

12 RESIDUAL EFFECTS AND MITIGATION

Introduction

12.1 This chapter summarises the additional mitigation and enhancement measures identified in the technical assessments of ES Volume 1 Chapters 6-10 and ES Volume 2 Chapter 1 and 2 and provides a summary of the residual effects and the likely significant environmental effects attributed to the proposed development.

Additional Mitigation and Enhancement

12.2 As set out in Chapter 2: EIA Process and Methodology, the aim of an EIA is to develop measures to prevent, reduce and mitigate the significant adverse environmental effects of a project and to enhance any beneficial effects.

12.3 Within each of the technical assessments, the need for additional mitigation measures has been considered to prevent, reduce or mitigate likely significant adverse effects as far as reasonably possible. In addition, opportunities for environmental enhancement have been explored where practicable. The proposed additional mitigation and enhancement measures are in addition to the embedded design and operational mitigation measures (as described in ES Chapter 4: Proposed Development Description), and standard construction mitigation measures (as described in ES Chapter 5: Demolition and Construction Environmental Management), which have been considered within the technical assessments.

12.4 Table 12.1 presents a summary of the additional mitigation and enhancement measures categorised under the following stages:

- Demolition and Construction; and
- Completed Development.

12.5 Reference should be made to individual technical chapters for more detail.

Table 12.1: Summary of Proposed Additional Mitigation and Enhancement Measures	
Topic	Proposed Additional Mitigation and Enhancement Measures
Demolition and Construction	
Socio-Economics	None
Air Quality	None
Noise and Vibration	None
Wind	None
Daylight, Sunlight, Overshadowing and Solar Glare	None
Townscape and Visual	None
Built Heritage	None
Completed Development	
Socio-Economics	CIL payment to be used towards the extension of an existing, or provision of a new school(s) in the local area to be advised by Reading Local Education Authority (LEA)

Table 12.1: Summary of Proposed Additional Mitigation and Enhancement Measures	
Topic	Proposed Additional Mitigation and Enhancement Measures
Air Quality	None
Noise and Vibration	• Commitment to undertake further detailed design to avoid potential for noise effects from plant and entertainment uses. • Implementation of signage to minimise the idling of delivery vehicles close to surrounding residential receptors
Wind	Mitigation would be explored at the detailed design stage. This would include: • articulation of the building scale, footprint and mass of the proposed development; • elevational treatments including fins, canopies, balustrades, arcades and screens to slow and redirect wind flow; • recessed building entrances to provide an area of shelter; • screening in the form of sculptures and porous screens to reduce the energy the wind contains; and • landscaping and planting to provide shelter and reduce exposure and break up air flow.
Daylight, Sunlight and Overshadowing and Solar Glare	Non-reflective materials to reduce impacts of solar glare
Townscape and Visual	Adherence to commitments in the Design Code in regards to high-quality design and the delivery of a landmark development
Built Heritage	None

Residual Effects

12.6 Reference should be made to ES Volume 1 Chapters 6-10 and ES Volume 2 Chapter 1 and 2 for a detailed description of residual and likely significant environmental effects.

Demolition and Construction Residual Effects

12.7 Table 12.2 summarises the likely residual effects which have been identified by the individual technical assessments as a result of the construction of the proposed development. Significant effects are shown in **bold**.

Table 12.2: Residual Effects during Proposed Development Demolition and Construction Stage				
Topic Area	Description of Residual Effect	Scale of Effect	Adverse/ Beneficial	Duration of Effect
Socio-economics	Generation of construction employment	Major	Beneficial	Short Term
	Local expenditure	Major	Beneficial	Short Term
Air Quality	Dust Soiling and PM ₁₀ due to demolition and construction works	Negligible	Neutral	Medium Term
	NO ₂ , PM ₁₀ and PM _{2.5} due to vehicle	Negligible	Neutral	Medium Term

Table 12.2: Residual Effects during Proposed Development Demolition and Construction Stage					
Topic Area	Description of Residual Effect		Scale of Effect	Adverse/Beneficial	Duration of Effect
	emissions				
Noise and Vibration	Demolition and Construction noise	Receptor 9 (31-51 Vastern Road)	Moderate	Adverse	Medium Term
		Receptor 10 (SSE)	Minor	Adverse	Medium Term
		All other receptors	Negligible	Adverse	Medium Term
	Demolition and Construction Traffic Noise at all receptors		Negligible	Adverse	Medium Term
	Demolition and Construction Vibration at all receptors		Negligible	Adverse	Medium Term
Wind	Wind conditions suitable for strolling and walking		Negligible	N/A	Short Term
Daylight, Sunlight, Overshadowing and Solar Glare	Temporary change in daylight and sunlight levels at surrounding residential receptors		Negligible – Moderate	Neutral	Short Term
	Change in solar glare levels		Negligible - Moderate	Neutral	Short Term
Townscape and Visual	<i>Townscape Receptors</i>				
	Detraction from the application site character		Moderate	Adverse	Short Term
	Detracting from the character of the Conservation Area - CA 22: Vastern Road		Moderate	Adverse	Short Term
	Slight deterioration in the setting of the Conservation Area	CA 12: Caversham Road, CA 23: King's Meadow	Minor	Adverse	Short Term
		CA 11: Napier Road	Negligible	Adverse	Short Term
	No alteration to any of the key characteristics of the CA 1: Station Hill		Minor	Adverse	Short Term
	<i>Views and Visual Receptors</i>				
	Limited deterioration to the existing view: Site Context Photograph 01		Moderate	Adverse	Short Term
	Limited deterioration to the existing view: Site Context Photograph 02		Minor - Moderate	Adverse	Short Term
	Occupation of a greater area of the skyline in views: Site Context Photograph 03		Moderate	Adverse	Short Term
	Interruption of views of recognisable townscape elements: Site Context Photograph 04		Moderate	Adverse	Short Term
	Detraction from the visual amenity: Site Context Photograph 05		Moderate	Adverse	Short Term
	Introduction of additional element of		Minor	Adverse	Short Term

Table 12.2: Residual Effects during Proposed Development Demolition and Construction Stage				
Topic Area	Description of Residual Effect	Scale of Effect	Adverse/Beneficial	Duration of Effect
	clutter into views: Site Context Photograph 25			
Built Heritage	Visual and aural disruption to the setting of the locally listed building and the appreciation of its heritage significance caused by demolition and construction activity	Negligible	Adverse	Short Term
	Visual and aural disruption to the setting of the listed building and the appreciation of its heritage significance caused by demolition and construction activity – All Receptors	Negligible	Adverse	Short Term

12.8 During the demolition and construction stage, significant beneficial effects would be likely in respect of generation of construction employment and local expenditure.

12.9 During the demolition and construction stage, significant adverse effects would be likely in respect of the following:

- **Noise and Vibration** - Demolition and construction noise on receptor 9 (31-51 Vastern Road – residential); and
- **Townscape and Visual** - Change to the character of the application site, the conservation area (CA 22: Vastern Road), and change to views (Site Context Photographs 1-5 and 25).

Completed Development Residual Effects

12.10 Table 12.3 summarises the likely residual effects which have been identified by the individual technical assessments as a result of the operation of the proposed development. Significant effects are shown in bold.

Table 12.3: Residual Effects of the Completed Proposed Development				
Topic Area	Residual Effect	Scale of Effect	Adverse/Beneficial	Duration of Effect
Socio-economics	No residential dwellings delivered	Negligible	Beneficial	Long Term
	Local expenditure	Major	Beneficial	Long Term
	Net loss of employment on-site	Minor	Adverse	Long Term
	Economic output	Moderate	Beneficial	Long Term
	Demand for GP provision	Negligible (following mitigation in form of CIL payment)	Adverse	Long Term
	Demand for dentist provision	Minor	Adverse	Long Term
	Demand on early years school places	Negligible	Beneficial	Long Term
	Demand on primary school places	Negligible	Beneficial	Long Term
	Demand on secondary school places	Negligible	Beneficial	Long Term
	Demand for open space	Negligible	Beneficial	Long Term

Table 12.3: Residual Effects of the Completed Proposed Development					
Topic Area	Residual Effect		Scale of Effect	Adverse/ Beneficial	Duration of Effect
	Impact on levels of deprivation		Negligible	Beneficial	Long Term
	Impact on crime		Negligible	Beneficial	Long Term
Air Quality	NO ₂ , PM ₁₀ and PM _{2.5} effects due to vehicle emissions		Slight	Adverse	Long Term
	NO ₂ , PM ₁₀ and PM _{2.5} effects due to local air quality		Negligible	Neutral	Long Term
Noise and Vibration	Changes in traffic noise		None	N/A	Long Term
	Noise from fixed plant installations		Negligible	Adverse	Long Term
	Noise from servicing vehicle movements		Negligible	Adverse	Long Term
	Noise from servicing vehicle idling		Negligible	Adverse	Long Term
Wind	Off-Site Thoroughfares (target conditions suitable for walking/strolling).	Vastern Road	Negligible to Minor	Adverse	Long Term
		Caversham Road	Negligible to Minor	Adverse	Long Term
		Troopers Port Way	Negligible to Minor	Adverse	Long Term
		Brighams Mead	Minor	Adverse	Long Term
	Proposed Development Thoroughfares (target conditions suitable for walking/strolling)	Thoroughfare 1, 2 and 3	Negligible to Moderate	Adverse	Long Term
		Thoroughfare 4	Minor	Beneficial/Adverse	Long Term
	Pedestrian Crossings		Negligible to Minor	N/A Beneficial	Long Term
	Proposed Development on-site building entrances		Negligible to Major	N/A Major	Long Term
	Off-Site Entrances (target conditions suitable for standing)	Entrance to a neighbouring property measurement location 38 (across Caversham Road)	Minor	Adverse	Long Term
		Entrance to the railway station	Negligible	Adverse	Long Term
		Entrance to a neighbouring property measurement location 45 (across Vastern	Minor to Moderate	Beneficial	Long Term

Table 12.3: Residual Effects of the Completed Proposed Development					
Topic Area	Residual Effect		Scale of Effect	Adverse/ Beneficial	Duration of Effect
		Road)			
	Off-site Bus Stops (target conditions suitable for standing)		Minor	Adverse	Long Term
	Off-Site Amenity Area (target conditions suitable for sitting to standing)		Minor to Moderate	Adverse	Long Term
	Proposed Development Amenity (target condition range of sitting to standing)	Ground Floor	Minor to Major	Beneficial / Adverse	Long Term
		Roof top	Minor to Major	Beneficial / Adverse	Long Term
	Strong winds at ground level and roof level		Major	Adverse	Long term
Daylight, Sunlight, Overshadowing and Solar Glare	Reduction in access to daylight and sunlight - 17-49 Vastern Road (when assessed based on BRE criteria)		Moderate	Adverse	Long Term
	Reduction in access to daylight and sunlight - 17-49 Vastern Road (when assessed based on alternative targets)		Minor-Moderate	Adverse	Long Term
	Reduction in access to daylight and sunlight - 87-89 Caversham Road, 91 Caversham Road and 93-97 Caversham Road		Negligible	Adverse	Long Term
	Sunlight availability within amenity space		Negligible	N/A	N/A
	Creation of Solar Glare		Minor	Adverse	Long Term
Townscape and Visual	Townscape Receptors				
	Detraction of the application site character		Moderate	Beneficial	Permanent
	Change to CA 22: Vastern Road		Moderate	Beneficial	Permanent
	Change to CA 12: Caversham Road		Negligible	Beneficial	Permanent
	Change to the setting of the Conservation Area	CA 23: King's Meadow, CA 1: Station Hill	Minor	Beneficial	Permanent
		CA 11: Napier Road	Negligible	Beneficial	Permanent
	Views and Visual Receptors				

Table 12.3: Residual Effects of the Completed Proposed Development					
Topic Area	Residual Effect		Scale of Effect	Adverse/ Beneficial	Duration of Effect
	Change to view	Site Context Photograph 01 - 05: View south from Vastern Road/Lynmouth Road, Site Context Photograph 02	Negligible	Beneficial	Permanent
		Site Context Photograph 25: View North from Station Square	Minor	Adverse	Permanent
Built Heritage	Alteration in the setting of no 55 Vastern Road (locally listed building)		Minor	Adverse	Permanent
	Alteration in the setting of the listed building – Great Western House		Minor	Adverse	Permanent
	Alteration in the setting of the listed building – Main building of Reading General Station		Moderate	Adverse	Permanent
	Alteration in the setting of the listed building – Remaining Receptors		Negligible	Adverse	Permanent

12.11 The completed development would give rise to significant beneficial effects in respect of economic output and local expenditure. The completed development would also give rise to moderate beneficial effects in respect of the application site character and change to Conservation Area 22.

12.12 The completed development would give rise to the following significant adverse effects:

- **Wind Microclimate** - Where the pedestrian comfort assessment identified minor to major adverse effects, these are considered to be significant. In addition, all instances of strong winds exceeding the 15m/s threshold are considered to be major adverse and significant.
- **Daylight, Sunlight, Overshadowing and Solar Glare** - The effects of the proposed development on daylight to 17-49 Vastern Road would be significant when assessed against the BRE Targets. When assessed against the alternative targets, the effects are not considered to be significant.
- **Built Heritage** – The effects on the alteration of the setting of the listed building – Great Western House are considered to be moderate adverse and permanent.