

Chapter 14: Effect Interactions

INTRODUCTION

- 14.1** This chapter of the Environmental Statement (ES) summarises the likelihood for ‘in-combination effects’ or ‘effect interactions’. Effect interactions occur because of interactions between multiple individual effects associated with just one project on a receptor i.e. the combination of individual effects, for example effects in relation to noise, air quality and traffic on a receptor.
- 14.2** Effects arising from the Proposed Development in combination with other developments or ‘cumulative schemes’ have been discussed separately throughout this ES (in **ES Volume 1, Chapters 6-13** and **ES Volume 2, Townscape, Visual Impact and Heritage Assessment**), as appropriate, and have not been re-iterated within this ES chapter to avoid repetition.
- 14.3** There is no established EIA methodology for assessing the nature and scale of effect interactions on a receptor. However, the European Commission (EC) has produced guidelines¹ to assist EIA practitioners in developing an approach which is appropriate to a project. These guidelines have been used to develop an approach which uses the defined residual effects of the Proposed Development (as presented throughout **ES Volume 1, Chapters 6-13, ES Volume 2, Townscape, Visual Impact and Heritage Assessment**) to determine the potential for effect interactions. These residual effects have been assessed throughout the ES predominantly based on reasonable worst case scenarios of the OPA as detailed in **ES Volume 1, Chapter 2: EIA Methodology**. These residual effects are reliant on mitigation measures (as identified throughout this ES and presented in **ES Volume 1, Chapter 16: Mitigation and Monitoring Schedule**); the mitigation measures have been assumed to be secured / implemented through the discharge of relevant planning conditions and Section 106 obligations.
- 14.4** The approach to defining effect interactions, involves tabulating the residual effects of the Proposed Development against receptors or, where more appropriate, receptor groups to identify the potential for in-combination effects or effect interactions. Residual effects that are **Beneficial, Neutral** or **Adverse** in nature and that are **Minor, Moderate** or **Major** in scale have been considered. Residual effects that are **Negligible** in scale have been omitted, as these effects are, by definition, unnoticeable and insignificant. It is considered that there would not be a scenario where multiple negligible effects could lead to significant effect interactions.
- 14.5** The effects highlighted in **green** within the tables presented in this ES chapter reflect beneficial effects, those in **orange** adverse effects and those in **blue** neutral effects.
- 14.6** The potential for in-combination effects is identified, and professional judgement is used to determine if the potential in-combination effects could lead to an effect interaction. Where a resultant effect interaction is identified, this is further discussed qualitatively.
- 14.7** The scale of an effect interaction has not be assigned as part of this assessment; however, whether the in-combination effects / effect interaction is considered to be a likely significant effect has been identified². For example, when one or more residual significant effects (i.e. effects that are typically moderate or major in

scale) from different EIA topics (i.e. air quality, noise and vibration, HGV traffic) coincide on a receptor, the effect interaction will be considered as being ‘significant’. Where multiple ‘non-significant’ residual effects combine to result in an effect interaction, this would typically be considered as a ‘not significant’ effect interaction.

- 14.8** In-combination effects and effect interactions arising from the enabling and construction works, and the completed and operational Proposed Development are discussed. The remainder of this ES chapter has been divided into two sections:

- **Table 14.1** addresses the potential for in-combination effects and effect interactions to relevant receptors / receptor groups arising from the enabling and construction works; and
- **Table 14.2** addresses the potential for in-combination effects and effect interactions to relevant receptors / receptor groups arising from the completed and operational Proposed Development.

ENABLING AND CONSTRUCTION

- 14.9** Table 14.1 presents the in-combination effects assessment and identifies the potential for effect interactions throughout the enabling and construction works. Where the potential for an effect interaction is identified, this is discussed in more detail below.

Table 14.1 Enabling and Construction

Sensitive Receptor Group	Technical Topic Area & Residual Effects	Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
Local Economy	Socio-Economics Economic benefits through supply chain effects and spending by workers.	Beneficial* (Not significant)	No No other residual effects to interact with.
Loss of Existing Uses on Site	Socio-Economics Loss of temporary uses currently on site	Minor Adverse (Not Significant)	No No other residual effects to interact with.
Canary Wharf Marriott Hotel / 1 West India Quay	Light Pollution Potential for light spillage on 1 West India Quay as a result of commercial use.	Minor Adverse*** (Not Significant)	Yes Potential for effects to interact between Daylight, Sunlight, Light Pollution, Air Quality and Noise and Vibration on at 1 West India Quay.
	Sunlight Sunlight alterations to 1 West India Quay.	Moderate Adverse*** (Significant)	

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

² The methodology for determining a significant in-combination effect has been defined by the HS2 Phase 2a: West Midlands – Crewe Scoping and Methodology Report (July 2017) and the published HS2 Phase 2a Environmental Statement Volume 1 Introduction and Methodology and

Volume 2 Community Area Reports (July 2017). The methodology for assigning significance to in combination effects has been specifically included in this ES to assess if there are any combination effects would result in a significant effect.

Sensitive Receptor Group	Technical Topic Area & Residual Effects	Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
	Daylight Daylight alterations to the 1 West India Quay.	Minor Adverse*** (Not Significant)	
	Noise and Vibration Construction noise as a result of on-site activities during timeslice 1 and 2**.	Minor Adverse (Not Significant)	
	Air Quality Enabling and Construction Works - Dust	Adverse ³ Not Significant)	
Existing Neighbouring Properties (not including Canary Wharf Marriott Hotel / 1 West India Quay)	Daylight Up to Minor Adverse Daylight alterations to 29 buildings: <ul style="list-style-type: none"> 25, 27, 28 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47 and 48 Dingle Gardens; 32C - 32D, 34C and 34E Ming St; 74 Poplar High Street; Port East Apartments; and Willis House. Up to Moderate Adverse Daylight alterations to four buildings: <ul style="list-style-type: none"> Cruse House; Horizon building; 1-8 Stoneyard Lane; and New City College. Up to Major Adverse Daylight alterations to one building: <ul style="list-style-type: none"> 9-24 Stoneyard Lane. 	Minor Adverse*** (Not Significant) to Major Adverse*** (Significant)	Yes, Potential for effect interactions for Daylight and Sunlight on the following Existing Neighbouring Properties: Cruse House; Horizon Building; New City College; Port East Apartments; 34 C and 34 E Ming Street; 9-24 Stoneyard Lane.
	Sunlight Up to Minor Adverse Sunlight alterations to 28 buildings: <ul style="list-style-type: none"> 1-12, 13, 14, 15, 16, 17, 18, 19, 20, 52 and 53 Dingle Gardens; 4, 5, 7 and 9 Dolphin Lane; Goodwill House; 	Minor Adverse*** to Major Adverse*** (Not Significant) to Major Adverse*** (Significant)	

Sensitive Receptor Group	Technical Topic Area & Residual Effects	Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
	<ul style="list-style-type: none"> Horizon Building; 1-12 Martindale House; 34A, 34C and 34E Ming Street; Vietnamese Cultural Centre (130 Poplar High Street); 26-36, 40-50 and 54-64 Poplar High Street; 9-24 Stoneyard Lane; New City College; and Winant House. Up to Moderate Adverse Sunlight alterations to six buildings: <ul style="list-style-type: none"> Cruse House 1, 3, 11 and 13 Dolphin Lane; and Good Faith House Up to Major Adverse Sunlight alterations to three buildings: <ul style="list-style-type: none"> 15 and 17 Dolphin Lane; and Port East Apartments 		
Private Gardens	Overshadowing Up to Moderate Adverse Overshadowing at the following private gardens: <ul style="list-style-type: none"> 32C Ming Street; 48 and 49 Dingle Gardens; and 2 Dolphin Lane. Up to Major Adverse (Significant) Overshadowing at the following private gardens: <ul style="list-style-type: none"> 34 A Ming Street; and 1, 3, 13 and 15 Dolphin Lane. 	Moderate Adverse*** (Significant) to Major Adverse*** (Significant)	No No other residual effects to interact with.
Future Residents (Phasing)	Light Pollution Potential for significant light spill on future residents of the Proposed Development as a result of glazing reaching residential windows.	Minor Adverse (Not Significant) to Major Adverse*** (Significant)	No No other residual effects impact to interact with.
Sensitive Viewpoints / Road and Rail Users	Solar Glare Up to major adverse potential for solar glare to sensitive viewpoints.	Minor Adverse (Not Significant) to Major Adverse*** (Significant)	No No other residual effects to interact with.

³ No scale is assigned to this effect

Sensitive Receptor Group	Technical Topic Area & Residual Effects	Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
Canary Wharf Crossrail Station	Noise and Vibration Construction noise as result of on-site activities during timeslice 1**	Minor Adverse (Not Significant)	No No other residual effects to interact with.
Millwall and West India Dock SINC	Light Pollution Potential for light spillage as a result of any external lighting of the Quayside and any office use at the south of the Proposed Development.	Minor Adverse*** (Not Significant)	No No other residual effects to interact with.
Townscape Character Areas (TCA)	Townscape Minor to Moderate Adverse: TCA C: Limehouse and Westferry, TCA D: Blackwall and Riverscape as a result of enabling and construction works. Moderate Adverse: TCA A: Canary Wharf and B: Poplar as a result of enabling and construction works	Minor to Moderate Adverse (Not Significant) – Moderate Adverse (Significant)	No No other residual effects to interact with.
	Townscape Minor Neutral (Not Significant) effect on TCA E: Coldharbour as a result of enabling and construction works.	Minor Neutral (Not Significant)	
Views	Visual Impact The enabling and construction of the Proposed Development will have an effect on the following views: Minor Adverse: 1 (Alexandra Palace LVMF 1A.1), 2 (Parliament Hill LVMF 2A.1), 6 (Greenwich Park – General Wolfe Statue LVMF 5A.1), 9 (Tower Bridge, south bastion) and 45 (Thames Barrier). Minor - Moderate Adverse: 3 (Waterloo Bridge LVMF 15B.1), 4 (London Bridge LVMF 11B.1), 5 (London Bridge LVMF 11B.2), 8 (The Queen's Walk LVMF 25A.2), 10 (Stave Hill), 11 (Wapping Walkway), 13 (Limehouse Basin), 14 (Ropemakers Fields), 15 (Salmon Lane/Commercial Road), 16 (Salmon Lane), 17 (Mile End Park), 22 (summer) (Poplar Recreation Ground), 25 (Twelvetrees Crescent), 26 (Greenwich Peninsula), 27 (Nelson Dock), 28 (summer) (Garford Street), 35 (Blackwall Basin),	Minor Adverse (Not Significant) to Moderate to Major Adverse (Significant)	No No other residual effects to interact with.

Sensitive Receptor Group	Technical Topic Area & Residual Effects	Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
Built Heritage Assets	38 (Regent's Canal/Ben Johnson Road), and 44 (Langdon Park). Moderate Adverse: 12 (Narrow Street), 18 (southern end of Mile Park), 19 (Bartlett Park), 20 (Commerical Road/West India Dock Road/East India Dock Road), 22 (winter) (Poplar Recreation Ground), 23 (Trinity Gardens), 24 (All Saints Churchyard), 28 (winter) (Garford Street), 29 (Hertsmere Road), 33 (Poplar High Street), 34 (Poplar Dock), 36 (Aspen Way, east of the Site), 37 (Cordelia Street), 39 (Poplar High Street (central)), 40 (Poplar High Street (east)), 41 (Poplar High Street (west)), and 42 (Shirbutt Street/Hale Street). Moderate - Major Adverse: 21 (Church of St Matthias), 30 (Cannon Workshops), 31 (North Quay, western end), 32 (North Quay, southern side) and 43 (Upper Bank Street).	Minor to Moderate Adverse (Not Significant) to Moderate Adverse (Significant)	No No other residual effects to interact with.
	Negligible to Minor Neutral: 7 (Royal Naval College).		
Built Heritage Assets	Heritage Assets Minor to Moderate Adverse: St. Anne's Church and Churchyard structures; East India Dock House; listed building groups iii, iv, v, vi, vii; Lansbury, All Saints, St. Anne's Church, Brickfield Gardens and Narrow Street Conservation Areas. Moderate Adverse: Quay walls, copings and buttresses to the Import and Export Dock at West Quay and West India Dock North; The warehouses and general offices at the western end of North Quay; St. Matthias Church; listed building groups (i) and (ii); West India Dock Conservation Area; St. Matthias Conservation Area	Minor to Moderate Adverse (Not Significant) to Moderate Adverse (Significant)	No No other residual effects to interact with.

Sensitive Receptor Group	Technical Topic Area & Residual Effects	Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
	<p>Negligible to Minor Neutral: Nelson House, Tower Bridge, listed building groups viii and x, the Coldharbour, Naval Row, St. Frideswides, Balfon Tower, Langdon, and Limehouse Cut Conservation Areas; the Maritime Greenwich and Tower of London WHSs.</p> <p>Minor Neutral: Isle of Dogs Pumping Station, Blackwall Basin, Balfon Tower, listed building group ix, George Green School, Hope and Anchor, Newby Place.</p>	Negligible to Minor Neutral (Not Significant) - Minor Neutral (Not Significant)	
<p>* Scale not quantifiable, for further details please refer to ES Volume 1, Chapter 6: Socio-Economics and Health</p> <p>** For further detail on noise and vibration related construction programme timeslices please refer to ES Volume 1, Chapter 8: Noise and Vibration</p> <p>*** Impact of Daylight, Sunlight at enabling and construction period of the Proposed Development ranges from Negligible to the impact given once the Proposed Development is complete and operational.</p>			

14.10 Whilst potential effects in relation to daylight, sunlight, overshadowing, light pollution and solar glare have not specifically been assessed during the demolition and construction stage, as any effects are likely to gradually increase to the maximum level identified once the Proposed Development is completed, therefore the likely effects will range from Negligible to those that will be experienced when the Proposed Development is complete. There is the potential for Significant Adverse effect interactions between noise impacts, dust impacts, and the reductions in daylight and sunlight and increased light pollution at the neighbouring property of Canary Wharf Marriot Hotel/1 West India Quay. However, due to the timescale of the effects they are unlikely to occur at the same time – as daylight, sunlight and light pollution effects would occur nearer the end of the construction phase as buildings are built out and the massing increases closer to completion, whilst noise effects and dust effects are most likely to be experienced prior to this point during construction works.

14.11 The noise and dust effects have the potential to interact, but the interaction of these effects is not unusual for construction works, and would be managed as far as reasonably possible through measures such as the CEMP.

14.12 There is also the potential for effect interactions for daylight and sunlight on the following Existing Neighboring Properties: Cruse House; Horizon Building; New City College; Port East Apartments; 34 C and 34 E Ming Street; 9-24 Stoneyard Lane. Please refer to Complete and Operational Development daylight and sunlight effects for the worst case scenario of effects interactions.

COMPLETED DEVELOPMENT

14.13 Table 14.2 presents any other in-combination effects and effect interactions to relevant receptors / receptor groups arising from the completed and operational Proposed Development. Where the potential for an in-combination effect / effect interaction is identified, this is discussed in more detail below.

Table 14.2 Completed and Operational Development – In-Combination Effects not related to Residential Amenity

Sensitive Receptor Group	Technical Topic Area & Residual Effects	Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
Canary Wharf Marriott Hotel / 1 West India Quay	Noise and Vibration Increase in ambient noise levels as a result of road traffic from the Proposed Development.	Minor Adverse (Not Significant)	Yes Potential for effect interaction to occur between Sunlight, Daylight, Light Pollution and Noise and Vibration on the Canary Wharf Marriot Hotel / 1 West India Quay
	Light Pollution Potential for light spillage on 1 West India Quay as a result of commercial use.	Minor Adverse (Not Significant)	
	Sunlight Sunlight alterations to 1 West India Quay	Moderate Adverse (Significant)	
	Daylight Daylight alterations to 1 West India Quay	Minor Adverse (Not Significant)	
Existing Neighbouring Properties	Daylight Minor Adverse Daylight alterations to 29 buildings: <ul style="list-style-type: none"> 25, 27, 28 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47 and 48 Dingle Gardens; 32C-32D, 34C and 34E Ming St; 74 Poplar High Street; Port East Apartments; and Willis House. 	Minor Adverse (Not Significant) to Major Adverse (Significant)	Yes Potential for effect interactions to occur between Daylight and Sunlight to the following Existing Neighbouring Properties: Cruse House; Horizon Building; New City College; Port East Apartments; 34 C and 34 E Ming Street; 9-24 Stoneyard Lane.
	Moderate Adverse Daylight alterations to four buildings: <ul style="list-style-type: none"> Cruse House; Horizon building; 1-8 Stoneyard Lane; and New City College. 		
	Major Adverse Daylight alterations to one building: 9-24 Stoneyard Lane.		

Sensitive Receptor Group	Technical Topic Area & Residual Effects	Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
	<p>Sunlight</p> <p>Minor Adverse Sunlight alterations to 28 buildings:</p> <ul style="list-style-type: none"> 1-12, 13, 14, 15, 16, 17, 18, 19, 20, 52 and 53 Dingle Gardens; 4, 5, 7 and 9 Dolphin Lane; Goodwill House; Horizon Building; 1-12 Martindale House; 34A, 34C and 34E Ming Street; Vietnamese Cultural Centre (130 Poplar High Street); 26-36, 40-50 and 54-64 Poplar High Street; 9-24 Stoneyard Lane; New City College; and Winant House. <p>Moderate Adverse Sunlight alterations to seven buildings:</p> <ul style="list-style-type: none"> Cruse House 1, 3, 11 and 13 Dolphin Lane; and Good Faith House <p>Major Adverse Sunlight alterations to three buildings:</p> <ul style="list-style-type: none"> 15 and 17 Dolphin Lane; and Port East Apartments 	Minor Adverse (Not Significant) to Major Adverse (Significant)	
Private Gardens	<p>Overshadowing</p> <p>Moderate Adverse Overshadowing at the following private gardens:</p> <ul style="list-style-type: none"> 32C Ming Street; 48 and 49 Dingle Gardens; and 2 Dolphin Lane. <p>Major Adverse Overshadowing at the following private gardens:</p> <ul style="list-style-type: none"> 34 A Ming Street; and 1, 3, 13 and 15 Dolphin Lane. 	Moderate Adverse (Significant) to Major Adverse (Significant)	No No other residual effects to impact Private Gardens. All effects are related to Overshadowing.
Sensitive Viewpoints / Road and Rail Users	Solar Glare	Minor Adverse (Not Significant)	No

Sensitive Receptor Group	Technical Topic Area & Residual Effects	Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
	A total of 11 viewpoints on the DLR and nearby roads (Aspen Way and Upper Bank Street) are considered sensitive to solar glare from the Proposed Development. The effects could range from Negligible to Major Adverse (significant) for each of the viewpoints assessed.	to Major Adverse (Significant)	No other residual effects to interact with.
Future Residents	Light Pollution Potential for significant light spill on future residents of the Proposed Development as a result of glazing reaching residential windows.	Minor Adverse (Not Significant) to Major Adverse (Significant)	No No, flood risk and light spillage do not interact.
	Flood Risk To the new occupants of the Proposed Development	Minor Beneficial (Not Significant)	
The Docks (Millwall and West India Dock SINC)	Light Pollution Potential for light spillage as a result of any external lighting of the Quayside and any office use at the south of the Proposed Development.	Minor Adverse (Not Significant)	Yes Interaction between Light Pollution and Water Resources on the Millwall and West India Dock SINC.
	Water Resources and Flood Risk Increased flushing and aeration of the docks resulting from the discharge of surface water runoff from the Proposed Development.	Minor Beneficial (Not Significant)	
Car Drivers	Transport and Accessibility Delay to car drivers along Hertsmere Road and West India Dock Road (E) as a result of the Proposed Development.	Minor Adverse (Not Significant)	No No other residual effects to interact with.
Public Transport – Rail	Transport and Accessibility Due to additional passengers on the Jubilee Line, DLR and Crossrail services there will be an effect to delay on rail public transport services,	Minor Adverse (Not Significant)	No No other residual effects to interact with.
Pedestrians and Cyclists	Transport and Accessibility Enhanced permeability and connectivity of the local area (to and through the Site) reducing 'delay' of pedestrians and cyclists.	Moderate Beneficial (Significant)	Yes Potential for effect interaction to occur between beneficial amenity effects on pedestrians and cyclists and wind conditions.
	Transport and Accessibility	Moderate Adverse	

Sensitive Receptor Group	Technical Topic Area & Residual Effects	Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
	Severance along Hertsmere road as a result of increased traffic along the road.	(Significant)	
	Transport and Accessibility Provision of new pedestrian and cycle connections through the Site is expected to create a more permeable and attractive place to travel to, from and through improving 'Amenity, Fear and Intimidation'.	Moderate Beneficial (Significant)	
	Transport and Accessibility The Proposed Development has been designed to provide a safe and secure environment. New routes are designed with suitable visibility and geometry across the highway network, together with appropriate pedestrian and cycle provision. Thus improving 'Accidents and safety'.	Minor Beneficial (Not Significant)	
	Wind Microclimate – Indicative Scenario Wind conditions at on-site roads would be suitable for strolling (Minor Beneficial) standing (Moderate Beneficial) and sitting (Major Beneficial) in the windiest season, which is 1-3 categories calmer than required.	Minor Beneficial (Not Significant) to Major Beneficial (Not Significant)	
	Wind Microclimate – Indicative Scenario Wind conditions at on-site maintenance areas would be suitable for strolling and standing use in the windiest season, which is one category calmer than required.	Minor Beneficial (Not Significant)	
	Wind Microclimate – Indicative Scenario Wind conditions at ground level entrance would be suitable for sitting (Minor Beneficial) in the windiest season, which is one category calmer than required.	Minor Beneficial (Not Significant)	
	Wind Microclimate – Indicative Scenario Wind conditions at Ground Level Public Amenity Space Standing Areas, would be suitable for sitting use in the summer season, which is one category calmer than required.	Minor Beneficial (Not Significant)	

Sensitive Receptor Group	Technical Topic Area & Residual Effects	Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
	Wind Microclimate – Indicative Scenario Wind conditions at roof level public amenity areas are suitable for sitting in the Summer season. One category calmer than required.	Minor Beneficial (Not Significant)	
	Wind Microclimate – Indicative Scenario Wind conditions at terrace level public amenity space would be suitable for sitting use in the summer season, which is one category calmer than required.	Minor Beneficial (Not Significant)	
	Wind Microclimate – Indicative Scenario Wind conditions at balcony level private amenity space would be suitable for sitting use in the summer season, which is one category calmer than required.	Minor Beneficial (Not Significant)	
	Wind Microclimate – Indicative Scheme Wind conditions at thoroughfares would exceed pedestrian safety limit by 15m/s at probe locations 168 and 180	Adverse (Significant)	
Local Economy and Employment	Socio-Economics Provision of floorspaces is likely to accommodate: - Maximum Employment Scenario – 14,220 – 18,800 jobs - Maximum Residential Scenario : 8,535 – 11,155 jobs	Local Level	Major Beneficial (Significant)
		Borough Level	Moderate (maximum employment scenario) to Major Beneficial (maximum residential scenario) (Significant)
		Regional Level	Minor Beneficial (Not Significant)
Local Economy	Socio-Economics Additional spending by employees under the Maximum Employment Scenario.	Local Level	Moderate Beneficial (Significant)
		Borough Level	Minor Beneficial (Not Significant)
			Yes There is the potential for the socio-economic effects identified to interact to have a significant beneficial effect on the local economy.

Sensitive Receptor Group	Technical Topic Area & Residual Effects		Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
	Socio-Economics Additional spending by residents and employees in the Maximum Residential Scenario	Local Level	Moderate Beneficial (Significant)	
		Borough Level	Minor Beneficial (Not Significant)	
LBTH Housing Needs/Demands	Socio-Economics Provision of up to 1,152 residential units contributing to policy targets in the Maximum Residential Scenario	Local Level	Major Beneficial (Significant)	No No other residual effects to interact with.
		Borough Level	Major Beneficial (Significant)	
		Regional Level	Minor Beneficial (Not Significant)	
Local Amenity, Playspace and New Residents	Socio-Economics The Proposed Development will underprovide by 1,735m ² of playspace requirements under the Maximum Residential Scenario. Socio-Economics The Proposed Development will underprovide by 354 m ² of communal amenity requirements under the Maximum Residential and Minimum Employment Scenario	Local Level	Minor Adverse (Not Significant)	No No other residual effects to interact with.
		Local Level	Minor Adverse (Not Significant)	

Sensitive Receptor Group	Technical Topic Area & Residual Effects		Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
Groundwater –Upper Aquifer	Water Resources and Flood Risk Basement perimeter wall causing reduction of water leaking from docks into Upper Aquifer.		Minor Beneficial (Not Significant)	No No other residual effects to interact with.
Flood Risk to existing population and infrastructure	Water Resources and Flood Risk Raising of dock edge improves flood resilience.		Moderate Beneficial (Significant)	No No other residual effects to interact with.
Flood Risk to Proposed Development and Occupants	Water Resources and Flood Risk Proposed deck structure overhanging dock wall does not compromise stability. Proposed secant wall reduces loading on dock wall.		Minor Beneficial (Not Significant)	
Surface Water Drainage	Water Resources and Flood Risk The proposed surface water drainage strategy would be an improvement on the existing site condition and therefore on surface water flood risk		Minor Beneficial (Not Significant)	No No other residual effects to interact with.
Views	Visual Impact The Proposed Development will have a Minor Beneficial effect on selected views of the Site: 1 (Alexandra Palace LVMF 1A.1), 2 (Parliament Hill LVMF 2A.1), 9 (Tower Bridge, South Bastion), 45 (Thames Barrier) The Proposed Development will have a Minor to Moderate Beneficial effect on selected views of the Site: 3 (Waterloo Bridge LVMF 15B.1), 4 (London Bridge LVMF 11B.1), 5 (London Bridge LVMF 11B.2), 10 (Stave Hill), 11 (Wapping Walkway), 13 (Limehouse Basin), 14 (Ropemakers Fields), 16 (Salmon Lane), 17 (Mile End Park), 25 (Twelvetrees Crescent), 26 (Greenwich Peninsula), 27 (Nelson Dock), 28 (summer) (Gartford Street), 35 (Blackwall Basin), 38 (Regent's Canal/ Ben Johnson Road), 44 (Langdon Park)		Minor Beneficial (Not Significant) To Moderate to Major Beneficial (Significant)	No No other residual effects to interact with.

Sensitive Receptor Group	Technical Topic Area & Residual Effects	Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
	<p>The Proposed Development will have a Moderate Beneficial effect on selected views of the Site:</p> <p>12 (Narrow Street), 18 (southern end of Mile End Park), 19 (Bartlett Park), 20 (Commercial Road/West India Dock Road/ East India Dock Road), 22 (Winter) (Poplar Recreation Ground), 23 (Trinity Gardnes), 24 (All Saints Churchyard), 28 (Winter) (Gartford Street), 29 (Hertsmere Road), 33 (Poplar High Street), 34 (Poplar Dock), 36 (Aspen Way, east of site), 37 (Cordelia Street), 39 (Poplar High Street (central)), 40 (Poplar High Street (east)), 41 (Poplar High Street (west)), 42 (Shirbutt Street / Hale Street)</p> <p>The Proposed Development will have a Moderate to Major Beneficial effect on selected views of the Site:</p> <p>30 (Cannon Workshops), 31 (North Quay, western end), 32 (North Quay, southern side), 43 (Upper Bank Street)</p>		
	<p>Visual Impact</p> <p>The proposed development will have a Negligible to Minor Neutral effect on:</p> <ul style="list-style-type: none"> 7 (Royal Naval College). <p>The Proposed Development will have a Minor Neutral effect on selected views of the Site:</p> <ul style="list-style-type: none"> 6 (Greenwich Park – General Wolfe Stature LVMF 5A.1). <p>The Proposed Development will have a Minor to Moderate Neutral effect on selected views of the Site</p> <ul style="list-style-type: none"> 8 (The Queen’s Walk LVMF 25A.2); 15 (Salmon Lane/Commercial Road); and 22 (summer) (Poplar Recreation Ground). 	<p>Negligible to Minor Neutral (Not Significant) to</p> <p>Minor to Moderate Neutral (Not Significant)</p>	
	<p>Visual Impact</p> <p>The Proposed Development will have a Moderate to Major Adverse effect on one view of the Site:</p> <ul style="list-style-type: none"> 21 (Church of St Matthias). 	<p>Moderate to Major Adverse (Significant)</p>	

Sensitive Receptor Group	Technical Topic Area & Residual Effects	Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
Townscape Character Areas	<p>Townscape</p> <p>There will be a Minor to Moderate Beneficial effect on:</p> <ul style="list-style-type: none"> TCA C: Limehouse and Westferry; TCA D: Blackwall; and River Thames riverscape as a result of the Proposed Development <p>There will be a Moderate Beneficial effect on:</p> <ul style="list-style-type: none"> TCA A: Canary Wharf; and TCA B: Poplar as a result of the Proposed Development. 	<p>Minor to Moderate Beneficial (Not Significant) To Moderate Beneficial (Significant)</p>	<p>No</p> <p>No other residual effects to interact with.</p>
	<p>Townscape</p> <p>There will be a Minor Neutral effect on</p> <ul style="list-style-type: none"> TCA E: Coldharbour as a result of the Proposed Development. 	<p>Minor Neutral (Not Significant)</p>	
Built Heritage Assets	<p>Built Heritage – Listed Buildings</p> <p>Moderate Beneficial effect to:</p> <ul style="list-style-type: none"> Listed Building A - Quay walls, copings and buttresses to the Import and Export Dock at West Quay and West India Dock North; Listed Building B - The warehouses and general offices at the western end of North Quay; and Group i - West India Docks. 	<p>Moderate Beneficial (Significant)</p>	<p>No</p> <p>No other residual effects to interact with.</p>
	<p>Built Heritage Listed Buildings</p> <p>Negligible to Minor Neutral effect to:</p> <ul style="list-style-type: none"> Group viii - Blackwall Dock and Coldharbour; Group x - Rotherhithe/ Isle of Dogs west; Listed Building I – Nelson House; and Listed Building J – Tower Bridge. <p>Minor Neutral effect to:</p> <ul style="list-style-type: none"> Group ix - St Leonard’s Road and environs; 	<p>Negligible to Minor Neutral (Not Significant) to Moderate Neutral (Significant)</p>	

Sensitive Receptor Group	Technical Topic Area & Residual Effects	Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
	<ul style="list-style-type: none"> Listed Building F- Isle of Dogs Pumping Station; Listed Building G – Blackwall Basin; and Listed Building H – Balfon Tower. <p>Minor to Moderate Neutral impact to:</p> <ul style="list-style-type: none"> Group iii - East India Dock Road and environs to the north; Group iv - All Saints Poplar; Group v – Limehouse; Group vi - Narrow Street and environs; Group vii – Blackwall; Listed Building D -St Anne’s Church and churchyard structures; and Listed Building E - East India Dock House. <p>Moderate Neutral effect to:</p> <ul style="list-style-type: none"> Listed Building C - The Church of St Matthias; and Group ii - Poplar High Street. 		
	<p>Built Heritage Locally Listed Buildings</p> <p>Minor Neutral effect to:</p> <ul style="list-style-type: none"> George Green School, East India Dock Road; and Hope and Anchor, Newby Place. 	Minor Neutral (Not Significant)	

Sensitive Receptor Group	Technical Topic Area & Residual Effects	Scale and Nature of Residual Effect	Potential for In-Combination Effects / Effect Interactions
	<p>Built Heritage Conservation Areas</p> <p>Negligible to Minor Neutral effects to:</p> <ul style="list-style-type: none"> Coldharbour Conservation Area; Naval Row Conservation Area; St Frideswides Conservation Area; Balfon Tower Conservation Area; Langdon Conservation Area; and Limehouse Cut Conservation Area. <p>Minor to Moderate Neutral effects to:</p> <ul style="list-style-type: none"> Narrow Street Conservation Area; Lansbury Conservation Area; Brickfield Gardens Conservation Area; All Saints Conservation Area; and St Annes Church Conservation Area. <p>Moderate Neutral effects to:</p> <ul style="list-style-type: none"> St Matthias Church Poplar Conservation Area. 	Negligible to Minor Neutral (Not Significant) to Moderate Neutral (Significant)	
	<p>Built Heritage Conservation Areas</p> <p>Moderate Beneficial effects to:</p> <ul style="list-style-type: none"> West India Dock Conservation Area 	Moderate Beneficial (Significant)	
	<p>Built Heritage World Heritage Site</p> <p>Negligible to Minor Neutral effects to:</p> <ul style="list-style-type: none"> Maritime Greenwich WHS; and Tower of London WHS. 	Negligible to Minor Neutral (Not Significant)	

14.14 There is potential for significant adverse in-combination effects or effects interactions in relation to daylight, sunlight, light pollution and noise on the Canary Wharf Marriott Hotel / 1 West India Quay. The Canary Wharf Marriott Hotel / 1 West India Quay is likely to experience impacts from both reduced daylight and sunlight, increased light pollution and increased noise as a result of increased traffic from the complete and operational Proposed Development.

14.15 There is potential for a number of adverse in-combination effects or effects interactions relating to daylight and sunlight as detailed below:

- The potential for a significant adverse effect interaction to occur between daylight and sunlight at the following receptors: New City College, Horizon Building, Cruse House, Port East Apartments and 9-24 Stoneyard Lane; and
- The potential for adverse effect interactions to occur between daylight and sunlight at the following receptors: 34C and 34E Ming Street, which would not be considered significant.

14.16 When the Proposed Development is complete and operational, there is the potential for effect interactions relating to adverse effects of light pollution and beneficial effects of improved water quality through increased flushing and aeration of the North Dock (Millwall and West India Dock SINC) Water Resources on the Millwall and West India Dock SINC. The effect interaction is not considered to be significant.

14.17 There is the potential for a significant beneficial effect interactions to occur between beneficial transport effects in relation to pedestrians and cyclists amenity, fear and intimidation and wind conditions at public amenity areas and areas accessible to pedestrians (Indicative Scenario Wind effects)⁴, as well as potential significant effects interactions between beneficial effects on pedestrian and cyclist amenity and adverse wind conditions at thoroughfares at probe locations 168 and 180 at the south of Development Plot NQ.D4.

14.18 When the Proposed Development is complete and operational, there is the potential for significant beneficial in-combination effects or effects interactions relating to the provision of employment and increased spending by residents and employees. These effects will positively contribute to the on the local economy.

SUMMARY AND CONCLUSION

14.19 The assessment presented within this ES chapter has identified the following:

- Potential for **in-combination effects** or **effects interactions** during the enabling and construction phase of the Proposed Development have been identified as:
 - **Temporary Adverse** in-combination effects have been identified in respect of 'Noise', 'Dust', 'Daylight', 'Sunlight' and 'Light Pollution'. These effects or effect interactions apply to the existing residents of Marriot Hotel / 1 West India Quay and are considered to be significant; and
 - **Temporary Adverse** in-combination effects have been identified in respect of 'Daylight', 'Sunlight' reduction on residential receptors in the surrounding local area and is considered to be Significant.
- Potential for **in-combination effects** or **effects interactions** when the Proposed Development is complete and operational:
 - **Adverse** in-combination effects have been identified in respect of 'Noise', 'Daylight', 'Sunlight' and 'Light Pollution'. These effect interactions apply to the existing residents of Marriot Hotel / 1 West India Quay and are considered to be significant;
 - **Adverse** in-combination effects or effects interactions on daylight and sunlight reductions at existing residential properties some of which are considered to be significant;

- In-combination effects have been identified in respect of Beneficial 'Water Quality' and adverse 'Light Pollution'. These effect interactions apply to the Millwall and West India Dock SINC and are not considered to be significant;
- **Beneficial** in-combination or effect interaction to occur between beneficial amenity effects on pedestrians and cyclists and wind conditions, which are considered to be significant;
- **Adverse** in-combination or effect interaction to occur between beneficial amenity effects on pedestrians and cyclists and wind conditions which are significant, and
- **Beneficial** in-combination effects or effects interactions relating to the provision of new employment and spending by residents and employees within the local area. These effects will interact with each other to enhance the local economy and are significant.

⁴ The Indicative Scheme with mitigation measures in place has been presented within this ES chapter as a realistic assessment of the likely wind microclimate conditions which could come forward.