIMATE CHANGE**

**The Impact of Climate Change on the Development**

1.174 Climate change has the potential to alter the current environment. To consider how the environmental and socio-economic effects of the development might change under a different climate in the future, a future climate scenario has been developed using projections published by the Met Office. The projections consider the local climate effects arising from a series of different greenhouse gas emission scenarios (and the associated impacts to the climate).

1.175 As a result of climate change, several different environmental factors are likely to vary in the future. These include increase in average air temperatures, increase in yearly rainfall and sea level rise. Additionally, cloud cover could slightly decrease.

1.176 Each technical topic assessment has reviewed the possible implications of a different climate in the future against the results and conclusions of impact assessment of the development. With the exception of daylight and sunlight and socio-economics and health, the likely effects identified for the technical topics are not expected to change as a result of climate change.

1.177 Climate change could affect the daylight and sunlight assessment, in that the increasing level of cloud cover could affect the standard overcast sky conditions used in the daylight and sunlight assessments. While this may occur, it is not expected to significantly change the results and conclusions of the assessment in terms of size and significance of the effects.

1.178 The socio-economics and health assessment identified that, locally, there is an increased risk of health conditions from for example overheating. The Accident and Emergency provision in the surrounding area is considered to be vulnerable to climate change in light of such increased health conditions. However, as the development is still regarded as having a significant effect at the local level in this regard no mitigation measures are considered necessary.

**Greenhouse Gas Emissions**

1.179 Greenhouse gases are gases in the atmosphere which have the potential to increase air temperatures. All greenhouse gas emissions are described as significant in accordance with the relevant guidance for the assessment of greenhouse gases as part of the Environmental Impact Assessment process.

1.180 A greenhouse gas emissions assessment has been undertaken to assess the potential greenhouse gas emissions from the construction and operation of the development. The method to determine whether an effect is significant, is whether greenhouse gas emissions will still be generated after mitigation measures have been incorporated. The design has incorporated a number of measures to minimise the creation of greenhouse gases, including the following: the type of materials included within the design, construction site management (including site waste management), the building management system, low carbon technologies, and the provision of bicycle storage facilities.

1.181 The greenhouse gas emissions assessment identified that the development will still generate greenhouse gas emissions after considering these mitigation measures and so, in accordance with standard methodology is defined as having a significant effect.

1.182 Table 9 summarises the significant greenhouse gas emissions effect of the development.
Table 9 Summary of the Significant Residual Greenhouse Gas Emissions Effects

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Description of Significant Effect</th>
<th>Scale and Nature of Residual Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed Development</td>
<td>Greenhouse gas emissions as a result of 'In-Use' emissions associated with energy consumption and water demand.</td>
<td>Significant* Adverse *Scale not defined by the assessment methodology</td>
</tr>
</tbody>
</table>

*Scale not defined by the assessment methodology.
SUMMARY OF THE LIKELY SIGNIFICANT EFFECTS

The likely significant residual effects associated with the development have been summarised in Table 10 below. Note that this table only includes the effects which have been identified as significant within each of the technical assessments and does not include the effects considered not to be significant.

Table 10 Summary of Likely Significant Residual Effects

<table>
<thead>
<tr>
<th>Topic</th>
<th>Receptor</th>
<th>Description of Significant Effect</th>
<th>Scale and Nature of Residual Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enabling and Construction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highways, Transport and Movement</td>
<td>Highway Links – Pedestrians and Cyclists</td>
<td>Impact on severance and amenity to infrastructure used by pedestrians and cyclists, resulting from increased HGV traffic</td>
<td>Moderate Adverse</td>
</tr>
<tr>
<td>Noise and Vibration</td>
<td>Chobham Farm, Unite Students Accommodation, Moxy Hotel, Stratford Central (Telford Tower), Railway Tavern and Residential properties along Oxford Road</td>
<td>Noise from on-site enabling and construction activities – ENABLING WORKS</td>
<td>Negligible to Major Adverse</td>
</tr>
<tr>
<td></td>
<td>Angel Lane Tower, Manhattan Loft Gardens and Residential properties along Windmill Lane.</td>
<td>Noise from on-site enabling and construction activities – ENABLING WORKS</td>
<td>Negligible to Moderate Adverse</td>
</tr>
<tr>
<td></td>
<td>Chobham Farm, Unite Student Accommodation, Moxy Hotel, Stratford Central (Telford Tower)</td>
<td>Noise from on-site enabling and construction activities – CONSTRUCTION WORKS</td>
<td>Minor Adverse to Major Adverse</td>
</tr>
<tr>
<td></td>
<td>Angel Lane Tower, Railway Tavern and Residential properties along Oxford Road.</td>
<td>Noise from on-site enabling and construction activities – CONSTRUCTION WORKS</td>
<td>Negligible to Moderate Adverse</td>
</tr>
<tr>
<td><strong>Climate Change (Contribution of GHG to the environment)</strong></td>
<td>Global Climate</td>
<td>GHG emissions as a result of enabling and construction activities (on-site energy consumption and waste material transportation)</td>
<td>Significant Adverse</td>
</tr>
<tr>
<td><strong>Completed Development</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socio-Economics and Health</td>
<td>Local Jobs once Operational</td>
<td>A moderate beneficial effect at the local level as a result of the employment positions supported by the development which will be filled by residents who reside within the local area.</td>
<td>Moderate Beneficial</td>
</tr>
<tr>
<td>Provision of Venue Floorspace</td>
<td>A major beneficial effect at the national and regional level as a result of the provision of venue floorspace. This will allow the site to act as a world class venue for both the region and the country.</td>
<td>Major Beneficial</td>
<td></td>
</tr>
<tr>
<td>Effect of Job Opportunities on Income</td>
<td>A moderate beneficial effect at the local level as a result of the employment positions associated with the development being able to provide an increase in income levels.</td>
<td>Moderate Beneficial</td>
<td></td>
</tr>
<tr>
<td>Deprivation/Regeneration</td>
<td>A major beneficial effect at the local level as a result of the proposed development facilitating urban regeneration with associated beneficial outcomes relating to deprivation, such as income and employment.</td>
<td>Major Beneficial</td>
<td></td>
</tr>
<tr>
<td>Topic</td>
<td>Receptor</td>
<td>Description of Significant Effect</td>
<td>Scale and Nature of Residual Effect</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Crime, Community Safety and Social Cohesion</td>
<td>A moderate beneficial effect at a local level as a result of the proposed development reducing crime within the local area.</td>
<td>Moderate Beneficial</td>
<td></td>
</tr>
<tr>
<td>Access to work and training</td>
<td>A major beneficial effect at the local level as a result of the proposed development providing improvements in training and employment opportunities.</td>
<td>Major Beneficial</td>
<td></td>
</tr>
<tr>
<td>Residential properties along Windmill Lane</td>
<td>A moderate adverse effect to residential properties along Windmill Lane as a result of crowd dispersion at night time from a human health perspective.</td>
<td>Moderate Adverse</td>
<td></td>
</tr>
<tr>
<td>Stratford Central and Angel Lane Tower</td>
<td>A moderate adverse (worst case) / minor adverse (reasonable worst-case) effect as a result of people traversing between uses (music club queue, bar/restaurant and retail uses) on the podium and plaza at night time from a human health perspective.</td>
<td>Minor Adverse to Moderate Adverse</td>
<td></td>
</tr>
<tr>
<td>Highways, Transport and Movement</td>
<td>Highway Links – Pedestrians and Cyclists</td>
<td>Improved conditions for pedestrian and cyclists, reducing severance and improving amenity on Montfichet Road</td>
<td>Major Beneficial</td>
</tr>
<tr>
<td></td>
<td>Highway Links – Pedestrians and Cyclists</td>
<td>Improved conditions for pedestrian and cyclists, reducing severance and improving amenity on the A112 Angel Lane.</td>
<td>Major Beneficial</td>
</tr>
<tr>
<td></td>
<td>Highway Links – Pedestrians and Cyclists</td>
<td>Additional crossing points and wider footways on Montfichet Road reducing severance and improving amenity.</td>
<td>Major Beneficial</td>
</tr>
<tr>
<td>Noise and Vibration</td>
<td>Residential properties along Windmill Lane</td>
<td>A moderate adverse effect to residential properties along Windmill Lane as a result of crowd dispersion at night time from a maximum capacity event.</td>
<td>Moderate Adverse</td>
</tr>
<tr>
<td></td>
<td>Stratford Central and Angel Lane Tower</td>
<td>A moderate adverse (worst case)/minor adverse (reasonable worst case) effect as a result of people traversing between the uses (music club queue, bar/restaurant and retail uses) on the podium and plaza at night time.</td>
<td>Minor Adverse to Moderate Adverse</td>
</tr>
<tr>
<td>Views</td>
<td>6.1 Queen Elizabeth Olympic Park: South Lawn at Dusk Active</td>
<td>A new visual focus point providing a level of contrast to the surrounding context which improves wayfinding in the area.</td>
<td>Moderate / Minor, Beneficial</td>
</tr>
<tr>
<td></td>
<td>View 11 West Ham Lane – East (Day) Architectural</td>
<td>A new backdrop to the listed obelisk enhancing its presence and providing a focus point.</td>
<td>Moderate Neutral</td>
</tr>
<tr>
<td></td>
<td>View 11 West Ham Lane – East (Day) Active</td>
<td>A new backdrop to the listed obelisk presenting a ‘halo’ effect, transforming the setting of the obelisk from something normative to something special.</td>
<td>Moderate Beneficial</td>
</tr>
<tr>
<td></td>
<td>View 11 West Ham Lane – East (Night) Active</td>
<td>A new backdrop to the listed obelisk presenting a ‘halo’ effect which will draw attention to the structure creating a strong backlit silhouette and a new providing focus to those experiencing the view.</td>
<td>Moderate Beneficial</td>
</tr>
<tr>
<td></td>
<td>18 Angel Lane Architectural</td>
<td>Complete transformation of the view changing a previously inaccessible, rail-locked piece of land into a destination in its own right improving the streetscape and providing a distinctive form.</td>
<td>Moderate / Minor, Beneficial</td>
</tr>
<tr>
<td></td>
<td>18 Angel Lane Active &amp; Active Mode (Advertising)</td>
<td>Complete transformation of the view changing a previously inaccessible, rail-locked piece of land into a destination in its own right improving the streetscape and providing a distinctive form.</td>
<td>Moderate / Minor, Beneficial</td>
</tr>
<tr>
<td>Topic</td>
<td>Receptor</td>
<td>Description of Significant Effect</td>
<td>Scale and Nature of Residual Effect</td>
</tr>
<tr>
<td>-------</td>
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<td>----------------------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>19 Penny Brookes street, Junction with Montfichet Road Architectural</td>
<td>Transformation of the existing view unifying Montfichet Road to make it read as a continuous street, rather than a grouping of sites. In architectural mode a distinctly new, strong and intriguing, visual experience is provided.</td>
<td>Moderate / Minor Beneficial</td>
<td></td>
</tr>
<tr>
<td>19 Penny Brookes Street, junction with Montfichet Street Active &amp; Active Mode (Advertising)</td>
<td>Transformation of the existing view unifying Montfichet Road to make it read as a continuous street, rather than a grouping of sites. In active mode, the surface treatment of the Proposed Development, which will vary depending on the programme, will offer a distinctly new, strong and intriguing, visual experience.</td>
<td>Moderate / Minor, Beneficial</td>
<td></td>
</tr>
<tr>
<td>20 Westfield, Montfichet Road Entrance Architectural</td>
<td>Transformation of the existing view unifying Montfichet Road to make it read as a continuous street, rather than a grouping of sites. In active mode, the surface treatment of the Proposed Development, which will vary depending on the programme, will offer a distinctly new, strong and intriguing, visual experience.</td>
<td>Moderate / Minor Beneficial</td>
<td></td>
</tr>
<tr>
<td>20 Westfield, Montfichet Road entrance Active &amp; Active Mode (Advertising)</td>
<td>Transformation of the existing view unifying Montfichet Road to make it read as a continuous street, rather than a grouping of sites. In active mode, the surface treatment of the Proposed Development, which will vary depending on the programme, will offer a distinctly new, strong and intriguing, visual experience.</td>
<td>Moderate / Minor, Beneficial</td>
<td></td>
</tr>
<tr>
<td>20.1 Westfield, Montfichet Road entrance (dusk) Active &amp; Active Mode (Advertising)</td>
<td>Transformation of the existing view, reinvigorate the skyline and producing a range of experiences transforming the area into a unique destination.</td>
<td>Moderate / Minor, Beneficial</td>
<td></td>
</tr>
<tr>
<td>Built Heritage Former Urinals (non-designated heritage asset)</td>
<td>Removal of the in-situ urinals causes harm to the non-designated heritage asset</td>
<td>Moderate / Minor Adverse</td>
<td></td>
</tr>
<tr>
<td>Climate Change Global Climate</td>
<td>Greenhouse gas emissions as a result of ‘In-Use’ emissions associated with energy consumption and water demand.</td>
<td>Significant Adverse</td>
<td></td>
</tr>
</tbody>
</table>
In-Combination Effects / Effect Interactions

1.184 In-combination effects / effect interactions are the result of interactions of effects on an individual receptor (e.g. when both noise and dust affect a particular residential property).

1.185 The assessment identified the following:

- That there is the potential for significant adverse in-combination effects or effect interactions between noise and vibration during the enabling works at Chobham Farm, Unite Students Accommodation, Moxy Hotel, Stratford Central, Railway Tavern, Angel Lane Tower, Manhattan Loft Gardens and residential properties along Oxford Road and Windmill Lane.

- That there is the potential for significant adverse in-combination effects or effect interactions between noise and vibration during the construction works at Chobham Farm, Unite Students Accommodation, Moxy Hotel, Stratford Central, Angel Lane Tower, Railway Tavern and within properties along Oxford Road.

- That there is no potential for significant adverse in-combination effects or effect interactions on residential amenity when the development is completed and in operation. The assessment has identified no significant adverse effect interactions to nearby residential properties and their occupiers. This is because, although there is a significant adverse effect associated with crowd noise along Windmill Lane, Stratford Central and Angel Lane Tower, all other residential amenity related effects to residences in this location are negligible and not significant. At all other residential / quasi residential locations, the effect interaction on residential amenity is not significant on the basis that the individual residual effects are not significant.

- That there is the potential for significant beneficial in-combination effects or effect interactions on residential amenity when the development is completed and in operation. Significant beneficial in-combination effects have been identified in respect of:
  - ‘Provision of and Access to Open Amenity Space and Nature Areas’ and ‘Crime, Community Safety and Social Cohesion’ and ‘Deprivation and Regeneration’; and
  - ‘Views and Local Townscape Character’ and ‘Deprivation and Regeneration’.

- The significant in-combination effects or effect interactions are not receptor specific, they apply to all surrounding residential amenity receptors.

- In relation to other non-residential amenity related effect interactions, the assessment has identified significant beneficial effect interactions relating to the creation of job opportunities and access to work and training and the local economy. In addition, the creation of the new open spaces and bridge connections to the wider area will interact to reduce severance and delay associated with cycling as a mode of transport across the area and accessibility. Regeneration and improvements to local views and townscape character will significantly enhance pedestrian and cyclist amenity.

1.186 Whilst significant adverse effect interactions have been identified throughout the enabling and construction works, it is not uncommon for construction works to be undertaken close to residential uses and the potential for temporary or short-term adverse effects on local residences and residential amenity is expected. This is an inevitable consequence of living within a dense urban environment, particularly within an area undergoing rapid regeneration in accordance with a local development plan. The planning process provides a mechanism through the stipulation of ‘planning conditions’ and agreements of ‘planning obligations’ to control the potential for adverse residential amenity or ‘nuisance’ effects during construction works. As a result, impacts and resultant nuisance effects, including to residential amenity, will be managed as far as is reasonably practicable through legally binding planning conditions and obligations.

1.187 The EIA has identified significant beneficial effect interactions relating to residential amenity and in
respect of other non-residential amenity considerations, specifically urban regeneration and placemaking and local economic effects. Importantly, the EIA has not identified the potential for any significant adverse effect interactions on residential amenity; this is due to considered environmental design and appropriate operational management procedures.

SUMMARY AND CONCLUSION

The redevelopment of the existing disused site is anticipated to provide a world class entertainment venue that improves connectivity, signage, public realm, station improvements to Stratford Station and an improved environment for pedestrians and cyclists. The proposed development accords with the London Legacy Development Corporation Local Plan, and any impacts arising from the existence and/or operation of the proposed development will be mitigated by conditions and planning obligations as necessary. The following beneficial and adverse effects have been identified by the EIA process.

1.188 The operation of the proposed development is anticipated to result in an increase in pedestrian and transport activity within the surrounding area, and place additional demands on public transport that could potentially give rise to adverse effects which are considered significant. A reasonable worst case has been considered, in terms of highways, transport and movement, on the peak transport network periods for a typical full capacity event day i.e. not on the rare occasions when there are other large attendance events taking place in the area. However, these scenarios will be unlikely to occur in practice with the appropriate mitigation measures in place such as managing event timings and / or limiting the event capacity at times where there is insufficient public transport during peak periods.

1.189 The operation of the proposed development is also anticipated to result in an increase in noise generated from crowds leaving the entertainment venue as well as traversing to and from the uses proposed on the podium and plaza at night that could give rise to adverse effects which are considered significant. A reasonable worse case has been considered and it is unlikely that these effects will occur in practice with appropriate mitigation measures in place such as crowd control management measures during night time events.

1.190 Potential adverse effects relating to light emissions to nearby residential and quasi residential uses from the external surface of the entertainment venue will be kept within appropriate levels by dimming the relevant parts of the entertainment venue outside daylight hours. Lighting levels, and operating hours will be controlled by through planning conditions.

1.192 Once completed and operational the proposed development would likely result in the following significant beneficial effects:

- Generation and support of a number and wide range of employment opportunities in Stratford and across the UK, including new workplace skills training. It is estimated that direct jobs supported by the Proposed Development will be approximately 1,000 Full Time Employees, of which approximately 20% are considered ‘highly skilled’ positions;

- National and regional level provision of entertainment venue floorspace contributing towards Stratford’s evolution into an International Centre classification as identified in the London Plan. Further enhancing London as a world class visitor destination, and demonstrating confidence in the UK and London economy, and Stratford itself, as the chosen location for this major investment;

- Regeneration of a currently undeveloped, unattractive, land-locked site, within a well serviced Metropolitan Centre bringing improvements and regeneration to several domains of deprivation, such as income and employment;

- Improving accessibility and amenity across the site and the surrounding area through significant improvements to pedestrian links and cycleways along the A112 Angel Lane and Montfichet
Road. Across the site four new public connections are provided to improve connectivity between the eastern and western parts of Stratford;

- High quality inclusively designed, publicly accessible open space, and off-site contributions towards the re-modeling of Montfichet Road will contribute to significant improvements of the existing public realm across the site and within the surrounding area;
- Significant enhancements to the local townscape as a result of the high quality architectural and urban design as well as enhanced permeability and connectivity with the creation of well defined, active street frontages.

Overall, the regeneration of the site would likely result in some significant adverse effects in respect to transport, highways and movement and noise and vibration. However, these are associated with the wider regeneration and growth in Stratford and must be considered in the context of recent and further planned developments in the area. The proposed development supports Stratford’s Metropolitan Centre designation and towards its evolution into an International Centre classification, as identified in the London Plan. The proposed development results in a number of beneficial effects as a direct result of the regeneration of the site and its operation as a world class entertainment venue.

To purchase the complete Environmental Statement, please contact Trium Environmental Consulting LLP, at hello@triumenv.co.uk or Tel: +44 (0) 203 887 7118.