

THE GOODSYARD

Environmental Statement Addendum Volume 2

September 2019 – Chapter 19 of 21

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CHAPTER 19: EFFECT INTERACTIONS

19.1 INTRODUCTION

- 19.1.1This ES Addendum chapter reviews the likely cumulative effects identified as a result of the Revised Scheme and provides an assessment as required by the EIA Regulations.
- 19.1.2There are two types of cumulative effects: Type 1, intra-project effects which are the combined effects of individual topic impacts on a particular sensitive receptor, and Type 2, inter-project effects which are the combined effects of several development schemes (in conjunction with the Revised Scheme) which may, on an individual basis be insignificant but, cumulatively, have a significant effect.
- 19.1.3Section 19.3 concentrates on the intra-project (Type 1) effects on a particular sensitive receptor.
- 19.1.4Type 2 Cumulative Effects; Inter-project effects have been considered for committed developments located within 1 km radius from the boundary of the site, the full list is provided in **ES Addendum, Volume 2, Chapter 3: EIA Methodology Table 3.8**.
- 19.1.5The assessment of inter project cumulative effects (Type 2) has been presented within each of the technical chapters of this ES Addendum and have also been summarised in Section 19.4 within this chapter.

19.2 KEY LEGISLATION, POLICY AND GUIDANCE CONSIDERATIONS

- 19.2.1European Commission (EC) Directive 2011/92/EU requires assessment of; *“the direct effects and any indirect, secondary, cumulative, short, medium and long term, permanent or temporary, positive and negative effects of the project”*.
- 19.2.2The Town and Country Planning (Environmental Impact Assessment) (England) Regulations 2011 states the following:

Schedule 3(1): “the characteristics of development must be considered having regard, in particular to

... b) the cumulation with other development”;

Schedule 3(2): “The environmental sensitivity of geographical areas likely to be affected by development must be considered having regard, in particular, to ...a) the existing land use”; and

Schedule 4(4): “A description of the likely significant effects of the development on the environment which should cover... cumulative effects”.
- 19.2.3The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 states the following:

Schedule 4 (5)(e): “the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources”.
- 19.2.4This assessment has been completed to take into account the requirement of both the EIA Regulations and the 2017 EIA Regulations.

19.3 INTRA-PROJECT EFFECTS

- 19.3.1There is potential during both construction and operation of the Revised Scheme for a combination of environmental effects to arise at the same time, affecting the same receptor or location.
- 19.3.2There is no established EIA methodology for assessing effect interactions on a particular receptor, although the European Commission¹ (EC) has produced guidelines to assist EIA practitioners in developing an approach which is appropriate to a project. This approach has been modified and applied to determine the potential for effect interactions.
- 19.3.3**Table 19.1** and **Table 19.2** identify the potential residual effects on relevant groups of sensitive receptors, as a result of the Revised Scheme, as previously identified through the individual topic assessments. These tables define these effects across

both construction and operation and then further identifies the anticipated effect interactions during each of these phases. Residual effects that are beneficial or adverse in nature and that are minor, moderate or major in scale have been considered.

- 19.3.4Further details on the assumptions made around the delivery and construction phasing of the Revised Scheme are provided within **ES Addendum Volume 2, Chapter 5: The Revised Scheme and Construction Overview**.

Table 19.1. Summary of Intra-Project Effects during Construction

Receptor	Residual Effect	Potential for Intra-Project Effects
Residential	Impact of noise on existing residents within 25m of site perimeter and new residents within 25m of nearest construction area (Minor Adverse) Construction impact on daylight availability. (Minor Adverse to 28 properties, Moderate Adverse to 11 properties, Major Adverse to 9 properties) Construction impact on sunlight availability. (Minor Adverse to 13 Properties, Moderate Adverse to 4 properties and Major Adverse to 9 properties) Light pollution impacts on 1 receptor internal to the site (Moderate Adverse) Construction casting shadow on amenity areas. (Negligible to Major Adverse) Impact of construction traffic-related delay on pedestrians, cyclists and public transport users (Minor Adverse) Impact of construction traffic related fear and intimidation on cyclists (Minor Adverse)	Potential for interactive nuisance effect for properties affected by noise, daylight and sunlight, and construction traffic effects.
Commercial	Noise and Vibration – Impact of noise on receptors within 15 m of the site perimeter (Minor Adverse)	No potential for intra-project effects.
Community	Population with respect to employment and skills (Minor Beneficial) Local economy, town and other centres (Minor Beneficial) Impact of construction traffic-related delay on pedestrians, cyclists and public transport users (Minor Adverse) Impact of construction traffic related fear and intimidation on cyclists (Minor Adverse)	No potential for intra-project effects.
Global Climate	Embedded carbon in building materials (Minor Adverse) Carbon emissions from construction traffic (Minor Adverse) Carbon emissions from construction plant (Minor Adverse)	No potential for intra-project effects on climate change mitigation. The interaction with ES topics and global climate change adaptation is addressed in the Climate Change chapter.
Geological	Impact on Taplow Gravel secondary aquifer (Minor Adverse)	No potential for intra-project effects.
Ecological	Impact of temporary loss of habitat on terrestrial invertebrates (Minor – Moderate Adverse)	No potential for intra-project effects.

¹ European Community (1999); Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions.

Receptor	Residual Effect	Potential for Intra-Project Effects
Archaeological assets	None	N/A
Heritage Assets	Impact on setting of South Shoreditch, Boundary Estate, Elder Street conservation areas (Minor Adverse) Impact on structure of Braithwaite Viaduct, the Forecourt Wall, Oriel and Gates to the Good Station (Minor Adverse) Impact on setting of some nearby listed buildings (Minor Adverse)	No potential for intra-project effects.
Townscape and views	Impact on the character of the local townscape and pedestrian amenity immediately around the site as a result of cranes and hoarding (Moderate adverse)	No potential for intra-project effects.
Utilities	None	N/A
Transport infrastructure	Impact of construction traffic-related delay on public transport users (Minor Adverse)	No potential for intra-project effects.

Potential for Intra Project Effects during Construction

Identify any intra-project effects

- 19.3.5

During construction, individual impacts that have the potential to interact during this period are largely related to noise, daylight and sunlight availability, and pedestrian/cycle/public transport user delay as a result of demolition and construction activities. When these impacts are combined they have the potential to create a combined nuisance effect on neighbouring residential receptors.
- 19.3.6

As works progress across the site, the magnitude of the residual impact will vary. Noise and vibration effects will be temporary and transient in nature, with the greatest number of receptors affected during the foundations and substructure stages of each phase of construction. Impacts on daylight and sunlight availability will increase as construction progresses. Therefore, nuisance as a result of the interaction of daylight and sunlight loss and noise will be greatest in foundation and substructure stages of later phases. The interactive effect is not expected to be more significant than the most significant individual effect acting on each property.

Table 19.2. Summary of Intra-Project Effects for the Operational Phase

Receptor	Residual Effect	Potential for Intra-Project Effects
Residential	<p>Water Resources – Surface water flood risk to neighbouring properties (Minor Beneficial)</p> <p>Ground Conditions – Impact of soils and groundwater contamination (removal) on human health (Minor to Major Beneficial)</p> <p>Impact on daylight availability. (Minor Adverse to 28 properties, Moderate Adverse to 11 properties, Major Adverse to 9 properties)</p> <p>Impact on sunlight availability. (Minor Adverse to 13 Properties, Moderate Adverse to 4 properties and Major Adverse to 9 properties)</p> <p>Light pollution impacts on 1 receptor internal to the site (Moderate Adverse)</p> <p>Casting shadow on amenity areas. (Negligible to Major Adverse)</p> <p>Pedestrian amenity (Minor Adverse where increase in footfall is not offset by public realm improvements, Minor Beneficial at other locations)</p>	Interactive effects range from adverse to beneficial depending on extent to which receptors are affected by daylight, sunlight and pedestrian amenity effects.

Receptor	Residual Effect	Potential for Intra-Project Effects
	<p>Amenity to cyclists (Minor Beneficial)</p> <p>Delay and amenity to public transport users (Minor Adverse)</p>	
Commercial	<p>Socio-economics - Spending of additional population within LBTH and LBH (Minor Beneficial)</p> <p>Socio-economics - Increase in labour supply and skills (Minor Beneficial)</p> <p>Pedestrian amenity (Minor Adverse where increase in footfall is not offset by public realm improvements, Minor Beneficial at other locations)</p> <p>Amenity to cyclists (Minor Beneficial)</p>	Minor Beneficial interactive effects with regards to the interaction between local spending and improvement pedestrian and cyclist amenity.
Community	<p>Socio-economics - Population with respect to housing supply (Moderate - Minor Beneficial)</p> <p>Socio-economics – Population with respect to employment and skills (Moderate-Minor Beneficial)</p> <p>Socio-economics - Population with respect to education (Minor Adverse)</p> <p>Socio-economics - Impact of additional population on the supply of childcare (Minor Adverse)</p> <p>Socio-economics - Impact of additional population on the availability of health services (Minor Beneficial)</p> <p>Socio-economics - Impact of additional population on the availability of facilities (Minor Beneficial)</p> <p>Socio-economics - Impact of additional population on the availability of open space (Minor Beneficial)</p> <p>Pedestrian amenity (Minor Adverse where increase in footfall is not offset by public realm improvements, Minor Beneficial at other locations)</p> <p>Amenity to cyclists (Minor Beneficial)</p> <p>Delay and amenity to public transport users (Minor Adverse)</p>	Minor Beneficial interactive effects with regards to the interaction between housing supply increased pedestrian and cyclist amenity.
Ecological	<p>Water Resources – Impact on water quality, ecology and fisheries (Minor Beneficial)</p> <p>Open Mosaic Habitats on Previously Developed Land, Bats, Black Redstart, Other breeding birds, Terrestrial Invertebrates (Minor Beneficial)</p>	No potential for intra-project effects.
Geological	<p>Ground Conditions – Impact of soils and groundwater contamination (removal) on controlled waters (Minor to Major Beneficial)</p> <p>Water Resources – Impact on water quality, ecology and fisheries (Minor Beneficial)</p>	Minor Beneficial interactive effects with regards to the interaction between reduction groundwater contamination and positive effects on water quality.
Archaeological assets	None	N/A
Heritage assets	Setting of Boundary Estate and Elder Street Conservation Areas (Minor Adverse)	Potential for interaction of effect between the setting

Receptor	Residual Effect	Potential for Intra-Project Effects
	Setting of South Shoreditch and Brick Lane and Fournier Street Conservation Areas (Minor Beneficial) Structure and fabric of on-site listed buildings – Braithwaite Viaduct, Forecourt Wall, Oriel and Gates to the Goods Station (Moderate Beneficial) Setting of listed buildings: Bethnal Green Road, Boundary Estate, Elder Street and Folgate Street, (Minor Adverse) Setting of listed buildings: Commercial Street Centre, Commercial Street North and Quaker Street, Great Eastern Street and Shoreditch High Street (Minor Beneficial)	of the conservation area and the effect on local views.
Townscape and views	Effect on townscape areas (ranging from Minor to Moderate and Neutral to Beneficial) Effect on setting of conservation areas (Moderate Major, ranging from Neutral to Beneficial) Effect on setting of most nearby listed buildings (ranging from Minor to Major and Neutral to Beneficial) Effect on setting of listed buildings in Elder Street and Fleur De Lis Street (Moderate Adverse) Effect on LVMF, middle distance and most local views (ranging from Minor to Moderate and Neutral to Beneficial) Effect on local view from Folgate Street on axis of Elder Street (Major Adverse) Setting of Boundary Estate and Elder Street Conservation Areas (Minor Adverse)	Potential for interaction of effect between the setting of the conservation area and the effect on local views.
Utilities	None	N/A
Transport infrastructure	Delay and amenity to public transport users (Minor Adverse)	No potential for intra-project effects.

Potential for Intra Project Effects during Operation

Identify any intra-project effects

- 19.3.7The interactive effect on local residents during the operational phase is likely to range from adverse to beneficial. It is not expected to be any more significant than the most significant effect interacting on each property. In general, local residents will benefit from the increase in housing supply and the improved pedestrian and cycle amenity, which interact to make a better environment for residents.
- 19.3.8Adverse interactive effects on local residents during the operational phase are likely to be limited to those residents affected by reductions in daylight and sunlight availability who are also affected by pedestrian amenity reduction such as that anticipated at the western end of Bethnal Green Road and at road crossings with Shoreditch High Street.
- 19.3.9For the wider local community, minor beneficial interactive effects are expected. The Proposed Development will generally improve the local pedestrian and cycling, increasing the likelihood of shoppers stopping and spending money, which may interact with the increased spending by the additional residents to the benefit of the local economy.
- 19.3.10There is a potential for an adverse interactive effect between the setting of the Elder Street Conservation Area and listed buildings in Elder Street and Fleur De Lis Street, and the local view from Folgate Street on the axis of Elder Street. Buildings 2 and 3 of the Proposed Development will be visible at the end of the view down Folgate Street and clearly of a different character from the 18th century residential buildings in this area.

- 19.3.11There is a potential for a beneficial interactive effect on the River Thames due to the decreased risk of pollution from the removal of contaminated soil on site, and the reduced risk of sewer overflows thanks to the increased water attenuation on site.

19.4 INTER-PROJECT (CUMULATIVE) EFFECTS

- 19.4.1Cumulative effects resulting from the in-combination impacts from other projects alongside the Revised Scheme have been considered by each discipline in their respective chapters (Chapter 6 to 18). The effects are summarised in **Table 19.3**. The list of development schemes assessed is included in **ES Addendum Volume 2, Chapter 3: EIA Methodology Table 3.8**.

Table 19.3. Cumulative Effects across Neighbouring Development Schemes

Topic	Cumulative effect	Name and reference number of relevant schemes	Significance of residual effect	Significance of cumulative effect
Waste	Impact of the composition and volume of construction and operational waste on the capacity of the local waste management infrastructure	All permitted, applied for and reasonably foreseen schemes	Negligible	Negligible to Minor Adverse
Socio-Economics	Impact on population of increase in housing supply, including affordable housing	All permitted, applied for and reasonably foreseen schemes	Moderate-Minor Beneficial	Moderate-Minor Beneficial
	Impact on change in employment		Moderate-Minor Beneficial	Major -Moderate Beneficial
	Spending of additional population		Minor-Beneficial	Moderate-Minor Beneficial
Ground Conditions	None	N/A	N/A	N/A
Traffic and Transport	None	N/A	N/A	N/A
Wind	None	N/A	N/A	N/A
DSO	Construction of Revised Scheme impacted Daylight and Sunlight Availability.	All permitted, applied for and reasonably foreseen schemes	<u>Daylight</u> - Moderate Adverse to 12 properties and Major Adverse to 12 properties. <u>Sunlight</u> Moderate Adverse to 4 properties and Major Adverse to 9 properties.	<u>Daylight</u> - Moderate Adverse to 21 properties and Major Adverse to 16 properties. <u>Sunlight</u> - Moderate Adverse to 6 properties and Major Adverse to 9 properties
Air Quality	None	N/A	N/A	N/A
Noise and Vibration	Construction noise impacts on new residential and non-residential receptors on Revised Scheme site	All permitted, applied for and reasonably foreseen schemes	Minor Adverse from Revised Scheme construction noise.	Minor Adverse from Revised Scheme and Cumulative Schemes' construction noise.

Topic	Cumulative effect	Name and reference number of relevant schemes	Significance of residual effect	Significance of cumulative effect
Water resources	None	N/A	N/A	N/A
Archaeology	None	N/A	N/A	N/A
Built Heritage	Effects on the setting of nearby heritage assets	<p>LBTH</p> <p>Aldgate Place (LPA Ref. PA/13/00218)</p> <p>Site At 3-11 Goulston Street And 4-6 And 16-22 Middlesex Street (LPA Ref: PA/18/01544)</p> <p>Site at 2-6 Commercial Street, 98 and 101-105 Whitechapel High Street, carpark to the rear of 95-97 Whitechapel High Street (known as Spreadeagle Yard) and Canon Barnett Primary School (LPA Ref: PA/18/02615/A1)</p> <p>LBH</p> <p>Principal Tower (Principal Place / Bishops Place) (LPA Ref: 2016/2044)</p> <p>The Stage (Plough Yard) (LPA Ref: 2015/3453)</p> <p>5-29 Sun Street 8-16 Earl Street & 54 Wilson Street (LPA Ref: 2015/0877)</p> <p>201-207 Shoreditch High Street (LPA Ref: 2015/2403)</p> <p>13-14 Appold Street (LPA Ref: 2015/1685)</p>	<p>Residual effects range from Minor Adverse to Moderate Beneficial</p> <p>Minor Adverse</p> <p>Minor Adverse</p> <p>Minor Adverse</p> <p>Moderate Adverse</p> <p>Moderate Adverse</p> <p>Minor Adverse</p> <p>Moderate Adverse</p> <p>Minor Adverse</p>	<p>All effects additional to residual effects</p> <p>Minor Adverse</p> <p>Minor Adverse</p> <p>Minor Adverse</p> <p>Moderate Adverse</p> <p>Moderate Adverse</p> <p>Minor Adverse</p> <p>Moderate Adverse</p> <p>Minor Adverse</p>
Ecology	Habitat (Living roofs)	All permitted, applied for and reasonably foreseen schemes	Negligible	Minor Beneficial
	Black redstart – habitat gain		Negligible	Minor Beneficial
Climate change	No significant net rise in per capita emissions expected.	N/A	N/A	N/A
Townscape and visual impact	Impact on LVMF view 10A.1, 15B.1, 15B.2, 17B.2, 17B.2, 25A.1, 25A.3 and medium range views around Tower Bridge, Waterloo and South Bank	All permitted, applied for and reasonably foreseen schemes	Ranging from no effect to Minor Neutral	Moderate Neutral

Topic	Cumulative effect	Name and reference number of relevant schemes	Significance of residual effect	Significance of cumulative effect
	Impact on local views – Brick Lane / Bethnal Green Road		No effect	Minor neutral
	Impact on local views – City Road / Cayton Street, Cheshire Street / St Matthew's Row		Negligible	Minor to Moderate Neutral
	Impact on local views – Shoreditch High Street		Moderate Beneficial	Moderate to Major and Beneficial
	Impact on local views – Blossom Street		Moderate Beneficial	Major Beneficial

19.4.2 The significant adverse cumulative effects comprise:

- Significant loss of daylight to an additional 13 properties
- Significant loss of sunlight to an additional 2 properties
- Increase in adverse effects on the setting of some heritage assets, particularly in combination with effects from Principal Tower (PA 2016/2044), The Stage (2015/3453) and 201-207 Shoreditch High Street (2015/2403).

19.4.3 For the majority of buildings assessed for changes to daylight and sunlight, the effects were non-significant (minor adverse or negligible effects). Significant adverse cumulative effects on daylight affect 34 out of 133 properties. Significant adverse cumulative effects on sunlight affect 15 out of 108 properties. This is in line with expected for a large scale development in inner London with several tall buildings. The embedded mitigation within the design of the scheme has reduced the overall effects experienced by neighbouring properties, while maintaining the implementation of a viable scheme.

19.4.4 The cumulative effects of the Revised Scheme and the three most local taller buildings on the setting of heritage assets closest to the buildings in questions would be moderate adverse. This would be mostly limited to heritage assets to the west of the Revised Scheme.

19.4.5 Significant beneficial cumulative effects comprise:

- Further improvement to some local views
- Impact of the spending of the additional population on the local economy in LBH and LBTH

19.4.6 Neutral effects on local views or townscape character occur when some elements of the effect of the Proposed Development are beneficial and some are adverse, and a judgement is taken 'in the round' that the net effect is neutral. These may be significant effects but are considered to be acceptable and not adverse.

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