
12.0 RESIDUAL IMPACTS AND CONCLUSIONS

12.1 This Chapter provides a tabulated summary of the identified mitigation measures and residual impacts for the following Technical Chapters within this ES:

- Built Heritage, Townscape and Visual Impact Assessment (Volume 3);
- Archaeology (Volume 1, Chapter 4.0);
- Air Quality (Volume 1, Chapter 5.0);
- Noise and Vibration (Volume 1, Chapter 6.0);
- Ground Conditions and Contamination (Volume 1, Chapter 7.0);
- Ecology (Volume 1, Chapter 8.0);
- Socio-economic (Volume 1, Chapter 9.0); and
- Climate Change (Volume 1, Chapter 10.0).

12.2 This Chapter is intended to provide an overview only and for more detailed analysis, including details of the baseline, and unmitigated impacts at the construction and operational phase for each technical area, reference should be made to the relevant Chapters within this ES.

12.3 The cumulative and in-combination impacts are summarised separately in Chapter 11.0: Cumulative Impacts.

12.4 Tables 12.1 – 12.8 summarise the mitigation/enhancement and residual impacts identified within the technical Chapters of this ES. These tables provide confirmation of the following:

- Proposed mitigation/enhancement; and
- The residual effects following implementation of mitigation.

12.5 As is summarised in the tables below, where the proposed development has the potential to generate environmental impacts, a range of mitigation measures have been recommended to address any significant negative impacts that may occur during both the construction and operation phases.

Table 12.1 Heritage, Townscape and Visual

Heritage, Townscape and Visual (Volume 3)	
Mitigation	Residual Impacts
<p>Construction</p> <p>Other than the use of hoarding where appropriate during the demolition and construction, no further mitigation is considered necessary. The visual effects of construction activity are unavoidable, temporary and commonplace in London.</p> <p>Operation</p> <p>No additional mitigation has been identified beyond that already embedded into the designs.</p>	<p>Construction</p> <p>Residual construction impacts will be temporary in nature and are considered to range from:</p> <ul style="list-style-type: none"> • Heritage – Negligible (not significant) to Minor to Moderate Adverse (not significant) • Townscape – Negligible (not significant) to Moderate Adverse (significant) • Visual – No change (not significant) to Moderate Adverse (significant) <p>Operation</p> <p>Residual operational impacts are considered to range from:</p> <ul style="list-style-type: none"> • Heritage – Negligible (not significant) to Minor Neutral (not significant) • Townscape – Negligible (not significant) to Moderate Beneficial (significant) • Visual – Negligible (not significant) to Moderate Beneficial (significant)

Table 12.2 Archaeology

Chapter 4.0 – Archaeology (Volume 1)	
Mitigation	Residual Impacts
<p>Construction</p> <p>The implementation of the programme of archaeological work at the site will result in the preservation by record of archaeological deposits within the site.</p> <p>The implementation of a programme of public benefit and outreach will also provide public benefits that offset the impacts of the scheme.</p> <p>Operation</p> <p>No significant adverse effects have been identified therefore no mitigation measures are required.</p>	<p>Construction</p> <p>The residual impact of construction on archaeological remains of local to regional importance, following the implementation of appropriate and best practice mitigation, is considered to be Negligible (not significant).</p> <p>Operation</p> <p>None.</p>

Table 12.3 Air Quality

Chapter 5.0 – Air Quality (Volume 1)	
Mitigation	Residual Impacts
<p>Construction</p> <p>Mitigation measures for dust follow the IAQM guidance. These measures will be incorporated into a CEMP and approved by Richmond Council prior to commencement of any work on site.</p> <p>Operation</p> <p>No mitigation is required for the change in pollution concentrations as a result of emissions from road vehicles generated by the operation of development.</p>	<p>Construction</p> <p>The residual impact of construction dust effects on nearby receptors, following the implementation of appropriate and best practice mitigation, is considered to be Negligible (not significant).</p> <p>Operation</p> <p>The proposed development will have a Negligible (not significant) effect on air quality.</p>

Table 12.4 Noise and Vibration

Chapter 6.0 – Noise and Vibration (Volume 1)	
Mitigation	Residual Impacts
<p>Construction</p> <p>Construction noise levels are calculated to remain below the 75 dB LAeq,T criteria noise level for the majority of the construction and would typically fall below LOAEL.</p> <p>Operation</p> <p><i>Residential Dwellings</i></p> <p>The residential area is calculated to fall below the BS 8233 criteria with typical insulated double glazing and attenuated trickle ventilation. Maximum levels remain level the WHO criteria for sleep disturbance during the night-time with the incorporation of sufficient mitigation measures.</p> <p><i>Building Services Plant</i></p> <p>Fixed plant will be specified during the detailed design state. All plant will be specified such that the rating levels at the nearest residential receptors fall below the identified background sound levels.</p> <p><i>Road Traffic Noise</i></p> <p>The data indicates a minimal change on the local road network.</p>	<p>Construction</p> <p>Construction Noise and Vibration are likely to be Moderate Adverse (significant) in the short term, with the majority of activities being Negligible (not significant).</p> <p>Operation</p> <p><i>Residential Dwellings</i></p> <p>The residual noise effect is considered to be Negligible (not significant) following incorporation of suitable mitigation.</p> <p><i>Building Services Plant</i></p> <p>The effects cannot be quantifiably assessed, but any proposed plant will be specified such that the resulting effect is Negligible (not significant).</p> <p><i>Road Traffic Noise</i></p> <p>The assessment of the change in traffic flows indicates that the proposed development will have a Negligible effect (not significant) on surrounding road links.</p>

Table 12.5 Ground Conditions and Contamination

Chapter 7.0 – Ground Conditions and Contamination (Volume 1)	
Mitigation	Residual Impacts
<p>Construction</p> <ul style="list-style-type: none"> • Incorporate mitigation measures in CPP and EMP; • Use appropriate PPE/RPE combined with good hygiene and housekeeping; • Dust management suppression; • Boundary monitoring; • Stockpile monitoring; • Storage of all fuels and raw/ waste materials in line with best practice with all relevant environmental permits; • Contingency action plans if contamination is discovered; and • Maximise re-use of materials on site through appropriate assessment and development of Materials Management Plan. <p>Operation</p> <ul style="list-style-type: none"> • Reactive remediation strategy for any unexpected contamination to remove/treat/encapsulate during earthworks. • Placement of clean topsoil for soft cover areas. • Appropriate design of services and SUDs preventing formation of new pathways. • Appropriate design for all hardstanding areas, such as car parks, roads and private drives and including appropriate design and maintenance of interceptors. 	<p>Construction</p> <p>The following residual impacts were predicted following the implementation of mitigation:</p> <ul style="list-style-type: none"> • Impacts to construction workers - Negligible (not significant) • Impacts to surrounding site users – Negligible (not significant) • Impacts on controlled waters - Negligible (not significant) • Impacts on landfill – Negligible (not significant) <p>Operation</p> <p>The following residual impacts were predicted following the implementation of mitigation:</p> <ul style="list-style-type: none"> • Impacts to future site users – Negligible (not significant) • Impacts on controlled waters – Negligible (not significant) • Impacts on soil and land quality – Negligible (not significant)

Table 12.7 Ecology

Chapter 8.0 – Ecology (Volume 1)	
Mitigation / Enhancement	Residual Impacts
<p>Construction</p> <ul style="list-style-type: none"> Impacts to non-statutory designated sites will be mitigated through the implementation of detailed CEMP including measures to control dusts (secured by planning condition). The existing habitats will largely be replaced as part of the landscaping design proposals. Impacts shall be mitigated through the implementation of the CEMP, including measures to control noise, dust and pollutants (secured by planning condition). Impacts to badgers, hedgehogs and invertebrates will be mitigated through the implementation of construction phase protection measures (in the detailed CEMP). Updated surveys prior to the commencement of Phase 2 and 3 will mitigate impacts to bats. To protect birds, clearance/demolition of the vegetation and buildings will be undertaken outside of bird nesting season or after a suitably qualified ecologist has confirmed absence. <p>Operation</p> <ul style="list-style-type: none"> The landscaping design and implementation of the EMP will mitigate impacts to the habitats and invertebrates on site. New bat roosting features shall be placed in buildings and trees on site to compensate and enhance roosting opportunities. Lighting strategy shall be designed sensitively to protect bats present on site. Landscaping provides additional nesting and foraging opportunities for bird species in the area, including Section 41/ BAP species. 	<p>Construction</p> <ul style="list-style-type: none"> Statutory Designated Sites – Negligible (not significant) Non-statutory Designated Sites – Negligible (not significant) Habitats – Short-term Negative (Significant), within development footprint), Negligible (outside development footprint) Badger – Negligible (not significant) Bats – Short-term Negative (Significant), Foraging), Negligible (Roosting) Birds – Short-term Negative (Significant), Native species), Permanent Positive (Significant), Invasive non-native species) Hedgehog – Negligible (not significant) Invertebrates – Negligible (not significant) <p>Operation</p> <ul style="list-style-type: none"> Statutory Designated Sites – Insignificant (not significant) Non-statutory Designated Sites – Negligible (not significant) Habitats – Permanent Positive (significant) Badger – Negligible (not significant) Bats – Permanent Positive (significant) Birds – Permanent Positive (significant) Hedgehog – Negligible (not significant) Invertebrates – Permanent Positive (significant)

Table 12.8 Socio-Economic

Chapter 9.0 – Socio-economic (Volume 1)	
Mitigation / Enhancement	Residual Impacts
<p>Construction Implementation of a Local Employment Agreement secured through Section 106 Agreement.</p> <p>Operation Local CIL payments towards school capacity and community facilities.</p>	<p>Construction</p> <ul style="list-style-type: none"> • Employment- Moderate Positive (significant) • Housing – Negligible (not significant) <p>Operation</p> <ul style="list-style-type: none"> • Housing – Moderate Positive (significant) • Employment – Minor Positive (not significant) • Additional residential spending – Moderate Positive (significant) • Nursery capacity – Minor Negative (not significant) • Primary School capacity – Negligible (not significant) • Secondary School capacity – Negligible (not significant) • Primary healthcare – Minor Negative (not significant) • Open space and play space – Minor Positive (not significant) • Community facilities – Minor Positive (not significant)

Table 12.9 Climate Change

Chapter 10.0 – Climate Change (Volume 1)	
Mitigation / Enhancement	Residual Impacts
<p>Construction</p> <p>Mitigation is embedded into the construction processes and design through the implementation of a CEMP and a Travel Plan, and by the selection of sustainable materials including low embodied carbon and through the designing out of waste.</p> <p>Operation</p> <p>Adaptation measures have been incorporated into the design of the scheme to increase resilience to climate change including:</p> <ul style="list-style-type: none"> • Shading, passive ventilation and mechanical ventilation to avoid overheating in homes; • Resilient and biodiverse planting to minimise soft landscaping failure and associated loss of services; and • Water efficient sanitaryware to minimise water shortages for public use and landscaping. <p>In addition, the greenhouse gas emissions from the proposed development will be minimised through a number of measures including:</p> <ul style="list-style-type: none"> • Fabric first approach, passive design measures, use of Air Source Heat Pumps and Photovoltaics to minimise operational energy emissions; and • The implementation of a Travel Plan and Secure Cycle Storage for minimise operational transports emissions. 	<p>Construction</p> <p>Greenhouse gas emissions from construction (materials and activities) – Minor Negative (not significant).</p> <p>Operation</p> <ul style="list-style-type: none"> • Overheating in homes – Negligible for 2030s, Negligible to Minor Negative for 2060s and 2090s (not significant). • Soft landscaping failure and associated loss of services – Negligible for 2030s and 2060s, Negligible to Minor Negative for 2090s (not significant). • Water shortages for public use and landscaping – Negligible for 2030s, 2060s and 2090s (not significant). • Operational Energy Emissions – Positive (significant). • Operational Transport Emissions – Minor Negative (not significant).