

21. Summary of Mitigation Measures and Likely Residual Effects

- 21.1. This Chapter presents a summary of the mitigation measures and likely residual effects of the Development. Likely residual effects are defined as those effects that remain following the implementation of mitigation measures. Mitigation measures relate to both the Works and the completed and operational Development, which are discussed in full in the relevant technical chapters of this ES (**Chapters 7 to 19**).
- 21.2. The EIA has been undertaken in parallel with the design process. Hence, many measures have already been incorporated into the design to eliminate adverse environmental effects. These include, for example, design evolution of the building form and massing, and inherent detailed mitigation for the Development in relation to flood risk and drainage strategies, ventilation design, and landscaping principles.
- 21.3. A Site-wide Construction Environmental Management Plan (CEMP) would be prepared and approved by the London Borough of Richmond upon Thames (LBRuT) prior to the commencement of the Works (refer to **Chapter 6: Development Programme, Demolition, Alteration, Refurbishment and Construction** for further details). Anticipated to be required by planning condition, the CEMP would include mitigation measures to address all relevant environmental issues of the Works including (but not limited to) construction traffic, dust, noise and vibration, waste management, protection of heritage assets and ecology, hours of working and neighbour liaison.
- 21.4. A summary of likely residual effects arising, following the implementation of mitigation measures is provided in **Table 21.1**. As noted in **Chapter 2: EIA Methodology**, each of the technical Chapters outlines the criteria, including sources and justifications, for quantifying the different levels of effect. Where possible, this is based upon quantitative and accepted criteria together with the use of value judgements and expert interpretations, where necessary, to establish to what extent an effect is environmentally significant. Where specific technical guidance on some of the environmental topics requires different terminology to the standard EIA significance criteria of effects set out in **Chapter 2**, this is justified within the relevant technical Chapter.

Table 21.1: Summary of Mitigation Measures and Likely Residual Effects

Issue	Mitigation Measures	Likely Residual Effect
Socio-Economics		
The Works		
Loss of 35,402m ² GIA of employment floorspace.	No mitigation required – employment floorspace and employment generating uses being provided as part of the Development.	Insignificant.
Generation of an average of up to 1,140 FTEs per annum over 7 years.	S106 Agreement to target local employment during Site preparation and construction.	Short-medium term, beneficial, District to regional and of minor significance.
Completed Development		
Population and Labour Market.	No mitigation required.	Long-term, local beneficial and of moderate significance. Long-term, District, beneficial and of minor significance.
Provision of housing contributing to LBRuT targets.	No mitigation required.	Long-term, local, beneficial and of major significance. Long-term, District, beneficial and of minor significance.
Generation of employment as a result of the Development and expenditure of the new resident population	No mitigation required.	Long-term, local, beneficial and of moderate significance. Insignificant at District level
An additional population of children under the age of 5 and demand for early years places.	No mitigation required.	Long-term, local, adverse and of moderate significance. Long-term, District, adverse and of minor significance.

Issue	Mitigation Measures	Likely Residual Effect
An additional population primary school aged children and demand for primary school places.	No mitigation	Long-term, local, adverse and of minor significance. Long-term, District, adverse and of minor significance.
The additional demand for secondary school places arising from the Development would be accommodated by proposed Secondary School and existing surpluses.	No mitigation required – Secondary school provided as part of the Development.	Insignificant.
Additional demand by the new population of the Development for primary health care.	Section 106 receipts to mitigate.	Insignificant.
Provision of 17,631m ² of children’s play space and a total of 4.24 ha of publicly accessible amenity space on Site as part of the Development to accommodate additional demand.	No mitigation required – Provision of children’s play space and amenity space provided as part of the Development.	Direct, long-term, beneficial at local to District and of moderate significance.
Provision of a school (with shared sports facilities via a Community Use Agreement), cinema, and an area for flexible community uses which could include a community boathouse, together with up to private amenity space, public amenity space and Public Community Park.	No mitigation required – community facilities and inclusion of Community Use Agreement as part of the Development.	Direct, long-term, beneficial, local and of minor significance. Insignificant at the District level.
The Development would seek to design out crime features and would animate and activate the Site.	No mitigation required.	Direct, long-term, beneficial, local and of minor significance. Insignificant at the District level.
Transport and Access		
The Works		
Severance.	No mitigation required.	Insignificant
Driver Delay.	No mitigation required.	Insignificant
Pedestrian Delay.	No mitigation required.	Insignificant

Issue	Mitigation Measures	Likely Residual Effect
Pedestrian and Cycle Amenity.	No mitigation required.	Insignificant
Fear and Intimidation.	No mitigation required.	Insignificant
Accidents and Road Safety.	No mitigation required.	Insignificant
Completed Development		
Severance.	No mitigation required.	Insignificant
Driver Delay.	Traffic calming measures along Lower Richmond Road and Mortlake High Street to improve conditions for pedestrians and cyclists at the cost of driver delay effects. However, signal timings at the Chalkers Corner junction could be adjusted post Development implementation to ease driver delay especially along the Lower Richmond Road arm.	Minor Adverse Residual Effects (as a result of the traffic calming measures implemented by the Development to aid other criteria)
Pedestrian Delay.	No mitigation required.	Insignificant
Pedestrian Amenity.	No mitigation required.	Insignificant
Cycle Amenity.	No mitigation required.	Insignificant
Fear and Intimidation.	No mitigation required.	Insignificant
Accidents and Road Safety.	No mitigation required.	Insignificant
Noise and Vibration		
The Works		
Temporary increase in noise levels from work activities affecting receptors close to the Site.	Implementation of a CEMP.	Negligible to temporary, medium-term, local residual adverse effect of minor to moderate level, provided construction threshold limit not exceeded. (Insignificant)

Issue	Mitigation Measures	Likely Residual Effect
Vibration generated during sheet piling operations affecting receptors close to the Site.		Negligible to temporary, short-term, local adverse effects of minor to moderate level (Insignificant)
Vibration effects on building structures and underground utilities (assuming CFA or rotary bored piling techniques).	Although negligible predicted, implementation of a CEMP recommended.	Negligible (Insignificant)
Increase in heavy plant movements on strategic roads.	No mitigation required, although, a Construction Traffic Logistics Plan would also be implemented.	Negligible (Insignificant)
Completed Development		
Noise from fixed plant and building services.	Inherent mitigation would allow plant and building services noise to meet the required plant noise limit of LBRuT.	Negligible (Insignificant)
Noise from non-residential land-uses.	Control through sound insulation of building envelope, planning conditions and implementation of Delivery and Servicing Plan.	Negligible (Insignificant)
Noise from changes in road traffic.	No mitigation required.	Negligible to permanent, local adverse effect of minor level (Insignificant)
Noise from proposed school and play space (including sports pitch and MUGA).	Inherent (weld mesh, twin bar super rebound with EPDM rubber inserts & fixing. Opening hours. Additional mitigation considerations: (maintenance, restricted opening hours)	Negligible to permanent, local, intermittent adverse effects up to minor level during usage of the sports pitch and MUGA (Insignificant)
Air Quality		
The Works		
Dust emissions on surrounding existing receptors and early occupiers of the Development.	Implementation of CEMP and Framework Construction Management Plan.	Insignificant.
Exhaust emissions from construction traffic on surrounding existing receptors and early occupiers of the Development.	No mitigation required, although a Construction Traffic Management Plan would also be implemented.	Insignificant.

Issue	Mitigation Measures	Likely Residual Effect
Emissions from construction plant on surrounding existing receptors and early occupiers of the Development.	No mitigation required, as all construction plant would meet the Emissions Standard set out in the London Plan.	Insignificant.
Completed Development		
Traffic related exhaust emissions on existing sensitive locations surrounding the Site.	No mitigation required, refer to Table 10.16 and Appendix 10.4 .	Insignificant.
Introduction of future residential and school uses to the Site.		Insignificant.
Ground Conditions and Contamination		
The Works		
Effects to the human health of construction workers from ground contamination and dust.	Implementation of a CEMP to manage the Works to effectively minimise contamination risks.	Insignificant.
Effects to the human health of the public surrounding the Site, and early occupants of the Development from dust.		Insignificant.
Installation of piles associated with the buildings of the Development, creating a pollutant pathway to the Secondary A Aquifer beneath the Site.		Insignificant.
Installation of piles associated with the flood defence wall, creating a pollutant pathway to the River Thames.		Insignificant.
Removal of existing areas of hardstanding, thereby increasing the permeable cover of the Site, allowing for increased rainwater / surface water infiltration to the ground, underlying Secondary A Aquifer and River Thames.		Insignificant.
Removal of existing areas of hardstanding, thereby increasing the permeable cover of the Site, allowing for increased rainwater / surface water infiltration to the ground, underlying Principal Aquifer.		Insignificant.

Issue	Mitigation Measures	Likely Residual Effect
Introduction of potential contaminants on the Site which could increase the risk of leakages and spillages to the ground (Secondary A Aquifer) and the River Thames.		Insignificant.
Effects to ecological receptors on and off the Site from ground contamination and dust.		Insignificant.
Effects associated with UXO.	Undertaking of a detailed desk-based UXO assessment to identify and classify the actual on-Site risk posed by UXO and appropriate mitigation measures. This would include presence of a UXO specialist on-Site during the Works.	Insignificant.
Completed Development		
Effects to the human health of occupants, users and visitors of the Development from ground gas or vapour accumulation within buildings and hard-landscaped areas.		Insignificant.
Effects to the human health of occupants, users and visitors of the Development from ground contamination within soft-landscaped areas.		Insignificant.
Effects to controlled waters (including the River Thames) from ground contamination.	In line with anticipated planning condition, further ground and geotechnical investigation to inform an appropriate Remediation Strategy for the Site, as required. This may include the implementation of ground gas and vapour mitigation measures and the likely use of imported clean and inert soils within areas of proposed soft-landscaping.	Long-term, local, beneficial and of minor significance.
Effects to buildings structures and services from ground contamination.		Insignificant.
Effects to ecological receptors on the Site from ground contamination.		Insignificant.
Effects to ecological receptors off-Site, including those associated with the River Thames.		Insignificant to long-term, local, beneficial and of minor significance.

Issue	Mitigation Measures	Likely Residual Effect
Surface Water Drainage and Flood Risk		
The Works		
Groundwater flood risk from excavation works of eastern basement.	Dewatering of excavation activities, to be undertaken through an Environmental Permit.	Insignificant.
Surface water (pluvial) flood risk.	Implementation of CEMP to ensure appropriate adequate drainage and to manage surface water run-off.	Insignificant.
Access to the flood defence wall.	No mitigation required.	Insignificant.
Tidal flood risk during remodelling of the flood defence wall.	None required, to be undertaken through an Environmental Permit.	Insignificant.
Foul water infrastructure capacity.	No mitigation required.	Insignificant.
Increase in potable water demand.	Implementation of CEMP to include measures to monitor and reduce water consumption.	Insignificant.
Existing drainage infrastructure.	Implementation of CEMP to ensure existing drainage is protected and appropriate piling methods are used to minimise vibration.	Insignificant.
Completed Development		
Tidal flood risk to future occupants of the Development.	<p>A self-activating flood barrier would be required for the entrance to the eastern basement car park from Mortlake High Street.</p> <p>Flood proof doors and / or demountable barriers would be required for access from the Community Boathouse (Building B9) to the river foreshore.</p> <p>Hatch with ladder and / or handrails to access the boat storage facility below the terrace level.</p>	Insignificant.
Tidal flood risk to off-Site receptors.	No mitigation required.	Long-term, local, beneficial effect of minor significance.

Issue	Mitigation Measures	Likely Residual Effect
Surface water (pluvial) flood risk.	No mitigation required, maintenance programme to be implemented to ensure beneficial effects are maintained.	Long-term, local, beneficial and of minor significance .
Flood risk from sewers surcharging	No mitigation required.	Insignificant.
Groundwater flood risk.	No mitigation required.	Insignificant.
Access to the flood defence wall.	No mitigation required. Hatch with ladder and / or handrails to access the boat storage facility below the terrace level.	Insignificant.
Change in tidal flood risk from upgrading the tidal defences (flood defence wall).	A flood proof gate would be required at some point in the future at Ship Lane to account for future flood levels. This shall be delivered through an appropriately worded -planning condition.	Long-term, local, beneficial and of moderate significance .
Change in foul water drainage capacity.	No mitigation required.	Insignificant.
Change in potable water demand.	No mitigation required.	Insignificant.
Ecology		
The Works		
Statutory Designated Sites (Richmond Park SAC, Richmond Park NNR and SSSI and Wimbledon Common SAC) – Direct Effects.	No mitigation required.	Not significant.
Statutory Designated Sites (Richmond Park SAC, Richmond Park NNR and SSSI and Wimbledon Common SAC) – Indirect Effects.	No mitigation required.	Not significant.
Non-Statutory Designated Sites (River Thames and Tidal Tributaries SMI, Kew Meadow Path SBI, North Sheen and Mortlake Cemeteries SLI and Old Mortlake Burial Ground SLI) – Direct Effects.	No mitigation required.	Not significant.
Non-Statutory Designated Sites (River Thames and Tidal Tributaries SMI, Kew Meadow Path SBI, North Sheen	Implementation of CEMP.	Not significant.

Issue	Mitigation Measures	Likely Residual Effect
and Mortlake Cemeteries SLI and Old Mortlake Burial Ground SLI) – Indirect Effects.		
Roosting Bats – Direct Effects.	Implementation of CEMP (Approved natural England EPS License).	Not significant.
Roosting Bats – Indirect Effects.	Implementation of CEMP.	Adverse
Foraging and Commuting Bats – Direct Effects.	No mitigation required.	Not significant.
Foraging and Commuting Bats – Indirect Effects.	Implementation of CEMP.	Not significant.
Birds – Direct Effects.	Implementation of CEMP.	Adverse
Birds – Indirect Effects.	Implementation of CEMP.	Not significant.
Completed Development		
Statutory Designated Sites (Richmond Park SAC, Richmond Park NNR and SSSI and Wimbledon Common SAC) – Direct Effects.	No mitigation required.	Not significant.
Statutory Designated Sites (Richmond Park SAC, Richmond Park NNR and SSSI and Wimbledon Common SAC) – Indirect Effects.	No mitigation required.	Not significant.
Non-Statutory Designated Sites (River Thames and Tidal Tributaries SMI, Kew Meadow Path SBI, North Sheen and Mortlake Cemeteries SLI and Old Mortlake Burial Ground SLI) – Direct Effects.	No mitigation required.	Not significant.
Non-Statutory Designated Sites (River Thames and Tidal Tributaries SMI, Kew Meadow Path SBI, North Sheen and Mortlake Cemeteries SLI and Old Mortlake Burial Ground SLI) – Indirect Effects.	No mitigation required.	Not significant.
Roosting Bats – Direct Effects.	Embedded mitigation inherent to the scheme design.	Beneficial.

Issue	Mitigation Measures	Likely Residual Effect
Roosting Bats – Indirect Effects.	Embedded mitigation inherent to the scheme design and implementation of Landscape and Environment Management Plan (LEMP).	Not significant.
Foraging and Commuting Bats – Direct Effects.	Embedded mitigation inherent to the scheme design.	Beneficial
Foraging and Commuting Bats – Indirect Effects.	Embedded mitigation inherent to the scheme design and LEMP.	Not significant.
Birds – Direct Effects.	Provision of peregrine nesting box, to be secured by planning condition.	Not significant.
Birds – Indirect Effects.	LEMP	Not significant.
Archaeology		
The Works		
Archaeological remains of national importance (medieval and post-medieval remains).	Implementation of a phased archaeological evaluation programme, following demolition and Site clearance, moving across the Site behind the demolition.	Following the implementation of appropriate mitigation measures, no further residual effects are anticipated. (Significant)
Archaeological remains from the pre-historic, Roman and Anglo-Saxon periods.	Implementation of further excavation work dependent upon the results of the evaluation recommended above.	Following the implementation of appropriate mitigation measures, no further residual effects are anticipated. (Not Significant)
Archaeological remains likely to have been previously truncated by existing development i.e. the Stag Brewery.		
Built Heritage		
The Works		
Demolition of historic fabric within the Site.	Undertaking of a programme of archaeological building recording prior to commencement of the Works.	Insignificant to direct, permanent, local, adverse effects of minor significance.

Issue	Mitigation Measures	Likely Residual Effect
Retention in-situ of the railway tracks, paving and moorings within the Site.	No mitigation required.	Insignificant.
Indirect effects upon the setting of heritage assets within and surrounding the Site arising from the demolition of existing modern brewery buildings and structures within the Site.	No mitigation required.	Insignificant to indirect, permanent, local, beneficial effects of minor to moderate significance.
Indirect effects upon the setting of heritage assets within and surrounding the Site arising from noise, vibration, dust and traffic associated with the Works.	Implementation of CEMP to limit and appropriately manage noise, vibration, dust and construction traffic associated with the Works. Implementation of appropriate easements around heritage assets to be retained during the demolition and slab removal works required to facilitate the Development.	Insignificant.
Completed Development		
Conversion of the Maltings building and a new building behind the retained façades of the former Hotel building and former Bottling Building.	Not applicable.	Insignificant to direct, long-term, local, adverse effect of minor significance.
Retention of part of the boundary wall.	Not applicable.	Insignificant to direct, permanent, local, adverse effect of minor significance.
Retention and improvement to the setting of the railway tracks, paving and moorings.	No mitigation required.	Direct, long-term, local beneficial effect of minor significance.
Retention and relocation of memorials.	No mitigation required.	Insignificant.
Retention and relocation of historic gates.	No mitigation required.	Insignificant.
Change of setting of the heritage assets within and surrounding the Site.	No mitigation required.	Insignificant to indirect, long-term, beneficial effects of minor significance.
Loss or change of historic landscape character along the River Thames.	Not applicable.	Insignificant to indirect, long-term, local, adverse effects of minor significance.

Issue	Mitigation Measures	Likely Residual Effect
Townscape and Visual		
The Works		
Townscape Character.	Implementation of CEMP to ensure good Site management, maintenance and housekeeping, and careful siting of construction machinery, including the use of Site hoardings and maintaining a clean, safe, pedestrian environment.	Temporary, short to medium term, local effects of major adverse significance would result to TCA7: Stag Brewery (within the Site). Surrounding TCAs would experience temporary, short to medium term, local, minor to moderate adverse effects in the vicinity of the Site.
Visual Amenity.		Local views would experience temporary, short to medium term, local effects, ranging from minor to major adverse significance depending on the angle and distance of view.
Completed Development		
Townscape Character.	Mitigation measures are inherent within the Development design, including the Landscape Strategy which provides enhanced riverside landscape with trees and indigenous plants and public squares with variety and colour.	Long-term, local effects of moderate, beneficial significance would result to TCA1: Mortlake (within the Site). Long-term, local effects of major, beneficial significance would result to TCA7: Stag Brewery (within the Site). Effects on surrounding TCAs would be insignificant to long-term, local and minor beneficial significance in the vicinity of the Site.
Visual Amenity.		The majority of local views would experience either insignificant or long term, local effects, ranging from minor to major beneficial significance depending on angle, range and context of view.

Issue	Mitigation Measures	Likely Residual Effect
		Road users on Thames Bank at Viewpoint location 2 would experience effects of minor adverse significance, however this would be temporarily in transit. Recreational users of the Thames Path National Trail at Viewpoint location 2 would experience long-term, local effects of moderate adverse significance.
Wind Microclimate		
The Works		
Wind conditions experienced by construction Site workers.	No mitigation required.	Insignificant.
Completed Development		
Thoroughfares.	No mitigation required.	Insignificant to long-term, local, beneficial and of moderate significance.
Entrances to buildings.	No mitigation required.	Insignificant to long-term, local, beneficial and of minor significance.
Possible entrances on the north-eastern corner of Building 19 (Location 3), western and south-eastern corners of Building 18 (Locations 6, 12 and 44), north-western corner of Building 15 (Location 109) and on the west façade at Building 16 (Location 40).	Proposed landscaping scheme.	Insignificant to long-term, local, beneficial and of minor significance.
Possible entrances on the south-eastern corner of Building 18 (Location 44).	Reserved matters application to either: <ul style="list-style-type: none"> • exclude a building entrance at this location; or • recess the building entrance; or • plant 3m to 5m tall trees or erect screens of at least 2m high on both sides of any entrance at Location 44. 	Insignificant.
Ground level amenity areas.	No mitigation required.	Insignificant.

Issue	Mitigation Measures	Likely Residual Effect
Ground level amenity seating (Locations 160, 162, 167 and 170).	Proposed landscaping scheme.	Insignificant.
Above ground amenity areas.	No mitigation required.	Insignificant.
Off-Site Receptors (including Mortlake Green, the tow path and within the River Thames).	No mitigation required.	Insignificant.
Daylight, Sunlight, Overshadowing and Light Pollution		
The Works		
<i>Demolition of existing buildings on-Site.</i>		
Daylight, sunlight and overshadowing to surrounding receptors.	No mitigation required.	Local, short to medium-term and of minor to moderate beneficial.
Light Pollution.	No mitigation required.	Insignificant.
<i>Construction of proposed buildings</i>		
		Insignificant.
Daylight to surrounding receptors.	Not applicable.	Local, long-term, adverse and of minor significance (Butler House, Vineyard Heights, 3-9 Richmond Road, Reid Court and Aynescombe Cottage). Local, long-term, adverse and of minor to moderate significance (Rann House, 31 Vineyard Path, 2 to 6 Williams Lane, Churchill Court and Jolly Gardeners). Local, long-term, adverse and of moderate to major significance (Boat Race House).
Sunlight to surrounding receptors.	Not applicable.	Insignificant.

Issue	Mitigation Measures	Likely Residual Effect
		Local, long-term, adverse and of minor significance (Boat Race House and Churchill Court)
Overshadowing (Surrounding amenity areas).	No mitigation required.	Insignificant.
Light Pollution.	No mitigation required.	Insignificant.
Completed Development		
Daylight to surrounding receptors.	Not applicable.	Insignificant. Local, long-term, adverse and of minor significance (Butler House, Vineyard Heights, 3-9 Richmond Road, Reid Court and Aynescombe Cottage). Local, long-term, adverse and of minor to moderate significance (Rann House, 31 Vineyard Path, 2 to 6 Williams Lane, Churchill Court and Jolly Gardeners). Local, long-term, adverse and of moderate to major significance (Boat Race House).
Sunlight to surrounding receptors.	Not applicable.	Insignificant. Local, long-term, adverse and of minor significance (Boat Race House and Churchill Court)
Overshadowing (surrounding amenity areas).	No mitigation required.	Insignificant.
Light Pollution.	No mitigation required.	Insignificant.

Issue	Mitigation Measures	Likely Residual Effect
Greenhouse Gases		
The Works and Completed Development		
GHG Emissions.	Not applicable.	Indirect, permanent, significant, adverse effect.