Rev	Date	Details	Prepared by	Checked by	Approved by
1	January 2013	Working Draft	Various	Kai Solheim Environmental Specialist	Colin Bush Associate
2	February 2013	Draft for Comment	Various	Kai Solheim Environmental Specialist	Colin Bush Associate
3	March 2013	Final for Submission	Various	Kai Solheim Environmental Specialist	Colin Bush Associate

Limitations

URS Infrastructure & Environment UK Limited ("URS") has prepared this Report for the sole use of **Crossrail Limited** ("Client") in accordance with the Agreement under which our services were performed. No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by URS.

The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by URS has not been independently verified by URS, unless otherwise stated in the Report.

The methodology adopted and the sources of information used by URS in providing its services are outlined in this Report. The work described in this Report was undertaken between August 2012 and March 2013 and is based on the conditions encountered and the information available during the said period of time. The scope of this Report and the services are accordingly factually limited by these circumstances.

Where assessments of works or costs identified in this Report are made, such assessments are based upon the information available at the time and where appropriate are subject to further investigations or information which may become available.

URS disclaim any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to URS' attention after the date of the Report.

Certain statements made in the Report that are not historical facts may constitute estimates, projections or other forward-looking statements and even though they are based on reasonable assumptions as of the date of the Report, such forward-looking statements by their nature involve risks and uncertainties that could cause actual results to differ materially from the results predicted. URS specifically does not guarantee or warrant any estimate or projections contained in this Report.

Copyright

© This Report is the copyright of URS Infrastructure & Environment UK Limited. Any unauthorised reproduction or usage by any person other than the addressee is strictly prohibited.

URS

Scott House, Alençon Link, Basingstoke Hampshire RG21 7PP, United Kingdom

Telephone: +44(0)1256 310200 Fax: +44(0)1256 310201

www.ursglobal.com

TABLE OF FIGURES TABLE OF CONTENTS

TABLE OF ABREVIATIONS

GLOSSARY OF KEY TERMS

CHAPTERS

1 INTRODCUTION 2 EIA METHODOLOGY **3 PLANNING POLICY CONTEXT 4 ALTERNATIVES AND DESIGN EVOLUTION 5 THE PROPOSED DEVELOPMENT 6 CONSTRUCTION** 7 AIR QUALITY 8 NOISE AND VIBRATION **9 WASTE AND RECYCLING 10 DAYLIGHT AND SUNLIGHT** 11 CUMULATIVE IMPACT ASSESSMENT **12 RESIDUAL IMPACT ASSESSMENT**

TABLE OF FIGURES

Introduction

Figure 1-1 Application Site Location and Context Figure 1-2 Application Site Red Line Boundary Figure 1-3 View of the Proposed Development

EIA Methodology

Figure 2-1 Location of Sensitive Receptors Figure 2-2 Location of Cumulative Schemes

Planning Policy Context

No Figures

Alternatives and Design Evolution

Figure 4-1 Aerial View of the Application Site Location Figure 4-2 Urban Scale of the Application Site within the Surrounding Area Figure 4-3 Summary of Design Principles Governing Height and Massing Figure 4-4 Reduction in Height following November 2011 Figure 4-5 Newest Form of the Proposed Development Figure 4-6 Pedestrian Route which will be improved

The Proposed Development

Figure 5-1 Plan view of the Proposed Development showing Access Points Figure 5-2 East-West Section through the Proposed Development Figure 5-3 Ground Floor Plan

Construction

No Figures

Air Quality Figure 7-1 Wind Rose Figure 7-2 Location of Modelled Receptors and Indicative Application Site Boundary

Noise and Vibration Figure 8-1 Application Site Map - Application Site Boundary, Receptors, and Measurement Positions

Waste and Recycling Figure 9-1 Ground Floor Plan

Daylight and Sunlight No Figures

Cumulative Impact Assessment Figure 11-1 Location of Proposed Schemes for Cumulative Assessment

Residual Impact Assessment No Figures

TABLE OF	ABBREVIATIONS	E	
A ADF ADMS ALGs APSH AQAP AQIA AQMA ASHP	Annual Average Daily Traffic Average Daylight Factor Atmospheric Dispersion Modelling System Association of London Government Annual Probable Sunlight Hours Air Quality Action Plan Air Quality Impact Assessment Air Quality Impact Assessment Air Quality Management Area Air Source Heat Pumps	EA EHO EIA EMP EPA EPUK EQS ERM ES EU	Environment Agency Environmental Health Officer Environmental Impact Assessment Environmental Management Plan Environmental Protection Act Environmental Protection UK Environmental Quality Standards Environmental Resource Management Environmental Statement European Union
ATL	Action Trigger Levels	F	
В		FRA	Flood Risk Assessment
BMW BPM BRE BREEAM BS <i>C</i>	Biodegradable Municipal Waste Best Practicable Means Building Research Establishment Building Research Establishment Environmental Assessment Method British Standards	<i>G</i> GEA GI GIA GLA GP3 GSHP	Gross External Area Ground Investigations Gross Internal Area Greater London Authority Groundwater Protection: Policy and Practice Ground Source Heat Pump
CA CAFE CAZ CCS CEMP CFD CfSH CHP	Conservation Area Clean Air for Europe Central Activities Zone Considerate Contractors Scheme Construction Environmental Management Plan Computational Fluid Dynamics Code for Sustainable Homes Combined Heat and Power	GSHP HA HGV HMSO /	Ground Source Heat Pump Highways Agency Heavy Goods Vehicle Her Majesty's Stationary Office
CIBSE CLA CO CO2 CoPA CPD CRTN	Chartered Institute of Building Services Engineers Central London Area Carbon Monoxide Carbon Dioxide Control of Pollution Act Camden Planning Guidance Calculation of Road Traffic Noise	IAQM IEA IEMA L LAPPCs	Institute of Air Quality Management Institute of Environmental Assessment Institute of Environmental Management and As Local Authority Pollution Prevention Controls
D dB DCLG DCMS DECS DEFRA DETR DF DF DF DLR DMRB DoE	Decibels Department for Communities and Local Government Demolition and Construction Method Statement Directorate of Environmental and Consumer Services Department for Environment Food and Rural Affairs Department of the Environment, Transport and Regions Daylight Factors Department for Transport Docklands Light Railway Design Manual for Roads and Bridges Department of the Environment	LAITOS LAQM LAQM TG LBC LCA LCT LDF LEZ LOAEL LUL LZC <i>M</i> m ² m	Local Air Quality Management Local Air Quality Management Technical Guide London Borough of Camden Landscape Character Area Landscape Character Type Local Development Framework Low Emission Zone Lowest Observable Adverse Effect Level London Underground Limited Low or Zero Carbon

iii

d Assessment

auide

Ν		Т	
NE NGR NLJWS NLWA NLWP	Natural England National Grid Reference North London Joint Waste Strategy North London Waste Authority North London Waste Plan	TA TfL THVIA TWUL	Transport Assessment Transport for London Townscape, Heritage and Visual Impact Assessment Thames Water Utilities Limited
NLWPP NMR NO2	North London Waste Prevention Plan National Monuments Record Nitrogen Dioxide	U UDP UK	Unitary Development Plan United Kingdom
NO _X NOEL NPPF	Nitrogen Oxide No Observed Effect Level National Planning Policy Framework	UKPN	United Kingdom Power Networks
NPPF –TG NPSE	National Planning Policy Framework – Technical Guidance Noise Policy Statement for England	V VDV	Vibration dose values
NSCA NSig NTS	National Society for Clean Air Non-Significant impacts Non-Technical Summary	VSC	Vertical Sky Component
	Non-recimical Summary	W	
O ODPM OH & S	Office of the Deputy Prime Minister Occupational Health and Safety	WAC WEEE WFD	Waste Acceptance Criteria Waste Electrical and Electronic Equipment Water Framework Directive
OPA OS	Outline Planning Application Ordnance Survey	Ζ	
OSD	Over Station Development	ZVI	Zone of Visual Influence
Ρ			
PAH PCBs PM ₁₀ PPE PPG PPS PPV PSH PSig PTAL	Polycyclic aromatic hydrocarbons Polychlorinated biphenyl Particulate Matter Personal Protective Equipment Planning Policy Guidance Planning Policy Statement Peak Particle Velocity Probable Sunlight Hours Significant Impacts of particular important Public Transport Accessibility Level		
R			
REC S	Resource and Environmental Consultants Ltd		
SAM SGVs Sig SLA SOAEL SPD SPG SPZ SWMP	Scheduled Ancient Monument Soil Groundwater Values Significant impacts Special Landscape Area Significant Observed Adverse Effect Level Supplementary Planning Document Supplementary Planning Guidance Source Protection Zone Site Waste Management Plan		

GLOSSARY OF KEY TERMS

Key Term	Description
'A' Weighted Decibel	Internationally accepted unit for most noise measurement and which represents the sound pressure level weighted to correspond to the frequency response of the human ear. A difference of 3dB (A) may just be noticeable and a difference of 10dB (A) represents a doubling or halving of subjective loudness.
Ambient	Surrounding. For noise, for example, it is the totally encompassing sound in a given situation at a given time usually composed of sound from many sources near and far.
Baseline	The situation against which the potential impacts due to the proposed development are assessed.
BREEAM	Building Research Establishment Environmental Assessment Method. Widely used means of reviewing and improving the environmental performance of buildings.
Cumulative Impacts	Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions.
Decibel	Logarithmic ratio used to relate sound pressure level to a standard reference level.
"Do Nothing" Scenario	A theoretical future scenario which defines the situation that would exist without implementation of the proposed development. This forms the future baseline against which the "With Development" Scenario can be assessed.
Dust	A mixture of particles which typically range in size between 1-75 μm in diameter.
Environmental Impact Assessment	A systematic means of assessing a development project's likely significant environmental effects before an application is made for development consent.
Environmental Statement	Report in which the process and results of an Environmental Impact Assessment is documented.
Fugitive Emissions	Substances that are not emitted to air in a controlled manner, through a stack, vent or exhaust pipe, for example.
Impact	A physical or measurable change to the environment attributable to the project.
LA90(T)	The LA90 is the A-weighted sound level which is exceeded for 90% of a time period T.
LAeq(T)	Equivalent continuous sound level is a notional steady sound level which would cause the same A-weighted sound energy to be received as that due to the actual and possibly fluctuating sound over a period of time (T). It can also be used to relate periods of exposure and noise level. Thus, for example, a halving or doubling of the period of exposure is equivalent in sound energy to a decrease or increase of 3dB(A) in the sound level for the original period.
Landscape Character Areas	Areas of landscape that have a broadly homogeneous pattern of topography and drainage, vegetation cover, settlement, land use and visual structure.

Key Term	Description
Mitigation Measures	Actions proposed to moderate beneficial impacts arising from th development.
Non-Technical Summary	A report which briefly describes Environmental Statement in a technical jargon and phraseology
Particulate Matter (PM ₁₀)	Particulate matter less than diameter. Have the potential to system and reach the lungs.
Receptors	People (both individually and cc systems they support.
Scoping	An exercise undertaken to deterr in an Environmental Statement.
Scoping Opinion	The formal view of the responsi and issues to be considered Assessment.
Scoping Report	The document prepared by the approach to the Environmental range of topics and issues to be a
Screening Opinion	The formal view of the response Environmental Impact Assessme
Significance Criteria	These define the significance magnitude of the impact and the
Sound Level Meter	An instrument for measuring the
Spoil	Excavated material which can material such as rock etc.
Surface Water Run-off	Water which travels across the soil.
"With Development" Scenario	The future situation incorporating
Zone of Visual Influence	The area within which a prop influence or effect on visual amer

adverse impacts and to enhance he whole or specific elements of the
s the main points discussed in the clear manner without the use of
10 micrometres in aerodynamic pass through the human respiratory
ommunally) and the socio-economic
mine which elements will be covered
ible authority on the range of topics of by the Environmental Impact
applicant setting out the proposed Impact Assessment, including the addressed.
nsible authority on the need for an ent to be undertaken.
of the effect, as a factor of the sensitivity of the receptor.
sound pressure level.
be either topsoil, subsoil or other
ground rather than seeping into the
the proposed development.
posed development may have an nity.